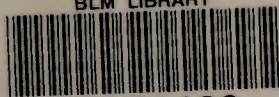


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Soil Survey of Lander County, Nevada, South Part (Volume II)



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Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, seed, forage, fiber, and oilseed crops. It may be cultivated land, pasture, woodland, or other land, but it is not urban or built-up land or water areas. It either is used for food or fiber crops or is available for those crops. The soil qualities, growing season, and moisture supply are those needed for a well managed soil to produce a sustained high yield of crops in an economic manner. Prime farmland produces the highest yields with minimal expenditure of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 to 4 percent. More detailed information about the criteria for prime farmland is available at the local office of the Soil 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.

The map units in the survey area that are listed at the end of this section meet the requirements for prime farmland in areas where an adequate and dependable supply of irrigation water is available. If only part of a unit meets the requirements for prime farmland, that

part is indicated in parentheses after the map unit name. On some of the soils, measures should be used to overcome a hazard or limitation, such as salinity, flooding, wetness, or droughtiness. The location of each map unit is shown on the detailed soil maps at the back of this publication. Soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

- 160 Batan association (Batan soil, slightly saline)
- 162 Batan-Kelk association (Kelk soil, occasionally flooded)
- 175 Beoska-Whirlo-Misad association (Whirlo soil)
- 180 Needle Peak-Batan-Yobe association (Needle Peak soil)
- 231 Broyles very fine sandy loam, 2 to 4 percent slopes
- 235 Broyles-Creemon association
- 237 Broyles-Beoska-Orovada association (Broyles soil)
- 249 Bubus association (Bubus soil, slightly saline)
- 290 Creemon silt loam, 0 to 2 percent slopes
- 291 Creemon-Wholan association
- 295 Creemon-Cren association
- 296 Creemon-Hessing association
- 297 Creemon-Rasille-Tulase association
- 298 Creemon-Misad association (Creemon soil)
- 491 Enko-Orovada association, gently sloping
- 492 Enko-Glyphs association
- 493 Enko-Orovada association, nearly level
- 512 Hessing-Relley association
- 560 Jesse Camp silt loam
- 632 McConnel-Orovada-Misad association (Orovada soil)
- 633 McConnel-Rasille-Wholan association (Rasille and Wholan soils)
- 635 McConnel-Rasille association (Rasille soil)
- 636 McConnel-Defler-Rasille association (Rasille soil)
- 637 McConnel-Orovada association (Orovada soil, rarely flooded)

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638	McConnel-Wholan association (Wholan soil)	1682	Zineb-Orovada association (Orovada soil)
675	Filiran-Bufferan-Orovada association (Orovada soil)	2010	Glyphs-Silverado association
700	Orovada-Rasille-Wholan association	2012	Glyphs-Muni-Orovada association (Orovada soil)
701	Orovada fine sandy loam, 2 to 4 percent slopes	2015	Glyphs-Enko association (Glyphs soil)
702	Orovada-Creemon association	2021	Rotinom-Wholan association
703	Orovada fine sandy loam, 0 to 2 percent slopes	2022	Rotinom-Orovada association
704	Orovada-McConnel association (Orovada soil)	2031	Muni-Orovada-Unius association (Orovada soil)
705	Orovada-Valmy association	2081	Fenster-Jesse Camp association (Jesse Camp soil)
751	Poorcal-Lopwash association	2543	Bufferan-Spasprey-Allor association (Spasprey soil)
850	Relley silt loam, 0 to 2 percent slopes	2640	Rasille-Kelk association
854	Relley silt loam, frequently flooded, 0 to 2 percent slopes	2684	Tessfive-Perlor-Orovada association (Orovada soil)
942	ShIPLEY silt loam, occasionally flooded, 0 to 2 percent slopes	3011	Defler-Orovada association (Orovada soil, gravelly substratum)
950	Silverado sandy loam, 0 to 2 percent slopes	3072	Allor-Orovada association, moderately sloping (Orovada soil)
1011	Stampede-Handy-Caniwe association (Caniwe soil)	3073	Allor-Kelk association
1041	Tenabo-Orovada-Bufferan association (Orovada soil)	3074	Allor-Orovada association, nearly level
1092	Tulase-Bubus-McConnel association (Bubus soil)	3270	Koyen fine sandy loam, 2 to 4 percent slopes
1146	Wendane-Sonoma-Valmy association (Valmy soil)	3310	Spasprey-Allor association
1169	Whirlo-Broyles association (Broyles soil)	3312	Spasprey-Bufferan-Orovada association (Spasprey and Orovada soils)
1173	Wholan silt loam, alkaline	3741	Kelk-Settlemyer association
1177	Wholan-Rasille association, alkaline	3964	Pineval-Orovada association (Orovada soil)
1178	Wholan-Rasille association, nonalkaline	3990	Settlemyer fine sandy loam, drained, 0 to 2 percent slopes
1287	Ricert-Orovada-Broyles association (Orovada soil)	3991	Settlemyer-Pineval association (Settlemyer soil)

Use and Management of the Soils

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

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

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

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

Crops and Pasture

The system of land capability classification used by the Soil Conservation Service is explained in this section, and general management needed for crops and pasture is suggested.

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 grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider 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, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. 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. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

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

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

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*,

w, *s*, or *c*, to the class numeral, for example, 11e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses 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 to pasture, rangeland, woodland, wildlife habitat, or recreation.

Planners of management systems for individual fields or farms in the survey area should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

The aim of good land use is to produce the greatest amount of the most desirable crops while also protecting and improving the soil. This can be achieved by seeding plants that are well suited to the soil and by applying proper management practices that protect the soil and maintain soil tilth.

Different management is needed on diverse kinds of soil. Basic essential practices, however, apply to all cultivated soils. These practices are discussed in the following paragraphs.

Conservation cropping system. A conservation cropping system consists of a crop rotation and cultural and management practices that protect the soil from erosion and maintain or improve fertility and tilth. It should include perennial legumes, grass-legume mixtures, or other crops that produce large quantities of residue to compensate for crops in the rotation that produce little or no residue.

A typical cropping system used in the survey area is 8 to 10 years of alfalfa followed by 2 years of small grain. Residue from small grain is returned to the soil, and tillage is kept to a minimum.

Erosion control. Protection of the surface layer from water erosion and soil blowing is important because this layer contains most of the organic matter and is generally more fertile than the rest of the soil. Soil blowing can be controlled by leaving a protective plant cover on the surface, by using minimum tillage during windy or stormy periods, and by tilling in spring and then immediately seeding. Water erosion generally is controlled by leveling and by applying irrigation water at the proper rate.

Application of plant nutrients. Most crops in the survey area respond well to applications of liquid or solid fertilizer. Specific fertilizer requirements are based on the kind of crop grown and the nutrient level of the soil. Applications of nitrogen and phosphorus increase the production of small grain and aid in establishing alfalfa. Unless the soils contain sufficient amounts of available phosphorus, established alfalfa generally requires only applications of phosphorus, which should be applied every 2 years throughout the duration of the stand.

Irrigation water management. Proper irrigation water management is the application of irrigation water at rates and in amounts adequate to produce high crop yields and to minimize soil and water losses. Water is applied according to the crop needs and the characteristics of the soil.

An efficient irrigation distribution system is one that has enough capacity to meet the needs of the crops grown during periods of peak use. The system should be located and controlled so that seepage losses are minimal and so that it carries the required flow without causing erosion.

Efficient application of water involves consideration of the available water capacity, the rate at which water enters and moves through the soil, and the amount of water required by the crop grown. Most crops should be irrigated when 40 to 50 percent of the available moisture in the top half of the root zone has been used.

Management of salt- and sodium-affected soils. Like most soils in arid and subarid regions, many of the soils in this survey area contain at least small quantities of soluble salts and sodium. In some soils high concentrations of salts and sodium limit or prevent the growth of crops. Because precipitation is low and the rate of evaporation is high, salts accumulate in the root zone. In addition, many low-lying areas receive salty water from runoff or seepage. Surface evaporation of this water generally results in an increase in content of soluble salts on or in the soils. In some areas that have a high water table, water rises in the soil by capillary action and carries dissolved salts with it. The soluble salts can be moved to any part of the soil profile.

A soil that contains excessive amounts of soluble salts is called a saline soil. One that contains excessive amounts of exchangeable sodium is called a sodic, or alkali, soil. A soil that contains excessive amounts of both soluble salts and sodium is called a saline-sodic soil. Saline-sodic phases of several of the soils in the survey have been mapped. The map unit name in most cases does not give the degree to which these soils are affected, nor does it indicate whether they contain both salts and sodium. This information is given in the map unit descriptions.

Four classes of salinity are recognized in the detailed soil map unit descriptions. These classes are as follows:

Nonsaline soils are those that contain less than 0.15 percent soluble salts. The electrical conductivity of the saturation extract is less than 4 millimhos per centimeter at 25 degrees C.

Slightly saline soils are those that contain 0.15 to 0.35 percent soluble salts. The electrical conductivity of the saturation extract is 4 to 8 millimhos per centimeter at 25 degrees C.

Moderately saline soils are those that contain 0.35 to 0.65 percent soluble salts. The electrical conductivity of the saturation extract is 8 to 16 millimhos per centimeter at 25 degrees C.

Strongly saline soils are those that contain more than 0.65 percent soluble salts. The electrical conductivity of the saturation extract is more than 16 millimhos per centimeter at 25 degrees C.

Four classes of sodicity are recognized in the detailed soil map unit descriptions. These classes are as follows:

Nonsodic soils contain less than 15 percent exchangeable sodium.

Slightly sodic soils contain 15 to 25 percent exchangeable sodium.

Moderately sodic soils contain 25 to 40 percent exchangeable sodium.

Strongly sodic soils contain more than 40 percent exchangeable sodium.

Soils differ in the kinds of salts they contain and in the practices needed for improvement; however, some general guidelines can be given. For example, an adequate supply of good-quality water and an adequate drainage system are needed to reclaim any saline or sodic soils. Two methods of applying water are commonly used. One method is land leveling that results in flat basins in which the water can accumulate. The other method involves leveling the land to a uniform grade and then flooding between border dikes. If drainage is adequate and if large amounts of water are used, the soluble salts can be leached out of the root zone by either method. The process is more difficult if a soil contains an excessive amount of exchangeable sodium. In addition to drainage and leaching, other practices are needed to improve sodium-affected soils.

Chemical amendments used to replace sodium are gypsum and its various forms, including gypsite, anhydrite, and selenite, as well as elemental sulfur, sulfuric acid, iron sulfate, and aluminum sulfate. Any of these amendments can be used successfully, but the soils react to some faster than to others. The amount and type of amendment needed can be determined by

laboratory analysis of soil samples, which indicates the amounts of sodium that must be replaced if the soil is to be improved.

An alternative to reclamation through the use of large quantities of gypsum is the seeding of salt- and sodium-tolerant grasses. Among these are tall wheatgrass, western wheatgrass, and alta fescue. These grasses can grow in soils that have relatively high concentrations of both soluble salts and sodium.

Proper pasture management. Proper pasture management includes adjusting stocking rates or the season of use so that the maximum growth and survival of high-quality grasses and legumes can be achieved. A common method is to rotate grazing among several pastures. This method allows adequate regrowth in each pasture. Livestock should be excluded when the pastures are wet. Allowing livestock to graze on wet pasture results in compaction of the soil, a decrease in the water intake rate, and deterioration of soil structure. Proper irrigation management and drainage help to keep the pastures in good condition. Increased yields can be obtained by applying commercial fertilizer and barnyard manure. Weeds generally can be controlled by mowing. The droppings of manure should be spread with a drag each spring.

Rangeland

About 98 percent of the land in the survey area is rangeland. About 75 percent of the agricultural income is derived from livestock, principally cattle. Cow-calf operations are dominant, but cow-calf-yearling operations also are common. Most of the rangeland is administered by the Bureau of Land Management. The privately owned land is mainly in the Reese River, Big Smoky, and Grass Valleys. Ranches vary in size from less than 5,000 acres to about 100,000 acres.

On some ranches the forage produced on the rangeland is supplemented by aftermath grazing on hayland and small grain stubble fields in fall. In winter the native forage generally is supplemented by hay, but some areas of winter range are in the survey area.

For each map unit suitable for use as rangeland, a table in the section "Rangeland Plants and Woodland Understory" shows the grasses, forbs, and shrubs that make up the potential native plant community on each major soil and contrasting inclusion; the common plant name and plant symbol for the characteristic vegetation; the average percent composition for each species in the potential plant community; the range site symbol; and the total annual production of vegetation in favorable, normal, and unfavorable years. A more detailed ecological description of each range site, identified by symbol, is provided in a technical guide available in the

local office of the Soil Conservation Service.

A *range site* is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was established during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table also are important.

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

Dry weight is the total annual yield per acre reduced to a common percent of air-dry moisture.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. The expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals, the grazing season, and the availability of forage. Many plants, trees, and shrubs are inaccessible to foraging animals.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better 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.

Generally, the objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management

generally results in the optimum production of vegetation, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Grazing management should be at an intensity that maintains enough plant cover to protect the soil and that maintains or improves the quantity and quality of desirable vegetation. Proper management applies to all grazing animals, including livestock, game animals, and wild horses.

The most practical and efficient way to achieve good management of livestock grazing is with a planned grazing system. A good system is one in which two or more grazing units are alternately rested from grazing in a planned sequence over a period of years. The rest period should extend at least through the growing season of the key plants. Using such a system ensures that the same unit is not grazed at the same time year after year.

Planned grazing systems should be designed to fit the individual operating unit but still meet management objectives. Using livestock watering developments, fencing, salting, or constructing livestock trails can help to achieve a better distribution of grazing.

Brush management is needed when the less desirable woody species increase beyond the natural proportions for the site. It can benefit both livestock and wildlife and can reduce sedimentation and improve watershed quality.

The use of chemicals is effective in brush management. When chemicals are properly applied in a timely manner, good results can be expected. The understory should include enough desirable plant species to respond to the treatment.

Prescribed burning is also effective in brush management. It is relatively inexpensive but requires precautions. Its success requires a good understory to provide fuel, and proper timing of the burning is critical. It is not so selective as chemical treatment.

Mechanical treatment practices, such as plowing, chaining, or beating, are effective on certain sites, but the cost is high.

Range seeding may be needed when the range has deteriorated to a point where desired plant species have disappeared or as critical area treatment following wildfire. Sites to be seeded should be evaluated on the basis of the soil, climate, topography, and planned use to determine the species that are adapted and the seeding techniques that can be used.

Even though adapted species and improved techniques are applied, successful seeding in this survey area is strongly influenced by rainfall.

Precipitation fluctuates drastically from one year to the next, even in the areas that receive higher amounts of rainfall. The success of range seeding depends on the amount of moisture available during the growing season. Each soil is rated in the detailed map unit descriptions for planned range seeding. A plant cover should be maintained to prevent accelerated erosion on the soils that are poorly suited to seeding. The criteria used to develop the ratings are listed in the Appendix.

Range seeding ratings are relative ratings that suggest the number of successful seeding establishments that might be expected during a given period of years. The ratings are not intended to be a measure of the total annual yield. Productivity is dependent upon the interaction of most of the soil properties and characteristics that are considered. In addition, the number of plant species adapted to the soil decreases with decreasing soil suitability.

Successful seeding of depleted areas of rangeland in the survey area reduces the runoff rate and thus helps to control erosion. The soils that are best suited to seeding are moderately deep or deeper; receive adequate moisture and can retain it; are resistant to sheet, rill, and wind erosion; are free of salts and sodium; and have a medium textured upper layer that is relatively free of rock fragments and is resistant to crusting.

Woodland Understory Vegetation

Understory vegetation consists of grasses, forbs, shrubs, and other plants. If well managed, some woodland 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, and the depth and condition of the litter.

The total production of understory vegetation, indicated in the section "Rangeland Plants and Woodland Understory," 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.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and

gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection. All windbreaks in the survey area require irrigation.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a commercial nursery.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Wildlife is a valuable resource in the survey area. It provides opportunities for outdoor activities, such as hunting and fishing.

Wildlife is a product of the soil. Like crops, wildlife responds to good management. Most managed wildlife habitat is created, improved, or maintained by planting suitable vegetation, by manipulating existing vegetation to bring about the natural establishment of desired plants, or by a combination of both. The habitat elements needed by specific species of wildlife generally require several kinds of soil and a combination of land uses. The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include mule deer, valley quail, pheasant, meadowlark, field sparrow, and cottontail. Irrigated

areas of general soil map units 2, 3, and 4 are used extensively by openland wildlife.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include sage grouse, woodcock, woodpeckers, cottontail, jackrabbit, coyote, and mule deer. General soil map unit 18 and scattered areas of unit 19 are used extensively by woodland wildlife.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, mule deer, and beaver. General soil map unit 3 and other small riparian areas are used by wetland wildlife.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, mule deer, sage grouse, meadowlark, lark bunting, chukar, badger, and jackrabbit. General soil map unit 2, units 5 through 10, and units 12, 13, 15, 16, 19, and 20 are used extensively by rangeland wildlife.

In the detailed soil map unit descriptions, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat. The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these

plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are needlegrass, balsamroot, globemallow, wheatgrass, and bluegrass.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are singleleaf pinyon and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are mountainmahogany, bitterbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, reed canarygrass, saltgrass, cordgrass, rushes, sedges, and cattail.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

Engineering

In the section "Detailed Soil Map Units," information for planning land uses related to urban development and to water management is provided. Soils are rated for various uses, and the most limiting features are identified. The ratings are given for the following selected uses: roadfill; topsoil; daily cover for landfill; shallow excavations; local roads and streets; pond reservoir areas; embankments, dikes, and levees; sand; and gravel. For some soils the restrictive features that affect drainage, irrigation, and terraces and diversions also are given. More information can be obtained from local offices of the Soil Conservation Service.

The information 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. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings. The criteria used to determine the ratings are provided in the Appendix. 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 kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan ponds, terraces, and other structures for soil and water conservation; and (8) 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 map unit descriptions, along with the soil maps, the taxonomic unit 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.

In the detailed map unit descriptions, the soils are rated for various uses and the most limiting features are identified. The ratings are based on observed performance of the soils and on the estimated data given in the map units and lab test data. The limiting features are defined in the Glossary.

Soil interpretations are periodically updated as more is learned about a soil and its behavior under specific uses. New technology can change the relative suitability of a soil for various uses; however, the soil maps remain useful after the soil interpretations originally published with them have become outdated. For this reason, the criteria and guides that were used to make the interpretations presented in the detailed map units are provided in the Appendix. These criteria have been taken directly from the National Soils Handbook (28).

The limitations for shallow excavations, local roads and streets, pond reservoir areas, and embankments, dikes, and levees are considered *slight* if soil properties and site features are generally 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 the depth to the water table.

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 are generally 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, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

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 the detailed map unit descriptions, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the upper layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

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

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

In the detailed map unit descriptions, the soils are rated for use as roadfill, topsoil, and daily cover for landfill.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. 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 upper 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 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 a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. These soils may have layers of suitable material, but the material is less than 3 feet thick.

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 water table at or near the surface.

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

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse 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 wind erosion.

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 upper layer generally has the best workability, more organic matter, and the best potential for plants. Material from the upper layer should be stockpiled for use as the final cover.

The soils are rated as a probable or improbable source of *sand* and *gravel*. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. Only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the 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 taxonomic unit 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. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

In some of the detailed map unit descriptions, the restrictive features that affect drainage, irrigation, and terraces and diversions are listed.

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 potential 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 wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

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, given in the section "Detailed Soil Map Units," are explained in the following paragraphs.

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 characterize key soils.

The estimates of soil properties given in the tables and map unit descriptions include the range of grain-size distribution, the engineering classifications, and some physical and chemical properties of the major layers of each soil. Pertinent soil and water features are given in the map unit descriptions.

Engineering Index Properties

Estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area are given in the detailed map unit descriptions and in table 5. 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 for each taxonomic unit under "Taxonomic Units and Their Morphology."

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 about 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 Unified soil classification system (2) and the system adopted by the American Association of State Highway and Transportation Officials (1).

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.

Rock fragments ranging from 2 millimeters in diameter to larger than 3 inches are indicated as a percentage of the total soil on a dry-weight basis. Cobbles and stones are larger than 3 inches in diameter, and pebbles are 2 millimeters to 3 inches in diameter. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. The estimates are rounded to the nearest 5 percent.

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

Estimates of some characteristics and features that affect soil behavior are given in the detailed map unit descriptions. The estimates are based on field observations and on test data for these and similar soils. Many of the specific terms used to express these properties are defined in the Glossary.

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, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

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 total inches of water for the soil profile. 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.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH 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.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the map unit descriptions. Salinity affects the suitability of a soil for range seeding and crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodicity is a measure of exchangeable sodium in the soil at saturation. It is expressed as a sodium adsorption ratio (SAR), or the ratio of sodium to calcium plus magnesium. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The sodicity of irrigated soils is affected by the quality of irrigation water and management of the soil. Hence, the sodicity of soils in individual fields can differ greatly from the value given in the map unit descriptions. Sodicity affects the suitability of a soil for range seeding and crop production and the stability of the soil if used as construction material.

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 change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE)

to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (up to 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 by water. The estimate for erosion factor K applies only to the surface layer.

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

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils are generally 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 wind erosion 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 wind erosion are used.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control wind erosion 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 wind erosion 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 are slightly erodible. Crops can be grown if measures to control wind erosion 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 are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

The *hazard of erosion* is an estimate of the likelihood of erosion by water and wind when the soil is bare. The hazard of erosion by water is determined on the basis of erosion factor K and the percent of slope. The hazard of erosion by wind is determined on the basis of the stability of the soil surface and the climate. The guidelines used in estimating the hazard of erosion are given in the Appendix.

Soil and Water Features

Estimates of various soil and water features are given in the detailed map unit descriptions. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

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

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

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a 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 inundation of an area, is caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

The frequency and duration of flooding and the time of year when flooding is most likely are given in the map unit descriptions.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs, on the average, no more than once in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

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

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. The depth to the seasonal high water table is given in the map unit descriptions. A water table that is seasonally high for less than 1 month is not indicated. Only saturated zones within a depth of about 6 feet are indicated.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping.

Hardpans are cemented or indurated subsurface layers within a depth of 5 feet. Such pans cause difficulty in excavation. Pans are classified as thin or thick. A thin pan is less than 3 inches thick if continuously indurated or less than 18 inches thick if

discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A thick pan is more than 3 inches thick if continuously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

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

Corrosivity 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 creates a severe corrosion environment. 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.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (27). 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 6 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 Aridisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Orthid (*Orth*, meaning true, plus *id*, from Aridisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; 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 Camborthids. (*Camb*, meaning change, plus *orthid*, the suborder of the Aridisols that does not have an argillic or a natric horizon).

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 Camborthids.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly 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, depth 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 coarse-loamy, mixed, mesic Typic Camborthids.

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 follows standards in the *Soil Survey Manual* (26). Many of the technical terms used in the descriptions are defined in *Soil Taxonomy* (27). Unless otherwise stated, matrix colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

Because a large part of Lander County was mapped under several private contracts, some of the typical pedons described in this survey are located in the soil survey areas of Lander County, Nevada, North Part, and Eureka County Area, Nevada. As the survey progressed, it was determined that some of the soils in the area had already been mapped under contract. The

typical pedon descriptions already completed for these soils were used, regardless of the survey area in which they occurred. The survey area in which the typical pedon for each taxonomic unit is located is given in the section "Taxonomic Units and Their Morphology." Characteristics of the soils in a map unit in this survey area are similar but not identical to those of the soils outside the survey area.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units."

Akerue Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum derived from andesite, rhyolite, and quartzite

Positions on landscape: Low hills, side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: 10 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid, shallow Xerollic Durargids

Typical Pedon

About 35 percent of the surface is covered with pebbles, 35 percent with cobbles, and 2 percent with stones.

A—0 to 3 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium and thick platy structure; slightly hard, very friable, sticky and plastic; few very fine and fine roots; many very fine and fine vesicular pores; 10 percent pebbles, 25 percent cobbles, and 2 percent stones; mildly alkaline (pH 7.4); clear wavy boundary.

Bt1—3 to 6 inches; pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt2—6 to 15 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; few very fine and fine tubular pores; many thick pressure faces on peds; 10 percent pebbles and 35 percent cobbles;

mildly alkaline (pH 7.6); abrupt wavy boundary. Bqkm—15 to 21 inches; very pale brown (10YR 8/4), indurated duripan that has many rock fragments cemented with several continuous laminar layers; light yellowish brown (10YR 6/4) moist; massive; extremely hard; few fine roots in some fractures; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

R—21 inches; andesite.

Typical Pedon Location

Soil name and map unit in which located: Akerue very cobbly loam, 15 to 30 percent slopes, in Akerue-Simpark-Punchbowl association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin; about 500 feet north and 1,500 feet west of the southeast corner of sec. 31, T. 18 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October

Average annual soil temperature: 44 to 47 degrees F

Depth to the duripan: 14 to 20 inches

Depth to bedrock: 15 to 26 inches

Reaction in the A and Bt horizons: Neutral or mildly alkaline, increasing in alkalinity with increasing depth

Other characteristics: Silica and lime pendants on rock fragments in the lower part of the Bt horizon in some pedons

Control section:

Content of clay—35 to 45 percent

Content of rock fragments—35 to 60 percent, mostly cobbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—very cobbly clay loam or very cobbly clay

Allor Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 0 to 30 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-loamy, mixed, mesic
Durixerollic Haplargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A1—0 to 6 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine vesicular pores; 15 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

A2—6 to 12 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; many very fine and fine roots; common very fine and fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—12 to 19 inches; pale brown (10YR 6/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many very fine and fine roots; common very fine and fine tubular pores; few thin clay films coating peds; 15 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Btq—19 to 34 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine roots; common very fine and fine tubular pores; few moderately thick and common thin clay films coating peds; 25 percent pebbles and 15 percent weakly cemented durinodes; mildly alkaline (pH 7.8); clear smooth boundary.

Bq—34 to 42 inches; pale brown (10YR 6/3), weakly silica-cemented gravelly loamy sand, brown (10YR 4/3) moist; massive; very hard, firm, nonsticky and nonplastic; few fine roots; few fine tubular pores; 25 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bqk—42 to 60 inches; pale brown (10YR 6/3), weakly silica-cemented gravelly loamy sand, brown (10YR 4/3) moist; massive; very hard, firm, nonsticky and nonplastic; 55 percent pebbles and 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.3).

Typical Pedon Location

Soil name and map unit in which located: Allor gravelly loam, 4 to 15 percent slopes, in Zaidy-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 10 miles northeast of Austin; about 650 feet south and 2,400 feet west of the northeast corner of sec. 21, T. 20 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in winter and spring

Average annual soil temperature: 47 to 50 degrees F

Combined thickness of the A and Bt horizons: 20 to 34 inches

Depth to the Bq horizon: 20 to 34 inches

Depth to carbonates (when present): More than 40 inches

Reaction: Mildly alkaline or moderately alkaline, commonly increasing in alkalinity with increasing depth

Other characteristics: BA or Bt2 horizon present in some pedons

Control section:

Texture—clay loam or sandy clay loam

Content of clay—27 to 35 percent

Content of rock fragments—15 to 35 percent, mainly pebbles

A horizon:

Value—3 or 4 moist

Chroma—2 or 3

Bt horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Other characteristics—as much as 15 percent durinodes in the lower part in most pedons

Bq and Bqk horizons:

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4

Texture—loamy sand or sandy loam

Content of rock fragments—20 to 60 percent, mainly pebbles

Other characteristics—continuous, weak cementation; strata of noncemented material in some pedons

Atlow Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from chert, argillite, shale, greenstone, and altered rhyolitic tuff

Positions on landscape: Summits and side slopes of mountains and hills

Slope: 8 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; 25 percent pebbles and 10 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1—3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine interstitial pores; 25 percent pebbles and 10 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bt2—7 to 14 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine interstitial pores and few very fine tubular pores; 30 percent pebbles and 15 percent cobbles; few thin lime coatings on the underside of coarse fragments; moderately alkaline (pH 8.0); abrupt irregular boundary.

R—14 inches; chert; thin lime coatings in rock fractures.

Typical Pedon Location

Soil name and map unit in which located: Atlow very gravelly loam, 15 to 50 percent slopes, in Atlow-Stingdorn association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain; about 1,200 feet east and 1,050 feet north of the southwest corner of sec. 31, T. 29 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 48 to 52 degrees F

Depth to bedrock: 14 to 20 inches

A horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3

Reaction—mildly alkaline or moderately alkaline

Bt horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture—very gravelly clay loam or very cobbly clay loam

Content of clay—27 to 35 percent

Content of rock fragments—35 to 50 percent, dominantly pebbles and cobbles

Structure—angular blocky or subangular blocky

Reaction—moderately alkaline or strongly alkaline

Other characteristics—noncalcareous matrix, thin lime coatings on the underside of rock fragments

Attella Series

Depth class: Very shallow

Drainage class: Well drained

Parent material: Residuum and colluvium that are derived from dolostone, dolomite, and calcareous shale and include some loess

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), frigid Lithic Xeric Torriorthents

Typical Pedon

About 80 percent of the surface is covered with pebbles and 5 percent with flagstones.

A—0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine vesicular and interstitial pores; 45 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—3 to 7 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and many medium roots; common very fine and fine tubular pores; 45 percent pebbles; common thin lime coatings on the underside of pebbles and few lime pendants;

strongly effervescent; moderately alkaline (pH 8.3); abrupt wavy boundary.

2R—7 inches; hard, fractured dolostone.

Typical Pedon Location

Soil name and map unit in which located: Attella very gravelly loam, 30 to 50 percent slopes, in Hymas-Xine-Attella association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 12 miles north of Austin; about 2,100 feet north and 2,000 feet east of the southwest corner of sec. 26, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually moist from mid-October to mid-June, dry from mid-June to mid-October

Average annual soil temperature: 41 to 47 degrees F

Depth to bedrock: 6 to 10 inches

Calcium carbonate equivalent: 5 to 20 percent

Reaction: Mildly alkaline or moderately alkaline

Content of organic carbon: 1.0 to 2.5 percent when mixed

Control section:

Content of clay—15 to 25 percent when mixed

Texture—very gravelly loam or very gravelly silt loam

Content of rock fragments—35 to 60 percent when mixed, mainly pebbles and some channers

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate, thin or medium, and platy; or weak or moderate, fine or medium, and granular

Consistence—friable or very friable (moist)

C horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 to 4

Structure—fine or medium subangular blocky, or massive

Consistence—soft or slightly hard (dry), friable or very friable (moist)

Effervescence—strongly effervescent or violently effervescent

Other characteristics—coatings of lime on the underside of rock fragments, soft masses of lime in some pedons

Barrier Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Mixed alluvium derived from volcanic and sedimentary rock

Positions on landscape: Fan piedmont remnants

Slope: 4 to 15 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid, shallow Haploxerollic Durorthids

Typical Pedon

About 15 percent of the surface is covered with pebbles and 10 percent with cobbles and stones.

A1—0 to 2 inches; pale brown (10YR 6/3) cobbly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many medium and fine vesicular pores; 10 percent pebbles and 15 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many fine vesicular pores; 5 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

A3—4 to 7 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine interstitial pores; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—7 to 12 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common medium, fine, and very fine roots; common fine and very fine interstitial pores; 15 percent durinodes; 30 percent pebbles and pebble-sized pan fragments; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bqkm—12 to 27 inches; light gray (10YR 7/2), cobbly, strongly cemented duripan, pale brown (10YR 6/3) moist; massive; very hard, very firm; common medium and fine roots matted on top; very few very fine interstitial pores; few thin discontinuous indurated lamellae; violently effervescent; clear smooth boundary.

Cqkm—27 to 60 inches; very pale brown (10YR 7/3), stratified, strongly and weakly silica-cemented very cobbly loamy sand, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; common fine and very fine interstitial pores; 20

percent pebbles and 30 percent cobbles; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Barrier cobbly loam, 4 to 15 percent slopes, in Barrier-Kobeh association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles southeast of Austin, in the Monitor Valley; about 1,300 feet north and 1,000 feet west of the southeast corner of sec. 18, T. 16 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to the duripan: 10 to 20 inches

Content of clay in the control section: 8 to 18 percent

Texture of the fine-earth fraction: Sandy loam, fine sandy loam, or loam

Content of rock fragments: 10 to 35 percent when mixed, mainly pebbles

Reaction: Moderately alkaline or strongly alkaline

Effervescence: Strongly effervescent or violently effervescent

Other characteristics: Continuous, weakly cemented or noncemented strata below the duripan in some pedons

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Bqk horizon:

Value—7 or 8 dry, 5 to 7 moist

Chroma—2 or 3

Batan Series

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Silty alluvium derived from various kinds of rock, mostly volcanic rock, that is high in content of loess and pyroclastic material

Positions on landscape: Alluvial flat remnants

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A—0 to 5 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; strong very thin platy structure;

hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many fine vesicular pores and few very fine interstitial and tubular pores; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

C—5 to 9 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin and thin and strong very thick platy structure; hard, very friable, slightly sticky and plastic; common very fine roots; many very fine interstitial and tubular pores; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Cq—9 to 19 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; many very fine tubular pores; 30 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

Cqk1—19 to 30 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; few fine faint iron mottles that are brown (7.5YR 5/4) and dark brown (7.5YR 4/4) moist; weak very thin platy structure; slightly hard, very friable, sticky and plastic; few very fine and fine roots; many very fine interstitial and tubular pores; 20 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; fine white (10YR 8/2) filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Cqk2—30 to 44 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; common fine distinct iron mottles that are light brown (7.5YR 6/4) and dark yellowish brown (10YR 4/4) moist; strong medium platy structure parting to moderate very fine angular blocky; hard, friable, slightly sticky and plastic; few very fine, fine, and medium roots; common very fine tubular pores; 20 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; fine white (10YR 8/2) filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

Cqk3—44 to 63 inches; light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) moist; many fine distinct iron mottles that are brown (7.5YR 4/4) and dark reddish brown (5YR 3/2), dark reddish gray (5YR 4/2) and dark reddish brown (2.5YR 2/4) moist; moderate very thin and thin platy structure parting to moderate very fine angular blocky; hard, friable, sticky and plastic; few very fine and fine roots; many very fine interstitial pores and few fine tubular pores; 20 percent hard, firm, brittle durinodes 5 to 15 millimeters in diameter; fine white

(10YR 8/1) filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C'—63 to 68 inches; very pale brown (10YR 7/3) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine faint iron mottles that are pinkish gray (7.5YR 6/2) moist and common fine distinct iron mottles that are brown (7.5YR 4/2) moist; massive; hard, friable, slightly sticky and plastic; few fine roots; many very fine interstitial and tubular pores; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Batan silt loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 6.2 miles southeast of Battle Mountain; about 1,585 feet west and 1,585 feet north of the southeast corner of sec. 31, T. 32 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May to early in November

Depth to the water table: 60 inches or more

Average annual soil temperature: 47 to 53 degrees F

Depth to the Cq horizon: 9 to 24 inches

Content of salt and sodium: Affected by salt and sodium in most pedons; the upper part not affected in some pedons near drainageways and stream channels

Content of mottles: Common faint or distinct iron mottles below a depth of 10 inches

Depth to gypsum crystals (when present): More than 20 inches in some pedons

Other characteristics: Nonconformable, stratified, very gravelly sand and fine sand 2C horizon at a depth of more than 50 inches in some pedons

Control section:

Content of clay—20 to 30 percent

Texture—dominantly silt loam or silty clay loam, but strata of fine sandy loam to silty clay in some pedons

A horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—platy or massive

Consistence—slightly hard or hard, slightly sticky or sticky, and slightly plastic or plastic

Reaction—moderately alkaline to very strongly alkaline

Effervescence—slightly effervescent to violently effervescent

C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—platy, angular blocky, prismatic, or massive

Reaction—strongly alkaline or very strongly alkaline

Effervescence—strongly effervescent or violently effervescent

Cq and Cqk horizons:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Other characteristics—dominantly 20 to 40 percent durinodes, but strata that are as much as 70 percent discontinuous, weakly silica-cemented durinodes present in some pedons

Belate Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from rhyolitic tuff and andesite

Positions on landscape: Convex side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 13 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical Pedon

About 65 percent of the surface is covered with pebbles and 15 percent with cobbles and stones.

A1—0 to 4 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine and fine roots; common very fine vesicular pores; 40 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

A2—4 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; common very fine, fine, and medium roots; many very fine and few medium tubular pores; 30 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt1—14 to 19 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate

medium angular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular pores; few thin clay films on peds; 35 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt2—19 to 47 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; common moderately thick and many thin clay films on peds; 35 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); gradual smooth boundary.

Bt3—47 to 60 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine angular blocky structure; hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; few moderately thick and common thin clay films on faces of peds; 40 percent pebbles and 15 percent cobbles; matrix is noneffervescent; few thin lime coatings on the underside of rock fragments; mildly alkaline (pH 7.8).

Typical Pedon Location

Soil name and map unit in which located: Belate very gravelly loam, 15 to 30 percent slopes, in Belate-Softscrabble-Torro association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles west of Austin; in an unsectionalized area about 1,000 feet west and 700 feet north of the southeast corner of the assumed sec. 15, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist to a depth of about 15 to 20 inches in winter and spring in most years, dry in mid-July through October

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 10 to 20 inches (includes the upper part of the argillic horizon)

Thickness of the solum and depth to bedrock: 60 to 80 inches

Reaction: Neutral or mildly alkaline

Control section:

Content of clay—18 to 30 percent

Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Structure—weak or moderate, fine or medium, and subangular blocky; or weak or moderate, thin or medium, and platy

Bt horizon:

Value—5 or 6 dry, 2 to 4 moist

Chroma—3 or 4

Texture—very gravelly loam or very gravelly clay loam

Content of clay—18 to 30 percent

Content of rock fragments—35 to 60 percent, mainly pebbles

Structure—dominantly fine and medium subangular blocky or angular blocky, but Bt3 horizon massive in some pedons

Belted Series

Depth class: Very shallow or shallow to duripan

Drainage class: Well drained

Parent material: Mixed alluvium

Positions on landscape: Fan piedmont remnants

Slope: 2 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: 53 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Haplic Durargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 4 inches; light gray (10YR 7/2) gravelly fine sandy loam, grayish brown (10YR 5/2) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine and common medium vesicular pores; 25 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bt—4 to 11 inches; very pale brown (10YR 7/3) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium granular structure; hard, friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Btk—11 to 14 inches; very pale brown (10YR 7/3) gravelly loam, yellowish brown (10YR 5/4) moist; moderate fine and medium granular structure; hard, friable, sticky and plastic; few very fine roots; many very fine tubular and interstitial pores; common medium soft lime masses; 25 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqkm—14 to 25 inches; white (10YR 8/2), strongly silica-cemented duripan with discontinuous laminar

cap about 0.5 to 1.0 millimeter thick; light yellowish brown (10YR 6/4) moist; massive; very hard, very firm; few very fine roots; few very fine tubular pores; common medium soft lime masses; violently effervescent; 0.5- to 2.0-inch-thick, discontinuous layer of pale brown (10YR 6/3) very gravelly loamy fine sand, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

2Cqk—25 to 60 inches; alternating layers of very pale brown (10YR 7/3) very gravelly sand and discontinuous, strongly cemented duripan; pale brown (10YR 6/3) moist; layers of very gravelly sand are single grain and loose, nonsticky and nonplastic; duripan layers are massive and very hard, very firm, nonsticky and nonplastic; few very fine roots; many fine interstitial pores; 60 percent pebbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Belted gravelly fine sandy loam, 2 to 8 percent slopes, in Unsel-Wardenot-Belted association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles south of Austin; about 1,900 feet south and 400 feet east of the northwest corner of sec. 26, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively in July through October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the duripan: 6 to 14 inches

Depth to the 2C horizon: 24 to 61 inches

Reaction: Moderately alkaline to very strongly alkaline

Control section:

Content of clay—averages 15 to 28 percent

Content of rock fragments—averages 0 to 25 percent

A horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—platy, subangular blocky, or granular

Effervescence—slightly effervescent or strongly effervescent

Bt horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—subangular blocky, platy, or granular
Texture—sandy clay loam, sandy loam, loam, or clay loam

Content of clay—18 to 30 percent

Content of rock fragments—0 to 30 percent

Effervescence—slightly effervescent or strongly effervescent

Bqkm horizon:

Structure—platy or massive

Other characteristics—strongly cemented, continuous laminae that generally are more than 0.5 inch thick

2C horizon:

Hue—10YR or 7.5YR

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—variable (lake sediment)

Effervescence—noneffervescent to violently effervescent

Beoska Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loess over loamy and gravelly alluvium derived from various kinds of rock

Positions on landscape: Fan piedmonts, fan piedmont remnants

Slope: 0 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Natrargids

Typical Pedon

A1—0 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin and thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many fine vesicular and very fine tubular pores; 20 percent pebbles on the surface; moderately alkaline (pH 8.0); clear wavy boundary.

A2—5 to 9 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium and coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; common very fine tubular pores; less than 2 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

AB—9 to 13 inches; mottled, very pale brown (10YR 7/2 and 7/3) silt loam, brown (10YR 4/3) moist; weak

coarse prismatic structure; hard, friable, slightly sticky and plastic; few very fine roots and very few fine roots; many very fine tubular pores; less than 2 percent pebbles; strongly alkaline (pH 8.6); abrupt wavy boundary.

Btn—13 to 18 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 3/3) moist; weak medium and coarse prismatic structure parting to moderate very fine and fine angular blocky; hard, very friable, sticky and very plastic; many very fine and fine roots; common very fine tubular pores; many thin clay films on peds and lining pores; 5 percent rounded pebbles 2 to 15 millimeters in diameter; slightly effervescent; strongly alkaline (pH 8.6); clear irregular boundary.

Btnk—18 to 24 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse prismatic structure parting to moderate very fine and fine angular blocky; hard, friable, slightly sticky and plastic; many very fine and fine roots; common very fine tubular pores; many thin clay films on peds and in pores; common fine filaments and threads of lime and coatings of lime on pebbles; 5 percent rounded pebbles 2 to 15 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bqk1—24 to 55 inches; light gray (10YR 7/2) very gravelly very fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; common fine filaments of lime; 25 percent weak and moderate durinodes 5 to 15 millimeters in diameter; 40 percent rounded pebbles 2 to 15 millimeters in diameter; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

2Bqk2—55 to 62 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; common fine filaments of lime; 25 percent weak and moderate durinodes 5 to 15 millimeters in diameter; 40 percent rounded pebbles 2 to 15 millimeters in diameter; violently effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Beoska silt loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 50 miles southwest of Battle Mountain; about 2,200 feet east and 1,200 feet north of the southeast corner of sec. 26, T. 25 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry from late in May through November

Average annual soil temperature: 47 to 52 degrees F

Depth to the 2Bqk horizon: 16 to 26 inches

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry

Chroma—2 or 3

Structure—platy, prismatic, or massive

Btn horizon:

Value—3 or 4 moist, 6 or 7 dry

Chroma—3 or 4

Texture—silty clay loam, silt loam, or clay loam

Content of clay—25 to 35 percent

Content of rock fragments—as much as 15 percent, mainly pebbles

Reaction—moderately alkaline or strongly alkaline

Other characteristics—lime in some pedons

Bqk horizon:

Value—7 or 8 dry, 4 to 6 moist

Texture—stratified very fine sandy loam, fine sandy loam, and sandy loam

Content of clay—5 to 15 percent

Content of rock fragments—15 to 35 percent to a depth of 40 inches and 15 to 65 percent below this depth, mainly pebbles

Consistence—soft to hard (dry), very friable to firm (moist)

Reaction—moderately alkaline or strongly alkaline

Other characteristics—20 to 40 percent durinodes in a friable matrix, or weak or strong, discontinuous, silica cementation

Blackhawk Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Loess, mixed alluvium

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Entic Durorthids

Typical Pedon

A—0 to 8 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots and few medium roots; many fine tubular

pores; 3 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Bw—8 to 14 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine roots; many fine tubular pores; 3 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bqkm—14 to 17 inches; brown (10YR 5/3), strongly silica-cemented duripan, dark brown (10YR 4/3) moist; massive; extremely hard, extremely firm; few fine roots matted on top; common fine soft lime filaments; violently effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bk1—17 to 38 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 5 percent pebbles; few fine soft lime filaments; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bk2—38 to 47 inches; very pale brown (10YR 7/3) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 40 percent pebbles; common medium soft lime masses; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3Bk3—47 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable; few fine roots; few fine tubular pores; 70 percent pebbles; common fine soft lime masses; slightly effervescent; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Blackhawk very fine sandy loam, 0 to 4 percent slopes, in Golconda-Blackhawk association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 8 miles north of Battle Mountain; about 1,500 feet north and 500 feet east of the southwest corner of sec. 26, T. 33 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry late in May through November

Average annual soil temperature: 47 to 54 degrees F

Depth to the duripan: 14 to 20 inches

Control section:

Content of clay—averages 5 to 10 percent

Content of rock fragments—as much as 30 percent, mainly pebbles

Content of silt and very fine sand—65 to 80 percent

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3

Structure—weak or moderate, very thin to thick, and platy, or massive

Reaction—mildly alkaline to strongly alkaline

Bw horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Texture—silt loam, loam, or very fine sandy loam

Content of clay—averages 5 to 10 percent

Content of rock fragments—0 to 30 percent, mainly pebbles

Structure—weak or moderate, thin to thick, and platy; weak or moderate, fine to coarse, and subangular blocky; or massive

Reaction—mildly alkaline to strongly alkaline

Bq, Bk, and C horizons (when present):

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 or 3

Structure—weak to strong, thin or thick, and platy, or massive

Bqkm horizon:

Consistence—very hard or extremely hard

Reaction—moderately alkaline to very strongly alkaline

Other characteristics—two or more strongly cemented layers interbedded with weakly silica-cemented material or strata that have a friable matrix and durinodes

Bk and Bqk horizons (when present):

Texture—stratified loam, gravelly coarse sandy loam, or gravelly coarse sand

2Bqk, 2Bk, and 2C horizons (when present):

Texture—dominantly unconformable strata of very gravelly or extremely gravelly sand, coarse sand, loamy coarse sand, and sandy loam below a depth of 30 inches, but strata of clay in some pedons

Broyles Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Thin mantle of loess over mixed loamy alluvium

Positions on landscape: Fan skirts, inset fan remnants, fan aprons

Slope: 0 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Duric Camborthids

Typical Pedon

A—0 to 5 inches; light brownish gray (2.5YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and common medium oblique roots; many very fine vesicular and interstitial pores and few fine tubular pores; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bw—5 to 11 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) moist; yellowish brown (10YR 5/4) stains on faces of peds; weak and moderate medium and thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular, interstitial, and tubular pores; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bk—11 to 15 inches; light gray (10YR 7/2) sandy loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine random roots and very few medium oblique roots; many very fine vesicular, interstitial, and tubular pores; about 1 percent hard, firm, brittle durinodes 15 to 30 millimeters in diameter; very slightly effervescent in matrix and strongly effervescent in spots; very strongly alkaline (pH 9.2); abrupt wavy boundary.

Bqk—15 to 19 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular, interstitial, and tubular pores; about 25 percent hard, firm, brittle durinodes 10 to 25 millimeters in diameter; common fine lime filaments and threads; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Bqky1—19 to 28 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; very few very fine roots; common very fine vesicular, interstitial, and tubular pores; about 30 percent hard, firm, brittle durinodes 15 to 30 millimeters in diameter; few fine gypsum filaments, threads, and seams as much as 3 inches wide; slightly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Bqky2—28 to 44 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; massive; slightly

hard, very friable, nonsticky and nonplastic; very few very fine roots; common very fine vesicular, interstitial, and tubular pores; about 20 percent hard, firm, brittle durinodes 20 to 35 millimeters in diameter; common fine gypsum filaments, threads, and seams as much as 3 inches wide; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Cq—44 to 60 inches; very pale brown (10YR 7/3) loamy fine sand, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; nonbrittle when wet; common very fine tubular pores; silica cementation bridging sand grains; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Broyles very fine sandy loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 21 miles south of Battle Mountain; about 3,420 feet east and 700 feet north of the southwest corner of sec. 30, T. 32 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 55 degrees F

Depth to the Bk or Bqk horizon: 10 to 24 inches

Other characteristics: Strongly cemented duripan below a depth of 40 inches in some pedons

Control section:

Content of clay—5 to 15 percent

Texture—stratified fine sandy loam, very fine sandy loam, or silt loam in the upper part; loam, fine sandy loam, sandy loam, or loamy sand in the lower part

Content of rock fragments—0 to 35 percent pebbles, increasing with increasing depth

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—weak or moderate, thin to thick, and platy, or massive

Reaction—moderately alkaline or strongly alkaline

Other characteristics—commonly noneffervescent, but effervescent in some pedons because of recharge from dust

Bw horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—mainly 2 or 3, but 4 on faces of some peds

Structure—thin or medium and platy, fine to coarse and subangular blocky or prismatic, or massive
 Reaction—moderately alkaline or strongly alkaline

Bqk or 2Bqk horizon (when present):

Reaction—strongly alkaline or very strongly alkaline
 Other characteristics—20 to 75 percent durinodes; very weak silica cementation surrounding durinodes in matrix in some pedons; few or common fine gypsum filaments or seams in the lower part of some pedons

C horizon:

Hue—10YR or 2.5Y
 Value—6 to 8 dry, 4 to 6 moist
 Chroma—1 to 4
 Reaction—strongly alkaline or very strongly alkaline

Bubus Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock, mostly volcanic rock that is high in pyroclastic material

Positions on landscape: Alluvial flat remnants, lake-plain terraces

Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A—0 to 6 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; many fine vesicular and very fine interstitial pores; 10 percent fine pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

C1—6 to 10 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots and common fine and medium roots; few very fine interstitial pores and common very fine tubular pores; 5 percent fine pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2—10 to 15 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots and few fine and medium

roots; common very fine interstitial and tubular pores; 5 percent fine pebbles; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk1—15 to 29 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; few fine faint iron mottles that are brown (7.5YR 5/4 and 4/4) moist; massive; slightly hard and hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine tubular pores; 3 percent fine pebbles; 35 percent hard, firm and very firm, brittle durinodes 2 to 35 millimeters in diameter; fine filaments or threads of gypsum; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Cqk2—29 to 60 inches; very pale brown (10YR 7/4) very fine sandy loam, yellowish brown (10YR 5/4) moist; few fine distinct iron mottles that are yellowish brown (10YR 5/6) moist and few fine faint mottles that are dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; 3 percent fine pebbles; 35 percent hard, firm, brittle durinodes 2 to 30 millimeters in diameter; fine filaments or threads of gypsum; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Bubus very fine sandy loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 1.6 miles southeast of Battle Mountain; about 2,100 feet south and 1,750 feet east of the northwest corner of sec. 28, T. 32 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 53 degrees F

Content of clay in the control section: 10 to 15 percent

Content of rock fragments: 0 to 5 percent pebbles

Content of salt and sodium: Commonly strongly affected by salt and sodium throughout, but moderately or slightly affected in the upper part in some pedons

Other characteristics: Faint or distinct iron mottles and segregated gypsum common below a depth of 10 inches; stratified sand and gravel at a depth of more than 40 inches in some pedons

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—platy or massive

Consistence—nonsticky or slightly sticky, nonplastic or slightly plastic

Reaction—moderately alkaline to very strongly alkaline

Effervescence—slightly effervescent to violently effervescent

C horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4

Texture—dominantly very fine sandy loam, but stratified loam, silt loam, very fine sandy loam, fine sandy loam, or sandy loam in some pedons

Structure—platy or massive

Reaction—moderately alkaline to very strongly alkaline, commonly decreasing in alkalinity with increasing depth

Effervescence—strongly effervescent or violently effervescent

Cqk horizon (when present):

Reaction—moderately alkaline to very strongly alkaline

Content of durinodes—20 to 70 percent

Bucan Series

Depth class: Deep

Drainage class: Well drained

Parent material: Loess that is high in content of volcanic ash over residuum and colluvium derived from extrusive volcanic rock

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 35 percent with cobbles and stones.

A—0 to 4 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, sticky and slightly plastic; few very fine and fine roots; few fine vesicular pores; 30 percent pebbles, 15 percent cobbles, and 10 percent stones; neutral (pH 7.3); clear smooth boundary.

Bt1—4 to 10 inches; pale brown (10YR 6/3) clay, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; 10 percent pebbles; common moderately thick clay films on faces of pedons and lining pores and few thick clay films on

faces of pedons; mildly alkaline (pH 7.8); abrupt wavy boundary.

Bt2—10 to 18 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; very hard, firm, very sticky and very plastic; common fine roots; common fine tubular pores; 10 percent pebbles; common moderately thick clay films on faces of pedons and lining pores and few thick clay films on faces of pedons; mildly alkaline (pH 7.8); abrupt wavy boundary.

2Btk1—18 to 36 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few fine tubular pores; 20 percent pebbles and 5 percent cobbles; common moderately thick clay films on faces of pedons and lining pores; thin lime coatings on the underside of rock fragments; mildly alkaline (pH 7.8); gradual wavy boundary.

2Btk2—36 to 52 inches; light reddish brown (10YR 6/4) gravelly clay loam, reddish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few fine and medium roots; few fine tubular pores; 20 percent pebbles and 10 percent cobbles; few moderately thick clay films on faces of pedons; thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.2); gradual irregular boundary.

R—52 inches; basalt.

Typical Pedon Location

Soil name and map unit in which located: Bucan very cobbly loam, 30 to 50 percent slopes, in Walti-Softscrabble-Bucan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles east of Austin; about 600 feet north of the southwest corner of sec. 12, T. 20 N., R. 47 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part late in October to early in June

Average annual soil temperature: 45 to 47 degrees F

Thickness of the solum and depth to bedrock: 40 to 60 inches

Other characteristics: The epipedon is less than one-third as thick as the solum

Control section:

Content of clay—45 to 60 percent

Content of rock fragments—as much as 15 percent when mixed

Depth to segregated lime—15 to 30 inches

A horizon:

Value—5 or 6 dry (value of 6 occurs when the upper 7 inches are mixed), 3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate, very thin to medium, and platy; weak or moderate, fine or medium, and granular or subangular blocky; or massive

Consistence—soft or slightly hard (dry)

Bt horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 4

Content of clay—45 to 60 percent

Content of rock fragments—as much as 15 percent

Structure—weak to strong, fine or medium, and subangular or angular blocky in the upper part; moderate or strong, fine or medium, and prismatic in the lower part

Reaction—neutral or mildly alkaline

2Btk horizon:

Value—4 to 6 dry, 4 or 5 moist

Chroma—3 to 6

Texture—gravelly clay loam, gravelly clay, or cobbly clay

Content of clay—35 to 45 percent

Content of rock fragments—15 to 35 percent, mainly pebbles (cobbles common in the lower part in some pedons)

Structure—medium and fine angular blocky or prismatic, or massive

Reaction—mildly alkaline to strongly alkaline

Buffaran Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan piedmonts, mountain valley fans, ballenas

Slope: 2 to 30 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Clayey, montmorillonitic, mesic, shallow Xerollic Durargids

Typical Pedon

About 15 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots and

common fine and medium roots; common fine and very fine and few medium vesicular and tubular pores; 15 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—5 to 13 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common fine exped roots and few medium roots; few very fine and fine tubular pores; 10 percent pebbles; continuous moderately thick clay films on faces of peds and plugging pores; mildly alkaline (pH 7.8); clear smooth boundary.

Bt2—13 to 16 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 3/6) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; common fine exped roots and few very fine, fine, and medium roots; few very fine, fine, and medium tubular pores; 20 percent pebbles; many thick clay films on faces of peds and lining pores; mildly alkaline (pH 7.8); clear wavy boundary.

Bqkm1—16 to 20 inches; strongly cemented duripan that has a 0.5-inch-thick, indurated, laminar cap; massive; extremely hard, extremely firm; 30 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqkm2—20 inches; indurated duripan; massive; extremely hard, extremely firm; strongly effervescent.

Typical Pedon Location

Soil name and map unit in which located: Buffaran gravelly loam, 2 to 8 percent slopes, in Buffaran-Spasprey-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 21 miles west of Austin; about 500 feet north and 2,150 feet east of the southwest corner of sec. 8, T. 19 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 14 to 20 inches

A horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed), 3 or 4 moist

Chroma—2 or 3

Structure—subangular blocky or platy

Bt horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2, 3, 4, or 6

Texture—clay or clay loam
 Content of clay—35 to 50 percent
 Content of rock fragments—10 to 30 percent,
 mostly gravel
 Reaction—neutral or mildly alkaline

Bq horizon (when present):

Texture—loam or clay loam
 Reaction—neutral to moderately alkaline
 Effervescence—noneffervescent to strongly
 effervescent
 Other characteristics—20 to 40 percent strongly
 cemented duripan fragments

Burrita Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from interbedded
 chert, quartzite, sandstone, shale, and greenstone

Positions on landscape: Crests of hills, side slopes of
 mountains

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic,
 mesic Lithic Xerollic Haplargids

Typical Pedon

- A—0 to 3 inches; pale brown (10YR 6/3) very cobbly
 loam, brown (10YR 4/3) moist; moderate medium
 platy structure; slightly hard, very friable, slightly
 sticky and slightly plastic; common very fine and
 fine roots and few medium roots; many fine and
 common medium vesicular pores; 20 percent
 pebbles and 25 percent cobbles; moderately
 alkaline (pH 8.0); abrupt smooth boundary.
- Bt1—3 to 6 inches; light yellowish brown (10YR 6/4)
 gravelly clay loam, dark yellowish brown (10YR 4/4)
 moist; moderate medium subangular blocky
 structure; slightly hard, friable, slightly sticky and
 slightly plastic; common very fine, fine, and medium
 roots; common fine and few medium tubular pores;
 20 percent pebbles; common thin and few
 moderately thick clay films on faces of peds and
 lining pores; moderately alkaline (pH 8.0); clear
 smooth boundary.
- Bt2—6 to 13 inches; yellowish brown (10YR 5/4) very
 gravelly clay loam, dark yellowish brown (10YR 3/4)
 moist; strong medium angular blocky structure;
 hard, firm, sticky and plastic; common fine roots and
 few fine and medium roots; common fine and few
 medium tubular pores; 30 percent pebbles and 5

percent cobbles; common moderately thick clay
 films on faces of peds and lining pores; moderately
 alkaline (pH 8.2); clear wavy boundary.

Bt3—13 to 18 inches; yellowish brown (10YR 5/4) very
 cobbly clay loam, dark yellowish brown (10YR 3/4)
 moist; strong medium angular blocky structure;
 hard, friable, very sticky and very plastic; few fine
 and medium roots; few fine and medium tubular
 pores; 30 percent pebbles and 20 percent cobbles;
 common moderately thick clay films on faces of
 peds and lining pores; moderately alkaline (pH 8.2);
 abrupt smooth boundary.

R—18 inches; quartzite.

Typical Pedon Location

Soil name and map unit in which located: Burrita very
 cobbly loam, 4 to 15 percent slopes, in Trunk-
 Burrita-Rock outcrop association

Location in Nevada: Lander County, Nevada, North Part,
 survey area; about 22 miles south of Battle
 Mountain; in an unsectionalized area about 2,400
 feet south and 2,600 feet west of the northeast
 corner of the assumed sec. 28, T. 28 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in
 July through October

Average annual soil temperature: 47 to 50 degrees F

*Combined thickness of the A and Bt horizons and depth
 to bedrock:* 14 to 20 inches

Control section:

Content of clay—35 to 50 percent

Content of rock fragments—35 to 60 percent when
 mixed, mainly pebbles, cobbles, and stones

Reaction—moderately alkaline or strongly alkaline

A horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Consistence—soft or slightly hard

Bt horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 to 6

Texture—very gravelly clay, very cobbly clay, very
 stony clay, very gravelly clay loam, very cobbly
 clay loam, or very stony clay loam

Structure—subangular blocky, angular blocky, or
 massive

Caniwe Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loess and alluvium derived from various kinds of rock

Positions on landscape: Inset fans within mountain valley fans

Slope: 2 to 4 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-silty, mixed, mesic Aridic Duric Haploxerolls

Typical Pedon

A1—0 to 4 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots; common very fine tubular pores; neutral (pH 7.0); abrupt smooth boundary.

A2—4 to 9 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to moderate thin platy; slightly hard, very friable, sticky and plastic; common very fine, fine, and medium roots; common very fine tubular pores; neutral (pH 7.3); clear smooth boundary.

A3—9 to 17 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine, fine, and medium roots; common very fine tubular pores; neutral (pH 7.2); gradual wavy boundary.

2Cq1—17 to 29 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, very friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; 40 percent weakly cemented durinodes 5 to 15 millimeters in diameter; mildly alkaline (pH 7.4); gradual wavy boundary.

2Cq2—29 to 40 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; few very fine roots; common very fine tubular pores; 55 percent weakly cemented durinodes 5 to 15 millimeters in diameter; mildly alkaline (pH 7.6); clear wavy boundary.

3Ck—40 to 60 inches; very pale brown (10YR 7/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, sticky and plastic; very few very fine roots; few very fine tubular pores; common strongly effervescent fine lime seams and filaments; noneffervescent in matrix; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Caniwe silt loam, 2 to 8 percent slopes, in Handy-Caniwe-Zoesta association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 35 miles south of Battle Mountain; about 600 feet north and 1,200 feet east of the southwest corner of sec. 8, T. 25 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to early in October

Average annual soil temperature: 47 to 52 degrees F

Thickness of the mollic epipedon: 10 to 19 inches

Depth to the Cq horizon: 14 to 26 inches

Depth to carbonates: 30 to 46 inches

Control section:

Content of clay—20 to 35 percent

Content of rock fragments—less than 5 percent

Texture—dominantly stratified silt loam or silty clay loam, but thin strata of clay loam or loam common in some pedons

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Cq horizon:

Value—3 or 4 moist

Chroma—2 to 4

Reaction—mildly alkaline or moderately alkaline

Other characteristics—25 to 60 percent weakly silica-cemented durinodes in a very friable or friable matrix

Caphor Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium

Positions on landscape: Fan skirts

Slope: 0 to 4 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 5/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; very few fine roots; common very fine and few fine and medium vesicular pores;

strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; very few very fine, fine, and medium roots; common fine and few very fine and medium vesicular pores; 5 percent pebbles; common fine lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk—7 to 17 inches; pale brown (10YR 6/3) sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; few fine and medium tubular pores; 5 percent pebbles; 10 percent weakly cemented durinodes; few fine lime filaments or threads and common medium lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk—17 to 35 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; 55 percent light gray (10YR 7/2), discontinuous, thick lenses that are very hard, very firm, and strongly silica-cemented; massive; slightly hard, friable, slightly sticky and nonplastic; 5 percent pebbles; common medium lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Ck—35 to 60 inches; pale brown (10YR 6/3) gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; 30 percent pebbles; common thin lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Caphor fine sandy loam, 0 to 2 percent slopes, in Caphor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles southeast of Austin, in the northern part of the Big Smoky Valley; about 2,000 feet south and 1,300 feet west of the northeast corner of sec. 14, T. 17 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist for short periods in November through May

Average annual soil temperature: 47 to 52 degrees F

Depth to Bqk horizon: 15 to 30 inches

Depth to 2Ck horizon: 24 to 39 inches

Control section:

Texture—fine sandy loam or sandy loam

Content of clay—8 to 18 percent

Content of rock fragments—less than 15 percent when mixed, mainly pebbles

Reaction—moderately alkaline or strongly alkaline, increasing in alkalinity with increasing depth

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Bk horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 or 4

Bqk horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4

Other characteristics—20 to 60 percent discontinuous strong silica cementation in a friable matrix

2C horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 or 4

Texture—stratified loamy sand or coarse sand

Content of pebbles—25 to 50 percent

Chad Series

Depth class: Deep

Drainage class: Well drained

Parent material: Residuum derived from chert and shale

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, mixed, frigid Aridic Argixerolls

Typical Pedon

About 10 percent of the surface is covered with pebbles and 20 percent with cobbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and plastic; common very fine and fine roots; many very fine interstitial pores and few fine tubular pores; 10 percent pebbles and 20 percent cobbles; neutral (pH 7.0); clear wavy boundary.

A2—4 to 11 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine and fine roots and

few medium roots; common very fine tubular and interstitial pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.

BA—11 to 14 inches; brown (10YR 5/3) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate fine angular blocky; hard, firm, sticky and plastic; few fine exped roots; common very fine and few fine tubular pores; 10 percent pebbles; few thin clay films on faces of peds; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—14 to 28 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure parting to strong fine angular blocky; hard, firm, sticky and plastic; few fine exped roots; common very fine tubular pores; 10 percent pebbles; many moderately thick clay films on faces of peds and lining pores; strongly effervescent; mildly alkaline (pH 7.4); clear smooth boundary.

Bt2—28 to 43 inches; dark yellowish brown (10YR 4/6) gravelly clay, dark yellowish brown (10YR 3/6) moist; moderate medium prismatic structure parting to strong fine angular blocky; hard, firm, sticky and plastic; common very fine and few medium tubular pores; 15 percent pebbles; many moderately thick pressure faces; strongly effervescent; mildly alkaline (pH 7.6); abrupt wavy boundary.

Cr—43 inches; highly fractured shale.

Typical Pedon Location

Soil name and map unit in which located: Chad cobbly loam, 30 to 50 percent slopes, in Walti-Softscrabble-Chad association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles northeast of Austin; about 1,000 feet south and 1,600 feet west of the northeast corner of sec. 8, T. 21 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October

Average annual soil temperature: 43 to 45 degrees F

Thickness of the mollic epipedon: 10 to 15 inches (includes the upper part of the argillic horizon in some pedons)

Combined thickness of the A and Bt horizons: 40 to 52 inches

Depth to bedrock: 40 to 60 inches

Content of clay in the upper part of the argillic horizon: 35 to 45 percent when mixed

Content of rock fragments in the control section: 10 to 30 percent fine pebbles

Other characteristics: C horizon present in some pedons

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

Bt horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 in the upper part; as much as 6 in the lower part

Texture—clay loam or clay, commonly gravelly

Structure—prismatic or angular blocky

Chedehap Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium

Positions on landscape: Inset fans, fan aprons

Slope: 2 to 8 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Xerollic Camborthids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) coarse sandy loam, brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many fine and common medium interstitial and vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bw—5 to 12 inches; light brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and medium roots and common fine roots; common fine and medium tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bk1—12 to 25 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk2—25 to 37 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; very few fine roots; few fine tubular pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

2Bk3—37 to 60 inches; light brownish gray (10YR 6/2) loamy coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; 15 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Chedehap coarse sandy loam, 2 to 8 percent slopes, in Chedehap-Enko-Ricert association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 9 miles southeast of Austin; about 1,400 feet north and 2,300 feet east of the southwest corner of sec. 21, T. 18 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in some part from mid-October through May, dry in summer and early in fall

Average annual soil temperature: 47 to 52 degrees F

Depth to 2C horizon: 25 to 40 inches

Control section:

Texture—averages sandy loam or coarse sandy loam

Content of clay—9 to 14 percent

Content of rock fragments—0 to 15 percent pebbles when mixed

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral to moderately alkaline

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak and prismatic, or weak or moderate and subangular blocky

Reaction—neutral to moderately alkaline

Chiara Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Mantle of loess that is high in content of volcanic ash over alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durorthids

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin and weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine and fine tubular pores and common fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; strong thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 10 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—5 to 11 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine roots and few medium and coarse roots; few fine tubular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk—11 to 16 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine tubular pores; 20 percent weakly cemented durinodes; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

2Bqkm—16 to 26 inches; white (10YR 8/2), indurated duripan with continuous, very thin, silica laminae; massive; extremely hard, very firm; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Chiara very fine sandy loam, 2 to 8 percent slopes, in Bioya-Chiara-Cortez association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles north of Battle Mountain; about 450 feet west and 600 feet north of the southeast corner of sec. 33, T. 36 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 47 to 53 degrees F

Depth to the duripan: 10 to 20 inches

Depth to lime accumulation: 7 to 15 inches

Control section:

Content of clay—5 to 18 percent

Content of sand—less than 15 percent fine or coarser

Texture—very fine sandy loam, loam, or silt loam
 Content of rock fragments—dominantly as much as 5 percent when mixed, mainly pebbles; 4 to 25 percent, mainly duripan fragments, in thin layers in some pedons

A horizon:

Value—3 or 4 moist
 Chroma—2 or 3
 Structure—weak or moderate, thin to thick, and platy, or massive
 Reaction—neutral to moderately alkaline

Bw horizon:

Value—6 or 7 dry, 3 to 5 moist
 Chroma—3 or 4
 Structure—weak to strong, fine to coarse, and subangular blocky, or weak and prismatic
 Reaction—mildly alkaline to strongly alkaline

Bqk horizon:

Reaction—moderately alkaline or strongly alkaline
 Other characteristics—20 to 60 percent weakly cemented, brittle durinodes 0.3 to 1.0 inch in diameter

Bqkm horizon:

Value—6 to 8 dry, 5 to 7 moist
 Chroma—2 to 4
 Structure—massive; or weak or moderate, thick, and platy
 Other characteristics—gravelly and sandy strata below a depth of 40 inches in some pedons

Clanalpine Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolitic and andesitic tuff

Positions on landscape: Side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 15 inches

Mean annual temperature: About 41 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Typic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles, 40 percent with cobbles, and 5 percent with stones.

A1—0 to 4 inches; grayish brown (10YR 5/2) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and

nonplastic; common very fine and fine roots; many very fine vesicular pores; 25 percent pebbles and 35 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—4 to 9 inches; grayish brown (10YR 5/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 10 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt1—9 to 12 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine tubular pores; common thin clay films on peds; 30 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt2—12 to 22 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, friable, very sticky and plastic; few medium roots; many very fine tubular pores; common moderately thick clay films on peds; 30 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt3—22 to 27 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common very fine tubular pores; common thin clay films on peds; 30 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

BC—27 to 38 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; few fine roots; common very fine interstitial pores; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); abrupt irregular boundary.

2Cr—38 to 49 inches; weathered, highly fractured rhyolitic tuff; some soil material and roots in some pockets.

Typical Pedon Location

Soil name and map unit in which located: Clanalpine extremely cobbly loam, 30 to 50 percent slopes, in Itca-Clanalpine-Torro association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 33 miles southwest of

Austin: about 1,200 feet south and 800 feet west of the northeast corner of sec. 15, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to mid-October

Average annual soil temperature: 43 to 45 degrees F

Thickness of the mollic epipedon: 8 to 14 inches (includes the Bt1 horizon in some pedons)

Thickness of the solum: 20 to 40 inches

Depth to paralithic contact: 20 to 40 inches

Depth to lithic contact: 40 to 60 inches

Other characteristics: Some pedons do not have a BC horizon overlying the paralithic contact

Control section:

Content of clay—25 to 35 percent

Content of rock fragments—35 to 60 percent, mainly pebbles and cobbles

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—weak or moderate, fine or medium, and subangular blocky

Bt horizon:

Value—dominantly 6 or 7 dry and 4 or 5 moist, but 5 dry and 3 moist in the upper part in 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

Reaction—neutral or mildly alkaline

Cleavage Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolite and other igneous rock

Positions on landscape: Crests and side slopes of mountains

Slope: 4 to 30 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical Pedon

About 60 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 4 inches; grayish brown (10YR 5/2) very

gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine vesicular pores; 30 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

BA—4 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 25 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt—7 to 15 inches; brown (10YR 5/3) extremely gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium angular blocky structure; slightly hard, friable, sticky and plastic; few medium roots; common very fine tubular pores; common thin clay films on faces of peds; 50 percent pebbles and 20 percent cobbles; neutral (pH 7.2); abrupt irregular boundary.

2R—15 inches; rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Cleavage very gravelly fine sandy loam, 4 to 15 percent slopes, in Softscrabble-Walti-Cleavage association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles east of Austin; about 2,000 feet south and 2,800 feet east of the northwest corner of sec. 28, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October for 70 to 120 consecutive days

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 10 inches (excluding Bt horizon)

Depth to bedrock: 14 to 20 inches

Reaction: Neutral or mildly alkaline

Control section:

Content of clay—20 to 35 percent

Content of rock fragments—50 to 80 percent, mostly pebbles and cobbles

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—platy, granular, or subangular blocky

BA horizon:

Chroma—2 to 4

Texture—very cobbly loam or very gravelly loam

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—dominantly very cobbly, extremely cobbly, very gravelly, or extremely gravelly clay loam or very gravelly sandy clay loam, but very cobbly or very gravelly loam in some pedons

Structure—subangular blocky, angular blocky, or massive

Colbar Series*Depth class:* Moderately deep*Drainage class:* Well drained*Parent material:* Residuum and colluvium derived from rhyolitic and andesitic rock*Positions on landscape:* Foothills*Slope:* 15 to 50 percent*Mean annual precipitation:* About 9 inches*Mean annual temperature:* About 48 degrees F**Taxonomic class:** Fine-loamy, mixed, mesic Xerollic Haplargids**Typical Pedon**

About 10 percent of the surface is covered with pebbles and 30 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; weak very thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; common very fine vesicular and tubular pores; 15 percent pebbles and 20 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

BA—3 to 8 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium and coarse roots; common very fine and fine tubular pores; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bt—8 to 22 inches; yellowish brown (10YR 5/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate very fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; many thin clay films in pores and on peds; 5 percent pebbles, 10 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk—22 to 26 inches; yellowish brown (10YR 5/4) cobbly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; 5 percent pebbles, 10 percent cobbles, and 5 percent stones; few thin slightly effervescent lime coatings on the underside of rock fragments; noneffervescent in matrix; moderately alkaline (pH 8.4); abrupt wavy boundary.

2R—26 inches; fractured, rhyolitic tuff.

Typical Pedon Location*Soil name and map unit in which located:* Colbar very cobbly loam, 30 to 50 percent slopes, in Old Camp-Rock outcrop-Colbar association, strongly sloping
Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain; about 1,600 feet north and 1,700 feet east of the southwest corner of sec. 11, T. 26 N., R. 42 E.**Range in Characteristics***Soil moisture content:* Dry in summer and fall, moist late in winter and in spring*Average annual soil temperature:* 48 to 52 degrees F*Depth to bedrock:* 20 to 40 inches*Combined thickness of the A and Bt horizons:* 11 to 24 inches*Other characteristics:* Bk horizon that has thin lime coatings on the underside of rock fragments present below the Bt horizon in some pedons*Control section:*

Content of clay—25 to 35 percent

Content of rock fragments—15 to 35 percent, mainly pebbles and cobbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate, very fine to medium, and subangular blocky; or weak or moderate, very thin to medium, and platy

Reaction—mildly alkaline or moderately alkaline

Bt horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4

Structure—weak to strong, very fine, fine, or medium, and subangular blocky

Texture—cobbly loam, cobbly clay loam, or gravelly clay loam

Reaction—mildly alkaline or moderately alkaline

C and Bk horizons (when present):

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4

Texture—gravelly loam or cobbly loam

Coztur Series*Depth class:* Shallow*Drainage class:* Well drained*Parent material:* Residuum derived from volcanic and tuffaceous rock*Positions on landscape:* Crests and side slopes of mountains and hills*Slope:* 2 to 30 percent*Mean annual precipitation:* About 11 inches*Mean annual temperature:* About 43 degrees F**Taxonomic class:** Loamy, mixed, frigid Lithic Xerollic Haplargids**Typical Pedon**

About 10 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common fine and medium vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

A2—3 to 7 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

BA—7 to 11 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bt—11 to 17 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; common thin clay films on peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

R—17 inches; unweathered tuff.

Typical Pedon Location

Soil name and map unit in which located: Coztur loam, 2 to 8 percent slopes, in Coztur-Genaw association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 38 miles southwest of Battle Mountain; about 1,270 feet south and 250 feet west of the northeast corner of sec. 16, T. 27 N., R. 41 E.

Range in Characteristics

Soil moisture content: Dry in summer and fall, moist in winter and spring

Average annual soil temperature: 43 to 46 degrees F

Depth to bedrock: 14 to 20 inches

Reaction: Neutral or mildly alkaline

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

BA horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4

Bt horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4

Content of clay—22 to 35 percent

Texture—loam or clay loam

Content of rock fragments—less than 15 percent, mainly pebbles

Creemon Series*Depth class:* Very deep*Drainage class:* Well drained*Parent material:* Silty alluvium that is derived from various kinds of rock and includes some volcanic ash*Positions on landscape:* Fan skirts, inset fans, beach terraces*Slope:* 0 to 2 percent*Mean annual precipitation:* About 7 inches*Mean annual temperature:* About 49 degrees F**Taxonomic class:** Coarse-silty, mixed, mesic Duric Camborthids**Typical Pedon**

A1—0 to 6 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; strong thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; many fine vesicular pores and many very fine tubular

pores; moderately alkaline (pH 8.0); clear wavy boundary.

A2—6 to 10 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate medium platy structure; hard, very friable, slightly sticky and plastic; many very fine and few fine roots; many very fine tubular pores; moderately alkaline (pH 8.4); clear wavy boundary.

Bw—10 to 15 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine tubular pores; strongly alkaline (pH 8.6); abrupt irregular boundary.

Bqk1—15 to 21 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular pores; 25 percent weak durinodes 10 to 25 millimeters in diameter; 50 percent discontinuous, hard, firm, brittle, weakly silica-cemented lenses 1 to 6 inches thick; strongly effervescent; common fine lime filaments; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk2—21 to 28 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and slightly plastic; many very fine and few fine and medium roots; common very fine tubular pores; 35 percent weak and moderately strong durinodes 20 to 35 millimeters in diameter; common fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Bqk3—28 to 45 inches; very pale brown (10YR 7/3) and yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) and brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots and few fine and medium roots; few very fine tubular pores; 25 percent weak and moderately strong durinodes 15 to 30 millimeters in diameter; few fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

C—45 to 62 inches; light yellowish brown (10YR 6/4) gravelly very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and slightly plastic; common very fine roots; common very fine interstitial and tubular pores; 15 percent flat and rounded pebbles that are 2 to 30 millimeters in size; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Creemon silt loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 40 miles southwest of Battle Mountain; about 2,400 feet north and 1,250 feet east of the southwest corner of sec. 15, T. 26 N., R. 43 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May

Average annual soil temperature: 48 to 52 degrees F

Combined thickness of the A and Bw horizons: 11 to 15 inches

Depth to the Bqk horizon: 11 to 20 inches

Other characteristics: Lenses of volcanic ash in the lower part in some pedons; as much as 20 percent pebbles at a depth of more than 40 inches in some pedons; continuous, weakly silica-cemented layer at a depth of 40 to 55 inches in some pedons; generally moderately or strongly affected by salt and sodium below a depth of 20 to 30 inches, but moderately or strongly affected by salt and sodium throughout in some pedons

Control section:

Content of clay—8 to 18 percent

Texture—stratified silt loam to very fine sandy loam

Reaction—moderately alkaline or strongly alkaline

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Consistence—soft or slightly hard, nonsticky or slightly sticky, slightly plastic or plastic

Effervescence—noneffervescent or slightly effervescent

Bw horizon:

Value—6 or 7 dry

Chroma—2 or 3

Structure—thin and platy, or massive

Consistence—soft or slightly hard, nonsticky or slightly sticky, slightly plastic or plastic

Bqk horizon:

Value—5 to 7 dry

Chroma—2 to 4

Consistence—soft or slightly hard, nonsticky or slightly sticky

Effervescence—strongly effervescent or violently effervescent

Other characteristics—20 to 40 percent durinodes; 3- to 10-inch-thick layer in many pedons that is 20 to 60 percent discontinuous, weakly silica-cemented lenses and is between depths of 11 and 29 inches

Cren Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium that is derived from various kinds of rock and includes some volcanic ash

Positions on landscape: Fan skirts, inset fans

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

- A—0 to 7 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many fine vesicular pores and many very fine interstitial and tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.
- Bk1—7 to 18 inches; light gray (2.5Y 7/2) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine interstitial and tubular pores; violently effervescent; common fine filaments of lime; 2 percent small, weak durinodes; strongly alkaline (pH 8.6); gradual smooth boundary.
- Bk2—18 to 26 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 2 percent weak durinodes; violently effervescent; few fine filaments of lime; strongly alkaline (pH 8.6); abrupt smooth boundary.
- Bqk1—26 to 29 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial and tubular pores; 30 percent weak, discontinuous, silica-cemented lenses; 2 percent small durinodes; violently effervescent; common medium filaments of lime; strongly alkaline (pH 8.8); abrupt smooth boundary.
- Bqk2—29 to 49 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; few fine horizontal lenses of volcanic ash; 30 percent weak durinodes 5 to 15 millimeters in diameter; violently effervescent; few fine filaments

of lime; strongly alkaline (pH 8.8); clear wavy boundary.

Bqk3—49 to 60 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and plastic; many very fine roots; many very fine tubular pores; 20 percent weak and moderately strong durinodes 10 to 30 millimeters in diameter; violently effervescent; common fine filaments of lime; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Cren silt loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 62 miles southwest of Battle Mountain; about 2,700 feet west and 2,200 feet south of the northeast corner of sec. 34, T. 25 N., R. 40 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May

Average annual soil temperature: 48 to 53 degrees F

Depth to the Bqk horizon: 15 to 30 inches

Reaction: Moderately alkaline or strongly alkaline

Other characteristics: Lenses of volcanic ash present in the lower part in some pedons

Control section:

Texture—averages silt loam that is less than 15 percent fine sand or coarser textured material
Content of clay—8 to 18 percent

A horizon:

Hue—10YR or 2.5Y
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—platy, prismatic, or massive

Bk horizon:

Value—5 to 7 dry
Chroma—2 to 4
Texture—dominantly silt loam, but common thin strata of very fine sandy loam or fine sandy loam in some pedons
Consistence—soft or slightly hard (dry), nonsticky or slightly sticky (wet)

Bqk horizon:

Value—5 to 7 dry
Chroma—2 to 4
Texture—dominantly silt loam, but common thin strata of very fine sandy loam or fine sandy loam in some pedons
Consistence—soft or slightly hard (dry), nonsticky or slightly sticky (wet)
Other characteristics—20 to 40 percent weakly or

moderately strongly cemented durinodes; 3- to 10-inch-thick layer in some pedons that is 20 to 50 percent discontinuous and weakly silica-cemented and is at a depth of 15 to 30 inches

Davey Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Sand sheets

Slope: 0 to 4 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Sandy, mixed, mesic Xerollic Camborthids

Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate thin and medium platy; slightly hard, very friable, nonsticky and slightly plastic; common very fine random roots and few fine horizontal roots; many very fine vesicular, interstitial, and tubular pores; neutral (pH 7.4); clear wavy boundary.

Bw—5 to 13 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine random roots and common fine and medium oblique and horizontal roots; common very fine vesicular, interstitial, and tubular pores; mildly alkaline (pH 7.6); clear wavy boundary.

C—13 to 20 inches; light gray (10YR 7/2) loamy fine sand, brown (10YR 4/3) moist; soft, very friable, nonsticky and nonplastic; many very fine random roots and very few fine and medium oblique roots; common very fine vesicular and interstitial pores and few very fine tubular pores; 3 percent rounded pebbles 2 to 10 millimeters in diameter; slightly effervescent; strongly alkaline (pH 8.5); clear wavy boundary.

Ck1—20 to 29 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine random roots and very few fine and few medium oblique roots; common very fine vesicular and interstitial pores; 3 percent rounded pebbles 2 to 15 millimeters in diameter; few fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Ck2—29 to 41 inches; very pale brown (10YR 7/3)

loamy fine sand, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine random roots and very few fine and medium oblique and vertical roots; common very fine vesicular and interstitial pores; 2 percent weak and very weak durinodes 5 to 10 millimeters in diameter; 10 percent 2- to 30-millimeter, flat and rounded, partially lime-coated pebbles; common fine lime filaments; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Ck3—41 to 60 inches; very pale brown (10YR 7/3) loamy fine sand, yellowish brown (10YR 5/4) moist; few fine faint iron mottles that are brownish yellow (10YR 6/6) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine random roots and very few fine vertical roots; common very fine vesicular and interstitial pores; 10 percent weak and very weak durinodes 5 to 30 millimeters in diameter; 5 percent rounded, 2- to 30-millimeter, partially lime-coated pebbles; slightly effervescent in matrix; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Davey fine sandy loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 15 miles northwest of Battle Mountain; about 60 feet south and 2,900 feet west of the northeast corner of sec. 9, T. 34 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in May through October

Average annual soil temperature: 47 to 53 degrees F

Combined thickness of the A and Bw horizons: 11 to 23 inches

Depth to lime accumulation: 11 to 24 inches

Depth to gypsum crystals (in some pedons): More than 20 inches

Other characteristics: Gypsum crystals at a depth of more than 20 inches in some pedons; continuous, weak or strong, silica cementation below a depth of 50 inches in some pedons; strata of unconformable very fine sandy loam or silt loam below a depth of 40 inches in some pedons

Control section:

Content of clay—5 to 10 percent

Content of rock fragments—as much as 30 percent, but averages less than 15 percent

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry (value of more than 5.5 occurs

when the upper 7 inches is mixed); 3 or 4 moist

Chroma—1 to 3

Reaction—neutral or mildly alkaline

Bw horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Texture—dominantly loam, fine sandy loam, or sandy loam, but gravelly sandy loam in the lower part in some pedons

Structure—prismatic or massive

Reaction—neutral to moderately alkaline

C and Ck horizons:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture—dominantly fine sand, loamy fine sand, or loamy sand, but thin strata of fine sandy loam or coarse sand in some pedons

Reaction—moderately alkaline or strongly alkaline

Effervescence (Ck horizon)—slightly effervescent to violently effervescent

Other characteristics—lime in few or common filaments or as partial coatings on rock fragments; as much as 10 percent weakly cemented durinodes at a depth of more than 20 inches; relict mottles at a depth of more than 40 inches in some pedons

loam, dark brown (10YR 3/3) moist; moderate fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and very fine roots; common fine and very fine interstitial and tubular pores; 35 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bw—11 to 24 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine angular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; common fine and very fine interstitial and tubular pores; 45 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.*C*—24 to 28 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist; weak fine and very fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine interstitial pores; 40 percent pebbles and 30 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.*R*—28 inches; andesite.**Typical Pedon Location***Soil name and map unit in which located:* Decram very gravelly loam, 15 to 30 percent slopes, extremely stony, in Decram-Hapgood-Chad association*Location in Nevada:* Lander County, Nevada, South Part, survey area; about 20 miles northeast of Austin, in the Simpson Park Mountains; about 2,000 feet east and 2,300 feet north of the southwest corner of sec. 30, T. 21 N., R. 48 E.**Range in Characteristics***Soil moisture content:* Moist in winter and spring, dry in summer and early in fall for 60 to 90 days*Average annual soil temperature:* 42 to 45 degrees F*Thickness of the mollic epipedon:* 7 to 15 inches*Average summer soil temperature:* 55 to 59 degrees F*Depth to bedrock:* 20 to 40 inches*Control section (when mixed):*

Content of clay—18 to 25 percent

Content of angular rock fragments—35 to 70 percent

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Decram Series*Depth class:* Moderately deep*Drainage class:* Well drained*Parent material:* Residuum derived from quartzite, chert, and volcanic rock*Positions on landscape:* Shoulder slopes and the upper side slopes of mountains*Slope:* 15 to 50 percent*Mean annual precipitation:* About 18 inches*Mean annual temperature:* About 42 degrees F**Taxonomic class:** Loamy-skeletal, mixed Typic Cryoborolls**Typical Pedon**

From 3 to 15 percent of the surface is covered with stones, 10 percent with cobbles, and 40 percent with pebbles.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; common fine and very fine interstitial pores; 35 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear smooth boundary.*A2*—6 to 11 inches; brown (10YR 4/3) very gravelly

Chroma—3 or 4

Texture—very gravelly loam or very cobbly loam

Structure—angular blocky or subangular blocky

Reaction—neutral or mildly alkaline

C horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—very gravelly loam, extremely gravelly loam, very cobbly loam, or extremely cobbly loam

Reaction—mildly alkaline or moderately alkaline

Other characteristics—coatings of lime on the underside of rock fragments in some pedons

Defler Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Inset fans

Slope: 0 to 4 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 4 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bk1—4 to 11 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 30 percent pebbles and 5 percent cobbles; thin lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—11 to 16 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; common very fine and fine

roots; common very fine interstitial pores; 45 percent pebbles, 5 percent cobbles, and 5 percent stones; thin lime coatings on rock fragments; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk—16 to 21 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 15 percent weakly silica-cemented durinodes 5 to 20 millimeters in diameter; 45 percent pebbles, 5 percent cobbles, and 5 percent stones; disseminated lime and common medium lime coatings on rock fragments; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

B'k1—21 to 34 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; common very fine interstitial pores; 50 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

B'k2—34 to 38 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; 45 percent pebbles; noneffervescent in matrix and common fine slightly effervescent lime filaments; mildly alkaline (pH 7.8); clear wavy boundary.

2C—38 to 60 inches; pale brown (10YR 6/3), stratified extremely gravelly coarse sand and very gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 50 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8).

Typical Pedon Location

Soil name and map unit in which located: Defler gravelly fine sandy loam, 0 to 2 percent slopes, in Defler-Orovada association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 24 miles southwest of Austin, in the Smith Creek Valley; about 1,200 feet west and 225 feet north of the southeast corner of sec. 35, T. 17 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in some part in November through May; dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to 2C horizon: 35 to 45 inches

Reaction: Mildly alkaline to strongly alkaline

Control section:

Content of clay—8 to 18 percent

Texture—averages very gravelly fine sandy loam, very gravelly loam, or very gravelly sandy loam

Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3

Structure—platy or granular

Bk horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 to 4

Other characteristics—filaments or coatings of lime on rock fragments; strata that are 5 to 15 percent weakly silica-cemented durinodes present at a depth of more than 12 inches in some pedons

2C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Texture—stratified very gravelly sandy loam to extremely gravelly coarse sand

Content of rock fragments—50 to 70 percent, mainly pebbles

Desatoya Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 2 to 50 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Clayey over loamy-skeletal, montmorillonitic, mesic Durixerollic Haplargids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, sticky and plastic; few very fine roots; many very fine vesicular pores; 35 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt1—3 to 6 inches; brown (10YR 5/3) clay loam, dark

yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; soft, very friable, very sticky and very plastic; common very fine and fine roots; many very fine interstitial pores; few thin clay films bridging sand grains and on faces of peds; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt2—6 to 10 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine interstitial and tubular pores; many thin and common moderately thick clay films on faces of peds; 30 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

Btk—10 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine and fine roots and few medium roots; few very fine tubular and interstitial pores; common thin clay films on faces of peds; 30 percent pebbles; disseminated lime and common fine lime concretions; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk1—14 to 23 inches; very pale brown (10YR 7/3), continuous, weakly silica-cemented very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, firm, nonsticky and nonplastic; few fine and medium roots; few very fine tubular pores; 40 percent pebbles; 30 percent discontinuous strongly silica-cemented masses; disseminated lime and many fine lime concretions; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk2—23 to 38 inches; very pale brown (10YR 8/3), continuous, weakly silica-cemented very gravelly sandy loam, very pale brown (10YR 7/4) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; 20 percent discontinuous strongly silica-cemented lenses and 20 percent horizontal lenses of very gravelly loamy sand as much as 2 inches thick; many fine concretions and seams of lime; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

Bqk3—38 to 60 inches; very pale brown (10YR 8/3) very gravelly loamy sand, very pale brown (10YR 7/4) moist; single grain; loose, nonsticky and

nonplastic; few very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; 30 percent discontinuous strongly silica-cemented masses; many fine concretions and seams of lime; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Desatoya very gravelly loam, 8 to 15 percent slopes, in Desatoya-Pineval-Grassval association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles west of Austin; about 2,000 feet east and 1,000 feet south of the northwest corner of sec. 10, T. 18 N., R. 39 E.

Range in Characteristics

Soil moisture content: Usually dry early in June through October; moist in winter and spring

Average annual soil temperature: 48 to 52 degrees F

Depth to weak cementation: 14 to 20 inches

Depth to carbonates: 10 to 20 inches

A horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 or 3

Structure—weak or moderate and subangular blocky or platy

Reaction—neutral or mildly alkaline

Bt horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4 moist

Texture—gravelly clay loam or gravelly clay

Content of clay—35 to 45 percent

Content of rock fragments—20 to 30 percent, mainly pebbles

Structure—moderate or strong, fine or medium, and subangular blocky

Reaction—mildly alkaline or moderately alkaline

Bqk horizon:

Texture—stratified extremely gravelly sandy loam to very gravelly loamy sand, but averages very gravelly or extremely gravelly sandy loam

Content of clay—8 to 18 percent

Content of rock fragments—40 to 80 percent, mainly pebbles

Consistence—hard or very hard (dry), firm or slightly brittle (moist)

Reaction—moderately alkaline to very strongly alkaline

Other characteristics—dominantly continuously weakly silica-cemented, but discontinuous, weakly or strongly silica-cemented strata present below a depth of 38 inches

Desatoya Variant

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Side slopes of deeply dissected fan piedmont remnants

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Xerollic Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 5 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine vesicular and interstitial pores; 35 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt—3 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, very sticky and very plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

Btk—8 to 13 inches; light yellowish brown (10YR 6/4) very gravelly sandy 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; 25 percent discontinuous, weakly lime-cemented masses; few thin clay films bridging sand grains; 35 percent pebbles; few thin lime pendants on the underside of coarse fragments; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk1—13 to 21 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 25 percent discontinuous, weakly lime-cemented masses; 50 percent pebbles; thin lime coatings on the underside of coarse fragments;

strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bk2—21 to 26 inches; very pale brown (10YR 7/3), continuous, weakly lime-cemented gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 20 percent pebbles; thin to medium lime coatings on coarse fragments; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

Bk3—26 to 50 inches; pale brown (10YR 6/3) very gravelly sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 50 percent pebbles; common thin lime coatings and pendants on the underside of coarse fragments; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Desatoya Variant very gravelly sandy loam, 15 to 50 percent slopes, in Spike-Desatoya Variant-Grassval association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles north of Austin; about 2,000 feet north and 1,000 feet west of the southeast corner of sec. 36, T. 23 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in summer and early in fall

Average annual soil temperature: 47 to 49 degrees F

Depth to the base of the Btk horizon: 10 to 18 inches

Depth to carbonates: 0 to 10 inches

Control section:

Texture (when mixed)—dominantly gravelly clay loam or gravelly sandy clay loam, but gravelly loam in some pedons

Content of clay—25 to 35 percent

Content of rock fragments (when mixed)—averages 15 to 35 percent, mainly pebbles, but as much as 45 percent in a single layer

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Effervescence—slightly effervescent or noneffervescent

Bt and Btk horizons:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Effervescence—dominantly noneffervescent or slightly effervescent in the upper part, strongly effervescent in the lower part

Reaction—mildly alkaline or moderately alkaline

Bk horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Reaction—moderately alkaline or strongly alkaline

Other characteristics—dominantly as much as 60 percent discontinuous, weak lime cementation, but continuous, weak lime cementation in some pedons

Dewar Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Loess and mixed silty alluvium that includes some volcanic ash

Positions on landscape: Fan piedmont remnants, mountain valley fan remnants

Slope: 2 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durargids

Typical Pedon

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, very dark brownish gray (10YR 3/2) moist; moderate very thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine vesicular pores; 15 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and common very fine roots; many very fine interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

Bt—4 to 8 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine interstitial pores; common thin clay films on peds and bridging mineral grains; 15 percent pebbles; mildly alkaline (pH 7.6); gradual wavy boundary.

Btqk—8 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; common fine

and medium roots and few coarse roots; common fine interstitial pores; common thin clay films on peds; 15 percent moderate durinodes 5 to 15 millimeters in diameter; 15 percent pebbles and 5 percent cobbles and pan fragments; few fine soft lime masses; noneffervescent in matrix; mildly alkaline (pH 7.8); abrupt wavy boundary.

Bqkm—14 to 50 inches; very pale brown (10YR 7/3), indurated duripan, yellowish brown (10YR 5/4) moist; moderately thick and thick platy structure; extremely hard, extremely firm; few roots along horizontal fractures; continuous, 2- to 6-millimeter-thick, brown (10YR 5/3), silica laminae on top and in horizontal bands throughout horizon, alternating with thin, strongly or weakly cemented strata in some pedons; violently effervescent; moderately alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Dewar gravelly loam, 2 to 8 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 12 miles east of Austin; about 150 feet east and 2,200 feet north of the southwest corner of sec. 12, T. 19 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to indurated duripan: 13 to 20 inches

A horizon:

Chroma—2 or 3

Structure—moderate or strong, very thin to thick, and platy; or moderate or strong, fine or medium, and granular

Reaction—neutral to moderately alkaline

Bt horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 to 4 dry, 3 or 4 moist

Texture—gravelly silty clay loam or gravelly clay loam

Content of clay—27 to 35 percent

Content of rock fragments—15 to 30 percent, mainly pebbles

Structure—weak to strong, fine to coarse, and subangular blocky

Reaction—neutral to moderately alkaline

Btqk horizon (when present):

Content of clay—15 to 35 percent

Other characteristics—less than 30 percent weak or very weak durinodes

Bqkm horizon:

Structure—massive, or moderately thick or very thick and platy

Other characteristics—strongly cemented or discontinuously indurated strata below the duripan in some pedons; 1- to 3-inch-thick degraded duripan common on top in some pedons

Duco Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from rhyolite and andesite

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles, 15 percent with cobbles, and 10 percent with stones.

A1—0 to 3 inches; brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 10 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine and fine tubular pores; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.

Bt1—7 to 15 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, very sticky and very plastic; common fine, medium, and coarse roots; common very fine and fine tubular pores; common thin and few thick clay films on faces of peds; 30 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear wavy boundary.

Bt2—15 to 19 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 3/4)

moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine, medium, and coarse roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.4); abrupt irregular boundary.

R—19 inches; hard, fine, crystalline tuff.

Typical Pedon Location

Soil name and map unit in which located: Duco stony loam, 15 to 30 percent slopes, in Duco-Clan Alpine-Jung association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 38 miles southwest of Austin; in an unsectionalized area about 300 feet north and 1,300 feet east of the southwest corner of the assumed sec. 23, T. 15 N., R. 37 E.

Range in Characteristics

Soil moisture content: Moist in winter, dry in summer and fall

Average annual soil temperature: 50 to 53 degrees F

Mollic epipedon: 7 to 20 inches thick (commonly includes the upper part of the argillic horizon)

Combined thickness of the A and Bt horizons: 10 to 20 inches

Depth to bedrock: 10 to 20 inches

Reaction: Slightly acid to mildly alkaline

Control section:

Content of clay—27 to 35 percent

Content of rock fragments—35 to 75 percent, including 30 to 45 percent pebbles, 0 to 20 percent cobbles, and 0 to 40 percent stones (stones generally in the lower part)

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Structure—weak or moderate, fine or medium, and granular or subangular blocky

Bt1 horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Texture—gravelly or very gravelly loam, sandy clay loam, or clay loam

Structure—subangular blocky or angular blocky

Bt2 horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 to 4

Structure—moderate or strong, fine or medium, and subangular blocky or angular blocky

Eastwell Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Old gravelly and cobbly alluvial deposits that include some loess

Positions on landscape: Summits and side slopes of fan piedmont remnants

Slope: 4 to 15 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Haploxerollic Durorthids

Typical Pedon

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots; many fine vesicular pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—2 to 5 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 fine roots; 25 percent pebbles; slightly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Bw—5 to 10 inches; light brownish gray (10YR 6/2) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 40 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

Bqk—10 to 15 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 40 percent pebbles; 30 percent durinodes; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Bqkm—15 to 17 inches; white (10YR 8/2), strongly cemented duripan, pale brown (10YR 6/3) moist; weak very thick platy structure; extremely hard, extremely firm; thin, discontinuous, silica lamellae on top; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—17 to 60 inches; white (10YR 8/2) very gravelly loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; 40 percent pebbles and cobbles; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Eastwell gravelly loam, 4 to 15 percent slopes, in Eastwell-Blackhawk-Pineval association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 0.9 mile west of Red Bird Mine; about 600 feet west and 300 feet south of the northeast corner of sec. 24, T. 22 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 10 to 20 inches

Control section:

Content of clay—10 to 27 percent

Texture—sandy loam or loam

Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—platy, granular, or massive

Effervescence—noneffervescent or slightly effervescent

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—weak or moderate and prismatic or subangular blocky

Effervescence—slightly effervescent to violently effervescent

Bqkm horizon:

Effervescence—strongly effervescent or violently effervescent

Other characteristics—common continuous, strong silica cementation; thin discontinuous silica lamellae absent in some pedons

Bk horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Texture—very gravelly loam or very cobbly loam

Content of rock fragments—35 to 60 percent, mainly pebbles and cobbles

Effervescence—strongly effervescent or violently effervescent

Other characteristics—common lime coatings on the underside of rock fragments; 10 to 40 percent durinodes or discontinuous, weak, lime and silica cementation

Enko Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loamy alluvium that is derived mainly from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Fan aprons, fan skirts, inset fans

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical Pedon

A1—0 to 3 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine vesicular pores; 5 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bw—6 to 12 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

Bq1—12 to 18 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; 40 percent discontinuous, weak, silica cementation and 20 percent strongly cemented durinodes 5 to 15 millimeters in diameter; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bq2—18 to 30 inches; light yellowish brown (10YR 6/4), continuous, weakly silica-cemented sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 20 percent strongly cemented durinodes 10 to 25 millimeters in diameter; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bq3—30 to 36 inches; light yellowish brown (2.5Y 6/4) sandy loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; 40 percent strongly cemented durinodes 5 to 25 millimeters in diameter; 10 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—36 to 60 inches; light yellowish brown (2.5Y 6/4), continuous, weakly silica-cemented fine sandy loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 10 percent pebbles; many fine lime seams and threads; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Enko sandy loam, 2 to 4 percent slopes, in Enko-Orovada association, gently sloping

Location in Nevada: Lander County, Nevada, South Part, survey area; about 6 miles southwest of Austin; about 1,650 feet north and 800 feet west of the southeast corner of sec. 20, T. 18 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 49 to 52 degrees F

Combined thickness of the A and Bw horizons: 12 to 30 inches

Depth to continuous, weak cementation: 14 to 30 inches

Other characteristics: Sandy strata or strata containing gypsum crystals present below a depth of 40 inches in some pedons; noneffervescent Bq horizon present above the Bqk horizon in some pedons

Control section:

Content of clay—10 to 18 percent

Content of rock fragments—0 to 15 percent pebbles

A horizon:

Hue—10YR or 2.5Y

Value—commonly 6 or 7 dry, but 5 dry in some pedons; 3 or 4 moist

Chroma—2 or 3

Structure—very fine or fine and granular, very thin to medium and platy, or massive

Consistence—slightly sticky or sticky, slightly plastic or plastic

Reaction—neutral to moderately alkaline

Bw horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Texture—dominantly loam, fine sandy loam, or

sandy loam, but strata of silt loam or clay loam in the upper part in some pedons

Structure—prismatic, angular blocky, subangular blocky, or massive

Consistence—slightly sticky or sticky, slightly plastic or plastic

Reaction—neutral to moderately alkaline, increasing in alkalinity with increasing depth

Other characteristics—calcareous in the lower part in some pedons

Bqk and Bq horizons (when present):

Hue—10YR, 2.5Y, or 5Y

Value—4 to 6 moist, 6 to 8 dry

Chroma—1 to 4 dry, 2 to 4 moist

Texture—loam, sandy loam, or fine sandy loam

Cementation—common continuous, weakly silica-cemented strata 10 to 40 inches thick, but 20 to 50 percent durinodes or 20 to 75 percent discontinuous, weakly silica-cemented strata in some pedons

Reaction—mildly alkaline to strongly alkaline, increasing in alkalinity with increasing depth

Other characteristics—common relict iron mottles or mica particles in many pedons; very gravelly or extremely gravelly strata common below a depth of 40 inches in some pedons

Fenster Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium derived from highly calcareous sources

Positions on landscape: Stream terraces

Slope: 0 to 2 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), frigid Typic Torriorthents

Typical Pedon

A1—0 to 2 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; very few very fine and fine roots; many medium vesicular pores; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; soft, friable, slightly

sticky and slightly plastic; few very fine and fine roots; common very fine interstitial and tubular pores; slightly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

C1—5 to 10 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate fine and very fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

C2—10 to 18 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 4/4) moist; common fine faint yellow (10YR 7/6) mottles, yellowish brown (10YR 5/6) moist; massive; hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine interstitial and tubular pores; violently effervescent; very strongly alkaline (pH 9.4); gradual smooth boundary.

C3—18 to 32 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 4/4) moist; common medium distinct pale yellow (2.5Y 7/4) mottles, light olive brown (2.5Y 5/4) moist; massive; hard, firm, sticky and plastic; common very fine and fine roots; common very fine interstitial and tubular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C4—32 to 38 inches; very pale brown (10YR 7/3) very fine sandy loam that is high in content of volcanic ash, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.4); abrupt smooth boundary.

3C5—38 to 60 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Fenster silt loam in Fenster-Jesse Camp association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 34 miles southeast of Austin; about 200 feet north and 700 feet west of the southeast corner of sec. 2, T. 15 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Control section:

Content of clay—18 to 35 percent

Reaction—moderately alkaline to very strongly alkaline

Effervescence—dominantly strongly effervescent or violently effervescent, but slightly effervescent in the upper part in some pedons

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture—dominantly silt loam or silty clay loam, but strata of fine sandy loam or loam at a depth of more than 40 inches or very fine sandy loam volcanic ash at a depth of less than 40 inches in some pedons

Other characteristics—relict mottles at a depth of less than 40 inches in some pedons

Filiran Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Alluvium that is derived from volcanic and metamorphic rock and includes some loess

Positions on landscape: Fan piedmonts

Slope: 2 to 4 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Haploxerollic Nadurargids

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; many very fine and fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and medium roots; common very fine and medium tubular pores; 5 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

- E—7 to 9 inches; light brownish gray (10YR 6/2) gravelly silt loam, dark brown (10YR 4/3) moist; weak thick platy structure; hard, friable, slightly sticky and slightly plastic; common very fine and medium roots; common very fine and fine tubular pores; 15 percent pebbles and 5 percent cobbles; 20 percent bleached white (10YR 8/2) faces of peds; moderately alkaline (pH 8.0); abrupt wavy boundary.
- E/B—9 to 12 inches; pale brown (10YR 6/3) gravelly silt loam, dark brown (10YR 3/3) moist; strong fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; common thick clay films on faces of peds; 15 percent pebbles and 5 percent cobbles; 60 percent bleached white (10YR 8/2) faces of peds; moderately alkaline (pH 8.4); abrupt wavy boundary.
- 2B_{tn}—12 to 20 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many thick clay films on faces of peds and in pores; 5 percent pebbles; slightly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
- 2B_{tnk}—20 to 28 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many thick clay films on faces of peds and in pores; 20 percent pebbles; common lime coatings on the underside of rock fragments; common medium threads and filaments of lime; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
- 2B_{tnqky}—28 to 33 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; common thick clay films on faces of peds and in pores; 20 percent discontinuous, weak, silica cementation; 25 percent pebbles and 5 percent cobbles; many medium filaments of lime; common medium soft gypsum masses; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
- 2B_{qkm}—33 to 60 inches; pale brown (10YR 6/3), strongly cemented duripan, dark brown (10YR 4/3) moist; massive; very hard, very firm; disseminated lime; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Filiran silt loam, 2 to 4 percent slopes, in Filiran-Pineval-Kingingham association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles north of Austin; about 2,000 feet north and 150 feet west of the southeast corner of sec. 16, T. 23 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 20 to 40 inches

Depth to carbonates: 12 to 25 inches

Control section:

Content of clay—35 to 50 percent

Content of rock fragments—5 to 20 percent when mixed, mainly pebbles

A horizon:

Value—3 or 4 moist

Chroma—2 or 3

E horizon:

Value—3 or 4 moist

Chroma—2 or 3

Structure—platy, subangular blocky, or prismatic

Other characteristics—15 to 60 percent of the faces of peds are bleached

B_{tn} horizon:

Hue—10YR or 2.5Y

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4

Texture—clay, gravelly clay, silty clay, clay loam, or silty clay loam

Content of exchangeable sodium: 15 to 35 percent

Effervescence—noneffervescent or slightly effervescent in the upper part, strongly effervescent or violently effervescent in the lower part

Reaction—strongly alkaline or very strongly alkaline

Fortank Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum derived from rhyolitic tuff

Positions on landscape: Side slopes of mountains

Slope: 4 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles, 15 percent with cobbles, and 10 percent with stones.

A1—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common fine and few very fine roots; common fine and few medium tubular pores and few fine vesicular pores; 20 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) 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 and few medium roots; few very fine and fine tubular pores; 25 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt1—6 to 11 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 4/3) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; 20 percent pebbles and 10 percent cobbles; common thin and few moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 7.9); clear smooth boundary.

Bt2—11 to 19 inches; brown (10YR 5/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; few very fine, fine, and medium roots; common very fine and fine and few medium tubular pores; 20 percent pebbles and 10 percent cobbles; many moderately thick clay films on faces of peds and lining pores; moderately alkaline (pH 7.9); clear smooth boundary.

Btk—19 to 30 inches; light brown (7.5YR 6/4) gravelly clay, brown (7.5YR 4/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; common medium and few very fine and fine tubular pores; 30 percent pebbles; many moderately thick clay films on faces of peds and lining pores; few fine filaments and threads of lime; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cr—30 inches; weathered, rhyolitic tuff.

Typical Pedon Location

Map unit in which located: Fortank gravelly loam, 4 to 8 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin; about 900 feet south and 1,600 feet west of the northeast corner of sec. 29, T. 21 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 45 to 47 degrees F

Thickness of the solum and depth to bedrock: 30 to 40 inches

Control section:

Texture—gravelly clay loam or gravelly clay

Content of clay—35 to 45 percent

Content of rock fragments—15 to 35 percent, dominantly pebbles

A horizon:

Value—3 or 4 moist

Structure—weak or moderate, very thin to thick, and platy; or weak or moderate, very fine to coarse, and subangular blocky

Reaction—mildly alkaline or moderately alkaline

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4

Structure—weak or moderate and angular blocky or prismatic

Gando Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from mixed sedimentary rock

Positions on landscape: Crests and side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Haploxerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 10 percent with cobbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) very

gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 35 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary.

A2—4 to 8 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bk—8 to 10 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 60 percent pebbles and 10 percent cobbles; common thin strongly effervescent lime coatings on the underside of coarse fragments; slightly effervescent in matrix; mildly alkaline (pH 7.4); abrupt wavy boundary.

R—10 inches; hard shale.

Typical Pedon Location

Soil name and map unit in which located: Gando stony loam, 15 to 30 percent slopes, in Loncan-Gando-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles northeast of Austin; about 1,000 feet south and 2,200 feet east of the northwest corner of sec. 5, T. 22 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter to early in summer, dry early in July to mid-October

Average annual soil temperature: 43 to 46 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

Depth to bedrock: 10 to 20 inches

Depth to carbonates: 7 to 14 inches

Control section:

Content of clay—10 to 18 percent

Content of rock fragments—50 to 70 percent, mainly pebbles

Reaction—mildly alkaline or moderately alkaline, commonly increasing in alkalinity with increasing depth

A horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3

Structure—moderate, very fine to medium, and granular; weak or moderate, very thin to medium, and platy; or weak, very fine, and

angular blocky to moderate, medium, and subangular blocky

Consistence—soft or slightly hard (dry), slightly sticky or sticky and nonplastic or plastic (moist)

Bk horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4

Structure—subangular blocky, granular, or massive

Consistence—soft or slightly hard (dry), slightly sticky or sticky and slightly plastic or plastic (moist)

Texture—extremely gravelly loam, extremely gravelly sandy loam, or very gravelly loam

Content of rock fragments—50 to 70 percent, mainly pebbles but as much as 20 percent cobbles

Effervescence—slightly effervescent or strongly effervescent

Genaw Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Mantle of loess over residuum derived from tuffaceous sediment

Positions on landscape: Rolling hills, rock pediments

Slope: 4 to 30 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Haplargids

Typical Pedon

About 5 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; many very fine and fine vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 6 inches; brown (10YR 5/3) gravelly very fine sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots; common fine and medium tubular and interstitial pores; 15 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—6 to 11 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4)

moist; moderate medium angular blocky structure; slightly hard, very friable, sticky and plastic; common very fine, fine, and medium roots; few very fine tubular pores; common fine and medium clay films on faces of peds and lining pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bkq—11 to 16 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few very fine tubular pores; 35 percent pebbles; common fine and medium lime filaments; 10 percent weak durinodes; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Cr—16 inches; soft, tuffaceous sediment.

Typical Pedon Location

Soil name and map unit in which located: Genaw very fine sandy loam, 4 to 15 percent slopes, in Genaw-Perlor-Puett association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 26 miles southwest of Battle Mountain; about 800 feet north and 2,400 feet west of the southeast corner of sec. 6, T. 27 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through November

Average annual soil temperature: 47 to 52 degrees F

Depth to paralithic contact: 14 to 20 inches

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Bt horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—loam or clay loam

Content of rock fragments—15 to 35 percent, mainly pebbles

Content of clay—18 to 30 percent

Bkq horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Texture—sandy loam or loam

Content of rock fragments—25 to 50 percent, mainly pebbles

Reaction—moderately alkaline or strongly alkaline

Other characteristics—5 to 15 percent

discontinuous weak cementation or weakly cemented durinodes

Glean Series

Depth class: Deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from various kinds of rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Haploxerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 1 percent with stones.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium platy structure parting to moderate medium subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 30 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2—6 to 19 inches; very dark grayish brown (10YR 3/2) very gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; common very fine tubular pores; 35 percent pebbles; neutral (pH 7.0); clear wavy boundary.

AC—19 to 31 inches; dark brown (10YR 4/3) very gravelly loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; common very fine tubular pores; 35 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

C—31 to 49 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; few very fine tubular pores; 35 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

2R—49 inches; hard, altered andesite.

Typical Pedon Location

Soil name and map unit in which located: Glean gravelly loam, 30 to 50 percent slopes, in Glean-Walti-Cleavage association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 24 miles south of Battle

Mountain; about 1,500 feet south and 500 feet east of the northwest corner of sec. 29, T. 28 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in November to mid-July

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 22 to 34 inches

Depth to bedrock: 40 to 60 inches

Control section:

Texture—very gravelly or very cobbly sandy loam or loam

Content of rock fragments—40 to 70 percent, mainly pebbles and cobbles

Reaction—slightly acid or neutral

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

C horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4

Glyphs Series

Depth class: Very deep.

Drainage class: Well drained

Parent material: Mixed alluvium that is derived mainly from volcanic rock and includes some loess and volcanic ash

Positions on landscape: Fan piedmont remnants

Slope: 0 to 30 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Durixerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles.

A1—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, nonsticky and slightly plastic; few fine roots; many fine and medium vesicular pores; 5 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine roots and few very fine and medium roots; common fine and medium vesicular

and interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—7 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine roots and few very fine and medium roots; few fine interstitial pores; many moderately thick clay films on peds and in pores; 20 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary.

Btk—12 to 17 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few medium tubular pores; common thin clay films on peds; lime coatings on the underside of rock fragments; 20 percent pebbles; moderately alkaline (pH 7.9); gradual wavy boundary.

Bqk1—17 to 37 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine and fine roots; common fine filaments of lime; 30 percent pebbles; continuous weak silica cementation; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Bqk2—37 to 60 inches; pale brown (10YR 6/3) very gravelly coarse sand, brown (10YR 4/3) moist; single grain; hard, firm, nonsticky and nonplastic; few very fine and fine roots; lime coatings on the underside of rock fragments; 40 percent pebbles; continuous weak silica cementation; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Glyphs fine sandy loam, 2 to 8 percent slopes, in Glyphs-Muni-Orovada association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin, in the Monitor Valley; about 500 feet north and 1,580 feet east of the southeast corner of sec. 17, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from October to mid-June, dry in summer and early in fall

Average annual soil temperature: 47 to 52 degrees F

Depth to the Bqk horizon: 12 to 20 inches

Other characteristics: Base of continuous, weak, silica cementation at a depth of 36 to more than 60 inches

Control section:

Content of clay—20 to 35 percent
 Content of rock fragments—15 to 30 percent
 pebbles, 0 to 5 percent cobbles
 Reaction—mildly alkaline to strongly alkaline

A horizon:

Value—5 or 6 dry, 3 or 4 moist
 Chroma—2 or 3

Bt horizon:

Value—5 or 6 dry, 4 or 5 moist
 Chroma—2 to 4
 Content of rock fragments—10 to 30 percent
 pebbles, 0 to 5 percent cobbles

Btk horizon:

Effervescence—noneffervescent or slightly
 effervescent in matrix
 Other characteristics—few to many lime filaments or
 lime coatings on the underside of rock
 fragments

Bqk horizon:

Content of rock fragments—15 to 45 percent
 pebbles, 0 to 5 percent cobbles
 Other characteristics—common, continuous, weak
 cementation; thin strata that are 30 to 60
 percent durinodes in a friable matrix in some
 pedons

Granzan Series

Depth class: Deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from
 limestone and calcareous shale

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, frigid
 Typic Calcixerolls

Typical Pedon

About 35 percent of the surface is covered with pebbles
 and 35 percent with cobbles.

A1—0 to 4 inches; brown (10YR 5/3) very cobbly loam,
 dark brown (10YR 3/3) moist; weak medium and
 fine granular structure; soft, very friable, slightly
 sticky and slightly plastic; common very fine and
 fine roots; common very fine interstitial pores; 25
 percent pebbles and 20 percent cobbles; strongly
 effervescent; mildly alkaline (pH 7.6); clear smooth
 boundary.

A2—4 to 12 inches; brown (10YR 5/3) very gravelly

loam, dark brown (10YR 3/3) moist; weak medium
 subangular blocky structure; slightly hard, friable,
 slightly sticky and slightly plastic; common very fine,
 fine, and medium roots; common very fine
 interstitial pores; 45 percent pebbles and 5 percent
 cobbles; common thin lime coatings on the
 underside of rock fragments; strongly effervescent;
 mildly alkaline (pH 7.8); clear wavy boundary.

Bk1—12 to 29 inches; pale brown (10YR 6/3) very
 gravelly loam, dark brown (10YR 4/3) moist;
 massive; slightly hard, friable, nonsticky and
 nonplastic; common very fine, fine, and medium
 roots; common very fine tubular pores; 50 percent
 pebbles and 5 percent cobbles; common thin to
 thick lime coatings and pendants on rock fragments;
 violently effervescent; moderately alkaline (pH 8.0);
 gradual wavy boundary.

Bk2—29 to 43 inches; light yellowish brown (10YR 6/4)
 extremely gravelly loam, dark yellowish brown
 (10YR 4/4) moist; massive; soft, very friable,
 nonsticky and nonplastic; common very fine, fine,
 and medium roots; few very fine tubular pores; 55
 percent pebbles and 10 percent cobbles; common
 thick lime coatings and pendants on rock fragments;
 violently effervescent; moderately alkaline (pH 8.2);
 abrupt wavy boundary.

2R—43 inches; highly fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Granzan very
 cobbly loam, 30 to 50 percent slopes, in Halacan-
 Hapgood-Granzan association

Location in Nevada: Lander County, Nevada, South
 Part, survey area; about 15 miles north of Austin;
 about 900 feet west and 2,000 feet north of the
 southeast corner of sec. 36, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually moist, but dry in mid-July
 to September

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 11 to 19 inches

Depth to bedrock: 40 to 60 inches

Control section:

Content of clay—18 to 27 percent

Content of rock fragments—35 to 60 percent when
 mixed, dominantly pebbles but as much as 15
 percent cobbles

Reaction—mildly alkaline or moderately alkaline
 Calcium carbonate equivalent—40 to 50 percent

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—weak or moderate, fine or medium, and granular or subangular blocky

Effervescence—slightly effervescent to violently effervescent

Bk horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—3 or 4

Texture—dominantly very gravelly loam or very gravelly silt loam, but extremely gravelly loam in the lower part in some pedons

Effervescence—strongly effervescent or violently effervescent

Grassval Series

Depth class: Very shallow or shallow to duripan

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durargids

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A—0 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; few fine and very fine roots; few medium and many fine vesicular pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt—4 to 10 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few medium and coarse roots and common fine roots; common fine and very fine tubular pores; common thin clay films on peds; 20 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk—10 to 13 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate medium and coarse subangular blocky structure; hard, friable, sticky and plastic; common fine roots; common fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles and 5 percent cobbles; lime coatings on the

underside of pebbles and many fine and medium soft lime masses; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bqkm—13 to 60 inches; white (10YR 8/1), indurated duripan and thin horizontal lenses that are weakly or strongly cemented; violently effervescent.

Typical Pedon Location

Soil name and map unit in which located: Grassval fine sandy loam, 8 to 15 percent slopes, in Grassval-Oxcorel association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 10 miles east of Austin, in the northern part of the Big Smoky Valley; about 1,950 feet north and 1,900 feet west of the southeast corner of sec. 25, T. 19 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October

Average annual soil temperature: 47 to 50 degrees F

Thickness of the solum and depth to the duripan: 8 to 14 inches

Other characteristics: Calcareous throughout; effervescence increasing with increasing depth; segregated lime common in the lower part of the solum

Control section:

Content of clay—18 to 27 percent

Content of 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

Content of clay—25 to 35 percent

Structure—prismatic or subangular blocky

Reaction—moderately alkaline or strongly alkaline

Grina Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from soft sedimentary rock

Positions on landscape: Low, rolling hills

Slope: 15 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical Pedon

About 40 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine vesicular and tubular pores; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2—3 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and medium roots; few fine tubular pores and many fine interstitial pores; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A3—5 to 11 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

C—11 to 15 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common fine interstitial pores; 10 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

Cr—15 inches; soft, tuffaceous sediment; fractures 5 to 10 inches apart.

Typical Pedon Location

Soil name and map unit in which located: Grina gravelly loam, 15 to 30 percent slopes, in Grina-Grina, eroded-Caniwe association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 1,400 feet north and 1,300 feet east of the southwest corner of sec. 8, T. 25 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to paralithic contact: 14 to 20 inches

Calcium carbonate equivalent: 20 to 40 percent of the fraction less than 20 millimeters

Other characteristics: Thin Bk horizon above the paralithic contact in some pedons

Control section:

Texture—loam, silt loam, or silty clay loam

Content of clay—20 to 35 percent when mixed

Content of rock fragments—0 to 15 percent when mixed

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Structure—very fine or fine and granular, very thin to very thick and platy, or very fine to very coarse and subangular blocky

Consistence—soft to hard (dry), very friable or friable (moist), slightly sticky or sticky and slightly plastic or plastic (wet)

C horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 5 to 7 moist

Chroma—2 to 4

Structure—weak or moderate, very fine to medium and subangular blocky, very fine or fine and angular blocky, or very thin to thick and platy; or massive

Effervescence—strongly effervescent or violently effervescent

Cr horizon:

Hue—10YR to 5Y

Value—7 or 8 dry, 5 to 7 moist

Chroma—2 or 3

Consistence—hard to extremely hard (dry), firm to very firm (moist)

Other characteristics—precipitated lime or gypsum in filaments or threads and iron-manganese stains common along fracture planes

Gund Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty alluvium derived mainly from loess, volcanic ash, and various kinds of rock over lacustrine sediment

Positions on landscape: Lake plains, lake plain remnants, alluvial flat remnants

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine-silty over clayey, mixed, nonacid, mesic Aquic Durorthidic Torriorthents

Typical Pedon

A—0 to 4 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate thin and medium

platy structure; soft, very friable, sticky and slightly plastic; common very fine and fine roots; many very fine interstitial and vesicular pores; strongly alkaline (pH 8.7); gradual smooth boundary.

Cq1—4 to 14 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate thin and medium platy structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; 40 percent discontinuous weak silica cementation; strongly alkaline (pH 9.0); gradual smooth boundary.

Cq2—14 to 23 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; moderate thin and medium platy structure; hard, firm, slightly sticky and nonplastic; brittle; few very fine, fine, medium, and coarse roots; common very fine tubular pores; continuous weak silica cementation; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

2C—23 to 38 inches; light gray (2.5Y 7/2) clay, light brownish gray (2.5Y 6/2) moist; common medium distinct mottles that are olive yellow (2.5Y 6/6) moist; strong medium prismatic structure; hard, friable, sticky and very plastic; few very fine, fine, and medium roots; many very fine and fine interstitial and tubular pores; continuous moderately thick pressure faces; 60 percent of faces of peds, pores, and root channels coated with reddish brown (5YR 4/4) iron and manganese stains; strongly effervescent; strongly alkaline (pH 8.9); clear wavy boundary.

2Cy—38 to 60 inches; pale yellow (5Y 7/3) silty clay, light olive gray (5Y 6/2) moist; many medium distinct mottles that are olive yellow (2.5Y 6/6) moist; massive; hard, friable, very sticky and plastic; few very fine roots; many very fine tubular pores; common fine white (10YR 8/1) gypsum crystals; strongly effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Gund silt loam in Gund-Umberland association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 55 miles southeast of Battle Mountain; about 1,600 feet north and 1,260 feet west of the southeast corner of sec. 19, T. 23 N., R. 48 E.

Range in Characteristics

Soil moisture content: Usually moist in some part of the moisture control section in October through July; usually dry in August and September

Depth to an apparent seasonal high water table: 36 to 42 inches late in winter to early in summer

Average annual soil temperature: 47 to 52 degrees F

Depth to weak silica cementation: 3 to 6 inches

Depth to unconformable lacustrine sediment: 15 to 30 inches

Reaction: Moderately alkaline or strongly alkaline

Other characteristics: Thin A2 horizon or 2Cg horizon in some pedons

Control section:

Texture—silt loam in the upper part, silty clay or clay in the lower part

Content of clay—averages 18 to 25 percent in the upper part and 45 to 60 percent in the lower part

A horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3

Effervescence—commonly noneffervescent, but slightly effervescent in some pedons

Other characteristics—strongly affected by salt and sodium, decreasing in degree with increasing depth

Cq horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 or 4

Effervescence—commonly noneffervescent, but ranges to strongly effervescent

Other characteristics—30 to 60 percent discontinuous, weak, silica cementation in the upper part; continuous, weak, silica cementation in the lower part

2C horizon:

Hue—2.5Y or 10YR in the upper part, 2.5Y or 5Y in the lower part

Value—7 or 8 dry in the upper part and 6 or 7 dry in the lower part, 5 or 6 moist

Chroma—2 or 3

Content of gypsum crystals—few to many in the lower part

Other characteristics—iron and manganese stains coating 50 to 60 percent of peds, pores, and root channels; common or many, distinct or prominent mottles

Hackwood Series

Depth class: Very deep

Drainage class: Moderately well drained

Parent material: Alluvium and colluvium that are derived from volcanic rock and include some loess

Positions on landscape: Concave side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: About 18 inches
Mean annual temperature: About 41 degrees F

Taxonomic class: Fine-loamy, mixed Pachic
 Cryoborolls

Typical Pedon

About 5 percent of the surface is covered with stones and 20 percent with boulders.

O—1 inch to 0; aspen litter.

A1—0 to 6 inches; dark gray (10YR 4/1) gravelly loam, black (10YR 2/1) moist; moderate very fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine interstitial pores; 10 percent pebbles and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

A2—6 to 18 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; common medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine, medium, and coarse roots; common fine and medium interstitial and tubular pores; 15 percent pebbles and 5 percent cobbles; slightly acid (pH 6.2); gradual irregular boundary.

A3—18 to 32 inches; grayish brown (10YR 5/2) gravelly loam, very dark brown (10YR 2/2) moist; common coarse subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common fine, medium, and coarse roots; common fine tubular pores; 20 percent pebbles and 5 percent stones; slightly acid (pH 6.2); gradual wavy boundary.

2C—32 to 60 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; few very thin silt coatings in pores; 30 percent pebbles, 5 percent cobbles, and 5 percent stones; slightly acid (pH 6.2).

Typical Pedon Location

Soil name and map unit in which located: Hackwood gravelly loam, 15 to 30 percent slopes, rubbly, in Hackwood-Newlands-Hapgood association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles northeast of Austin; about 1,650 feet east and 3,150 feet south of the northwest corner of sec. 26, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist late in fall to summer; dry in September and October

Average annual soil temperature: 38 to 44 degrees F

Average summer soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 16 to 35 inches
Depth to the 2C horizon: 30 to 49 inches
Other characteristics: Moisture in the lower part of the control section or the lower part of the profile supplied by the lateral movement of water

Control section:

Texture—dominantly silt loam, gravelly silt loam, or gravelly loam, but commonly very gravelly loam to very gravelly silty clay loam in the lower part

Content of clay—averages 18 to 30 percent

Content of rock fragments—averages 15 to 35 percent, mainly pebbles

Reaction—neutral or slightly acid, decreasing in acidity with increasing depth

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry, 1 or 2 moist

Structure—platy, granular, or subangular blocky

C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Other characteristics (lower part of horizon)—pores lined with very thin silt coatings or uncoated sand grains; few fine distinct (10YR 5/6 dry, 10YR 4/4 moist) mottles in some pedons; few manganese stains coating pebbles and lining pores in some pedons

Halacan Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from limestone

Positions on landscape: Side slopes and crests of mountains

Slope: 8 to 50 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 38 degrees F

Taxonomic class: Loamy-skeletal, carbonatic Cryic
 Lithic Rendolls

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A1—0 to 5 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; many very fine, fine, and medium roots; many very fine and fine interstitial pores; thick lime coatings and

pendants on the underside of rock fragments; 40 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

A2—5 to 11 inches; brown (10YR 5/3) extremely channery loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and medium roots; common fine tubular pores; thick lime coatings and pendants on the underside of rock fragments; 45 percent channers and 15 percent flagstones; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bk—11 to 17 inches; brown (10YR 5/3) extremely channery loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine tubular and interstitial pores; thick continuous lime coatings and pendants on the underside of rock fragments; 45 percent channers and 30 percent flagstones; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

R—17 inches; hard, fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Halacan very gravelly loam, 30 to 50 percent slopes, in Halacan-Hatur-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles north of Austin, on Mount Callaghan; about 1,400 feet north and 2,300 feet west of the southeast corner of sec. 1, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Dry late in summer and early in fall, moist in winter and spring and early in summer

Average annual soil temperature: 37 to 42 degrees F

Mean summer soil temperature: 50 to 59 degrees F

Depth to bedrock: 10 to 20 inches

Thickness of the mollic epipedon: 7 to 11 inches

Calcium carbonate equivalent: 40 to 60 percent

Control section:

Content of clay—10 to 18 percent

Content of rock fragments—50 to 80 percent, mainly channers

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Bk horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline

Handy Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived dominantly from igneous rock and some limestone and dolostone

Positions on landscape: Fan piedmonts

Slope: 4 to 30 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

BA—6 to 9 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt—9 to 17 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; extremely hard, very firm, very sticky and very plastic; few fine roots; few fine tubular pores; many thick clay films on peds; 10 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Btk1—17 to 23 inches; brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; few fine roots; few fine tubular pores; many thick clay films on peds; 10

percent pebbles; few seams of lime; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Btk2—23 to 38 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few fine tubular pores; few moderately thick clay films on peds; 20 percent pebbles; many seams of lime; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—38 to 60 inches; very pale brown (10YR 7/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine roots; very few fine tubular pores; common very fine very dark gray (10YR 3/1) manganese stains; 25 percent pebbles; common seams of lime; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Handy loam, 4 to 8 percent slopes, in Handy-Caniwe-Zoesta association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 40 miles south of Battle Mountain; about 350 feet south and 2,000 feet west of the northeast corner of sec. 29, T. 25 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to lime accumulation: 12 to 17 inches

Depth to the Bk horizon: 20 to 40 inches

Control section:

Content of clay—40 to 50 percent

Content of rock fragments—0 to 30 percent, mainly pebbles

A horizon:

Value—4 to 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed); 3 or 4 moist

Chroma—2 or 3

Structure—granular, or thin to thick and platy

Reaction—neutral or mildly alkaline

Bt and Btk horizons:

Hue—dominantly 10YR or 7.5YR, but 5YR in some pedons

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4

Texture—clay or gravelly clay

Structure—moderate or strong and angular blocky or prismatic

Reaction—neutral to moderately alkaline, commonly increasing in alkalinity with increasing depth

Bk horizon:

Texture—stratified gravelly loam to very gravelly loamy sand

Content of rock fragments—25 to 60 percent, mainly pebbles

Effervescence—strongly effervescent or violently effervescent

Reaction—moderately alkaline or strongly alkaline

Hapgood Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Colluvium that is derived from volcanic rock and includes some volcanic ash

Positions on landscape: Side slopes of mountains

Slope: 2 to 75 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborolls

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and plastic; many very fine and fine roots and few medium and coarse roots; many very fine interstitial pores; 20 percent pebbles; neutral (pH 6.8); diffuse wavy boundary.

A2—7 to 17 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and plastic; many very fine and fine roots and few medium and coarse roots; many very fine interstitial pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

A3—17 to 33 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine interstitial pores; 30 percent pebbles and 15 percent cobbles; neutral (pH 6.8); gradual wavy boundary.

AC—33 to 40 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 4/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine interstitial pores; 30 percent pebbles and 15 percent cobbles; neutral (pH 6.8); clear wavy boundary.

C—40 to 60 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, sticky and plastic; few fine interstitial pores; 15 percent pebbles, 30 percent cobbles, and 10 percent stones; neutral (pH 7.2).

Typical Pedon Location

Soil name and map unit in which located: Hapgood gravelly loam, 30 to 50 percent slopes, in Newlands-Packer-Hapgood association, moderately steep

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles north of Austin; about 1,300 feet west and 2,280 feet north of the southeast corner of sec. 15, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in July to early in October

Mean annual soil temperature: 38 to 47 degrees F

Mean summer soil temperature: 55 to 59 degrees F

Thickness of the mollic epipedon: 16 to 60 inches

Depth to bedrock: 40 to more than 80 inches

Reaction: Slightly acid or neutral

Control section:

Texture—dominantly loam, but includes strata of fine sandy loam, sandy loam, silt loam, or clay loam

Content of clay—18 to 27 percent

Content of rock fragments—35 to 50 percent, dominantly pebbles

A horizon:

Value—2 to 5 dry, 2 or 3 moist

Chroma—1 to 3 in most pedons (chroma of 1 common only in A1 horizon and chroma of 3 common only in or below A3 horizon)

Structure—platy, subangular blocky, granular, or massive

Base saturation—50 to 75 percent in the upper part

C horizon:

Hue—10YR or 7.5YR

Value—4 to 7 dry, 3 to 5 moist

Chroma—2 to 6

Other characteristics: C horizon absent in areas

where the mollic epipedon overlies bedrock at a depth of less than 48 inches

Hatur Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from limestone and dolostone

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, carbonatic Cryic Rendolls

Typical Pedon

About 90 percent of the surface is covered with pebbles.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 35 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 14 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 45 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Bw—14 to 22 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 3/4) moist; weak very fine and fine subangular blocky structure; soft, very friable, sticky and slightly plastic; many very fine and fine roots and few medium roots; common very fine and fine interstitial pores and few fine tubular pores; 60 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

C—22 to 29 inches; pale brown (10YR 6/3) extremely gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 65 percent pebbles and 15 percent cobbles; violently effervescent;

moderately alkaline (pH 8.4); gradual wavy boundary.

R—29 inches; highly fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Hatur gravelly loam, 30 to 50 percent slopes, in Halacan-Hatur-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles north of Austin; about 900 feet north and 750 feet west of the southeast corner of sec. 36, T. 22 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually moist, but dry for 45 to 60 days late in summer and early in fall

Average annual soil temperature: 43 to 47 degrees F

Average summer soil temperature: 52 to 56 degrees F

Thickness of the mollic epipedon: 10 to 14 inches

Depth to bedrock: 20 to 40 inches

Control section:

Texture—extremely gravelly loam or extremely gravelly sandy loam

Content of clay—12 to 25 percent

Content of rock fragments—averages 60 to 80 percent, mostly pebbles

Calcium carbonate equivalent—60 to 80 percent

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

C horizon:

Value—4 or 5 moist

Chroma—2 or 3

Hessing Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loess and silty alluvium that include some volcanic ash over coarse alluvium derived mostly from tuff, basalt, rhyolite, and andesite

Positions on landscape: Fan skirts, inset fans

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Typic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (2.5Y 6/2) silt

loam, dark grayish brown (2.5Y 4/2) moist; moderate thin and very thick platy structure; slightly hard, very friable, slightly sticky and plastic; few very fine, fine, and medium roots; many medium vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw—4 to 11 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; moderate coarse prismatic structure; hard, friable, sticky and very plastic; many very fine and few fine roots; many very fine interstitial and tubular pores; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bqk—11 to 13 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak thick platy structure; hard, very friable and firm, sticky and plastic; few very fine roots; common very fine tubular pores; 50 percent weak discontinuous silica cementation; 10 percent weak, rounded durinodes 15 to 25 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

C—13 to 18 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine tubular pores; 5 percent fine pebbles; strongly alkaline (pH 9.0); abrupt wavy boundary.

2Ck1—18 to 26 inches; light gray (10YR 7/2) gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent pebbles; common fine lime filaments and lime coatings on pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Ck2—26 to 30 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; 35 percent pebbles; few fine lime filaments; slightly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

3Ck3—30 to 60 inches; variegated extremely gravelly loamy coarse sand; single grain; loose, nonsticky and nonplastic; few very fine roots; 65 percent pebbles; many fine lime filaments; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Hessing silt loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 61 miles southwest of Battle

Mountain; about 790 feet east and 300 feet north of the southwest corner of sec. 7, T. 24 N., R. 41 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some

part for short periods from October through May

Average annual soil temperature: 47 to 53 degrees F

Depth to the base of the Bw horizon: 11 to 16 inches

Depth to the unconformable 2Ck horizon: 15 to 25 inches

Depth to the unconformable 3Ck horizon: 25 to 36 inches

Other characteristics: As much as 50 percent thin, discontinuous, weakly silica-cemented lenses and as much as 20 percent weak durinodes present below a depth of 11 inches in some pedons

Control section:

Texture—averages gravelly loam or gravelly sandy loam

Content of clay—8 to 18 percent when mixed

Content of rock fragments—15 to 35 percent when mixed

A horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—thin to thick and platy, fine to coarse and prismatic, or massive

Reaction—moderately alkaline or strongly alkaline

Other characteristics—slightly effervescent in some pedons because of calcareous dust recharge

Bw horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Texture—silt loam or silty clay loam

Structure—platy, prismatic, angular blocky, subangular blocky, or massive

2Ck horizon:

Texture—gravelly loam or gravelly sandy loam

Content of clay—15 to 30 percent

Content of rock fragments—15 to 35 percent, mainly pebbles

Consistence—slightly plastic or plastic (wet)

3Ck horizon:

Texture—stratified very gravelly loamy coarse sand to extremely gravelly sand

Content of rock fragments—50 to 70 percent, mainly pebbles

Consistence—soft or loose (dry), nonplastic or slightly plastic (wet)

Reaction—mildly alkaline to strongly alkaline

Hooplite Series

Depth class: Very shallow or shallow

Drainage class: Well drained

Parent material: Residuum derived from rhyolitic rock and undifferentiated volcanic rock

Positions on landscape: Side slopes of hills and mountains

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical Pedon

About 10 percent of the surface is covered with cobbles and 45 percent with pebbles.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; many fine and medium vesicular pores; 40 percent pebbles and 5 percent cobbles; slightly effervescent; mildly alkaline (pH 7.6); clear smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; soft, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 20 percent pebbles and 5 percent cobbles; common thin strongly effervescent lime coatings on the underside of rock fragments; slightly effervescent in matrix; mildly alkaline (pH 7.8); clear wavy boundary.

Bt—4 to 8 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 45 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

R—8 inches; hard, fractured rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Hooplite very gravelly fine sandy loam, 4 to 15 percent slopes, in Hooplite-Stingdorn association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles northeast of

Austin; about 1,100 feet south of the northwest corner of sec. 25, T. 22 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in mid-June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to hard bedrock: 6 to 14 inches
Other characteristics: As much as 3 inches of highly fractured bedrock overlying the lithic contact in some pedons

Control section:

Content of clay—18 to 25 percent when mixed
 Content of rock fragments—35 to 50 percent pebbles, 0 to 10 percent cobbles
 Reaction—mildly alkaline or moderately alkaline

A horizon:

Value—5 or 6 dry, 3 or 4 moist
 Chroma—2 or 3
 Effervescence—noneffervescent or slightly effervescent
 Structure—platy or subangular blocky

Bt horizon:

Hue—10YR or 7.5YR
 Value—5 or 6 dry, 3 or 4 moist
 Chroma—2 to 4
 Texture—very gravelly loam or very gravelly clay loam
 Content of rock fragments—35 to 50 percent
 Structure—subangular blocky or granular
 Effervescence—slightly effervescent or strongly effervescent

Hopeka Series

Depth class: Very shallow
Drainage class: Well drained
Parent material: Residuum derived from limestone and dolostone
Positions on landscape: Side slopes of mountains
Slope: 30 to 50 percent
Mean annual precipitation: About 12 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents

Typical Pedon

About 20 percent of the surface is covered with pebbles and 25 percent with cobbles.

A—0 to 4 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2)

moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots and few medium and coarse roots; many very fine and fine interstitial pores and common fine tubular pores; 50 percent pebbles; lime coatings on the underside of pebbles; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—4 to 8 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots and few coarse roots; common fine interstitial pores and common very fine and fine and few medium tubular pores; 55 percent pebbles; lime coatings on the underside of pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—8 inches; limestone.

Typical Pedon Location

Soil name and map unit in which located: Hopeka very gravelly loam, 30 to 50 percent slopes, in Kram-Hopeka-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles west of Austin; about 550 feet south and 1,050 feet west of the northeast corner of sec. 32, T. 21 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June to mid-October
Average annual soil temperature: 43 to 47 degrees
Depth to bedrock: 4 to 10 inches
Calcium carbonate equivalent: 40 to 85 percent
Reaction: Moderately alkaline or strongly alkaline
Effervescence: Dominantly violently effervescent, but strongly effervescent in the upper part in some pedons

Control section:

Content of clay—18 to 25 percent
 Content of rock fragments—35 to 60 percent limestone or dolostone pebbles, cobbles, or stones

A horizon:

Hue—10YR or 7.5YR
 Value—5 to 7 dry, 3 or 4 moist
 Chroma—2 or 3

C horizon:

Hue—10YR or 7.5YR
 Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate and subangular blocky, or massive

Hymas Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum and colluvium derived from limestone

Positions on landscape: Crests and side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 5 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial and tubular pores; 20 percent pebbles and 5 percent cobbles; thin violently effervescent lime coatings on rock fragments; slightly effervescent in matrix; moderately alkaline (pH 8.0); clear smooth boundary.

A2—5 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial and tubular pores; 15 percent pebbles and 5 percent cobbles; violently effervescent in matrix; moderately alkaline (pH 8.0); clear wavy boundary.

C—9 to 15 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and plastic; common very fine, fine, and medium roots and few coarse roots; common very fine and fine interstitial and tubular pores; 30 percent pebbles and 15 percent cobbles; thick violently effervescent lime coatings and pendants on rock fragments; slightly effervescent in matrix; moderately alkaline (pH 8.2); abrupt wavy boundary.

2R—15 inches; fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Hymas gravelly loam, 30 to 50 percent slopes, in Hymas-Xine-Attella association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 12 miles north of Austin; about 1,770 feet west and 600 feet north of the southeast corner of sec. 21, T. 21 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist late in fall and in winter and spring, dry late in June through September

Average annual soil temperature: 42 to 47 degrees F

Average summer soil temperature: 59 to 66 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

Depth to bedrock: 10 to 20 inches

Control section:

Content of clay—8 to 27 percent

Content of rock fragments—35 to 80 percent, dominantly angular limestone fragments

A horizon:

Hue—10YR or 2.5Y

Value—4.5 to 5.5 dry, 2.5 to 3.5 moist

Chroma—2 or 3 moist or dry

Structure—weak or moderate and platy or granular

Reaction—neutral to moderately alkaline

Effervescence—slightly effervescent or strongly effervescent

C horizon:

Hue—10YR or 2.5Y

Value—5 to 8 dry, 4 to 7 moist

Chroma—2.0 to 3.5 moist or dry

Content of rock fragments—averages 35 to 80 percent

Structure—massive, or weak and subangular blocky or granular

Reaction—mildly alkaline or moderately alkaline

Isolde Series

Depth class: Very deep

Drainage class: Excessively drained

Parent material: Eolian sand derived from various kinds of rock

Positions on landscape: Stabilized dunes on lakebeds, playas, terraces, alluvial fans, and uplands

Slope: 0 to 30 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 52 degrees F

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical Pedon

A—0 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; moderately alkaline (pH 8.2); clear smooth boundary.

C1—7 to 26 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; moderately alkaline (pH 8.4); diffuse smooth boundary.

C2—26 to 60 inches; pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Isolde fine sand, 4 to 30 percent slopes, in Bubus-Isolde association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles southwest of Battle Mountain; about 2,100 feet west and 1,300 feet south of the northeast corner of sec. 4, T. 29 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry in April to mid-November, moist for short periods in mid-November through March

Average annual soil temperature: 53 to 57 degrees F

Control section:

Texture—dominantly fine sand, but sand in some pedons

Reaction—neutral to moderately alkaline

A horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3

C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline in the lower part

Effervescence—noneffervescent to strongly effervescent in the lower part

Other characteristics—2C horizon present below a depth of 40 inches in some pedons

Itca Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from extrusive volcanic and pyroclastic rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles, 35 percent with cobbles, and 25 percent with stones.

A1—0 to 6 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak very fine granular; slightly hard, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many fine interstitial pores; 30 percent pebbles, 15 percent cobbles, and 15 percent stones; neutral (pH 7.2); clear wavy boundary.

A2—6 to 9 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common fine interstitial pores; 20 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); abrupt wavy boundary.

Bt1—9 to 13 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, very sticky and very plastic; common fine roots and few medium and coarse roots; common fine interstitial pores; many thin clay films in pores and on peds; 25 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.4); clear irregular boundary.

Bt2—13 to 17 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; hard, firm, very sticky and very plastic; few fine, medium, and coarse roots; few fine tubular pores; common moderately thick clay films in pores and on peds; 20 percent pebbles, 20 percent cobbles, and 10 percent stones; mildly alkaline (pH 7.4); abrupt broken boundary.

R—17 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Itca extremely stony loam, 50 to 75 percent slopes, in Itca-Ninemile-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles east of Austin; about 1,950 feet east and 320 feet south of the northwest corner of sec. 21, T. 2 S., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry for 60 to 90 days consecutively in July through October

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 7 to 15 inches

(includes the upper part of the Bt horizon in some pedons)

Depth to bedrock: 10 to 20 inches

A horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—weak or moderate, medium or thick, and platy; or weak or moderate, medium or coarse, and subangular blocky

Consistence—soft or slightly hard (dry), very friable or friable (moist), nonsticky to slightly sticky and slightly plastic to plastic (wet)

Reaction—neutral or mildly alkaline

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4

Texture—clay or clay loam

Content of clay—35 to 45 percent

Content of rock fragments—averages 35 to 60 percent, mainly pebbles and cobbles, but as much as 85 percent in the lower part in some pedons

Consistence—slightly hard or hard (dry), friable or firm (moist), sticky or very sticky (wet)

Reaction—neutral to moderately alkaline

Other characteristics—thin BC or C horizon that is dominantly very soft, decomposing rock present in some pedons; tongues of Bt horizon extending into the fractures in the underlying bedrock in the shallower areas

Itca Variant

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from tuffaceous sediment

Positions on landscape: Convex side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid, shallow Aridic Argixerolls

Typical Pedon

About 30 percent of the surface is covered with pebbles and 5 percent with cobbles.

A—0 to 3 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate fine granular; slightly hard, friable, sticky and plastic; few very fine, medium, and coarse roots; many very fine and fine interstitial pores; 30 percent pebbles and 5 percent cobbles; slightly effervescent; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—3 to 8 inches; grayish brown (10YR 5/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common fine and medium roots and few coarse roots; common very fine and fine tubular pores; common moderately thick clay films on faces of peds; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Btk—8 to 12 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; hard, firm, very sticky and very plastic; common fine and medium roots and few coarse roots; common very fine and fine tubular pores; common thin and few moderately thick clay films on faces of peds; 10 percent pebbles; few fine lime masses; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

Cr—12 to 24 inches; weathered tuffaceous sediment that is highly fractured in the upper part; few fine roots along fractures.

Typical Pedon Location

Soil name and map unit in which located: Itca Variant very gravelly loam, 15 to 30 percent slopes, in Itca Variant-Reluctan-Handy association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles north of Austin; about 500 feet north and 1,700 feet west of the southeast corner of sec. 28, T. 22 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in some part in mid-October

to mid-June, dry in summer and early in fall

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

(includes the Bt horizon)

Depth to paralithic contact: 10 to 20 inches

Effervescence: Dominantly slightly effervescent to strongly effervescent, but noneffervescent in the upper part in some pedons

Reaction: Mildly alkaline or moderately alkaline

Control section:

Texture (when mixed)—loam, clay loam, sandy clay loam, or gravelly loam

Content of clay—25 to 35 percent

Content of rock fragments—0 to 20 percent, mainly pebbles

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

Izo Series

Depth class: Very deep

Drainage class: Excessively drained

Parent material: Alluvium derived from mixed igneous and sedimentary rock

Positions on landscape: Channels, inset fans, fan skirts

Slope: 0 to 4 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Sandy-skeletal, mixed, mesic Typic Torriorthents

Typical Pedon

A—0 to 2 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; few medium and many very fine and fine vesicular pores; 15 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C1—2 to 8 inches; light gray (2.5Y 7/2) gravelly loamy sand, light olive brown (2.5Y 5/4) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; 30 percent pebbles; white (2.5Y 8/2) very thin lime coatings on the underside of 30 percent of pebbles; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

C2—8 to 34 inches; light gray (2.5Y 7/2) very gravelly coarse sand, light olive brown (2.5Y 5/4) moist; single grain; loose, nonsticky and nonplastic;

common very fine roots; many very fine interstitial pores; 55 percent pebbles; white (2.5Y 8/2) very thin lime coatings on the underside of 30 percent of pebbles; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

C3—34 to 60 inches; light brownish gray (2.5Y 6/2) very gravelly coarse sand, grayish brown (2.5Y 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 55 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Izo gravelly loam, 0 to 4 percent slopes, in Izo-Bubus association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles southeast of Austin; about 1,850 feet south and 800 feet east of the northwest corner of sec. 12, T. 15 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively in July through October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Reaction: Moderately alkaline or strongly alkaline, commonly increasing in alkalinity with increasing depth

Effervescence: Slightly effervescent to strongly effervescent

Other characteristics: Thin noncalcareous strata in some pedons

Control section:

Texture (fraction less than 2 millimeters)—stratified coarse sand, loamy sand, or loamy coarse sand

Content of rock fragments—averages 50 to 75 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Structure—platy, massive, or single grain

C horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—massive or single grain

Texture (fraction less than 2 millimeters)—commonly stratified sand, coarse sand, loamy sand, or loamy coarse sand

Content of rock fragments—dominantly 50 to 75 percent, mainly pebbles, but strata that are 15

to 85 percent rock fragments present in some pedons

Other characteristics—coatings of lime on as much as 50 percent of the underside of the rock fragments in some pedons

Izod Series

Depth class: Very shallow or shallow

Drainage class: Well drained

Parent material: Residuum derived from shale and some limestone, dolomite, and sandstone

Positions on landscape: Side slopes and crests of hills and mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

Typical Pedon

About 30 percent of the surface is covered with pebbles, 25 percent with cobbles, and 5 percent with stones.

A—0 to 4 inches; pale brown (10YR 6/3) extremely cobbly fine sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common fine roots; many very fine vesicular pores; 35 percent pebbles and 35 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

C—4 to 10 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 30 percent pebbles, 10 percent cobbles, and 5 percent stones; few fine soft lime masses; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

2R—10 inches; limestone that is weathered and fractured in the upper 1 inch and is hard below this depth; few fine roots in fractures; common lime pendants on rock fragments.

Typical Pedon Location

Soil name and map unit in which located: Izod extremely cobbly fine sandy loam, 15 to 50 percent slopes, in Izod-Rock outcrop association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 1,800 feet north and 800 feet east of the southwest corner of sec. 5, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist late in fall to early in spring, dry in June through October

Average annual soil temperature: 47 to 50 degrees F

Depth to bedrock: 7 to 14 inches

Reaction: Mildly alkaline or moderately alkaline

Calcium carbonate equivalent: 50 to 60 percent

Other characteristics: Silica and lime laminae commonly covering as much as 75 percent of the underlying bedrock

Control section:

Content of clay—18 to 25 percent

Content of rock fragments—40 to 75 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—weak or moderate, very thin or thin, and platy

Effervescence—strongly effervescent or violently effervescent

C horizon:

Value—6 to 8 dry, 4 or 5 moist

Chroma—2 or 3

Structure—weak or moderate and subangular blocky, or massive

Jesse Camp Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium that is derived mainly from volcanic rock and includes some volcanic ash

Positions on landscape: Inset fans, stream terraces

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine-silty, mixed, frigid Xerollic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and medium roots; many fine and medium vesicular and interstitial pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw—4 to 12 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common

very fine and coarse roots; common very fine and medium tubular pores; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—12 to 26 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate thin platy; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common fine and medium tubular pores; 5 percent durinodes; strongly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bqk2—26 to 60 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 15 percent durinodes; common medium faint light gray (10YR 7/2) lime seams; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Jesse Camp silt loam, 0 to 2 percent slopes, in Fenster-Jesse Camp association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles east of Austin; about 400 feet south and 700 feet west of the northeast corner of sec. 19, T. 19 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Combined thickness of the A and Bw horizons: 10 to 17 inches

Content of clay in the control section: 18 to 27 percent

Other characteristics: C horizon below a depth of 50 inches in some pedons

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate, very thin to medium, and platy, or massive

Consistence—soft or slightly hard

Effervescence—noneffervescent or slightly effervescent

Bw horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Texture—silt loam or very fine sandy loam

Structure—weak or moderate, very thin to medium, and platy; or weak, fine or medium, and subangular blocky

Effervescence—noneffervescent or slightly effervescent

Bk horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Texture—dominantly silt loam, but thin strata of very fine sandy loam or silty clay loam

Structure—prismatic, angular blocky, or massive

Reaction—moderately alkaline to very strongly alkaline

Effervescence—strongly effervescent or violently effervescent

Other characteristics—few to many, very fine, fine, and medium, soft lime masses, filaments, or seams in the lower part; as much as 20 percent brittle durinodes in a friable matrix (durinodes are as much as 0.5 inch in diameter and 0.5 to 2.0 inches in length and are hard to extremely hard)

Jung Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from metavolcanic and volcanic rock

Positions on landscape: Crests and side slopes of mountains and hills

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 25 percent with cobbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; few fine roots; many fine vesicular pores; 25 percent pebbles and 25 percent cobbles; neutral (pH 7.0); clear smooth boundary.

A2—3 to 8 inches; light brownish gray (10YR 6/2) cobbly loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; common fine roots; many very fine interstitial pores; 10 percent pebbles and 20 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt—8 to 15 inches; brown (10YR 5/3) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate medium and fine subangular blocky; very hard, firm, sticky and plastic; common fine roots; few very fine tubular pores; continuous thick clay films on peds; 20 percent pebbles and 20 percent cobbles; moderately alkaline (pH 8.4); gradual wavy boundary.

Btk—15 to 19 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few very fine tubular pores; thin discontinuous clay films on peds; 30 percent pebbles and 20 percent cobbles; lime coatings on the underside of rock fragments; slightly effervescent; moderately alkaline (pH 8.4); abrupt irregular boundary.

R—19 inches; fractured, hard rhyolite; fractures more than 4 inches apart.

Typical Pedon Location

Soil name and map unit in which located: Jung very cobbly loam, 15 to 30 percent slopes, in Newpass-Jung association

Location in Nevada: Lander County, Nevada, South Part, survey area; in cut at side of powerline access road about 17.5 miles west of Austin, near Mount Airy; about 50 feet south and 1,300 feet west of the northeast corner of sec. 5, T. 19 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June to early in November

Average annual soil temperature: 47 to 52 degrees F

Depth to bedrock: 14 to 20 inches

Control section:

Content of clay—35 to 45 percent

Content of rock fragments—35 to 50 percent, mainly pebbles and cobbles

A horizon:

Value—3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate, thin or medium, and platy

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—very gravelly clay loam, very cobbly clay loam, or very cobbly clay

Structure—dominantly weak to strong and prismatic

or angular blocky, but subangular blocky in the lower part in some pedons

Reaction—moderately alkaline or strongly alkaline

Btk horizon:

Effervescence—slightly effervescent or strongly effervescent

Kawich Series

Depth class: Very deep

Drainage class: Excessively drained

Parent material: Eolian sand derived from various kinds of rock

Positions on landscape: Stabilized dunes

Slope: 4 to 30 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 53 degrees F

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical Pedon

A—0 to 4 inches; very pale brown (10YR 7/3) fine sand, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common fine and medium interstitial pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C1—4 to 42 inches; very pale brown (10YR 7/3) fine sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common fine and medium roots; many fine interstitial pores and common fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C2—42 to 52 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C3—52 to 54 inches; white (10YR 8/2) fine sand (volcanic ash), light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C4—54 to 60 inches; very pale brown (10YR 7/3) fine sand, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Kawich fine sand, 4 to 30 percent slopes, in Yobe-Kawich-Playas association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles south of Austin; about 550 feet east of the southwest corner of sec. 8, T. 15 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively in July and October as a result of convection storms
Average annual soil temperature: 54 to 59 degrees F
Depth to unconfomable material: 40 to more than 120 inches
Texture of the control section: Averages fine sand, but strata of sand or loamy fine sand present in some pedons
Effervescence: Slightly effervescent to violently effervescent
Reaction: Moderately alkaline to very strongly alkaline
Hue: 10YR or 7.5YR
Value: 5 to 8 dry, 4 to 6 moist
Chroma: 2 to 4
Other characteristics: Significant amounts of pyroclastic material present

Kelk Series

Depth class: Very deep
Drainage class: Well drained
Parent material: Loess that includes some volcanic ash and mixed silty alluvium derived from various kinds of rock
Positions on landscape: Inset fans, alluvial plains
Slope: 0 to 4 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: 48 degrees F
Taxonomic class: Fine-silty, mixed, mesic Durixerollic Camborthids

Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.
 Bw—4 to 12 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, very sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral (pH 7.2); clear smooth boundary.
 Bq1—12 to 20 inches; very pale brown (10YR 7/3) silt

loam, brown (10YR 5/3) moist; massive; slightly hard, friable, very sticky and plastic; few very fine and fine roots; few very fine tubular pores; 20 percent hard, firm, strongly cemented durinodes; 20 percent discontinuous weak cementation; mildly alkaline (pH 7.4); clear wavy boundary.

Bq2—20 to 27 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 40 percent hard, firm, strongly cemented durinodes; 20 percent discontinuous weak cementation; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk1—27 to 31 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 40 percent strongly cemented durinodes in continuous, weakly silica-cemented matrix; 5 percent pebbles; common fine seams and threads of lime; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk2—31 to 40 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; 40 percent strongly cemented durinodes in continuous, weakly silica-cemented matrix; common fine seams and threads of lime; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bk—40 to 60 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; few faint light yellowish brown (10YR 6/4) mottles; moderate medium platy structure parting to fine medium angular blocky; hard, friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; few fine seams and threads of lime; common moderately thick pressure faces; slightly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Kelk very fine sandy loam, lacustrine substratum, 0 to 2 percent slopes, in Allor-Kelk association

Location in Nevada: Lander County, Nevada, South Part, survey area; in an unsectionalized area about 1,100 feet east and 550 feet south of the northwest corner of the assumed sec. 6, T. 14 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in June through October
Average annual soil temperature: 47 to 52 degrees F
Depth to the base of the Bw horizon: 12 to 18 inches

Depth to continuous, weak, silica cementation: 18 to 35 inches

Depth to carbonates: 12 to 35 inches

Content of clay in the control section: 18 to 25 percent

Other characteristics: Typically slightly or moderately affected by salt below a depth of 24 to 48 inches

A horizon:

Hue—10YR or 2.5Y

Structure—very thin or thin and platy, very fine or fine and prismatic, or massive

Consistence—slightly sticky or sticky and slightly plastic or plastic

Reaction—neutral to moderately alkaline

Effervescence—noneffervescent or slightly effervescent

Bw horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—angular blocky, subangular blocky, prismatic, or massive

Reaction—dominantly neutral to moderately alkaline, but strongly alkaline in the lower part

Effervescence—noneffervescent or slightly effervescent

Other characteristics—10 to 20 percent weak durinodes in the lower part in some pedons

Bq and Bqk horizons:

Value—6 to 8 dry, 3 to 6 moist

Chroma—2 to 4

Texture—dominantly silt loam, but thin strata of silty clay loam common in some pedons below a depth of 30 inches

Reaction—neutral to strongly alkaline, increasing in alkalinity with increasing depth

Effervescence (Bqk horizon)—slightly effervescent to violently effervescent

Other characteristics—strata are discontinuously cemented with silica and are 30 to 90 percent durinodes or are 20 to 50 percent discontinuously weakly cemented with silica; relict mottles absent in the lower part of the Bqk horizon in some pedons; lenses that are 5 to 15 percent pebbles in the Bqk horizon in some pedons; extremely gravelly strata below a depth of 42 inches in some pedons; silty clay loam 2Bk horizon below a depth of 39 inches in some pedons

Kingingham Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Thin mantle of loess over alluvium derived from various kinds of rock

Slope: 2 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Typic Nadurargids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 3 inches; very pale brown (10YR 7/3) gravelly very fine sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine and fine vesicular pores; 15 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, dark brown (10YR 4/3) moist; strong thick platy structure; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine and fine vesicular pores; 20 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary.

2Btk1—7 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/4) moist; strong medium angular blocky structure; slightly hard, very friable, very sticky and very plastic; common fine and medium roots; many very fine and fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 15 percent pebbles; common fine seams of lime; slightly effervescent in matrix; strongly alkaline (pH 8.6); clear wavy boundary.

2Btk2—12 to 18 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common fine and medium roots; common very fine tubular pores; many moderately thick and thick clay films on faces of peds and lining pores; 20 percent pebbles; common fine seams of lime; slightly effervescent in matrix; strongly alkaline (pH 8.8); clear wavy boundary.

2Btk—18 to 22 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 10 percent weakly cemented durinodes; 50 percent pebbles; common fine seams

of lime; strongly effervescent; strongly alkaline (pH 8.6); abrupt irregular boundary.

2Bqkm1—22 to 28 inches; very pale brown (10YR 8/3), indurated duripan, very pale brown (10YR 7/4) moist; massive; extremely hard, extremely firm; violently effervescent.

2Bqkm2—28 to 60 inches; very pale brown (10YR 8/3), indurated duripan alternating with thin horizontal lenses that are weakly to strongly cemented; very pale brown (10YR 7/4) moist; massive; violently effervescent.

Typical Pedon Location

Soil name and map unit in which located: Kingingham gravelly very fine sandy loam, 2 to 8 percent slopes, in Kingingham-Golconda-Whirlo association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles south of Battle Mountain; about 2,630 feet south and 2,630 feet east of the northwest corner of sec. 6, T. 30 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and early in spring, dry late in May through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 20 to 30 inches

Reaction: Moderately alkaline or strongly alkaline, increasing in alkalinity with increasing depth

Other characteristics: Bqk horizon present above the indurated duripan in some pedons

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Bt horizon:

Value—4 to 6 dry, 4 or 5 moist

Chroma—4 to 6

Texture—gravelly clay loam, gravelly silty clay loam, gravelly clay, or gravelly silty clay

Content of clay—35 to 50 percent

Content of rock fragments—15 to 35 percent when mixed, mainly pebbles

Exchangeable sodium percentage—15 to 30

Kobeh Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Mixed alluvium that includes some volcanic ash

Positions on landscape: Inset fans, fan skirts, stream terraces

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Durixerollic Camborthids

Typical Pedon

A—0 to 7 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; common fine and very fine interstitial pores; 25 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bw—7 to 15 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few medium roots and common fine and very fine roots; common fine and very fine interstitial pores; 30 percent pebbles; neutral (pH 7.0); clear wavy boundary.

2Bqk—15 to 32 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine and very fine roots; few fine and very fine interstitial pores; discontinuous, thin, weakly cemented laminae; 20 percent brittle durinodes; 50 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

2Bk1—32 to 52 inches; very pale brown (10YR 7/3) very gravelly sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; common fine and very fine roots; common fine and very fine interstitial pores; 45 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

3Bk2—52 to 60 inches; light gray (10YR 7/2) gravelly fine sandy loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; few medium roots; common fine and very fine interstitial pores; 30 percent pebbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Kobeh gravelly loam, 0 to 4 percent slopes, in Kobeh-Shipley association

Location in Nevada: Eureka County Area, Nevada, survey area; about 14 miles west of Eureka; about 280 feet south and 660 feet east of the northwest corner of sec. 11, T. 18 N., R. 51 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 44 to 47 degrees F
Combined thickness of the A and Bw horizons: 12 to 30 inches

Depth to the 2Bk horizon: 20 to 35 inches

Control section:

Texture—gravelly sandy loam or gravelly fine sandy loam in the upper part; dominantly very gravelly sand in the lower part, but strata of very gravelly sandy loam common in some pedons
 Content of clay—5 to 15 percent in the upper part, less than 10 percent in the lower part
 Content of rock fragments—averages 35 to 60 percent, mainly pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist (value of more than 5.5 dry and 3.5 moist occurs when the upper 7 inches is mixed)
 Structure—weak or moderate, very thin to medium, and platy; weak or moderate, very fine to medium, and subangular blocky; single grain; or massive
 Reaction—slightly acid or neutral

Bw horizon:

Value—5 or 6 dry, 3 to 5 moist
 Chroma—2 or 3
 Structure—weak, coarse or very coarse, and prismatic; moderate, medium or coarse, and subangular blocky, or massive

Bq and 2Bk horizons:

Hue—10YR or 2.5Y
 Value—6 or 7 dry, 4 or 5 moist
 Chroma—2 or 3
 Reaction—neutral to strongly alkaline
 Other characteristics—20 to 70 percent 0.5- to 1-inch-thick, hard or very hard durinodes in the Bq horizon; few to many silica bridges; discontinuous, weakly or strongly cemented layer that extends 6 to 36 inches horizontally and is as much as 3 inches thick present at the top of the 2Bk horizon in some pedons

2C or 3Bk horizon (when present):

Hue—10YR or 2.5Y
 Value—5 to 7 dry, 3 to 6 moist
 Chroma—1 to 3
 Other characteristics—strata of gravelly fine sandy loam or very gravelly fine sandy loam below a depth of 50 inches in some pedons

Koyen Series

Depth class: Very deep
Drainage class: Well drained

Parent material: Loamy alluvium derived dominantly from volcanic rock

Positions on landscape: Fan skirts

Slope: 2 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 52 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Typic Camborthids

Typical Pedon

- A—0 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, slightly sticky and nonplastic; few fine and medium roots; common fine and medium vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.
- Bw1—4 to 8 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; few very fine roots and common fine and medium roots; common fine and medium tubular pores; 10 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.
- Bw2—8 to 14 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 fine and medium roots; common fine and medium tubular pores; few fine filaments or threads of lime; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- Bk1—14 to 34 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few fine and medium roots; common fine tubular pores; common medium filaments or threads of lime; 10 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
- Bk2—34 to 60 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; few fine lime filaments or threads and lime coatings on pebbles; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Koyen fine sandy loam, 2 to 4 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles southeast of

Austin; about 500 feet south and 1,100 feet west of the northeast corner of sec. 17, T. 15 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the Bk horizon: 14 to 21 inches

Reaction: Moderately alkaline or strongly alkaline (strongly alkaline in the Bk horizon)

Other characteristics: 2C horizon present in some pedons

Control section:

Texture—dominantly sandy loam, but strata of fine sandy loam, loam, or loamy sand in some pedons

Content of clay—10 to 18 percent

Content of rock fragments—averages 10 to 25 percent, but individual layers are as much as 40 percent pebbles

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—very thin to medium and platy, very fine to medium and subangular blocky, or massive

Bw horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—very weak or weak, coarse or medium, and subangular blocky; or massive

Other characteristics—calcareous only in the lower part

Bk horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Effervescence—strongly effervescent or violently effervescent

Structure—subangular blocky or massive

Koynik Series

Depth class: Very shallow or shallow

Drainage class: Well drained

Parent material: Residuum derived from limestone and calcareous shale

Positions on landscape: Hillsides

Slope: 15 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, mesic Lithic Torriorthents

Typical Pedon

About 40 percent of the surface is covered with pebbles and 10 percent with cobbles.

A1—0 to 3 inches; very pale brown (10YR 7/3) very gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine vesicular pores; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) very gravelly silt loam, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; many very fine vesicular pores and few very fine tubular pores; 40 percent pebbles; common medium lime pendants on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk—6 to 8 inches; very pale brown (10YR 7/3) very gravelly loam, brown (10YR 5/3) moist; moderate thin platy structure parting to moderate fine granular; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine and fine interstitial and tubular pores; 40 percent pebbles; common fine soft masses of lime and common medium pendants of lime on the underside of or coating rock fragments; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2R—8 inches; hard limestone.

Typical Pedon Location

Soil name and map unit in which located: Koynik very gravelly very fine sandy loam, 15 to 30 percent slopes, in Koynik, steep-Koynik-Rock outcrop association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain, in the Fish Creek Mountains; in an unsectionalized area about 1,000 feet north and 3,000 feet west of the southwest corner of the assumed sec. 6, T. 28 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and early in spring, dry in May through October

Average annual soil temperature: 47 to 52 degrees F

Depth to lithic contact: 8 to 14 inches

Reaction: Moderately alkaline or strongly alkaline

Calcium carbonate equivalent: 40 to 60 percent, usually increasing with increasing depth

Other characteristics: Thin Cr horizon or 1 to 2 inches of highly fractured bedrock present at the lithic contact

Control section:

Texture—very gravelly silt loam, very gravelly loam, or very gravelly very fine sandy loam

Content of clay—15 to 25 percent

Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4

Bk horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—3 or 4

Structure—weak or moderate and platy or subangular blocky, or massive

Kram Series

Depth class: Very shallow or shallow

Drainage class: Somewhat excessively drained

Parent material: Residuum derived from limestone

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, carbonatic, mesic
Lithic Xeric Torriorthents

Typical Pedon

About 25 percent of the surface is covered with pebbles, 15 percent with cobbles, and 2 percent with stones.

A—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 30 percent pebbles and 20 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—4 to 13 inches; pale brown (10YR 6/3) very gravelly very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots and few coarse roots; common very fine interstitial pores; 45 percent pebbles and 10 percent cobbles; violently effervescent;

moderately alkaline (pH 8.4); abrupt irregular boundary.

R—13 inches; fractured limestone.

Typical Pedon Location

Soil name and map unit in which located: Kram very cobbly loam in Attella-Xine-Kram association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 46 miles north of Austin; about 2,400 feet south and 1,100 feet west of the northeast corner of sec. 19, T. 25 N., R. 40 E.

Range in Characteristics

Soil moisture content: Usually dry in mid-June through October

Average annual soil temperature: 49 to 52 degrees F

Depth to bedrock: 8 to 14 inches

Reaction: Moderately alkaline or strongly alkaline

Calcium carbonate equivalent (fraction less than 20 millimeters): 40 to 50 percent

Control section:

Content of clay—8 to 18 percent

Content of rock fragments—40 to 50 percent pebbles; averages 5 to 10 percent cobbles and stones

A horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3

Structure—granular or platy

Effervescence—slightly effervescent to violently effervescent

C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 to 4

Texture—very gravelly very fine sandy loam or very gravelly loam

Content of rock fragments—45 to 55 percent pebbles, 5 to 10 percent cobbles and stones

Structure—subangular blocky or massive

Effervescence—strongly effervescent or violently effervescent

Labshaft Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from siliceous rock

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Loamy-skeletal, mixed Lithic
Cryoborolls

Typical Pedon

About 10 percent of the surface is covered with pebbles, 30 percent with cobbles, and 30 percent with stones.

A1—0 to 3 inches; brown (10YR 5/3) extremely stony loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine tubular pores; 15 percent pebbles, 25 percent cobbles, and 20 percent stones; neutral (pH 6.8); clear smooth boundary.

A2—3 to 8 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 15 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear irregular boundary.

Bw—8 to 15 inches; yellowish brown (10YR 5/4) extremely gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine angular blocky structure; slightly hard, friable, sticky and plastic; common fine, medium, and coarse roots; common very fine tubular pores; 45 percent pebbles, 10 percent cobbles, and 10 percent stones; neutral (pH 7.2); abrupt irregular boundary.

R—15 inches; fractured siliceous rock; few fine roots in crevices.

Typical Pedon Location

Soil name and map unit in which located: Labshaft extremely stony loam, 30 to 50 percent slopes, in Labshaft-Hapgood-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 40 miles southwest of Austin; in an unsectionalized area about 2,000 feet south of the northwest corner of the assumed sec. 9, T. 17 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to early in October

Average annual soil temperature: 43 to 47 degrees F

Average summer soil temperature: 54 to 59 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

(commonly includes part or all of the Bw horizon)

Depth to bedrock: 10 to 20 inches

Reaction: Neutral or slightly acid

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

B horizon:

Value—5 or 6 dry, 2 or 3 moist

Chroma—2 to 4

Texture—very gravelly loam, very gravelly clay loam, extremely gravelly sandy clay loam, or extremely gravelly loam

Content of clay—25 to 35 percent

Content of rock fragments—40 to 70 percent, mostly pebbles

Laped Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolitic tuff and andesite

Positions on landscape: Crests, shoulder slopes, and side slopes of hills

Slope: 8 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Typic
Durargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light gray (10YR 7/2) gravelly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine vesicular pores; 20 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots; many very fine and fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bt—6 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common medium roots; common very fine and fine tubular pores; few thin clay films on peds and bridging sand grains; 10 percent pebbles and 5

percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—12 to 18 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine prismatic structure parting to strong fine angular blocky; hard, firm, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; 15 percent pebbles and 5 percent cobbles; few fine strongly effervescent lime filaments and thin strongly effervescent lime coatings on the underside of coarse fragments; noneffervescent in matrix; moderately alkaline (pH 8.3); abrupt wavy boundary.

Bqkm—18 to 23 inches; white (10YR 8/2), indurated duripan that has a laminar cap 2 millimeters thick; pale brown (10YR 6/3) moist; massive; extremely hard, extremely firm; violently effervescent; clear wavy boundary.

2R—23 inches; hard bedrock.

Typical Pedon Location

Soil name and map unit in which located: Laped gravelly loam, 8 to 15 percent slopes, in Laped-Colbar-Osoll association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 1,800 feet south and 400 feet west of the northeast corner of sec. 22, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and early in spring, dry in May through October

Average annual soil temperature: 47 to 51 degrees F

Thickness of the solum and depth to the duripan: 14 to 20 inches

Depth to bedrock: 20 to 30 inches

Other characteristics: Thin Bqk horizon above the duripan in some pedons

Control section:

Content of clay—27 to 35 percent

Content of rock fragments—15 to 35 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—4 to 6

Reaction—dominantly moderately alkaline, but strongly alkaline in the lower part in some pedons

Sodium adsorption ratio—2 to 10, generally increasing in concentration with increasing depth

Effervescence—noneffervescent or slightly effervescent in the matrix in the lower part

Other characteristics—filaments or coatings of lime common in most pedons

Laxal Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Alluvium derived from shale and volcanic rock

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 52 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; very pale brown (10YR 7/3) gravelly fine sandy loam, brown (10YR 4/3) moist; moderate fine and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine and fine vesicular pores; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A2—3 to 6 inches; light gray (10YR 7/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; strong fine and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine and fine vesicular pores and common very fine tubular pores; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bqk1—6 to 12 inches; light brownish gray (2.5Y 6/2) very gravelly loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; white (2.5Y 8/2) lime coatings and olive yellow (2.5Y 6/8) silica coatings 0.5 to 2.0 millimeters thick on the underside of pebbles; common firm coarse durinodes; 45 percent discontinuous weak silica and lime cementation bridging pebbles; 40 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Bqk2—12 to 17 inches; light brownish gray (2.5Y 6/2)

very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine and fine tubular pores; white (2.5Y 8/2) lime coatings and olive yellow (2.5Y 6/8) silica coatings 0.5 to 2.0 millimeters thick on the underside of pebbles; 50 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Bqk3—17 to 23 inches; light brownish gray (2.5Y 6/2) very gravelly sandy loam, very dark grayish brown (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and common fine roots; white (2.5Y 8/2) lime coatings and olive yellow (2.5Y 6/8) silica coatings 0.5 to 1.0 millimeter thick on the underside of pebbles; 60 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Bqk4—23 to 31 inches; light olive gray (2.5Y 6/2) very gravelly loamy coarse sand, dark olive gray (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; light gray (10YR 7/2) lime coatings and very pale brown (10YR 7/4) silica coatings 0.5 to 1.0 millimeter thick on the underside of pebbles; 60 percent pebbles; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bqk5—31 to 60 inches; light olive gray (2.5Y 6/2) extremely gravelly loamy sand, dark olive gray (2.5Y 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and fine roots; olive gray (10YR 7/2) lime coatings and very pale brown (10YR 7/4) silica coatings less than 1 millimeter thick on the underside of pebbles; 55 percent discontinuous weak silica cementation bridging pebbles; 65 percent pebbles and 5 percent cobbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Laxal gravelly fine sandy loam, 2 to 4 percent slopes, in Laxal association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles southeast of Austin, in the Big Smoky Valley; about 1,600 feet east and 550 feet north of the southwest corner of sec. 28, T. 16 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Reaction: Strongly alkaline or very strongly alkaline

Effervescence: Strongly effervescent or violently effervescent

Other characteristics: Buried very gravelly clay loam Bt horizon or gravel layers present below a depth of 40 inches in some pedons

Control section:

Texture—dominantly stratified very gravelly fine sandy loam, sandy loam, coarse sandy loam, and loamy coarse sand and common thin strata of sand and clay loam; fine sandy loam, sandy loam, or coarse sandy loam when mixed

Content of rock fragments—averages 35 to 60 percent, mainly pebbles

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3 dry, 2 to 4 moist

Structure—platy or massive

Bqk horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3 dry, 2 to 4 moist

Other characteristics—discontinuous, weak, silica cementation bridging rock fragments at a depth of less than 40 inches in some pedons; lime and silica coatings and pendants common on the underside of rock fragments

Layview Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from andesite, rhyolite, and tuff

Positions on landscape: Crests and shoulder slopes of mountains

Slope: 4 to 15 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed Argic Lithic Cryoborolls

Typical Pedon

About 50 percent of the surface is covered with pebbles and 25 percent with cobbles and stones.

A—0 to 3 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) 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; neutral (pH 7.2); abrupt smooth boundary.
- Bt1—3 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate fine granular structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; 35 percent pebbles; neutral (pH 7.2); clear wavy boundary.
- Bt2—7 to 12 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; few fine and common medium roots; few very fine tubular pores; 40 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt irregular boundary.
- 2R—12 inches; fractured tuff.

Typical Pedon Location

Soil name and map unit in which located: Layview very gravelly sandy loam, 8 to 15 percent slopes, in Packer-Layview-Hapgood association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 41 miles southwest of Austin; about 1,700 feet west and 1,100 feet south of the northeast corner of sec. 1, R. 33 E., T. 16 N.

Range in Characteristics

Soil moisture content: Usually dry in summer and fall, moist in mid-October to mid-July

Average annual soil temperature: 43 to 47 degrees F

Average summer soil temperature: 50 to 59 degrees F

Thickness of the mollic epipedon: 7 to 12 inches

Depth to bedrock: 10 to 14 inches

Reaction: Neutral or mildly alkaline

Control section:

Content of clay—18 to 30 percent

Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Other characteristics—weak or moderate structure

Bt horizon:

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4

Texture—very gravelly loam or very gravelly clay loam

Content of clay—22 to 35 percent

Structure—weak or moderate and subangular or angular blocky

Content of rock fragments—35 to 60 percent, mainly pebbles

Locane Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from shale and tuffaceous or siliceous conglomerate

Positions on landscape: Side slopes of mountains

Slope: 2 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical Pedon

About 40 percent of the surface is covered with pebbles and 10 percent with cobbles.

A1—0 to 4 inches; very pale brown (10YR 7/3) gravelly loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine vesicular pores; 30 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.

A2—4 to 6 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; 25 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt1—6 to 9 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few fine and medium roots; common very fine tubular pores; many thin and few moderately thick clay films on faces of peds; 35 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—9 to 14 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; few very fine tubular pores; many thin and moderately thick clay films on faces of peds; 45 percent pebbles and 10 percent cobbles; neutral (pH 7.0); abrupt irregular boundary.

R—14 inches; hard, slightly fractured, tuffaceous conglomerate.

Typical Pedon Location

Soil name and map unit in which located: Locane gravelly loam, 8 to 15 percent slopes, in Locane-Coztur-Punchbowl association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 30 miles west of Austin; in an unsectionalized area about 700 feet south and 2,000 feet east of the northwest corner of the assumed sec. 26, T. 18 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October

Average annual soil temperature: 44 to 47 degrees F

Depth to bedrock: 10 to 20 inches

Reaction: Slightly acid or neutral

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—granular, platy, or subangular blocky

Consistence—slightly hard or hard (dry)

Bt horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4

Structure—weak to strong and angular blocky or subangular blocky, or massive

Thickness—7 to 15 inches

Content of clay—35 to 50 percent

Content of rock fragments—averages 35 to 50 percent

Loncan Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived mainly from chert or sedimentary and volcanic rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Haploxerolls

Typical Pedon

About 30 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 6.8); clear smooth boundary.

A2—4 to 9 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate very fine

granular structure; soft, very friable, sticky and plastic; common very fine roots; common very fine tubular pores; 30 percent pebbles; neutral (pH 6.8); clear smooth boundary.

A3—9 to 16 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, sticky and plastic; common medium and coarse roots; common very fine interstitial pores; 45 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.

C—16 to 22 inches; pale brown (10YR 6/3) extremely gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, sticky and plastic; few fine roots; few very fine interstitial pores; 65 percent pebbles and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

2R—22 inches; chert.

Typical Pedon Location

Soil name and map unit in which located: Loncan gravelly loam, 15 to 50 percent slopes, in Loncan-Gando-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 55 miles south of Beowawe; about 1,100 feet south and 2,000 feet east of the northwest corner of sec. 5, T. 22 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to mid-October

Average annual soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 10 to 17 inches

Depth to bedrock: 21 to 38 inches

Other characteristics: AC horizon present in some pedons

Control section:

Texture—very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam, or extremely gravelly loam

Content of clay—18 to 27 percent

Content of rock fragments—averages 50 to 70 percent pebbles and cobbles and very few stones

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

Structure—platy, subangular blocky, or granular

C horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Content of rock fragments—40 to 70 percent pebbles and cobbles

Lopwash Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock and loess

Positions on landscape: Inset fans

Slope: 0 to 4 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Typic Camborthids

Typical Pedon

A—0 to 6 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; weak medium platy structure; slightly hard, friable, nonsticky and nonplastic; few fine and medium roots; common very fine roots and few fine and medium vesicular pores; 10 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw—6 to 12 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 fine roots and few medium and very fine roots; common very fine and fine tubular pores and few fine vesicular pores; 10 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

C—12 to 19 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few medium roots and common very fine and fine roots; common very fine and fine interstitial pores and few fine and medium tubular pores; 40 percent pebbles; lime coatings on the underside of pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Ck—19 to 60 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common very fine and fine interstitial pores and few fine and medium tubular pores; 40 percent pebbles; lime coatings on the underside of pebbles; slightly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Lopwash loam, 0 to 4 percent slopes, in Poorcal-Lopwash association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 19 miles east of Austin;

about 1,500 feet south and 500 feet west of the northeast corner of sec. 20, T. 19 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry late in May to early in November

Average annual soil temperature: 45 to 47 degrees F

Combined thickness of the A and Bw horizons: 10 to 16 inches

Depth to carbonates: 14 to 20 inches

Control section:

Content of clay—5 to 18 percent

Content of rock fragments—35 to 70 percent when mixed

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline

Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 moist

Texture—sandy loam, gravelly sandy loam, loam, or gravelly loam

Reaction—moderately alkaline or strongly alkaline

C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 6

Texture (fraction less than 2 millimeters)—dominantly sandy loam, but loamy sand or sand in the lower part in some pedons

Content of rock fragments—35 to 70 percent, mostly pebbles

Reaction—moderately alkaline or strongly alkaline

McConnel Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash over lacustrine beach sediment or gravelly alluvium

Positions on landscape: Inset fans, beach terraces, fan skirts, offshore bars

Slope: 0 to 8 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 50 degrees F

Taxonomic class: Sandy-skeletal, mixed, mesic Xerollic Camborthids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 2 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; many fine and common medium roots; common very fine tubular pores; 10 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 6 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure parting to weak very fine granular; slightly hard, friable, slightly sticky and nonplastic; many fine and common medium roots; common very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bw—6 to 12 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

2Bk1—12 to 19 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; few very fine tubular pores; 55 percent pebbles; thin lime coatings on the underside of pebbles; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

3Bk2—19 to 28 inches; light brownish gray (10YR 6/2) extremely gravelly loamy coarse sand, grayish brown (10YR 5/2) moist; single grain; nonsticky and nonplastic; common fine and medium roots; many fine interstitial pores; 65 percent pebbles; thin lime coatings on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

3Bk3—28 to 60 inches; pale brown (10YR 6/3) extremely gravelly coarse sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few fine and medium roots; many fine interstitial pores; 70 percent pebbles; few thin lime coatings on the underside of pebbles; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: McConnel loam, 0 to 4 percent slopes, in Tulase-Bubus-McConnel association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 38 miles southeast of Battle Mountain; about 1,500 feet north of the southeast corner of sec. 30, T. 26 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 50 to 54 degrees F

Depth to the 2Bk horizon: 10 to 20 inches

Control section:

Content of clay—averages as much as 5 percent

Content of rock fragments—averages 50 to 80 percent, mainly pebbles, but is as much as 70 percent in the upper part and 60 to 85 percent in the lower part

Texture—stratified very fine sandy loam to extremely gravelly sandy loam or sandy loam in the upper part; stratified very gravelly loamy sand to extremely gravelly coarse sand in the lower part

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry and 3 or 4 moist (5 dry and 3 moist occur only in the upper 3 inches)

Chroma—1 to 3

Structure—weak or moderate, thin to thick, and platy; weak or moderate, fine or medium, and granular; or massive

Reaction—neutral to moderately alkaline

Bw horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—dominantly 2 to 4, but 1 when dark sand grains are present

Texture—loam, sandy loam, or fine sandy loam

Structure—very fine to medium and granular or subangular blocky, or massive

Reaction—neutral to moderately alkaline

2Bk, 3Bk, and 3C horizons:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—dominantly 2 to 4, but 1 when dark sand grains are present

Reaction—moderately alkaline to very strongly alkaline

McVegas Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum derived from metavolcanic and volcanic rock

Positions on landscape: Hills

Slope: 8 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic, shallow Haplic Nadurargids

Typical Pedon

About 10 percent of the surface is covered with pebbles and 30 percent with cobbles.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; few medium roots; many fine vesicular pores; 30 percent cobbles and 20 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2—2 to 5 inches; light brownish gray (10YR 6/2) cobbly loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; few medium roots; many very fine tubular pores; 15 percent pebbles and 15 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Btn—5 to 10 inches; brown (10YR 5/3) very cobbly silty clay, dark brown (10YR 3/3; 10YR 4/3, crushed) moist; weak medium prismatic structure parting to strong fine and medium angular blocky; very hard, very firm, very sticky and very plastic; few medium roots; common fine tubular pores; continuous thick clay films on peds; 25 percent pebbles and 15 percent cobbles; strongly alkaline (pH 8.8); clear wavy boundary.

Btnk—10 to 19 inches; light yellowish brown (10YR 6/4) very cobbly silty clay, dark yellowish brown (10YR 3/4; 10YR 4/4, crushed) moist; moderate fine angular blocky structure; very hard, very firm, very sticky and very plastic; few medium roots; common very fine tubular pores; continuous thick clay films on peds; 25 percent pebbles and 20 percent cobbles; common medium lime filaments and threads; strongly effervescent; strongly alkaline (pH 9.0); abrupt irregular boundary.

Bqkm—19 to 22 inches; very pale brown (10YR 7/4), strongly cemented duripan capping bedrock and extending into cracks in the bedrock; some discontinuous indurated laminar deposits; 50 percent pebbles and 30 percent cobbles; strongly effervescent; abrupt smooth boundary.

R—22 inches; rhyolite.

Typical Pedon Location

Soil name and map unit in which located: McVegas very cobbly loam, 15 to 30 percent slopes, in McVegas-Stingdorn-Colbar association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles northwest of Austin; in

an unsectionalized area about 1,200 feet south and 1,100 feet west of the northeast corner of the assumed sec. 30, T. 24 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods from October through May

Average annual soil temperature: 47 to 52 degrees F

Depth to strongly cemented duripan: 14 to 20 inches

Depth to bedrock: 15 to 35 inches

Control section:

Content of clay—35 to 45 percent

Content of rock fragments—35 to 60 percent, mainly cobbles

Reaction—moderately alkaline to very strongly alkaline, generally increasing in alkalinity with increasing depth

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—weak to moderate, thin or medium, and platy

Btn horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—very cobbly silty clay, very cobbly clay, very cobbly silty clay loam, or very cobbly clay loam

Structure—weak to strong, fine to medium, and prismatic

Consistence—hard to very hard (dry), friable to very firm (moist)

Btnk horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6

Texture—very cobbly silty clay, very cobbly clay, very cobbly silty clay loam, or very cobbly clay loam

Structure—moderate or strong, fine or medium, and angular blocky or prismatic

Consistence—hard or very hard (dry), friable to very firm (moist)

Minat Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Colluvium that is derived from chert, shale, and mixed volcanic rock and includes some volcanic ash

Positions on landscape: Side slopes of hills and mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic
Xerollic Camborthids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 25 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common fine tubular pores; 30 percent pebbles and 20 percent cobbles; moderately alkaline (pH 7.8); gradual smooth boundary.

A2—3 to 9 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine tubular pores; 35 percent pebbles; moderately alkaline (pH 8.0); gradual wavy boundary.

Bw1—9 to 19 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; common fine tubular pores; 50 percent pebbles; moderately alkaline (pH 8.0); gradual wavy boundary.

Bw2—19 to 27 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots and few fine and medium roots; few fine tubular pores; 40 percent pebbles; effervescent in spots; lime coatings on the underside of pebbles; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk1—27 to 44 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, sticky and plastic; common very fine roots and few fine and medium roots; 50 percent pebbles; 15 percent weakly cemented durinodes; lime coatings on pebbles; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bqk2—44 to 60 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; many very fine roots; 50 percent pebbles; 15 percent weakly cemented

durinodes; common medium soft lime masses and lime coatings on pebbles; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Minat very cobbly sandy loam, 30 to 50 percent slopes, in Minat-Bojo-Stingdorn association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 32 miles south of Battle Mountain; in an unsectionalized area about 2,600 feet south and 1,500 feet east of the northwest corner of the assumed sec. 6, T. 24 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in winter and spring

Average annual soil temperature: 47 to 50 degrees F

Combined thickness of the A and Bw horizons: 20 to 30 inches

Depth to carbonates: 18 to 27 inches

Control section:

Content of clay—15 to 27 percent

Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—mildly alkaline or moderately alkaline

Other characteristics—carbonate recharge in the A1 horizon in some pedons

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Reaction—mildly alkaline or moderately alkaline

Bqk horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 or 4

Other characteristics—as much as 15 percent weakly cemented durinodes

Reaction—moderately alkaline or strongly alkaline

Misad Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium or lakeshore sediment that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Fan skirts, inset fans, offshore bars

Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

- A1—0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate thin and medium platy structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; many very fine vesicular and tubular pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
- A2—3 to 7 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine vesicular and tubular pores; 30 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.
- Bq—7 to 14 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; common fine distinct relict iron mottles that are brown (7.5YR 5/4 and 4/4) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots and few fine and medium roots; many very fine tubular pores; 10 percent pebbles; 15 percent weakly cemented durinodes 5 to 15 millimeters in diameter; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.
- Bqk1—14 to 26 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; common fine distinct relict iron mottles that are brown (7.5YR 5/4 and 4/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; very few very fine and fine roots; common very fine tubular pores; 25 percent pebbles; 35 percent weakly cemented or strongly cemented durinodes 5 to 30 millimeters in diameter; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
- Bqk2—26 to 31 inches; pale brown (10YR 6/3) very gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; few fine distinct relict iron mottles that are brown (7.5YR 5/4 and 4/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; very few very fine roots; many very fine tubular pores; 45 percent pebbles; 10 percent weakly cemented durinodes 5 to 15 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.
- 2C—31 to 43 inches; pale brown (10YR 6/3) very gravelly loamy coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and

nonplastic; very few very fine roots; many very fine interstitial and tubular pores; 55 percent pebbles; strongly alkaline (pH 9.0); clear wavy boundary.

2Cq—43 to 60 inches; variegated extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; very few fine roots; 75 percent pebbles; few horizontal discontinuous strongly silica-cemented lenses 2 to 3 inches thick; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Misad gravelly sandy loam, strongly saline-sodic

Location in Nevada: Lander County, Nevada, North Part, survey area; about 2.6 miles southeast of Battle Mountain; in an unsectionalized area about 2,500 feet east and 1,000 feet south of the northwest corner of the assumed sec. 27, T. 32 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in summer and fall

Average annual soil temperature: 47 to 51 degrees F

Depth to the Bqk horizon: 8 to 25 inches

Depth to the unconformable 2C horizon: 20 to 35 inches

Other characteristics: Commonly calcareous, commonly noneffervescent in the upper part or the lower part, common relict iron mottles below a depth of 7 inches

Control section:

Texture—stratified sandy loam, fine sandy loam, very fine sandy loam, loamy coarse sand, and loamy sand

Content of rock fragments—35 to 50 percent, mainly pebbles

A horizon:

Hue—2.5Y or 10YR

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3

B horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4

Other characteristics—10 to 40 percent weakly cemented to strongly cemented durinodes in the Bq horizon

2C horizon:

Texture—stratified loamy sand, sand, and loamy coarse sand

Content of rock fragments—50 to 70 percent, mainly pebbles

Effervescence—noneffervescent to strongly effervescent

Other characteristics—common discontinuous, weakly or strongly silica-cemented lenses between pebbles

Muni Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Mixed alluvium that is derived from volcanic rock and siliceous sedimentary rock and includes some loess and volcanic ash

Positions on landscape: Fan piedmont remnants

Slope: 2 to 8 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Haploxerollic Durargids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate very thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine vesicular pores; neutral (pH 7.2); clear wavy boundary.

AB—3 to 8 inches; light yellowish brown (10YR 6/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate thick platy structure parting to weak medium subangular blocky; soft, very friable, sticky and slightly plastic; common very fine and fine roots; few medium and many very fine and fine vesicular pores; neutral (pH 7.2); clear wavy boundary.

Bt1—8 to 13 inches; very pale brown (10YR 7/4) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, sticky and slightly plastic; few very fine and fine roots; many thin clay films on peds and in pores; mildly alkaline (pH 7/6); clear wavy boundary.

Bt2—13 to 18 inches; yellow (10YR 7/6) clay loam, yellowish brown (10YR 5/6) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; few fine roots; many moderately thick clay films on peds and in pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bqkm—18 to 28 inches; very pale brown (10YR 8/4), strongly silica-cemented duripan, light yellowish

brown (10YR 6/4) moist; massive; very hard, very firm; brittle; violently effervescent; moderately alkaline (pH 8/2); clear wavy boundary.

Cqk—28 to 32 inches; very pale brown (10YR 7/4) gravelly loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 20 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cqkm—32 to 49 inches; very pale brown (10YR 8/3), strongly silica-cemented duripan, light yellowish brown (10YR 6/4) moist; massive; very hard, very firm; brittle; silica-cemented fragments in the upper part; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Ck—49 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, light yellowish brown (10YR 6/4) moist; single grain; loose, nonsticky and nonplastic; 45 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Muni fine sandy loam, 2 to 8 percent slopes, in Muni-Orovada-Unius association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 32 miles east of Austin, in the Monitor Valley; in an unsectionalized area about 0.4 mile west and 0.2 mile north of the southeast corner of the assumed sec. 29, T. 18 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from mid-October through June; dry in July to early in October

Average annual soil temperature: 47 to 52 degrees F

Depth to the strongly cemented duripan: 14 to 20 inches

Control section (when mixed):

Content of clay—18 to 35 percent

Content of rock fragments—0 to 15 percent pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Bt horizon:

Value—5 to 7 dry, 4 or 5 moist

Chroma—4 to 6

Texture—loam, clay loam, or sandy clay loam

Reaction—neutral or mildly alkaline

Other characteristics—as much as 20 percent pebbles in some strata in some pedons

Bqkm horizon:

Effervescence—slightly effervescent to violently effervescent

Content of rock fragments—as much as 30 percent pebbles in some strata in some pedons

Cementation—continuous, strongly cemented plates alternating with weakly cemented or noncemented layers

2Ck horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4

Content of rock fragments—35 to 60 percent pebbles, as much as 5 percent cobbles

Needle Peak Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aquic Torriorthents

Typical Pedon

- A—0 to 3 inches; light brownish gray (2.5Y 6/2) silt loam, very dark grayish brown (2.5Y 3/2) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.
- C—3 to 8 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots and many very fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- Ck1—8 to 16 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores; few fine lime threads; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.
- Ck2—16 to 23 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine distinct mottles that are yellowish brown (10YR 5/4) and brownish yellow (10YR 6/6) moist; massive; slightly hard, very friable, sticky and slightly plastic; few very fine and fine roots;

common very fine tubular pores; few fine lime threads; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

C'1—23 to 45 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; many fine and medium distinct mottles that are dark yellowish brown (10YR 4/6) and yellow (10YR 7/8) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; many very fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

C'2—45 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; many coarse and medium faint and distinct mottles that are dark yellowish brown (10YR 4/4) and light yellowish brown (2.5Y 6/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; many very fine and few fine tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Needle Peak silt loam in Needle Peak-Batan-Yobe association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles southeast of Austin; about 1,400 feet south and 400 feet west of the northeast corner of sec. 26, T. 16 N., R. 44 E.

Range in Characteristics

Depth to the seasonal high water table: 48 to 72 inches

Average annual soil temperature: 47 to 52 degrees F

Depth to lime accumulation: Less than 10 inches

Other characteristics: Mottles at a depth of more than 20 inches in most pedons

Control section:

Texture—silt loam or silty clay loam

Content of clay—20 to 35 percent

A horizon:

Hue—10YR or 2.5Y

Value—3 or 4 moist

Chroma—2 or 3

Structure—platy or subangular blocky

Reaction—mildly alkaline to strongly alkaline

Other characteristics—slightly effervescent in some pedons

C horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 or 3

Structure—angular blocky, subangular blocky, or massive

Reaction—moderately alkaline to very strongly alkaline

Newlands Series*Depth class:* Deep*Drainage class:* Well drained*Parent material:* Residuum and colluvium derived from rhyolite and andesite*Slope:* 8 to 15 percent*Mean annual precipitation:* About 15 inches*Mean annual temperature:* About 41 degrees F**Taxonomic class:** Fine-loamy, mixed Argic Cryoborolls**Typical Pedon**

About 10 percent of the surface is covered with pebbles. 5 percent with cobbles, 5 percent with stones, and 15 percent with boulders.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) bouldery loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial pores; 10 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

A2—4 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; common fine roots and few very fine and medium roots; common very fine interstitial pores; 10 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt1—10 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots and few very fine and medium roots; common very fine and fine interstitial pores; few thin clay films on faces of peds; 20 percent pebbles; neutral (pH 7.0); clear wavy boundary.

Bt2—14 to 22 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine interstitial pores; common thin clay films on faces of peds; 25 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

Bt3—22 to 35 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine and fine interstitial pores; few thin clay films on faces of peds; 30 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt4—35 to 46 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; few fine roots; common fine interstitial pores; 55 percent pebbles; neutral (pH 7.2); abrupt broken boundary.

Cr—46 to 57 inches; light yellowish brown (10YR 6/4) saprolite, dark yellowish brown (10YR 4/4) variegated with reddish yellow (7.5YR 6/6) and strong brown (7.5YR 5/6) moist; massive; slightly hard, friable, sticky and plastic; neutral (pH 7.2); gradual wavy boundary.

R—57 inches; fractured, unweathered tuff.

Typical Pedon Location

Soil name and map unit in which located: Newlands extremely bouldery loam, 8 to 15 percent slopes, in Newlands-Packer-Hapgood association, strongly sloping

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin; about 1,300 feet west of the northeast corner of sec. 35, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in some part in October to mid-July; dry late in summer to early in fall

Average annual soil temperature: 41 to 45 degrees F

Mean summer soil temperature: 56 to 59 degrees F

Thickness of the mollic epipedon: 12 to 16 inches

Depth to bedrock: 40 to 60 inches

A horizon:

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—granular or subangular blocky

Bt2 horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4

Texture—clay loam or sandy clay loam

Content of clay—averages 27 to 35 percent

Content of rock fragments—averages 15 to 35 percent gravel

Structure—subangular blocky, angular blocky, or prismatic

Newpass Series

Depth class: Moderately deep to duripan and bedrock

Drainage class: Well drained

Parent material: Residuum that is derived from volcanic and metavolcanic rock and includes some loess

Positions on landscape: Hills, mountains

Slope: 8 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic
Haploxerollic Nadurargids

Typical Pedon

About 75 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 4 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure; slightly hard, very friable, slightly sticky and nonplastic; common fine and medium roots; few very fine and fine vesicular pores; 40 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

Btn1—4 to 7 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; hard, firm, very sticky and very plastic; many very fine roots and few fine and medium roots; common fine and medium tubular pores; continuous thick clay films on faces of peds and lining pores; 5 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

Btn2—7 to 14 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few fine and medium roots and common very fine exped roots; few fine and medium tubular pores; continuous thick clay films on faces of peds and lining pores; 10 percent pebbles; lime coatings on the underside of pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—14 to 17 inches; dark yellowish brown (10YR 4/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; few fine roots; common fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 40 percent pebbles; common medium soft lime masses and thin lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk—17 to 24 inches; brown (7.5YR 5/4) very cobbly silty clay, brown (7.5YR 4/4) moist; massive; slightly hard, friable, very sticky and very plastic; few fine roots; common fine tubular pores; 30 percent weak discontinuous silica cementation; 15 percent pebbles and 40 percent cobbles; common medium soft lime masses and silica coatings on rock

fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqkm—24 to 26 inches; strongly cemented duripan that has a thin discontinuous laminar cap; very hard, very firm; violently effervescent; clear wavy boundary.

R—26 inches; rhyolite.

Typical Pedon Location

Soil name and map unit in which located: Newpass very gravelly fine sandy loam, 15 to 30 percent slopes, in Newpass-Jung association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 6 miles northwest of Austin; about 100 feet south and 400 feet west of the northeast corner of sec. 36, T. 20 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 20 to 29 inches

Depth to bedrock: 21 to 36 inches

Control section:

Content of clay—45 to 60 percent

Content of rock fragments—averages 15 to 35 percent, but is less than 15 percent, mainly pebbles, in the upper part and 25 to 50 percent, mainly pebbles and cobbles, in the lower part

A horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3

Structure—platy or subangular blocky

Reaction—mildly alkaline or moderately alkaline

Bt horizon:

Hue—10YR or 7.5YR

Value—dominantly 4 or 5 dry, but 6 in the upper part in some pedons; 3 or 4 moist

Chroma—3, 4, or 6

Reaction—moderately alkaline to very strongly alkaline, commonly increasing in alkalinity with increasing depth

Exchangeable sodium percentage: 15 to 30 in the upper part, 5 to 15 in the lower part

Ninemile Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum that is derived from andesite, basalt, and tuff and includes some volcanic ash

Positions on landscape: Stable side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical Pedon

About 25 percent of the surface is covered with pebbles and 50 percent with cobbles and stones.

A1—0 to 4 inches; dark brown (10YR 4/3) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; 20 percent pebbles and 40 percent cobbles and stones; neutral (pH 7.0); abrupt wavy boundary.

A2—4 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate very fine and fine granular structure; slightly hard, friable, sticky and plastic; common fine roots and few very fine and medium roots; common fine interstitial pores; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1—7 to 14 inches; dark brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong fine and medium prismatic structure; hard, firm, very sticky and very plastic; common medium and few fine exped roots along the faces of peds; common fine and very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 10 percent cobbles; neutral (pH 6.8); clear wavy boundary.

Bt2—14 to 19 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, firm, very sticky and very plastic; few fine roots; few very fine tubular pores; many thick pressure faces; 10 percent cobbles; neutral (pH 6.8); abrupt wavy boundary.

R—19 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Ninemile extremely cobbly loam, 15 to 30 percent slopes, in Robson-Ninemile-Ravenswood association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles east of Austin; 1,300 feet north of the southwest corner of sec. 28, T. 19 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry mainly late in June to early in October

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 6 to 15 inches (commonly includes part or all of the argillic horizon)

Content of clay in the control section: Averages 40 to 60 percent

Reaction: Slightly acid to mildly alkaline

Depth to bedrock: 10 to 20 inches

Other characteristics: The upper 1 to 3 inches of bedrock weathered in some pedons where the depth to bedrock is less than 15 inches

A horizon:

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 to 3

Structure—thin to thick and platy, or fine or medium and granular

Consistence—soft or slightly hard (dry), nonsticky or slightly sticky and nonplastic to plastic (wet)

Reaction—slightly acid to mildly alkaline

Other characteristics—value of 6 in the upper 1 or 2 inches and massive in some pedons

Bt horizon:

Hue—5YR, 7.5YR, or 10YR

Value—3 to 6 dry, 3 or 4 moist

Chroma—2 to 4

Content of clay—40 to 60 percent

Texture—clay or gravelly clay

Content of rock fragments—0 to 30 percent pebbles or cobbles

Structure—moderate or strong and subangular blocky, angular blocky, or prismatic

Nobuck Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Colluvium derived from various kinds of volcanic rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 30 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Xerollic Haplargids

Typical Pedon

About 35 percent of the surface is covered with pebbles and 25 percent with cobbles and stones.

A1—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine

- roots; common very fine and fine vesicular pores; 35 percent pebbles and 20 percent cobbles; neutral (pH 7.0); clear wavy boundary.
- A2—4 to 7 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, nonsticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial pores; 40 percent pebbles; neutral (pH 7.0); gradual wavy boundary.
- A3—7 to 12 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine interstitial pores; 35 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.
- Bt—12 to 23 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine and few fine interstitial pores; common thin clay films on faces of peds; 35 percent pebbles, 5 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.6); clear wavy boundary.
- Btk1—23 to 32 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine interstitial pores; common thin clay films on faces of peds; 35 percent pebbles and 10 percent cobbles; few fine irregularly shaped lime seams and filaments; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.
- Btk2—32 to 38 inches; pale brown (10YR 6/3) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and very plastic; common very fine and fine roots; common fine interstitial pores; many moderately thick clay films on faces of peds; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; common medium irregularly shaped lime seams and filaments; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.
- Bk—38 to 42 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/6) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable,

sticky and plastic; common very fine and fine roots; common fine interstitial pores; 10 percent weak durinodes 5 to 15 millimeters in diameter; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; few fine irregularly shaped lime seams and filaments; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

- Bqk—42 to 60 inches; very pale brown (10YR 7/4) very gravelly loam, brownish yellow (10YR 6/6) moist; massive; hard, firm, sticky and nonplastic; few fine roots; few very fine interstitial pores; continuous weak silica and lime cementation and about 10 percent discontinuous strong silica and lime cementation; 35 percent pebbles, 15 percent cobbles, and 5 percent stones; violently effervescent; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Nobuck very cobbly loam, 15 to 30 percent slopes, in Punchbowl-Locane-Nobuck association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles east of Austin; about 650 feet west and 1,950 feet north of the southwest corner of sec. 6, T. 19 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in some part in mid-October to mid-June; dry in mid-June to mid-October

Average annual soil temperature: 43 to 47 degrees F

Depth to the Btk horizon: 22 to 40 inches

Depth to the Bqk horizon: 40 to 60 inches

Control section:

Content of clay—25 to 35 percent

Content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Structure—platy or granular

Consistence—soft or slightly hard (dry), very friable or friable (moist)

Reaction—neutral or mildly alkaline

Bt and Btk horizons:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—very gravelly loam, very gravelly clay loam, or very gravelly sandy clay loam

Structure—prismatic, angular blocky, or subangular blocky

Reaction—mildly alkaline or moderately alkaline

Effervescence (matrix)—noneffervescent or slightly effervescent in the upper part, strongly

effervescent or violently effervescent in the lower part

Content of lime—few or common seams and filaments

Bqk horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3, 4, or 6

Texture—very gravelly sandy loam or very gravelly loam

Reaction—moderately alkaline or strongly alkaline

Other characteristics—continuous weak silica and lime cementation or 20 to 40 percent durinodes in a firm and brittle matrix

Novacan Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Mixed volcanic alluvium

Positions on landscape: Fan piedmonts

Slope: 2 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Haploxerollic Durargids

Typical Pedon

About 10 percent of the surface is covered with pebbles and 25 percent with cobbles.

A1—0 to 3 inches; brown (10YR 5/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 15 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots and common fine and medium roots; common very fine interstitial pores; 15 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.6); abrupt wavy boundary.

Bt1—5 to 11 inches; brown (7.5YR 4/4) gravelly clay, dark brown (7.5YR 3/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine exped roots and few fine and medium roots; common fine interstitial pores; common moderately thick clay films on faces of

ped; 25 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt2—11 to 18 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; few very fine, fine, and medium roots; common fine interstitial pores; common moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Btk—18 to 24 inches; brownish yellow (10YR 6/6) gravelly clay loam, dark yellowish brown (10YR 4/6) moist; massive; hard, firm, very sticky and very plastic; common thin clay films bridging mineral grains; 30 percent pebbles; common fine seams and filaments or threads of lime; strongly effervescent; mildly alkaline (pH 7.8); clear wavy boundary.

Bqkm—24 to 45 inches; light yellowish brown (10YR 6/4), continuous, strongly cemented duripan, dark yellowish brown (10YR 3/4) moist; massive; very hard, very firm; 15 percent pebbles, 35 percent cobbles, and 10 percent stones; discontinuous thin laminar cap; common medium silica and lime coatings and pendants on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk—45 to 60 inches; pale brown (10YR 6/3) very cobbly loamy sand, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine pores; 20 percent pebbles, 30 percent cobbles, and 5 percent stones; 50 percent discontinuous strong cementation; common fine concretions and seams of lime; common medium silica and lime coatings and pendants on the underside of rock fragments; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Map unit in which located: Novacan cobbly loam, 2 to 8 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 18 miles east of Austin, in the Monitor Valley; about 1,550 feet south and 3,650 feet east of the northwest corner of sec. 6, T. 17 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from November through June; dry in July through October

Average annual soil temperature: 47 to 52 degrees F
Depth to the duripan and the base of the argillic horizon: 20 to 30 inches

Depth to carbonates: 14 to 24 inches

Other characteristics: Abrupt textural change occurs at the boundary between the A and B horizons

Control section:

Content of clay—45 to 60 percent

Content of rock fragments—10 to 25 percent, mainly pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bt horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 to 6

Reaction—mildly alkaline or moderately alkaline

Ocala Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty alluvium that is derived from various kinds of rock and includes some volcanic ash

Positions on landscape: Lake plains, alluvial flats

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 50 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic
Aeric Halaquepts

Typical Pedon

A1—0 to 2 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; common fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

A2—2 to 6 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate fine granular structure; slightly hard, friable, sticky and plastic; common fine and medium roots; few fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

C—6 to 13 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); abrupt wavy boundary.

Cqk1—13 to 18 inches; white (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; few medium faint mottles

that are yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 15 percent weakly cemented durinodes; strongly effervescent; very strongly alkaline (pH 9.2); abrupt broken boundary.

Cqk2—18 to 26 inches; very pale brown (10YR 7/3), continuous, weakly silica-cemented silt loam, brown (10YR 5/3) moist; common medium faint mottles that are dark grayish brown (10YR 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; brittle; few fine roots; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.

Cqk3—26 to 36 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; common medium faint mottles that are pale brown (10YR 6/3) and dark grayish brown (10YR 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; weak fine tubular pores; 30 percent discontinuous weak cementation; strongly alkaline (pH 8.8); gradual wavy boundary.

Cqk4—36 to 60 inches; white (10YR 8/2), continuous, weakly silica-cemented silt loam, pale brown (10YR 6/3) moist; few medium faint mottles that are yellowish brown (10YR 5/4) moist; massive; very hard, very firm, slightly sticky and slightly plastic; brittle; few fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Ocala silty clay loam, occasionally flooded, in Batan-Ocala-Ocala, rarely flooded, association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 26 miles southeast of Battle Mountain; about 1,000 feet north and 500 feet east of the southwest corner of sec. 19, T. 28 N., R. 48 E.

Range in Characteristics

Soil moisture content: Saturated to a depth of 40 inches for 1 month or more in most years

Average annual soil temperature: 50 to 54 degrees F

Depth to the weakly cemented horizon: 13 to 30 inches

Cementation: Weakly cemented layers present in some pedons, strata that are 20 to 70 percent durinodes in a friable matrix present above the weakly cemented layers in some pedons

Reaction: Strongly alkaline or very strongly alkaline

Content of salt and sodium: Generally strongly affected by salt and sodium in the upper 10 inches only, but areas that have been flood-irrigated affected below this depth

Depth to lime concretions: More than 35 inches in most pedons

Depth to iron mottles: More than 12 inches

Other characteristics: Strata or lenses of noncalcareous, mildly alkaline volcanic ash as much as 4 inches thick present in most pedons, generally below a depth of 30 inches

Control section:

Texture—dominantly silty clay loam or silt loam, but thin strata of clay loam, loam, or silty clay in some pedons

Content of clay—18 to 35 percent

A horizon:

Hue—10YR to 5Y

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Structure—granular or platy

C and Cqk horizons:

Hue—10YR to 5Y

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Structure—platy or massive

Old Camp Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum that is derived from basalt and andesite and includes some volcanic ash

Positions on landscape: Crests and side slopes of hills and mountains

Slope: 4 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A—0 to 2 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 35 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt—2 to 5 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine

interstitial pores; 45 percent pebbles and 10 percent cobbles; few moderately thick clay films on faces of peds; mildly alkaline (pH 7.8); clear smooth boundary.

Btk—5 to 11 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; 50 percent pebbles and 5 percent cobbles; common moderately thick clay films on faces of peds and lining pores; few very thin lime coatings on the underside of rock fragments; mildly alkaline (pH 7.8); abrupt irregular boundary.

R—11 inches; fractured andesite; lime coatings in fractures.

Typical Pedon Location

Soil name and map unit in which located: Old Camp very gravelly loam, 15 to 30 percent slopes, in Old Camp-Minat-Osoll association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 14 miles southwest of Battle Mountain; about 1,050 feet south of the northeast corner of sec. 22, T. 31 N., R. 42 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in November through May

Average annual soil temperature: 47 to 52 degrees F

Depth to bedrock: 10 to 20 inches

Content of rock fragments in the control section:

Dominantly 50 to 75 percent, mainly cobbles and stones, but 35 to 50 percent in the upper part in some pedons

A horizon:

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak and granular or platy, or massive

Reaction—neutral or mildly alkaline

Bt horizon:

Hue—10YR or 7.5YR

Value—4 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Texture—dominantly clay loam or sandy clay loam, but strata of loam in some pedons

Content of rock fragments—averages 50 to 75 percent, mainly pebbles

Content of clay—27 to 35 percent

Structure—weak or moderate, fine to coarse, and angular blocky or subangular blocky

Reaction—neutral or mildly alkaline in the upper part, moderately alkaline or strongly alkaline in the lower part

Other characteristics—few to continuous lime coatings on rock fragments or bedrock

Taxadjunct Features

The Old Camp soils in this survey area are taxadjuncts because the rock fragments in the Bt horizon are mainly pebbles instead of the cobbles or stones that are typical for the series. This difference, however, does not significantly affect use and management.

Orovada Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loess that is high in content of volcanic ash over alluvium derived from various kinds of rock

Positions on landscape: Fan skirts, fan aprons, inset fans

Slope: 0 to 8 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical Pedon

- A1—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; strong coarse prismatic structure parting to moderate thin platy; slightly hard, very friable, slightly sticky and slightly plastic; many very fine random roots; many very fine vesicular, interstitial, and tubular pores; neutral (pH 7.2); abrupt wavy boundary.
- A2—4 to 8 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak coarse and very coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine random roots and few fine and medium oblique roots; common very fine tubular and interstitial pores; mildly alkaline (pH 7.8); clear wavy boundary.
- Bw—8 to 20 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine random roots and very few very fine, fine, and medium oblique roots; common very fine tubular pores and many very fine interstitial pores; moderately alkaline (pH 7.8); clear wavy boundary.
- Bqk1—20 to 31 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine

random roots and very few fine and medium oblique roots; common very fine tubular and interstitial pores; 25 percent moderately strong durinodes 10 to 30 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.6); gradual smooth boundary.

Bqk2—31 to 44 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine random roots and very few fine and medium oblique roots; few very fine tubular pores and common very fine interstitial pores; 5 percent pebbles; 25 percent moderately strong durinodes 10 to 30 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

Bqk3—44 to 65 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine tubular pores and common very fine interstitial pores; 5 percent pebbles; 15 percent moderately strong and strong durinodes 2 to 20 millimeters in diameter; strongly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Map unit in which located: Orovada fine sandy loam, 2 to 4 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 9 miles north of Battle Mountain; about 1,550 feet east and 1,400 feet north of the southwest corner of sec. 28, T. 34 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to early in November

Average annual soil temperature: 47 to 52 degrees F

Depth to the Bq or Bqk horizon: 10 to 28 inches

Control section:

Texture—dominantly stratified fine sandy loam, very fine sandy loam, loam, or silt loam with strata of loamy fine sand or sandy loam in some pedons
Content of clay—5 to 18 percent
Content of rock fragments—0 to 15 percent, mainly pebbles

A horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry and 3 or 4 moist (value of more than 5.5 dry and 3.5 moist occurs when the upper 7 inches is mixed)

Chroma—2 to 4

Structure—platy, prismatic, or massive

Consistence—soft or slightly hard

Reaction—neutral to moderately alkaline

Bw horizon:

Hue—10YR or 2.5Y
 Value—6 or 7 dry, 3 to 5 moist
 Chroma—2 to 6
 Texture—fine sandy loam, very fine sandy loam, loam, or silt loam
 Content of clay—5 to 18 percent
 Content of rock fragments—averages 0 to 15 percent pebbles
 Structure—subangular blocky, prismatic, or massive
 Reaction—mildly alkaline or moderately alkaline

Bq or Bqk horizon:

Hue—10YR or 2.5Y
 Value—6 or 7 dry, 3 to 5 moist
 Chroma—2 to 6
 Content of rock fragments—as much as 30 percent pebbles in some strata in some pedons
 Consistence—soft to hard, very friable or friable
 Reaction—moderately alkaline to very strongly alkaline, increasing in alkalinity with increasing depth
 Content of durinodes—20 to 80 percent
 Other characteristics—gypsum crystals below a depth of 37 inches in some pedons, duripan or very gravelly strata below a depth of 40 inches in some pedons

Osoll Series

Depth class: Shallow to duripan
Drainage class: Well drained
Parent material: Residuum and colluvium that is derived from various kinds of rock and includes some loess
Positions on landscape: Crests and side slopes of hills
Slope: 8 to 50 percent
Mean annual precipitation: About 7 inches
Mean annual temperature: About 50 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Durorthids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 5 inches; light gray (10YR 7/2) gravelly loam, dark brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine vesicular pores; 30 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—5 to 12 inches; very pale brown (10YR 7/3) very

gravelly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine interstitial pores; 20 percent weak or moderate durinodes 5 to 20 millimeters in diameter; 30 percent pebbles and 15 percent cobbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Bqkm—12 to 35 inches; very pale brown (10YR 7/4), cobbly, indurated duripan, yellowish brown (10YR 5/4) moist; strong thick plates alternating with massive strata; extremely hard, extremely firm; continuous fractured silica-cemented laminae on top of and in bands throughout the horizon alternating with discontinuous, strongly and weakly silica-cemented strata that are 20 percent hard silica and lime concretions 5 to 20 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

2R—35 inches; hard rhyolite capped with silica-cemented laminae 0.5 inch thick.

Typical Pedon Location

Soil name and map unit in which located: Osoll gravelly loam, 2 to 8 percent slopes, in Laped-Colbar-Osoll association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 800 feet north of the southwest corner of sec. 36, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist intermittently in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 8 to 14 inches

Depth to bedrock: 20 to 40 inches

Control section:

Texture—very gravelly loam or very gravelly fine sandy loam

Content of clay—10 to 18 percent

Content of rock fragments—averages 35 to 60 percent, mostly pebbles and some cobbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Reaction—mildly alkaline or moderately alkaline

Bqk horizon:

Reaction—moderately alkaline or strongly alkaline

Other characteristics—commonly as much as 30 percent weak to hard durinodes

Oxcorel Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess

Positions on landscape: Dissected summits and side slopes of fan piedmonts

Slope: 2 to 15 percent

Mean annual temperature: About 48 degrees F

Mean annual precipitation: About 6 inches

Taxonomic class: Fine, montmorillonitic, mesic Duric Natrargids

Typical Pedon

About 30 percent of the surface is covered with pebbles.

A—0 to 6 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine and medium roots; common fine and medium vesicular pores; 20 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

Btn1—6 to 14 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few medium exped roots and few fine inped roots; few fine and common medium tubular pores; continuous thick pressure faces; 10 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.

Btn2—14 to 27 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; few fine and medium inped roots and common fine exped roots; common fine and medium and few very fine tubular pores; 5 percent pebbles; continuous moderately thick clay films on faces of peds and lining pores; slightly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Btnqk—27 to 37 inches; yellowish brown (10YR 5/6) gravelly clay loam, dark yellowish brown (10YR 4/6) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few fine and medium tubular pores; 20 percent pebbles; common fine clay films on faces of peds and lining pores; 20 percent strongly cemented durinodes; common medium filaments or threads of lime; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqk—37 to 60 inches; brown (10YR 5/3) very gravelly

loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; few fine roots; few fine tubular pores; 40 percent pebbles; 35 percent strong durinodes; 10 percent weak discontinuous cementation; moderate fine filaments or threads and soft masses of lime; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Oxcorel gravelly very fine sandy loam, 2 to 8 percent slopes, in Oxcorel-Wieland-Spasprey association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles northwest of Austin; about 200 feet south and 1,000 feet west of the northeast corner of sec. 2, T. 22 N., R. 41 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist for short periods in winter and early in spring

Average annual soil temperature: 47 to 52 degrees F

Depth to the base of the natric horizon: 20 to 40 inches

Depth to durinodes: 20 to 34 inches

Other characteristics: 0.5- to 2.0-inch-thick E horizon capping the Bt horizon in some pedons

Control section:

Texture—clay or clay loam

Content of clay—35 to 50 percent

Content of rock fragments—0 to 10 percent pebbles in the upper part, 10 to 20 percent pebbles in the lower part

A horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 or 3

Bt horizon:

Hue—7.5YR or 10YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 to 6 (chroma of 3 common in the upper part in some pedons)

Reaction—moderately alkaline to very strongly alkaline

Other characteristics—noneffervescent to strongly effervescent in the upper part in the matrix, segregated lime common in the lower part in the matrix, commonly 10 to 30 percent durinodes in the lower part, gypsum present in the lower part in some pedons

Bqk horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 to 6

Content of rock fragments—35 to 60 percent

Texture—very gravelly sandy loam or very gravelly loam

Other characteristics—dominantly 20 to 60 percent weakly or strongly cemented durinodes and as much as 30 percent discontinuous weak cementation, but less than 20 percent durinodes in the upper part in some pedons

Packer Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Residuum that is derived from chert, shale, quartzite, and extrusive volcanic rock and includes some loess and volcanic ash

Positions on landscape: Crests and side slopes of mountains

Slope: 8 to 75 percent

Mean annual precipitation: About 15 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed Argic Cryoborolls

Typical Pedon

About 70 percent of the surface is covered with pebbles and 20 percent with cobbles and stones.

A1—0 to 7 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common very fine interstitial and tubular pores; 45 percent pebbles and 20 percent cobbles and stones; neutral (pH 6.8); clear smooth boundary.

A2—7 to 10 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots and common medium roots; common very fine tubular pores; 20 percent pebbles and 30 percent cobbles and stones; neutral (pH 6.8); abrupt wavy boundary.

2Bt—10 to 21 inches; yellowish brown (10YR 5/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 25 percent pebbles, 30 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear wavy boundary.

2C1—21 to 46 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 4/3) moist; massive;

soft, very friable, sticky and plastic; common fine and medium roots; common very fine interstitial pores; 30 percent pebbles, 35 percent cobbles, and 10 percent stones; neutral (pH 7.3); gradual wavy boundary.

2C2—46 to 60 inches; brown (10YR 5/3) extremely cobbly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine and medium roots; common very fine interstitial pores; 30 percent pebbles, 35 percent cobbles, and 10 percent stones; neutral (pH 7.3).

Typical Pedon Location

Soil name and map unit in which located: Packer extremely gravelly loam, 15 to 30 percent slopes, in Packer-Newlands association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 40 miles northeast of Austin; about 1,400 feet east of the southwest corner of sec. 14, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in October to late in June

Average annual soil temperature: 42 to 45 degrees F

Average summer soil temperature: 57 to 59 degrees F

Thickness of the mollic epipedon: 7 to 10 inches (includes the upper part of the Bt horizon in some pedons)

Depth to the base of the Bt horizon: 9 to 21 inches

Depth to bedrock: 40 to more than 60 inches

Other characteristics: Thin BA and BC horizons common in some pedons

Control section:

Texture—extremely cobbly clay loam, extremely cobbly sandy clay loam, or extremely cobbly loam

Content of clay—averages 18 to 30 percent

Content of rock fragments—60 to 80 percent, including 25 to 60 percent pebbles, 20 to 40 percent cobbles, and as much as 10 percent stones

A horizon:

Chroma—2 or 3

Structure—weak or moderate, very fine, fine, or medium, and granular or subangular blocky

Consistence—soft or slightly hard (dry), very friable or friable (moist)

Bt horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Structure—weak or moderate, very fine, fine, or

medium, and angular blocky or subangular blocky, or massive

Consistence—slightly hard or hard (dry), slightly sticky to very sticky and slightly plastic to very plastic (wet)

C horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 to 6

Texture—extremely cobbly loam, extremely cobbly fine sandy loam, extremely cobbly sandy loam, or extremely cobbly loamy sand

Content of rock fragments—25 to 50 percent pebbles, 20 to 35 percent cobbles, and as much as 10 percent stones

Consistence—soft to very hard (dry), very friable or friable (moist), slightly sticky or sticky and nonplastic to plastic (wet)

Paranat Series

Depth class: Very deep

Drainage class: Poorly drained, but drainage has been altered by stream entrenchment or channel realignment in some areas

Parent material: Silty fluvial deposits

Positions on landscape: Flood plains

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Fluvaquentic Haplaquolls

Typical Pedon

A1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2—3 to 11 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

AC—11 to 21 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct mottles that are dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable,

very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular and interstitial pores; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

C1—21 to 32 inches; white (10YR 8/1) silt loam, gray (10YR 5/1) moist; common fine and medium distinct mottles that are brown (10YR 5/3) moist; massive; soft, very friable, very sticky and plastic; strongly effervescent; 10 percent lime concretions; moderately alkaline (pH 8.0); clear wavy boundary.

C2—32 to 43 inches; white (10YR 8/1) silt loam, light gray (10YR 7/1) moist; many fine distinct mottles that are dark brown (10YR 4/3) moist and many coarse distinct mottles that are grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, very sticky and plastic; few very fine roots; common very fine tubular pores; slightly effervescent; 10 percent lime concretions; moderately alkaline (pH 8.0); gradual wavy boundary.

C3—43 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; many medium distinct mottles that are very dark grayish brown (10YR 3/2) and olive (5Y 4/3) moist; massive; slightly hard, friable, sticky and plastic; common very fine tubular pores; slightly effervescent; 35 percent lime concretions; moderately alkaline (pH 7.9).

Typical Pedon Location

Soil name and map unit in which located: Paranat silt loam, strongly saline, in Ocala-Sonoma-Paranat association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 5 miles west of Austin; about 500 feet north and 4,000 feet west of the southeast corner of sec. 29, T. 19 N., R. 43 E.

Range in Characteristics

Soil moisture content: Dry in mid-summer and early in fall; moist late in fall, in winter and spring, and early in summer

Depth to an apparent seasonal high water table:

Commonly 18 to 40 inches in winter to early in summer, but some pedons have been drained

Average annual soil temperature: 47 to 52 degrees F

Thickness of the mollic epipedon: 10 to 20 inches

Reaction: Moderately alkaline or strongly alkaline, usually decreasing in alkalinity with increasing depth

Calcium carbonate equivalent: 1 to 10 percent

Exchangeable sodium percentage: 0 to 15

Control section:

Texture—dominantly stratified silty clay loam and silt loam, but thin strata of very fine sandy loam or silty clay in some pedons

Content of clay—18 to 35 percent
 Content of rock fragments—less than 5 percent

A horizon:

Hue—10YR or 2.5Y
 Value—4 or 5 dry, 2 or 3 moist
 Chroma—1 or 2
 Structure—prismatic, subangular blocky, platy, or granular
 Other characteristics—one or more buried A horizons as much as 8 inches thick in some pedons

C horizon:

Hue—10YR or 2.5Y
 Value—6 to 8 dry, 4 to 7 moist
 Chroma—1 to 4
 Consistence—soft or slightly hard (dry), very friable or friable (moist)
 Other characteristics—as much as 15 percent filaments, soft masses, or concretions of lime in the upper part in some pedons and as much as 40 percent below a depth of 40 inches in some pedons

Perlor Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Loess over residuum derived from soft, tuffaceous sedimentary rock

Positions on landscape: Rolling crests and side slopes of hills

Slope: 8 to 15 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents

Typical Pedon

About 10 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine vesicular pores; 5 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine

interstitial pores; 5 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

2C1—7 to 12 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine interstitial pores; 5 percent pebbles; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary.

2C2—12 to 14 inches; very pale brown (10YR 7/3) gravelly sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common fine interstitial pores; 30 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Cr—14 inches; fractured, soft, tuffaceous sedimentary rock; few very fine roots along fractures.

Typical Pedon Location

Soil name and map unit in which located: Perlor very fine sandy loam in Genaw-Perlor-Puett association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 30 miles southwest of Battle Mountain, in the Fish Creek Basin area; about 1,375 feet north and 1,450 feet west of the southeast corner of sec. 11, T. 27 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in mid-May through November

Average annual soil temperature: 47 to 52 degrees F

Depth to paralithic contact: 10 to 14 inches

Reaction: Moderately alkaline or strongly alkaline, usually increasing in alkalinity with increasing depth

Control section:

Content of clay—averages 10 to 18 percent

Content of rock fragments—averages 5 to 20 percent pebbles, but as much as 30 percent in an individual horizon (as much as 20 percent are soft and platy in some pedons)

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—subangular blocky, platy, or massive

Effervescence—dominantly noneffervescent or slightly effervescent, but strongly effervescent in some pedons

C horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 or 3

Texture—loam, sandy loam, or gravelly sandy loam
 Structure—subangular blocky or massive
 Effervescence—slightly effervescent to violently effervescent

Pineval Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed gravelly alluvium

Positions on landscape: Fan piedmonts, fan aprons

Slope: 2 to 30 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic
 Durixerollic Haplargids

Typical Pedon

About 60 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 5 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and nonplastic; few fine roots; common very fine and fine vesicular pores; 25 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bt1—5 to 8 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine interstitial pores; few thin clay films on faces of peds; 35 percent pebbles and 15 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bt2—8 to 11 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine, fine, and medium roots; common very fine interstitial pores; common thin and few moderately thick clay films on faces of peds; 10 percent weak durinodes 5 to 15 millimeters in diameter; 35 percent pebbles and 15 percent cobbles; few fine lime filaments; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk1—11 to 24 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 50 percent

discontinuous weak silica cementation; 55 percent pebbles and 15 percent cobbles; many lime particles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk2—24 to 33 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; 40 percent continuous weak silica cementation; 55 percent pebbles and 15 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bk—33 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many fine interstitial pores; 60 percent pebbles and 10 percent cobbles; common thin lime coatings on the underside of rock fragments; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Pineval gravelly loam, 2 to 4 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles northeast of Austin; about 650 feet south and 2,100 feet west of the northeast corner of sec. 17, T. 21 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Reaction: Mildly alkaline or moderately alkaline

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Bt horizon:

Value—5 or 6 dry

Chroma—3 or 4

Texture—very gravelly loam, very gravelly clay loam, or very gravelly sandy clay loam

Content of clay—25 to 35 percent

Content of rock fragments—35 to 60 percent, mostly pebbles

Bqk horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Texture—stratified very gravelly sandy loam to extremely gravelly sand

Content of rock fragments—35 to 70 percent, mostly pebbles

Poorcal Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived dominantly from sedimentary rock with a component of loess and volcanic ash

Positions on landscape: Inset fan remnants

Slope: 0 to 4 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Coarse-loamy, mixed, frigid Durixerollic Calciorthids

Typical Pedon

About 5 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light gray (10YR 7/2) loam, brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine vesicular pores; 5 percent pebbles; few fine filaments or threads of lime; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

A2—3 to 5 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; moderate thick platy structure parting to weak medium subangular blocky; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 5 percent pebbles; common fine filaments or threads of lime; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—5 to 9 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 5 percent pebbles; common fine filaments or threads of lime; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—9 to 19 inches; white (10YR 8/2) loam, very pale brown (10YR 7/3) 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; 5 percent pebbles; 50 percent very hard, very firm, strongly cemented durinodes; many fine filaments or

threads of lime; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bqk2—19 to 30 inches; light gray (10YR 7/2) gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; few very fine tubular pores; 25 percent pebbles; 30 percent hard, firm, weakly cemented durinodes; common fine filaments or threads of lime; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Bqk3—30 to 52 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; 35 percent pebbles; 30 percent hard, firm, weakly cemented durinodes; few fine filaments or threads of lime; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

2Bqk4—52 to 62 inches; very pale brown (10YR 7/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; 45 percent pebbles; 30 percent hard, firm durinodes; slightly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Poorcal loam, 0 to 4 percent slopes, in Poorcal-Lopwash association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 21 miles east of Austin; about 500 feet north and 1,500 feet west of the southeast corner of sec. 13, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to the calcic horizon: 8 to 20 inches

Depth to the 2Bqk horizon: 29 to 40 inches

Calcium carbonate equivalent in the calcic horizon: 15 to 35 percent

Control section:

Content of clay—5 to 18 percent

Content of rock fragments—15 to 35 percent when mixed, mainly pebbles

A horizon:

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline

Consistence—very friable or friable (moist)

Bw horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4

Texture—loam, sandy loam, or fine sandy loam
 Reaction—moderately alkaline or strongly alkaline
 Consistence—soft or slightly hard (dry)

Bqk horizon:

Value—6 to 8 dry, 5 to 7 moist
 Chroma—2 to 4
 Texture—gravelly sandy loam, loam, or gravelly loam
 Content of durinodes—20 to 50 percent
 Reaction—strongly alkaline or very strongly alkaline

2Bqk horizon:

Value—6 to 8 dry, 5 to 7 moist
 Chroma—2 to 4
 Texture—very gravelly loamy sand, very gravelly sandy loam, or very gravelly loam
 Content of durinodes—20 to 40 percent

Puett Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from tuff and tuffaceous sandstone

Positions on landscape: Low hills

Slope: 15 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical Pedon

About 25 percent of the surface is covered with pebbles, 10 percent with cobbles, and 2 percent with stones.

A—0 to 4 inches; light brownish gray (10YR 6/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine tubular pores; 15 percent pebbles; lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C—4 to 15 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Cr—15 inches; highly weathered tuff.

Typical Pedon Location

Soil name and map unit in which located: Puett gravelly sandy loam, 15 to 30 percent slopes, very stony, in Bioya-Shabliss-Puett association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 22 miles northeast of Battle Mountain; about 100 feet south and 2,000 feet east of the northwest corner of sec. 1, T. 35 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual 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

Other characteristics: Lime coatings on pebbles in the lower part in some pedons

Control section:

Content of clay—5 to 10 percent

Content of rock fragments—as much as 35 percent pebbles

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—weak or moderate, thin to thick, and platy, or massive

C horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Texture of the fine-earth fraction—dominantly coarse sandy loam to loam, but ranges from loamy fine sand to loam; gravelly loam or gravelly sandy loam common in some pedons
 Structure—subangular blocky or massive

Pula Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Side slopes of fan piedmont remnants

Slope: 15 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 30 percent with cobbles.

A—0 to 2 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable, sticky and plastic; common very fine and fine roots; common fine vesicular and tubular pores; 15 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bt1—2 to 6 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, very sticky and very plastic; common very fine and fine roots and few medium roots; common fine interstitial and tubular pores; common thin clay films on faces of peds and lining pores; 25 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.8); clear smooth boundary.

Bt2—6 to 10 inches; yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to moderate fine angular blocky; very hard, firm, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; many moderately thick clay films on faces of peds and lining pores and common moderately thick clay films coating coarse fragments; 35 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bt3—10 to 16 inches; brown (10YR 5/3) extremely gravelly clay, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine and fine roots; common very fine and many fine tubular pores; common moderately thick clay films on faces of peds and coating coarse fragments; 50 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt4—16 to 24 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy clay, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; hard, friable, very sticky and very plastic; few very fine and fine roots; common fine tubular pores; common moderately thick clay films on faces of peds and coating coarse fragments; 45 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.

C—24 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; few fine tubular

pores; 55 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.8).

Typical Pedon Location

Soil name and map unit in which located: Pula very cobbly loam, 30 to 50 percent slopes, in Pula-Spike association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 28 miles north of Austin; 1,000 feet east and 2,600 feet south of the northwest corner of sec. 23, T. 23 N., R. 43 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in November through June

Average annual soil temperature: 47 to 51 degrees F

Combined thickness of the A and Bt horizons: 22 to 40 inches

Reaction: Slightly acid to mildly alkaline

Control section:

Content of clay—35 to 55 percent

Content of rock fragments—55 to 75 percent, mostly pebbles

A horizon:

Value—5 or 6 dry, 2 or 3 moist

Chroma—2 or 3

Structure—platy, granular, or subangular blocky

Bt horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2, 3, 4, or 6

Texture—very gravelly or extremely gravelly clay, sandy clay, or clay loam

Structure—moderate or strong, fine or medium, and subangular blocky or prismatic

C horizon:

Value—5 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Punchbowl Series

Depth class: Very shallow or shallow

Drainage class: Well drained

Parent material: Residuum derived from andesite, dacite, rhyolite, tuff, and some shale

Positions on landscape: Crests and side slopes of hills and mountains

Slope: 4 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid Lithic Xerollic Haplargids

Typical Pedon

About 25 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, sticky and plastic; few very fine roots; many very fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.8); abrupt smooth boundary.

A2—3 to 6 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, very sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; 15 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bt—6 to 10 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots and few medium roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores and few moderately thick clay films on faces of peds; 30 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

R—10 inches; fractured andesite; soft lime in fractures.

Typical Pedon Location

Soil name and map unit in which located: Punchbowl loam, 15 to 30 percent slopes, in Punchbowl-Rock outcrop association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles east of Austin; about 600 feet south and 600 feet east of the northwest corner of sec. 4; T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June to early in November

Average annual soil temperature: 45 to 47 degrees F

Depth to bedrock: 8 to 14 inches

Reaction: Neutral to moderately alkaline, increasing in alkalinity with increasing depth

Control section:

Content of clay—18 to 35 percent

Content of rock fragments—15 to 35 percent

A horizon:

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4

Effervescence—noneffervescent to strongly effervescent in the lower part

Bt horizon:

Hue—7.5YR or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Texture—gravelly loam, gravelly sandy clay loam, or gravelly clay loam

Content of clay—25 to 35 percent

Content of rock fragments—25 to 35 percent, mostly pebbles

Effervescence—noneffervescent to strongly effervescent in the matrix

Other characteristics—very thin lime coatings on the underside of rock fragments or few soft lime segregations in the lower part in some pedons; few thin discontinuous colloid coatings common on rock fragments in some pedons

Rasille Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium derived from loess and various kinds of rock

Positions on landscape: Beach terraces, inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Coarse-silty, mixed, mesic Durixerollic Camborthids

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

A2—2 to 6 inches; pale brown (10YR 6/3) silt 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; many very fine tubular pores; mildly alkaline (pH 7.6); clear smooth boundary.

Bw—6 to 15 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots and few medium roots; common very fine

tubular and interstitial pores; mildly alkaline (pH 7.8); clear wavy boundary.

Bq—15 to 24 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 20 percent weakly cemented durinodes 5 to 15 millimeters in diameter; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—24 to 33 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 40 percent strongly cemented durinodes 5 to 15 millimeters in diameter; common fine lime filaments and threads; slightly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk2—33 to 60 inches; very pale brown (10YR 7/3) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 25 percent weakly cemented durinodes 10 to 25 millimeters in diameter; few fine lime filaments and threads; slightly effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Rasille silt loam, 0 to 2 percent slopes, in McConnel-Rasille-Wholan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles east of Austin; in an unsectionalized area about 1,000 feet south and 1,000 feet east of the southwest corner of the assumed sec. 2, T. 19 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to carbonates: 12 to 24 inches

Depth to the Bq or Bqk horizon: 12 to 24 inches

Other characteristics: Bq or Bqk horizon has 20 to 50 percent durinodes in a friable matrix

Other characteristics: Some pedons have gravelly strata below a depth of 40 inches

Control section:

Texture—silt loam or very fine sandy loam that is less than 15 percent fine sand or coarser textured material

Content of clay—10 to 18 percent

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bw horizon:

Chroma—3 or 4

Reaction—mildly alkaline or moderately alkaline

Bqk horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Reaction—moderately alkaline to very strongly alkaline

Ravenswood Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from volcanic, metavolcanic, and metamorphic rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

Typical Pedon

About 65 percent of the surface is covered with pebbles, 10 percent with cobbles, and 3 percent with stones.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine vesicular pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; 10 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt1—9 to 13 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; common very fine tubular pores; many thin and common moderately thick clay films on faces of peds; 30 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt2—13 to 29 inches; yellowish brown (10YR 5/4) very gravelly clay, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few fine and medium roots; few very fine tubular pores; many moderately thick clay films in pores and on faces of peds; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Bt3—29 to 36 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; few coarse roots; few fine tubular pores; many pressure faces; 25 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); abrupt irregular boundary.

R—36 inches; fractured, welded tuff.

Typical Pedon Location

Soil name and map unit in which located: Ravenswood gravelly loam, 15 to 50 percent slopes, very stony, in Ravenswood-Itca-Walti association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 35 miles southwest of Austin; about 1,000 feet north and 500 feet east of the southwest corner of sec. 7, T. 15 N., R. 38 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry for 45 to 90 days consecutively in mid-July through October

Average annual soil temperature: 43 to 47 degrees F (more than 41 degrees from May through November)

Thickness of the mollic epipedon: 10 to 16 inches (includes the upper part of the argillic horizon)

Thickness of the solum and depth to unweathered bedrock: 30 to 40 inches

Reaction: Slightly acid to mildly alkaline, increasing in alkalinity with increasing depth

Control section:

Content of clay—35 to 50 percent

Content of rock fragments—35 to 60 percent, mainly pebbles and cobbles

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Bt horizon:

Hue—10YR or 7.5YR

Value—5 dry in the upper part and 5 or 6 dry in the lower part, 3 moist in the upper part and 3 to 5 moist in the lower part

Chroma—3 in the upper part; 3, 4, or 6 in the lower part

Texture—very gravelly clay loam in the upper part, very gravelly clay or very gravelly clay loam in the lower part

Structure—angular blocky in the upper part, angular blocky or prismatic in the lower part

Relley Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed silty alluvium that is derived mainly from volcanic rock and includes some loess and volcanic ash

Positions on landscape: Fan skirts, inset fans

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-silty, mixed, mesic Duric Camborthids

Typical Pedon

Ap—0 to 4 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; weak coarse and very coarse subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few very fine roots; many very fine vesicular and tubular pores; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

A—4 to 8 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to moderate thin and medium platy; slightly hard, very friable, slightly sticky and plastic; common very fine roots and few fine and medium roots; many very fine vesicular, interstitial, and tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bw—8 to 16 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure; slightly hard, very friable, slightly sticky and plastic; common very fine roots; many very fine and few fine tubular pores; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk1—16 to 21 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and plastic; common very fine and few fine roots; common very fine tubular pores; 25 percent weakly or strongly silica-cemented durinodes 5 to 40 millimeters in diameter; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

Bqk2—21 to 28 inches; very pale brown (10YR 8/3) silt loam, light yellowish brown (10YR 6/4) moist; weak or moderate thin platy structure; slightly hard, friable, slightly sticky and plastic; common very fine and few fine roots; common very fine tubular pores; 10 percent weak durinodes; 40 percent discontinuous weak silica cementation; violently effervescent; many medium white (10YR 8/1, moist) and very pale brown (10YR 8/3, moist) coatings of lime on peds; strongly alkaline (pH 8.6); clear wavy boundary.

Bk1—28 to 52 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; violently effervescent; common fine filaments or threads and small isolated pockets of lime; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk2—52 to 63 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; common fine distinct brown (7.5YR 5/4) mottles, common fine faint dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and plastic; few very fine roots; many very fine tubular pores; violently effervescent; common fine filaments or threads of lime; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Relley silt loam

Location in Nevada: Lander County, Nevada, North Part, survey area; about 52 miles southwest of Battle Mountain; about 660 feet south and 530 feet east of the northwest corner of sec. 12, T. 24 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 53 degrees F

Content of clay in the control section: 18 to 27 percent

Depth to the Bqk horizon: 11 to 24 inches

Content of salt and sodium: Generally moderately or strongly affected by salt and sodium at a depth of more than 30 inches

Other characteristics: Common, faint or distinct, relict mottles at a depth of more than 16 inches; volcanic ash layer 4 to 8 inches thick commonly at a depth of 16 to 45 inches; coarse sandy loam at a depth of more than 50 inches in some pedons

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Consistence—slightly hard or hard (dry), very friable or friable (moist)

Reaction—moderately alkaline or strongly alkaline

Bw horizon:

Value—6 or 7 dry

Chroma—2 or 3 dry, 3 or 4 moist

Consistence—slightly hard or hard, very friable or friable

Reaction—moderately alkaline or strongly alkaline

Bq, Bk, or Bqk horizons (when present):

Value—5 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Texture—dominantly silt loam, but strata of very fine sandy loam or silty clay loam in some pedons

Structure—platy or massive

Reaction—moderately alkaline to very strongly alkaline

Effervescence—strongly effervescent or violently effervescent

Other characteristics—20 to 50 percent weakly or strongly cemented durinodes; 4- to 7-inch-thick layer that has 30 to 50 percent discontinuous weak silica cementation, is hard and brittle, and commonly is at a depth of 16 to 34 inches; continuous, weakly or strongly cemented hardpan at a depth of more than 50 inches in some pedons

Reluctan Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolite and other intrusive rock

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine-loamy, mixed, frigid Aridic Argixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; 15 percent pebbles; neutral (pH 7.2); clear smooth boundary.

A2—2 to 13 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; 15 percent pebbles;

mildly alkaline (pH 7.6); clear smooth boundary.

Bt1—13 to 23 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; common very fine tubular pores; few thin clay films on faces of peds and in pores; 15 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt2—23 to 38 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; common very fine tubular pores; 30 percent pebbles; mildly alkaline (pH 7.6); abrupt wavy boundary.

2R—38 inches; rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Reluctan gravelly loam, 15 to 30 percent slopes, in Millerlux-Reluctan-Cleavage association

Location in Nevada: Lander County, Nevada, North Part, survey area; near Maysville Summit, about 14 miles southeast of Battle Mountain; about 2,000 feet south and 500 feet west of the northeast corner of sec. 7, T. 29 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 17 inches
(commonly includes part of the argillic horizon)

Thickness of the solum: 20 to 40 inches

Depth to bedrock: 20 to 40 inches

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bt horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—gravelly loam or gravelly clay loam

Content of clay—25 to 35 percent

Content of rock fragments—15 to 35 percent,
mainly pebbles

Reaction—neutral or mildly alkaline, commonly
increasing in alkalinity with increasing depth

Ricert Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Thin loess deposits over alluvium derived from various kinds of rock

Positions on landscape: Fan piedmonts

Slope: 2 to 15 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Natrargids

Typical Pedon

About 90 percent of the surface is covered with pebbles.

A1—0 to 4 inches; pale brown (10YR 6/3) very gravelly very fine sandy loam, brown (10YR 4/3) moist; moderate very thin platy structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine interstitial pores and few fine and medium vesicular pores; 35 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and few fine and medium tubular pores; 25 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Btn—7 to 11 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; many fine roots and few very fine and medium roots; common very fine and few fine interstitial pores and few very fine and medium tubular pores; 5 percent pebbles; common moderately thick clay films on faces of peds; strongly alkaline (pH 8.8); clear wavy boundary.

Btnk—11 to 14 inches; yellowish brown (10YR 5/6) loam, dark yellowish brown (10YR 4/6) moist; weak medium prismatic structure parting to moderate fine subangular blocky; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots and few medium roots; common fine and few very fine and medium tubular pores; common thin clay films on faces of peds; 10 percent pebbles; few fine lime filaments or threads; strongly effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.

Bqk—14 to 20 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/6) moist; massive; hard, firm, nonsticky and nonplastic; few fine and medium roots; few fine tubular pores; 15 percent pebbles; continuous weak silica cementation;

common fine lime filaments or threads; violently effervescent; strongly alkaline (pH 9.0); clear wavy boundary.

2Bk1—20 to 31 inches; very pale brown (10YR 7/4) very gravelly sandy loam, yellowish brown (10YR 5/6) moist; massive; soft, very friable, nonsticky and nonplastic; many fine interstitial pores; 35 percent pebbles and 10 percent cobbles; common fine lime filaments or threads and lime coatings on the underside of pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Bk2—31 to 60 inches; very pale brown (10YR 8/4) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, nonsticky and nonplastic; many fine interstitial pores; 25 percent pebbles and 10 percent cobbles; common fine lime filaments or threads and lime coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Ricert very gravelly very fine sandy loam, 2 to 4 percent slopes, in Ricert-Orovada-Broyles association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles southwest of Austin; about 2,000 feet north and 1,300 feet east of the southwest corner of sec. 3, T. 17 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-May through November

Average annual soil temperature: 47 to 52 degrees F

Depth to the Bqk horizon: 14 to 25 inches

Depth to the 2Bk horizon: 20 to 40 inches

Control section:

Content of clay—25 to 35 percent

Content of rock fragments—0 to 10 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Btn and Btnk horizons:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—3, 4, or 6

Texture—loam or clay loam

Reaction—strongly alkaline or very strongly alkaline

Exchangeable sodium percentage—15 to 35

Bqk horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3, 4, or 6

Texture—loam, silt loam, or clay loam

Reaction—strongly alkaline or very strongly alkaline

2Bk and 2Bky horizons (when present):

Texture—dominantly very gravelly sandy loam, very gravelly loamy sand, or extremely gravelly loamy sand, but strata of coarse sand in some pedons

Content of rock fragments—30 to 70 percent, mainly pebbles, commonly increasing with increasing depth

Reaction—strongly alkaline or very strongly alkaline

Other characteristics—gypsum absent in many pedons

Robson Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from igneous rock

Positions on landscape: Crests and side slopes of hills and mountains

Slope: 8 to 30 percent

Mean annual precipitation: About 15 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical Pedon

About 30 percent of the surface is covered with pebbles and 50 percent with cobbles and stones.

A—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate thin platy structure parting to moderate fine granular; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and fine vesicular pores; 10 percent pebbles, 40 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

Bt1—2 to 5 inches; pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; few fine clay films on faces of peds; 10 percent pebbles and 35 percent cobbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

Bt2—5 to 15 inches; pale brown (10YR 6/3) very cobbly clay, dark brown (10YR 4/3) moist; strong medium and coarse angular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 20 percent

pebbles and 35 percent cobbles; mildly alkaline (pH 7.8); clear irregular boundary.
R—15 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Robson very cobbly loam, 15 to 30 percent slopes, in Zoesta-Robson-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 1,500 feet east and 750 north of the southwest corner of sec. 29, T. 20 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October

Average annual soil temperature: 44 to 47 degrees F

Depth to bedrock: 12 to 20 inches

Control section:

Content of clay—40 to 50 percent

Content of rock fragments—50 to 75 percent when mixed, mainly cobbles

A horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry (value of 5.5 dry occurs when the upper 7 inches is mixed); 3 or 4 moist

Chroma—2 or 3

Structure—very thin or thin and platy, or very fine to medium and subangular blocky or granular

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Structure—weak to strong, very fine to coarse, and prismatic, subangular blocky, or angular blocky

Reaction—neutral or mildly alkaline

Other characteristics—the upper few inches of bedrock commonly fractured into angular, cobble- or pebble-sized fragments

Roca Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from shale and chert

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores and common very fine vesicular pores; 40 percent pebbles and 1 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—5 to 10 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 3/3) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and common fine roots; many very fine tubular pores; 35 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

Bt2—10 to 18 inches; yellowish brown (10YR 5/4) very gravelly clay, brown (10YR 4/3) moist; strong very fine and fine angular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; many very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 50 percent pebbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt3—18 to 27 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong very fine and fine angular blocky structure; hard, firm, sticky and plastic; common very fine roots; many very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 50 percent pebbles; mildly alkaline (pH 7.8); abrupt wavy boundary.

R—27 inches; fractured chert.

Typical Pedon Location

Soil name and map unit in which located: Roca very gravelly loam, 30 to 50 percent slopes, in Roca-Linrose-Wiskan association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 15 miles southeast of Battle Mountain; about 1,000 feet south and 2,000 feet east of the northwest corner of sec. 24, T. 30 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to early in November

Average annual soil temperature: 43 to 47 degrees F

Depth to bedrock: 20 to 40 inches

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 or 4 moist
 Chroma—2 or 3
 Structure—granular or platy
 Reaction—slightly acid or mildly alkaline

Bt horizon:

Hue—dominantly 10YR or 7.5YR, but 2.5Y common in the lower part in some pedons
 Value—5 to 7 dry, 3 to 7 moist
 Chroma—3 to 6
 Texture—very gravelly clay or very gravelly clay loam
 Content of clay—35 to 50 percent
 Content of rock fragments—35 to 50 percent, mainly pebbles
 Structure—moderate or strong, medium or fine, and angular blocky or subangular blocky
 Reaction—neutral to moderately alkaline, commonly increasing in alkalinity with increasing depth
 Other characteristics—contains lime and is violently effervescent in the lower part in some pedons

Rotinom Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loess and alluvium that is derived from various kinds of rock and includes some volcanic ash

Positions on landscape: Stream terraces

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Durorthidic Torrfluvents

Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong thin and medium platy structure; slightly hard, friable, sticky and plastic; few fine and very fine roots; many very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong thick platy structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; many very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A3—4 to 9 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; strong thin platy structure; slightly hard, friable, sticky and plastic;

few very fine and common fine roots; many very fine and few fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bk—9 to 13 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; moderate medium platy structure; soft, very friable, slightly sticky and plastic; few very fine and common fine roots; common very fine and fine tubular pores; few fine and medium lime coatings on plates; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

2Bqk1—13 to 16 inches; white and pale brown (10YR 8/2 and 6/3) silt loam, light brownish gray and yellowish brown (10YR 6/2 and 5/4) moist; strong thin platy structure; soft, very friable, slightly sticky and plastic; few very fine and common fine roots; common very fine and fine tubular pores; banded lenses of lighter colored volcanic ash; 50 percent hard, firm and brittle, discontinuous, weak, silica cementation; common medium lime coatings on plates; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Bqk2—16 to 24 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and plastic; few very fine and common fine roots; few medium and common very fine and fine tubular pores; thin discontinuous lenses of ash; 60 percent hard, firm and brittle, discontinuous, weak, silica cementation; many medium lime coatings on plates; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Akb1—24 to 32 inches; gray (10YR 5/1) silty clay loam, very dark gray (10YR 3/1) moist; strong fine angular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine roots; few medium and common very fine and fine tubular pores; continuous thin silica coatings on faces of peds; common fine and medium lime filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Akb2—32 to 40 inches; light gray (10YR 6/1) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; silica bridges between sand grains; common fine lime filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Ck1—40 to 49 inches; gray (5Y 6/1) sandy loam, olive gray (5Y 4/2) moist; common fine distinct yellowish brown (10YR 5/6) relict mottles, dark yellowish brown (10YR 3/6) moist; massive; slightly hard,

friable, slightly sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; few fine lime filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

3Ck2—49 to 65 inches; gray (10YR 6/1) sandy loam, olive gray (5Y 4/2) moist; common medium distinct yellowish brown (10YR 5/6) relict mottles, dark yellowish brown (10YR 4/6) moist, and few fine prominent yellowish red (5YR 5/6) relict mottles, dark reddish brown (5YR 3/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; common fine manganese coatings and concretions; common fine lime filaments; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

4C—65 to 69 inches; gray (5Y 6/1) extremely gravelly coarse sand, olive gray (5Y 4/2) moist; single grain; loose, nonsticky and nonplastic; 65 percent pebbles; common fine lime filaments on pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Rotinom silt loam, 0 to 2 percent slopes, in Rotinom-Wholan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles southeast of Austin, in the Monitor Valley, 1.8 miles south and 0.4 mile west of an isolated windmill; in an unsectionalized area about 1.5 miles east and 2.8 miles north of the southwest corner of the assumed sec. 31, T. 17 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in some part from November to early in May; dry late in May through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the buried A horizon: 20 to 35 inches

Other characteristics: 20 to 60 percent discontinuous silica cementation at a depth of 10 to 20 inches; relict mottles at a depth of more than 40 inches in some pedons

Reaction: Moderately alkaline or strongly alkaline

Control section:

Content of clay—18 to 27 percent

Content of sand—less than 15 percent particles coarser than very fine sand

Content of rock fragments—as much as 5 percent in some horizons

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Effervescence—noneffervescent to strongly effervescent

Bk and Bqk horizons:

Hue—10YR, 2.5Y, or 5Y

Value—5 to 8 dry, 3 to 5 moist

Chroma—1 to 4

Texture—dominantly silt loam, but strata of silty clay loam common in most pedons and very thin lenses of loam, very fine sandy loam, or sandy clay loam in some pedons

Effervescence (matrix)—slightly effervescent to violently effervescent

Other characteristics—lime filaments, threads, or soft masses present

Rutab Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan skirts, stream terraces

Slope: 0 to 2 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Xerollic Camborthids

Typical Pedon

About 5 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; moderate medium platy structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and few fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bw1—5 to 8 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak medium and moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores and few very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bw2—8 to 16 inches; pale brown (10YR 6/3) loam, dark

brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular and interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

2Bw3—16 to 21 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine interstitial pores; 15 percent moderate or strong durinodes 10 to 30 millimeters in diameter; 20 percent pebbles; mildly alkaline (pH 7.8); gradual wavy boundary.

3C—21 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; many fine interstitial pores; 50 percent pebbles and 10 percent cobbles; few thin slightly effervescent lime coatings on the underside of rock fragments; noneffervescent in matrix; mildly alkaline (pH 7.8).

Typical Pedon Location

Map unit in which located: Rutab loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 24 miles east of Austin; about 1,000 feet south and 1,000 feet west of the northeast corner of sec. 20, T. 19 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and early in spring, dry in mid-June through October

Average annual soil temperature: 45 to 47 degrees F

Combined thickness of the A and Bw horizons: 13 to 23 inches

Control section:

Content of clay—5 to 18 percent

Content of rock fragments—35 to 60 percent

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Consistence—soft or slightly hard (dry)

Reaction—neutral or mildly alkaline

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—loam or gravelly loam

2Bw horizon:

Texture—very gravelly sandy loam or very gravelly loam

Content of rock fragments—35 to 50 percent, mainly pebbles

Structure—subangular blocky or massive

Content of durinodes: As much as 15 percent in some pedons

3C horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—3 or 4

Texture—extremely gravelly loamy sand, extremely gravelly sandy loam, or very gravelly sandy loam

Content of rock fragments—35 to 70 percent, mainly pebbles

Other characteristics—5 to 10 percent durinodes that commonly are very hard, firm, and brittle present in some pedons

Settlemeier Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Flood plains, inset fans

Slope: 0 to 4 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Fluvaquentic Haplaquolls

Typical Pedon

A1—0 to 5 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin and thin platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine vesicular pores; mildly alkaline (pH 7.7); clear smooth boundary.

A2—5 to 10 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; common very fine and fine interstitial pores; mildly alkaline (pH 7.8); clear smooth boundary.

A3—10 to 16 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; common medium faint mottles that are dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; common worm casts; moderately alkaline (pH 7.9); clear smooth boundary.

AC—16 to 24 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; common medium distinct mottles that are yellowish brown (10YR 5/4) and very dark brown (10YR 2/2) moist; weak medium angular blocky structure; slightly hard, friable, very sticky and plastic; common very fine and fine roots; common very fine tubular pores; common fine slightly effervescent lime filaments; noneffervescent in matrix; moderately alkaline (pH 8.0); clear smooth boundary.

C1—24 to 36 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; few fine distinct mottles that are dark brown (7.5YR 4/4) and gray (2.5Y 5/0) moist; massive; slightly hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; few fine slightly effervescent lime seams; noneffervescent in matrix; moderately alkaline (pH 8.0); gradual smooth boundary.

2C2—36 to 65 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; few fine distinct mottles that are dark brown (7.5YR 4/4) and gray (2.5Y 5/0) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; common very fine tubular pores; mildly alkaline (pH 7.8).

Typical Pedon Location

Map unit in which located: Settlemyer fine sandy loam, drained, 0 to 4 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 32 miles southwest of Battle Mountain; about 900 feet east and 2,550 feet south of the northwest corner of sec. 7, T. 27 N., R. 42 E.

Range in Characteristics

Soil moisture content: Dry in midsummer to early in fall, moist late in fall to early in summer

Depth to an apparent seasonal high water table:

Commonly 12 to 36 inches in winter and spring, but some areas have been drained

Average annual soil temperature: 47 to 52 degrees F

Thickness of the mollic epipedon: 12 to 24 inches

Reaction: Neutral to very strongly alkaline (higher reaction only in sodium-affected pedons)

Other characteristics: O horizon that consists of as much as 6 inches of mainly undecomposed plant material present at top

Control section:

Texture—stratified clay, silty clay, silty clay loam, clay loam, loam, silt loam, or very fine sandy loam

Content of clay—25 to 35 percent when mixed

Content of fine sand or coarser fragments—15 to 30 percent

A and AC horizons:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3

Structure—weak to strong, fine or medium, and prismatic, angular blocky, subangular blocky, or granular; weak to strong, very thin to medium, and platy; or massive

Consistence—slightly hard or hard (dry)

Effervescence—noneffervescent or slightly effervescent in the upper part of the A horizon, but noneffervescent between depths of 10 and 20 inches

C horizon:

Hue—10YR, 2.5Y, or 5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 to 3

Structure—weak, medium or fine, and angular blocky, or massive

Consistence—slightly hard or hard (dry)

Other characteristics—distinct or prominent iron mottles that have reddish, greenish, or yellowish hue and chroma of 1 to 4 are present; base color indicative of gleying present in matrix; few lime concretions 0.25 to 0.75 inch in diameter

2C horizon:

Effervescence: Noneffervescent or slightly effervescent

Shagnasty Series

Depth class: Deep or very deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from rhyolite, andesite, and quartzite

Positions on landscape: Side slopes of mountains

Slope: 15 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Typic Argixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles, 30 percent with cobbles, and 40 percent with stones.

O—1 inch to 0; partially decomposed plant litter.

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine vesicular pores; 10 percent pebbles and 30 percent cobbles

and stones; neutral (pH 7.2); abrupt smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; 10 percent pebbles and 10 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—10 to 15 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; strong medium angular blocky structure; hard, friable, very sticky and plastic; few fine and medium roots; few very fine tubular pores; many thin and few moderately thick clay films on faces of peds; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—15 to 27 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few fine, medium, and coarse roots; few very fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 10 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bt3—27 to 36 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure; hard, friable, very sticky and very plastic; few medium and coarse roots; few very fine tubular pores; many thick pressure faces; 10 percent pebbles; neutral (pH 7.2); clear wavy boundary.

Bt4—36 to 44 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few medium and coarse roots; few fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 25 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); gradual wavy boundary.

Bt5—44 to 57 inches; light yellowish brown (10YR 6/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few medium roots; common moderately thick clay films lining pores and on faces of peds; 10 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary.

Cr—57 inches; weathered rhyolite.

Typical Pedon Location

Soil name and map unit in which located: Shagnasty very cobbly loam, 30 to 50 percent slopes, rubbly, in Shagnasty-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 29 miles east of Austin; about 100 feet north and 800 feet east of the southwest corner of sec. 3, T. 20 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter to early in summer, dry in mid-July through October

Average annual soil temperature: 44 to 46 degrees F

Thickness of the mollic epipedon: 10 to 16 inches (includes the upper part of the argillic horizon)

Depth to the base of the Bt horizon: 40 to more than 60 inches

Depth to weathered bedrock: 50 to 80 inches

Reaction: Slightly acid to mildly alkaline

Other characteristics: Lime below a depth of 40 inches in some pedons, lithologic discontinuity absent in some pedons

Control section:

Content of clay—35 to 50 percent

Content of rock fragments—5 to 15 percent when mixed

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 in the upper part, 4 to 6 in the lower part

Structure—dominantly prismatic or angular blocky, but massive in the lower part in some pedons

Shibley Series

Depth class: Very deep.

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Inset fans

Slope: 0 to 2 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), frigid Xeric Torriorthents

Typical Pedon

About 5 percent of the surface is covered with pebbles.

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium platy structure; hard, friable, slightly sticky and

slightly plastic; few very fine roots; many fine and medium vesicular pores; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

- A2—3 to 5 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
- C1—5 to 11 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and few fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- C2—11 to 30 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; common very fine and fine roots; common very fine and fine interstitial and tubular pores; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- Ck1—30 to 41 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 10 percent pebbles; common medium lime filaments; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
- 2Ck2—41 to 60 inches; pale brown (10YR 6/3) extremely gravelly sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 45 percent pebbles and 20 percent cobbles; common thin lime coatings on the underside of rock fragments; violently effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Map unit in which located: Shipley silt loam, occasionally flooded, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, South Part, survey area; about 23 miles southeast of Austin; about 1,800 feet south and 2,000 feet west of the northeast corner of sec. 3, T. 16 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Reaction: Moderately alkaline to very strongly alkaline
Other characteristics: Thin strata of sand or gravel at a depth of more than 40 inches in some pedons, gravelly in the lower part in some pedons

Control section:

Content of clay—8 to 18 percent
Content of rock fragments—dominantly nongravelly, but as much as 35 percent gravel in individual strata

A horizon:

Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—strong or moderate, very thin to medium, and platy, or massive
Consistence—soft to hard (dry), very friable or friable (moist)

C horizon:

Value—6 to 8 dry, 4 to 6 moist
Chroma—2 or 3
Texture—dominantly silt loam, fine sandy loam, or very fine sandy loam, but thin strata of loam or sandy loam in some pedons
Structure—weak and platy or subangular blocky, or massive
Consistence—soft or slightly hard (dry)
Other characteristics—as much as 20 percent slightly hard or hard, brittle durinodes 0.5 to 1.0 inch in diameter at a depth of more than 15 inches in some pedons; few fine or medium lime segregations at a depth of more than 24 inches

Silverado Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some volcanic ash

Positions on landscape: Inset fans

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Coarse-loamy, mixed, frigid Durixerollic Camborthids

Typical Pedon

- A1—0 to 4 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine interstitial pores; 5 percent pebbles; slightly acid (pH 6.2); abrupt smooth boundary.
- A2—4 to 6 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine and very fine

subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; common fine and very fine interstitial pores; 5 percent pebbles; slightly acid (pH 6.2); clear wavy boundary.

Bw—6 to 14 inches; brownish gray (10YR 6/2) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; common fine and very fine interstitial pores; 5 percent pebbles; slightly acid (pH 6.2); clear wavy boundary.

Bq—14 to 26 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine and very fine roots; common fine and very fine interstitial pores; continuously weakly cemented with common very thin silica bridges and few very thin discontinuous silica laminae; 20 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

Bqk1—26 to 35 inches; white (10YR 8/1) gravelly sandy loam, very pale brown (10YR 7/3) moist; massive; very hard, very firm, nonsticky and nonplastic; few fine roots; common fine and very fine interstitial pores; continuously weakly cemented with common thin discontinuous silica and lime laminae; 20 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

2Bqk2—35 to 60 inches; light gray (10YR 7/2) very gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine interstitial pores; few discontinuous thin strongly cemented and common weakly cemented silica and lime laminae; 50 percent pebbles; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Map unit in which located: Silverado sandy loam, 0 to 2 percent slopes

Location in Nevada: Eureka County Area, Nevada, survey area; about 20 miles west of Eureka; about 300 feet west and 1,100 feet south of the northeast corner of sec. 10, T. 19 N., R. 50 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 45 to 47 degrees F

Depth to the Bq horizon: 10 to 25 inches

Depth to the 2Bqk horizon: 30 to 40 inches

Control section:

Content of clay—5 to 15 percent

Content of rock fragments—10 to 30 percent pebbles when mixed

A horizon:

Value—5 or 6 dry and 3 or 4 moist (value of more than 5.5 dry and 3.5 moist occurs when the upper 7 inches is mixed)

Chroma—2 or 3

Reaction—slightly acid to mildly alkaline

Structure—granular, platy, or massive

Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Content of rock fragments—0 to 15 percent

Reaction—slightly acid to mildly alkaline

Bq and Bqk horizons:

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Texture—sandy loam or gravelly sandy loam

Reaction—neutral to moderately alkaline

Other characteristics—continuous weak silica cementation and few or common very thin discontinuous horizontal and vertical silica laminae; strata that are not continuously cemented have durinodes or common pendants on rock fragments in the noncemented part

2Bk or 2Bqk horizon:

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 3

Texture—very gravelly sand or very gravelly coarse sand

Reaction—moderately alkaline or strongly alkaline

Other characteristics—discontinuous, thin, weakly or strongly silica-cemented laminae in the 2Bqk horizon in some pedons

Simpark Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Residuum and colluvium that are derived from andesite, rhyolite, and quartzite and include some volcanic ash

Positions on landscape: Side slopes of low hills and mountains

Slope: 2 to 50 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid, shallow Xerollic Durargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 40 percent with cobbles.

A—0 to 3 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine, fine, and medium vesicular pores; 10 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

BA—3 to 13 inches; pale brown (10YR 6/3) 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; 15 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bt—13 to 18 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; few fine and medium roots; few fine tubular pores; common thin and few moderately thick clay films coating faces of peds and sand grains; 20 percent pebbles and 15 percent cobbles; thin silica coatings on the underside of rock fragments; moderately alkaline (pH 8.2); clear wavy boundary.

Bqkm—18 to 22 inches; very pale brown (10YR 7/3), indurated duripan that has a 0.5-inch-thick continuous laminar cap, brown (10YR 5/3) moist; massive; extremely hard, extremely firm; violently effervescent; clear wavy boundary.

2R—22 inches; andesite.

Typical Pedon Location

Soil name and map unit in which located: Simpark very cobbly loam, 15 to 30 percent slopes, in Akerue-Simpark-Punchbowl association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles east of Austin; in an unsectionalized area about 5.4 miles south and 2,200 feet east of the northwest corner of the assumed sec. 6, T. 18 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-June to mid-October

Average annual soil temperature: 44 to 46 degrees F

Depth to the duripan: 14 to 20 inches

Depth to lithic contact: 20 to 30 inches

Other characteristics: Thin Bk or Btq horizon above the duripan in some pedons

Control section:

Content of clay—18 to 27 percent

Content of rock fragments—35 to 60 percent, mainly cobbles or pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 to 4

Reaction—mildly alkaline or moderately alkaline

Skullwak Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Fine textured lacustrine sediment derived from various kinds of rock

Positions on landscape: Lake plains

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts

Typical Pedon

A—0 to 2 inches; light gray (10YR 7/2) silt loam, pale brown (10YR 6/3) moist; moderate medium platy structure; hard, friable, sticky and plastic; few very fine roots; common very fine vesicular pores; strongly effervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.

C—2 to 10 inches; light gray (10YR 7/2) silty clay loam, yellowish brown (10YR 5/4) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine tubular and interstitial pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

2Cqk—10 to 17 inches; light gray (10YR 7/2) silty clay loam, yellowish brown (10YR 5/4) moist; many medium distinct mottles that are light brownish gray (2.5Y 6/2) and light gray (2.5Y 7/2) moist; moderate fine angular blocky structure; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine interstitial pores; 15 percent strongly cemented durinodes 15 to 25 millimeters in diameter; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

3Cqkg1—17 to 30 inches; white (5Y 8/2) silty clay, light olive gray (5Y 6/2) moist; many medium distinct mottles that are light gray (5Y 7/2) and yellowish brown (10YR 5/4) moist; massive; very hard, very firm, very sticky and very plastic; common very fine

and fine roots; few very fine tubular pores; 75 percent strongly cemented durinodes and discontinuous masses; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3Cqkg2—30 to 37 inches; light gray (5Y 7/2) silty clay loam, olive gray (5Y 5/2) moist; common fine distinct mottles that are light gray (5Y 7/2) and yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; 75 percent strongly cemented durinodes and discontinuous masses; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

3C1—37 to 46 inches; light gray (5Y 7/2) silty clay, light olive gray (5Y 6/2) moist; common fine distinct mottles that are olive (5Y 5/6) moist; moderate fine angular blocky structure; slightly hard, friable, very sticky and very plastic; few very fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

3C2—46 to 60 inches; light gray (5Y 7/2) silty clay loam, light olive gray (5Y 6/2) moist; few fine distinct mottles that are olive (5Y 5/6) moist; massive; hard, firm, very sticky and very plastic; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Skullwak silt loam in Skullwak-Umberland-Wendane association
Location in Nevada: Lander County, Nevada, North Part, survey area; about 41 miles northeast of Austin, in the Carico Lake Valley; in an unsectionalized area about 1,600 feet south and 1,600 feet west of the southwest corner of the assumed sec. 28, T. 24 N., R. 47 E.

Range in Characteristics

Soil moisture content: Saturated year-round at a depth of 18 to 36 inches

Average annual soil temperature: 47 to 52 degrees F

Depth to the Cqk horizon: 8 to 14 inches

Reaction: Moderately alkaline to very strongly alkaline, commonly decreasing in alkalinity with increasing depth

Exchangeable sodium percentage: 25 to 40 above the Cqk horizon, 15 to 30 in and below the Cqk horizon

Other characteristics: Strongly affected by salt above the Cqk horizon, moderately affected in and below the Cqk horizon

Control section:

Texture—stratified silty clay loam or silty clay
Content of clay—35 to 45 percent when mixed

A horizon:

Value—7 or 8 dry, 4 to 6 moist

Chroma—2 or 3

C and Cqk horizons:

Hue—10YR in the upper part, 5Y or 2.5Y in the lower part

Chroma—3 or 4 in the upper part, 1 or 2 in the lower part

Sodhouse Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Alluvium that is derived from various kinds of rock and includes some loess and volcanic ash

Positions on landscape: Fan piedmont remnants

Slope: 2 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Typic Durorthids

Typical Pedon

A—0 to 3 inches; pale brown (10YR 6/3) stony very fine sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 2 percent stones; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—3 to 10 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 2 percent stones; moderately alkaline (pH 8.4); clear smooth boundary.

Bqk—10 to 17 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; 10 percent durinodes 3 to 5 millimeters in diameter; common fine round lime concretions; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

2Bqkm—17 to 29 inches; white (10YR 8/2), indurated duripan, pale brown (10YR 6/3) moist; massive; abrupt smooth boundary.

2Cqk1—29 to 47 inches; very pale brown (10YR 7/3) very gravelly sandy loam, pale brown (10YR 6/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 25 percent pebbles and 10 percent cobbles; 15 percent durinodes 15 to

30 millimeters in diameter; violently effervescent; strongly alkaline (pH 9.0); clear smooth boundary.

3Cqk2—47 to 60 inches; white (10YR 8/2) very gravelly loamy sand, pale brown (10YR 6/3) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots; about 30 percent pebbles, 5 percent cobbles, and 10 percent stones; continuously weakly silica-cemented; violently effervescent; strongly alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Sodhouse stony very fine sandy loam in Orovada-Sodhouse association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 20 miles north of Battle Mountain; about 1,600 feet north and 1,700 feet west of the southeast corner of sec. 8, T. 35 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and spring, dry in June through November

Average annual soil temperature: 47 to 53 degrees F

Depth to the indurated duripan: 14 to 20 inches

Thickness of the duripan: 10 to 24 inches

Depth to the Ck horizon: 25 to 44 inches

Content of clay in the control section: 8 to 15 percent

Reaction: Moderately alkaline or strongly alkaline, usually increasing in alkalinity with increasing depth

Other characteristics: Durinodes and lime accumulations common in strata immediately above the duripan in some pedons

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Other characteristics—commonly noneffervescent, but slightly effervescent in some pedons as a result of lime recharge from dust

Bw horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4

Texture—very fine sandy loam, fine sandy loam, loam, or gravelly loam

Content of rock fragments—5 to 35 percent, mainly pebbles

Bqkm horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Structure—platy or massive

2Ck horizon:

Texture—extremely gravelly sandy loam or very gravelly loamy sand

Softscrabble Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from volcanic rock and some chert, quartzite, and shale

Positions on landscape: Side slopes of mountains

Slope: 4 to 50 percent

Mean annual precipitation: About 16 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Argixerolls

Typical Pedon

About 30 percent of the surface is covered with pebbles and 25 percent with cobbles and stones.

A1—0 to 3 inches; dark brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; slightly hard, friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine vesicular pores; 25 percent pebbles and 30 percent cobbles and stones; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 9 inches; dark brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine interstitial pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.

Bt1—9 to 16 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—16 to 22 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate coarse angular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common fine tubular pores; common thin and few moderately thick clay films on faces of peds; 10 percent pebbles, 35

percent cobbles, and 10 percent stones; neutral (pH 6.8); clear wavy boundary.

Bt3—22 to 30 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; common very fine and few fine roots; common fine tubular pores; many thin and few moderately thick clay films in pores and on faces of peds; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 6.8); gradual wavy boundary.

2Bt4—30 to 37 inches; brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 3/4) moist; strong medium angular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; common moderately thick clay films on faces of peds; 35 percent pebbles; neutral (pH 6.8); clear wavy boundary.

2Bt5—37 to 60 inches; light brown (7.5YR 6/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; weak angular blocky structure; hard, friable, sticky and plastic; very few very fine roots; few very fine tubular pores; common moderately thick clay films on peds; 55 percent pebbles; neutral (pH 7.0).

Typical Pedon Location

Soil name and map unit in which located: Softscrabble very cobbly loam, 15 to 50 percent slopes, in Zoesta-Robson-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles east of Austin; about 1,000 feet west and 500 feet north of the southeast corner of sec. 1, T. 19 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to early in October

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 20 to 38 inches

Depth to the base of the Bt horizon: 60 to 80 inches

Reaction: Slightly acid or neutral

Control section:

Content of clay—27 to 35 percent

Content of rock fragments (when mixed)—35 to 70 percent pebbles and cobbles and a few stones

A horizon:

Hue—10YR or 7.5YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—platy, granular, or subangular blocky

Bt horizon:

Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 (chroma of 4 in the lower part only)

Texture—loam or clay loam that averages 35 to 70 percent rock fragments, but individual strata are as little as 5 percent rock fragments

Sonoma Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Silty alluvium derived from various kinds of rock with a component of volcanic ash

Positions on landscape: Flood plains

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 50 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Fluvaquents

Typical Pedon

A1—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin and medium platy structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots and few medium roots; few very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

A2—3 to 12 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to moderate fine subangular blocky; slightly hard, very friable, sticky and plastic; few very fine roots and common fine and medium roots; common fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C1—12 to 19 inches; light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist; many fine distinct mottles that are dark brown (7.5YR 4/4) moist and few medium distinct mottles that are very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, very sticky and plastic; common fine and medium roots and few very fine and coarse roots; common fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2—19 to 29 inches; light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct mottles that are dark brown (7.5YR 4/4) moist and few medium faint mottles that are brown (7.5YR 5/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, very sticky and plastic; common fine and medium roots; common fine interstitial pores;

strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

- C3—29 to 38 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; common fine distinct mottles that are dark brown (7.5YR 4/4) moist and few fine distinct mottles that are very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; hard, friable, very sticky and very plastic; few fine and medium roots; common very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
- C4—38 to 53 inches; light gray (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) moist; many fine distinct mottles that are dark yellowish brown (10YR 4/6) moist; moderate thin and medium platy structure; hard, firm, very sticky and very plastic; few fine roots; common very fine vesicular pores; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
- C5—53 to 60 inches; light gray (10YR 7/2) silty clay loam, grayish brown (10YR 5/2) moist; many fine distinct mottles that are dark yellowish brown (10YR 4/4) moist; massive; hard, friable, very sticky and very plastic; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Sonoma silt loam, frequently flooded, in Sonoma-Paranat association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles north of Austin; about 1,600 feet south and 100 feet east of the northeast corner of sec. 1, T. 21 N., R. 42 E.

Range in Characteristics

Soil moisture content (undrained areas): Saturated in spring and early in summer; water table at a depth of more than 40 inches the rest of the year

Average annual soil temperature: 49 to 53 degrees F

Depth to the buried A horizon (when present): 30 to 55 inches

Calcium carbonate equivalent: 3 to 12 percent throughout the profile

Effervescence: Strongly effervescent or violently effervescent

Control section:

Texture—dominantly stratified silt loam to silty clay loam, but strata of clay or silty clay in some pedons

Content of clay—25 to 35 percent

A horizon:

Hue—2.5Y or 10YR

Value—3 to 5 moist

Reaction—moderately alkaline to very strongly alkaline (buried A horizon, when present, is moderately alkaline or strongly alkaline)

C horizon:

Hue—10YR to 5Y

Value—6 to 8 dry, 3 to 5 moist

Chroma—dominantly 1 or 2, but 3 in some strata in some pedons

Structure—platy, subangular blocky, or massive

Reaction—moderately alkaline to very strongly alkaline

Other characteristics—freshwater crustacean shells and lime concretions 0.25 to 0.5 inch in diameter in most pedons

Spasprey Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 0 to 8 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Haploxerollic Durargids

Typical Pedon

About 15 percent of the surface is covered with pebbles.

A—0 to 5 inches; light brownish gray (10YR 6/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 15 percent pebbles; neutral (pH 7.2); clear smooth boundary.

Bt1—5 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and medium roots; few very fine tubular pores; common thin clay bridges between mineral grains; mildly alkaline (pH 7.4); clear smooth boundary.

Bt2—9 to 17 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine tubular pores; common thin and few moderately thick clay films on

faces of peds; mildly alkaline (pH 7.6); clear smooth boundary.

Bqk—17 to 26 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few fine and medium roots; few very fine tubular pores; 30 percent discontinuous weak silica cementation and 30 percent strongly cemented durinodes; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bqkm—26 to 33 inches; very pale brown (10YR 7/4) strongly cemented duripan, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm; few very fine roots; very few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Cqk—33 to 60 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; hard, friable, nonsticky and nonplastic; few fine and medium roots; common very fine tubular pores; 30 percent discontinuous weak silica cementation and 20 percent discontinuous strongly silica-cemented masses; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Spasprey gravelly fine sandy loam, 2 to 4 percent slopes, in Spasprey-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 43 miles southwest of Austin; about 2,100 feet north and 2,700 feet east of the northwest corner of sec. 28, T. 15 N., R. 38 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part in mid-October to mid-June

Average annual soil temperature: 47 to 53 degrees F

Depth to the base of the Bt horizon: 10 to 20 inches

Depth to the strongly cemented duripan: 20 to 30 inches

Control section:

Texture—clay loam, loam, or sandy clay loam in the upper part; sandy loam or loam in the lower part

Content of clay—20 to 35 percent when mixed

Content of sand—more than 35 percent

Content of rock fragments—less than 10 percent

A horizon:

Hue—2.5Y or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4

Consistence—nonsticky or slightly sticky and nonplastic or slightly plastic (wet)

Bt horizon:

Hue—7.5YR, 10YR, or 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Texture—sandy clay loam, loam, or clay loam

Content of rock fragments—less than 10 percent

Structure—subangular blocky, angular blocky, or prismatic

Consistence—slightly hard or hard (dry), sticky or very sticky and plastic or very plastic (wet)

Reaction—neutral or mildly alkaline

Bqkm horizon:

Hue—2.5Y, 10YR, or 7.5YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Spike Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Gravelly alluvium derived from various kinds of rock

Positions on landscape: Side slopes of fan piedmont remnants and partial ballenas

Slope: 30 to 50 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Haplargids

Typical Pedon

About 70 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 1 inch; very pale brown (10YR 7/3) very gravelly sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many fine vesicular pores; 35 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

A2—1 to 2 inches; pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; weak thin platy structure; slightly hard, friable, slightly sticky and plastic; few very fine roots; many fine vesicular and tubular pores; 25 percent pebbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Btn—2 to 6 inches; yellowish brown (10YR 5/6) very gravelly clay, dark yellowish brown (10YR 4/6) moist; strong fine angular blocky structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine and fine

tubular pores; many moderately thick clay films on faces of peds and lining pores; 45 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

Btnk1—6 to 14 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; very hard, friable, very sticky and plastic; few fine roots; common very fine and fine tubular and interstitial pores; common thin clay films on faces of peds and lining pores; 45 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of rock fragments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Btnk2—14 to 18 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/6) moist; massive; very hard, firm, sticky and plastic; few very fine roots; common very fine and fine tubular pores; common thin clay films bridging mineral grains; 60 percent pebbles and 5 percent cobbles; common thin lime coatings on the underside of rock fragments; strongly effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Btnk3—18 to 30 inches; very pale brown (10YR 7/4) extremely gravelly sandy clay loam, brownish yellow (10YR 6/6) moist; massive; hard, friable, sticky and plastic; very few fine roots; common very fine and fine interstitial pores; common thin clay films bridging mineral grains; 55 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of rock fragments; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Btky1—30 to 44 inches; very pale brown (10YR 7/4) extremely gravelly clay loam, brownish yellow (10YR 6/6) moist; massive; hard, friable, sticky and plastic; very few fine roots; common very fine and fine interstitial pores; common thin clay films bridging mineral grains; 55 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on the underside of rock fragments; common medium filaments of gypsum; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

Btky2—44 to 60 inches; very pale brown (10YR 7/3) extremely gravelly sandy clay loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, sticky and plastic; few fine tubular pores; common thin clay films bridging mineral grains; 50 percent pebbles and 10 percent cobbles; common medium soft lime masses and common thin lime coatings on

the underside of coarse fragments; common medium filaments of gypsum; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Spike very gravelly sandy loam, 30 to 50 percent slopes, in Pula-Spike association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles north of Austin; about 600 feet south and 2,300 feet east of the northwest corner of sec. 24, T. 23 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter to early in spring, dry in mid-May through October

Average annual soil temperature: 47 to 53 degrees F

Depth to lime: 5 to 12 inches

Depth to secondary gypsum: 12 to 35 inches

Depth to the base of the Bt horizon: 40 to more than 60 inches

Reaction: Moderately alkaline or strongly alkaline

Control section:

Content of clay—27 to 35 percent

Content of rock fragments—35 to 60 percent

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

B horizon:

Value—5 to 7 dry, 4 to 6 moist

Chroma—3, 4, or 6

Structure—commonly angular blocky or subangular blocky, but massive in the lower part in some pedons

Exchangeable sodium percentage—15 to 35

Btn horizon:

Texture—very gravelly clay, very gravelly clay loam, or very gravelly sandy clay

Content of clay—35 to 45 percent

Content of rock fragments—35 to 60 percent, mainly pebbles

Btnk and Btky horizons:

Texture—dominantly extremely gravelly clay loam, extremely gravelly sandy clay loam, extremely gravelly loam, or very gravelly loam, but strata of extremely gravelly sandy loam or extremely gravelly loam at a depth of more than 40 inches in some pedons

Content of clay—20 to 30 percent when mixed

Content of rock fragments—50 to 75 percent, mainly pebbles

Stampede Series

Depth class: Moderately deep to duripan

Drainage class: Well drained

Parent material: Alluvium derived from tuff and various other kinds of rock

Positions on landscape: Valley fans of mountains

Slope: 4 to 8 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 43 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Aridic Durixerolls

Typical Pedon

About 40 percent of the surface is covered with pebbles.

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, friable, nonsticky and nonplastic; common fine roots; many fine vesicular pores; 20 percent pebbles; neutral (pH 6.6); abrupt smooth boundary.

A2—4 to 10 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine roots; many fine interstitial pores; neutral (pH 6.8); clear wavy boundary.

A3—10 to 18 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, firm, sticky and plastic; common fine roots; common very fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bt—18 to 31 inches; yellowish brown (10YR 5/4) clay, yellowish brown (10YR 5/6) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; few fine roots; few very fine tubular pores; continuous thin clay films; neutral (pH 7.2); abrupt smooth boundary.

Bqkm—31 to 60 inches; indurated duripan.

Typical Pedon Location

Soil name and map unit in which located: Stampede gravelly loam, 4 to 8 percent slopes, in Stampede-Handy-Caniwe association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 15 miles northwest of Austin; about 1,400 feet north and 2,700 feet east of the southwest corner of sec. 1, T. 20 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in July through October

Average annual soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 13 inches

Depth to the duripan: 20 to 36 inches

Control section:

Content of clay—40 to 55 percent

Content of rock fragments—0 to 10 percent pebbles

A horizon:

Value—dominantly 4 or 5 dry and 2 or 3 moist, but 6 dry and 4 moist common in the lower part

Chroma—2 or 3

Structure—weak or moderate, thin to thick, and platy, or massive in the upper 3 to 5 inches; moderate or strong, fine or medium, and

granular or subangular blocky below this depth

Reaction—slightly acid or neutral

Bt horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4

Content of rock fragments—as much as 15 percent

Structure—moderate or strong, medium or coarse, and prismatic, or fine to coarse and subangular blocky or angular blocky

Reaction—neutral or mildly alkaline

Bqkm horizon:

Reaction—mildly alkaline or moderately alkaline

Other characteristics—noneffervescent to strongly effervescent in the matrix, few to many lime coatings at top or in fractures

Stingdorn Series

Depth class: Very shallow or shallow to duripan

Drainage class: Well drained

Parent material: Residuum derived from rhyolite, andesite, and tuff

Positions on landscape: Crests and side slopes of foothills and hills

Slope: 2 to 50 percent

Mean annual temperature: About 49 degrees

Mean annual precipitation: About 6 inches

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Durargids

Typical Pedon

About 5 percent of the surface is covered with pebbles and 40 percent with cobbles.

A—0 to 7 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 4/3) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine vesicular pores; 5

percent pebbles and 40 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bt1—7 to 11 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few coarse roots; common very fine and fine tubular pores; few thin clay films lining pores and on faces of peds; 5 percent pebbles and 30 percent cobbles;

moderately alkaline (pH 8.2); clear wavy boundary.

Bt2—11 to 15 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few coarse roots; common very fine and fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 5 percent indurated pan fragments; 10 percent pebbles and 30 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt irregular boundary.

Bqkm—15 to 20 inches; very pale brown (10YR 7/3), indurated duripan, pale brown (10YR 6/3) moist; several thin indurated horizontal lamellae throughout strongly silica-cemented matrix; indurated laminar cap 2 to 5 millimeters thick over bedrock; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.

R—20 inches; unweathered tuff.

Typical Pedon Location

Map unit in which located: Stingdorn very cobbly loam, 4 to 30 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 42 miles southwest of Battle Mountain; about 1,500 feet east and 1,400 feet north of the southwest corner of sec. 31, T. 26 N., R. 41 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and spring, dry in May through October

Average annual soil temperature: 47 to 54 degrees F

Combined thickness of the A and Bt horizons: 7 to 16 inches

Depth to the indurated duripan: 8 to 20 inches

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Consistence—soft or slightly hard (dry)

Reaction—mildly alkaline to strongly alkaline

Bt horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4

Content of clay—averages 27 to 35 percent, but is slightly less in some strata in some pedons

Content of rock fragments—35 to 50 percent, mainly pebbles

Consistence—slightly hard or hard (dry), very friable or friable (moist)

Reaction—mildly alkaline to strongly alkaline

Effervescence—slightly effervescent or strongly effervescent in some pedons, noneffervescent in the upper part in some pedons

Bqk horizon (when present):

Hue—10YR or 2.5Y

Value—6 to 8 dry, 6 or 7 moist

Chroma—2 or 3

Reaction—moderately alkaline or strongly alkaline

Sumine Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from dominantly quartzite, breccia, and sandstone

Positions on landscape: South-facing side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles and 15 percent with cobbles.

A1—0 to 5 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate fine granular; soft, friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores and common very fine tubular pores; 10 percent pebbles and 10 percent cobbles; slightly effervescent; neutral (pH 7.2); gradual smooth boundary.

A2—5 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; many very fine interstitial pores and common very fine

tubular pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.3); clear smooth boundary.

Bt1—10 to 13 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots and few medium roots; common very fine interstitial and tubular pores; few thin clay films on faces of peds; 30 percent pebbles; neutral (pH 7.3); clear wavy boundary.

Bt2—13 to 19 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; common moderately thick clay films lining pores and on faces of peds; 35 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary.

Bt3—19 to 24 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; common moderately thick clay films on faces of peds; 25 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.8); abrupt wavy boundary.

Bt4—24 to 30 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine tubular pores; 25 percent pebbles and 40 percent cobbles; mildly alkaline (pH 7.8); abrupt wavy boundary.

2R—30 inches; quartzite.

Typical Pedon Location

Soil name and map unit in which located: Sumine cobbly loam, 30 to 50 percent slopes, in Walti-Sumine-Softscrabble association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 28 miles south of Battle Mountain; about 50 feet west and 1,000 feet south of the northeast corner of sec. 32, T. 26 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry early in July to mid-October

Average annual soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 8 to 15 inches

Depth to bedrock: 20 to 40 inches

Combined thickness of the A and Bt horizons: 20 to 40 inches

Reaction: Neutral or mildly alkaline

Control section:

Content of clay—25 to 35 percent when mixed
Texture—dominantly clay loam, but some pedons have thin strata of loam or clay

Content of rock fragments—averages 35 to 60 percent

A horizon:

Chroma—2 or 3

Structure—weak or moderate, very thin to medium, and platy; or weak or moderate, very fine to medium, and granular or subangular blocky

Consistence—soft or slightly hard (dry), very friable or friable (moist)

Bt horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Structure—dominantly weak or moderate, very fine, fine, or medium, and angular blocky or subangular blocky, but the lower part is massive in some pedons

Sundown Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Parent material: Mixed alluvium and eolian deposits

Positions on landscape: Sand sheets

Slope: 2 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 53 degrees F

Taxonomic class: Mixed, mesic Typic Torripsamments

Typical Pedon

A—0 to 7 inches; pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; moderate thin platy structure parting to moderate medium subangular blocky; soft, very friable, nonsticky and nonplastic; common fine and medium roots and few very fine roots; common fine and medium vesicular pores; strongly effervescent or violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C1—7 to 12 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many fine and medium roots and common very fine roots; many fine and medium tubular pores; 10 percent pebbles; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

C2—12 to 60 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, sticky and nonplastic; common fine roots; common fine and medium tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Sundown fine sand, 2 to 4 percent slopes, in Wardenot-Sundown association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 20 miles south of Austin; about 2,600 feet north and 2,400 feet west of the southeast corner of sec. 11, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 55 to 59 degrees F

Reaction: Moderately alkaline to very strongly alkaline

Other characteristics: Calcareous throughout

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—dominantly loamy fine sand, but thin strata of sand, fine sand, or loamy sand in some pedons

Content of rock fragments—as much as 15 percent, dominantly pebbles

Structure—subangular blocky, massive, or single grain

Other characteristics—unconformable material, when present, is at a depth of 40 to 60 inches and is dominantly sandy clay loam

Teguro Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum derived from rhyolitic tuff, rhyolite, and basalt

Positions on landscape: Side slopes of foothills and mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, frigid Lithic Argixerolls

Typical Pedon

About 55 percent of the surface is covered with pebbles.

A—0 to 4 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine vesicular pores; 35 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt1—4 to 9 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many fine roots and few very fine and medium roots; common very fine and fine tubular and interstitial pores; common thin clay films on faces of peds and lining pores; 30 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt2—9 to 16 inches; pale yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; few very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 30 percent pebbles; neutral (pH 7.2); abrupt irregular boundary.

R—16 inches; rhyolitic tuff.

Typical Pedon Location

Soil name and map unit in which located: Teguro very gravelly loam, 30 to 50 percent slopes, in Punchbowl-Teguro-Sumine association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 14 miles southwest of Battle Mountain; about 2,600 feet east and 1,500 feet south of the northwest corner of sec. 2, T. 31 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-July to early in October

Average annual soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 7 to 12 inches (includes the upper part of the Bt horizon)

Combined thickness of the A and Bt horizons and depth to bedrock: 14 to 20 inches

Control section:

Content of clay—25 to 35 percent

Content of rock fragments—15 to 35 percent, mainly pebbles

Reaction—slightly acid or neutral

A horizon:

Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 or 3 dry or moist

Bt horizon:

Value—5 or 6 dry, 3 or 4 moist
 Chroma—3 or 4 dry or moist
 Texture—gravelly loam or gravelly clay loam

Tenabo Series

Depth class: Very shallow or shallow to duripan

Drainage class: Well drained

Parent material: Thin mantle of loess that is high in content of volcanic ash over alluvium derived from various kinds of rock

Positions on landscape: Fan piedmont remnants

Slope: 0 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Typic Nadurargids

Typical Pedon

A1—0 to 7 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and plastic; common very fine random roots and few fine oblique roots; many very fine vesicular pores; 5 percent small pebbles; moderately alkaline (pH 8.4); clear wavy boundary.

A2—7 to 13 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; massive; hard, very friable, sticky and plastic; common very fine and fine random roots and very few medium and coarse oblique roots; common very fine vesicular and tubular pores and few fine tubular pores; 5 percent small pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Btn1—13 to 17 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderately very fine and fine angular blocky; slightly hard, very friable, sticky and plastic; common very fine random roots; common very fine interstitial and tubular pores; common thin clay films on faces of peds and lining pores; 10 percent small pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Btn2—17 to 20 inches; very pale brown (10YR 7/3) gravelly silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure

parting to moderate fine angular blocky; slightly hard, very friable, sticky and plastic; few very fine random roots and very few fine horizontal roots; common very fine interstitial and tubular pores; many thin clay films on faces of peds and lining pores; 20 percent small pebbles; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2Bqkm1—20 to 24 inches; light yellowish brown (10YR 6/4), indurated duripan, dark yellowish brown (10YR 4/4) moist; common fine distinct iron mottles that are reddish yellow (7.5YR 7/6) and strong brown (7.5YR 5/6) moist; massive; very hard, very firm; very few very fine roots in fractures; few very fine tubular pores; continuous, very pale brown (10YR 8/3 and 7/3, moist), silica laminae $\frac{1}{16}$ to $\frac{1}{8}$ inch thick; about 30 percent small rounded pebbles; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

2Bqkm2—24 to 39 inches; very pale brown (10YR 7/3), strongly silica-cemented duripan, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm; few very fine roots in fractures; many very fine interstitial pores; silica laminae 1 to 3 inches thick throughout the horizon; 70 percent rounded pebbles as much as 0.5 inch in diameter; strongly effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

2C—39 to 60 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, dark yellowish brown (10YR 4/1) moist; single grain; loose, nonsticky and nonplastic; few very fine random roots; many very fine interstitial pores; few discontinuous silica- and lime-cemented lenses; 75 percent rounded pebbles as much as 1.5 inches in diameter; slightly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Tenabo silt loam, 0 to 2 percent slopes, in Beoska-Tenabo silt loams, nearly level

Location in Nevada: Lander County, Nevada, North Part, survey area; about 50 miles southwest of Battle Mountain; about 1,320 feet west and 25 feet north of the southeast corner of sec. 27, T. 25 N., R. 42 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through November

Average annual soil temperature: 47 to 51 degrees F

Depth to the duripan: 9 to 20 inches

Reaction: Moderately alkaline or strongly alkaline in the A and Bt horizons, moderately alkaline to very strongly alkaline below these horizons

Effervescence: Ranges from noneffervescent in the upper layer to violently effervescent in the layer above the duripan in areas subject to lime recharge

Control section:

Content of clay—27 to 35 percent

Content of rock fragments—less than 20 percent when mixed

A horizon:

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—weak or moderate, very thin to thick, and platy, or massive

Bt and Btn horizons:

Value—5 to 7 dry, 4 or 5 moist

Chroma—3, 4, or 6

Texture of the fine-earth fraction—dominantly clay loam, silty clay loam, or sandy clay loam, but thin strata of silt loam in some pedons

Content of rock fragments—less than 20 percent, mainly pebbles, but some duripan fragments included in some pedons

Structure—moderate, fine or medium, and prismatic, angular blocky, or subangular blocky

Reaction—moderately alkaline or strongly alkaline, commonly increasing in alkalinity with increasing depth

Exchangeable sodium percentage—15 to 30

Other characteristics—the lower part violently effervescent in some pedons and contains segregated lime

Bqkm horizon:

Value—6 to 8 dry, 4 to 7 moist

Chroma—2 to 4

Other characteristics—very hard or extremely hard, continuous laminae stratified with strongly cemented material

C horizon:

Texture—gravelly to extremely gravelly sand, loamy sand, or sandy loam

Content of rock fragments—15 to 85 percent, mainly pebbles

Tessfive Series

Depth class: Shallow

Drainage class: Well drained

Parent material: Residuum that is derived from tuffaceous sediment and includes some loess

Positions on landscape: Rolling crests and side slopes of hills

Slope: 2 to 30 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy, mixed (calcareous), mesic Lithic Xeric Torriorthents

Typical Pedon

About 35 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable, sticky and plastic; few very fine roots; common very fine vesicular pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, slightly sticky and plastic; common very fine roots; common very fine interstitial pores; 20 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

Bk1—6 to 10 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine, fine, and medium roots; few very fine tubular pores; few fine lime filaments or threads and lime coatings on the underside of rock fragments; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bk2—10 to 16 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; few very fine tubular pores; few fine and medium lime filaments or threads and lime coatings on the underside of rock fragments; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

R—16 to 20 inches; hard, fractured, consolidated, tuffaceous sediment; lime coatings on rock fragments.

Typical Pedon Location

Soil name and map unit in which located: Tessfive gravelly loam, 8 to 30 percent slopes, in Tessfive-Puett-Grina association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 23 miles north of Austin; in an unsectionalized area about 10,000 feet south and

4,250 feet west of the southwest corner of the assumed sec. 27, T. 24 N., R. 43 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to bedrock: 10 to 20 inches

Reaction: Moderately alkaline or strongly alkaline

Calcium carbonate equivalent: Dominantly 5 to 15 percent, but the A1 horizon leached of carbonates in some pedons

Other characteristics: In some pedons the upper few inches of bedrock are highly weathered paralithic material

Control section:

Content of clay—14 to 24 percent

Texture—loam or sandy loam

Content of rock fragments—20 to 35 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Bk horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 6

Structure—subangular blocky or massive

Other characteristics—as much as 15 percent weakly cemented durinodes in the lower part in some pedons

Tomel Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Alluvium derived from shale, siltstone, limestone, and chert

Positions on landscape: Fan piedmont remnants

Slope: 2 to 8 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Durargids

Typical Pedon

About 55 percent of the surface is covered with pebbles.

A—0 to 4 inches; light gray (10YR 7/2) gravelly fine sandy loam, grayish brown (10YR 5/2) moist; weak medium and thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse vesicular pores and

few very fine and fine tubular pores; 20 percent pebbles; slightly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bt1—4 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; weak fine angular blocky structure; soft, very friable, very sticky and plastic; common very fine and fine roots; few very fine tubular pores; few thin lime and silica coatings on the underside of pebbles; few moderately thick clay films on faces of peds, in root channels, and lining tubular pores; 25 percent pebbles; few fine soft lime masses; slightly effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bt2—8 to 11 inches; dark grayish brown (10YR 4/2) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, very friable, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; 45 percent pebbles; few thin lime and silica coatings on the underside of pebbles; few moderately thick clay films on faces of peds, in root channels, and lining tubular pores; common medium soft lime masses; slightly effervescent; very strongly alkaline (pH 9.0); gradual wavy boundary.

Bk—11 to 15 inches; light gray (10YR 7/2) very gravelly sandy clay loam, pale brown (10YR 6/3) moist; weak very fine subangular blocky structure; slightly hard, firm, sticky and plastic; few very fine and fine roots; few very fine tubular pores; thick lime and silica coatings on the underside of pebbles; 50 percent pebbles; many coarse soft lime masses; strongly effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary.

Bqk—15 to 18 inches; white (10YR 8/2) gravelly sandy loam, very pale brown (10YR 7/3) moist; massive; hard, firm, slightly sticky and nonplastic; few very fine and fine roots; few very fine tubular pores; 30 percent discontinuously weakly cemented pebbles; thick lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bqkm1—18 to 26 inches; white (2.5Y 8/2), indurated duripan that has a continuous laminar cap 0.5 millimeter thick, light brownish gray (2.5Y 6/2) moist; massive; extremely hard, extremely firm; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bqkm2—26 to 33 inches; light brownish gray (2.5Y 6/2), continuous, strongly cemented duripan, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, extremely firm; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2Cqk—33 to 60 inches; stratified light gray (10YR 7/1)

extremely gravelly sand and discontinuous, strongly cemented duripan, gray (10YR 6/1) moist; massive; extremely hard, extremely firm, nonsticky and nonplastic; 70 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Tomel gravelly fine sandy loam, 2 to 4 percent slopes, in Laxal-Tomel association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles south of Austin, in the Big Smoky Valley; about 300 feet north and 3,000 feet east of the southwest corner of sec. 5, T. 15 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the duripan: 10 to 20 inches

Other characteristics: Thin Bqk horizon immediately above the duripan in some pedons

Control section (when mixed):

Content of clay—20 to 30 percent

Content of rock fragments—35 to 50 percent, mainly pebbles

Texture—clay loam or sandy clay loam

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Structure—massive or platy

BA horizon (when present):

Value—7 or 8 dry, 4 or 5 moist

Chroma—2 or 3

Bt1 horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 or 4

Structure—prismatic or angular blocky

Content of rock fragments—10 to 35 percent

Bt2 horizon:

Structure—massive or subangular blocky

Content of rock fragments—40 to 65 percent

Bqk horizon:

Value—6 or 7 dry, 4 to 6 moist

Chroma—1 to 3

Content of rock fragments—50 to 75 percent

Bqkm horizon:

Value—6 to 8 dry; 4, 5, or 7 moist

Chroma—2 to 4

Torripsammentic Haploxerolls

Depth class: Very shallow to moderately deep

Drainage class: Well drained

Parent material: Residuum derived from granite

Positions on landscape: Side slopes of mountains

Slope: 30 to 50 percent

Mean annual precipitation: About 15 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Torripsammentic Haploxerolls

Representative Pedon

About 10 percent of the surface is covered with pebbles and 10 percent with cobbles.

O—1 inch to 0; undecomposed pine needles and litter.

A1—0 to 2 inches; brown (10YR 5/3) cobbly loamy coarse sand, very dark brown (10YR 2/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial pores; 5 percent pebbles and 10 percent cobbles; neutral (pH 6.8); abrupt smooth boundary.

A2—2 to 4 inches; brown (10YR 5/3) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary.

C—4 to 7 inches; pale brown (10YR 6/3) loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine and medium roots; common very fine and fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary.

Cr—7 to 21 inches; soft, weathered granite.

Typical Pedon Location

Soil name and map unit in which located:

Torripsammentic Haploxerolls cobbly loamy coarse sand in Typic Argixerolls-Torripsammentic Haploxerolls-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 0.5 mile southwest of Austin; about 400 feet east and 500 feet north of the southwest corner of sec. 19, T. 19 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in October through June, dry in summer and early in fall

Average annual soil temperature: 43 to 46 degrees F

Depth to paralithic contact: 5 to 30 inches

Reaction: Neutral or mildly alkaline, commonly increasing in alkalinity with increasing depth

Control section:

- Texture—loamy sand or loamy coarse sand
- Content of clay—5 to 12 percent
- Content of rock fragments—0 to 10 percent pebbles and cobbles

A horizon:

- Value—4 or 5 dry

C horizon:

- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4

Torro Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Residuum and colluvium that is derived from chert and shale and includes some loess and volcanic ash

Positions on landscape: Side slopes of mountains

Slope: 15 to 75 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical Pedon

About 65 percent of the surface is covered with pebbles and 15 percent with cobbles.

A1—0 to 2 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine vesicular pores; 45 percent pebbles and 15 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.

A2—2 to 6 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine tubular pores; 30 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.

A3—6 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, medium, and coarse roots; common very fine tubular pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt1—10 to 18 inches; light yellowish brown (10YR 6/4) extremely gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky

structure; hard, very friable, very sticky and plastic; common very fine and few medium roots; common very fine tubular pores; common moderately thick clay films on faces of peds; 60 percent pebbles and 15 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—18 to 34 inches; pale brown (10YR 6/3) extremely gravelly clay loam, dark brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; hard, friable, very sticky and plastic; few fine and medium roots; few fine tubular pores; common moderately thick clay films on faces of peds; 60 percent pebbles and 5 percent cobbles; neutral (pH 7.3); clear wavy boundary.

C1—34 to 45 inches; light yellowish brown (10YR 6/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few medium roots; common fine interstitial pores; 55 percent pebbles and 5 percent cobbles; neutral (pH 7.3); gradual wavy boundary.

C2—45 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few medium roots; common fine interstitial pores; 55 percent pebbles and 5 percent cobbles; neutral (pH 7.3).

Typical Pedon Location

Soil name and map unit in which located: Torro extremely gravelly loam, 30 to 50 percent slopes, in Torro-Itca-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 38 miles southwest of Austin; in an unsectionalized area about 2,000 feet west and 1,000 feet south of the northeast corner of the assumed sec. 10, T. 16 N., R. 38 E.

Range in Characteristics

Soil moisture content: Dry in July to mid-October, moist in some part in mid-October through June

Average annual soil temperature: 43 to 46 degrees F

Thickness of the mollic epipedon: 10 to 14 inches

Combined thickness of the A and Bt horizons: 24 to 40 inches

Control section:

Texture—extremely gravelly loam, clay loam, or sandy clay loam

Content of clay—20 to 30 percent

Content of rock fragments—60 to 75 percent, mainly angular, pebble-sized chert and shale fragments

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3

Structure—weak or moderate, very fine to coarse, and subangular blocky; weak or moderate, very thin to thick, and platy; or weak or moderate, very fine or fine, and angular blocky

Bt horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4

Structure—weak or moderate, fine or medium, and angular or subangular blocky

Consistence—slightly hard or hard (dry), very friable or friable (moist), sticky or very sticky and slightly plastic or plastic (wet)

Other characteristics—few or common, thin or moderately thick clay films lining pores, bridging and coating sand grains, or coating faces of peds

C horizon:

Value—5 or 6 moist

Chroma—3 or 4

Texture—extremely gravelly sandy loam or loamy sand

Trunk Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from quartzite, chert, andesite, and rhyolite

Positions on landscape: Crests and side slopes of mountains and foothills

Slope: 30 to 50 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Xerollic Haplargids

Typical Pedon

About 15 percent of the surface is covered with pebbles and 10 percent with cobbles.

A—0 to 5 inches; pale brown (10YR 6/3) cobbly loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; 10 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt—5 to 11 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong very fine subangular blocky structure; hard, firm, sticky and plastic; common very fine, fine, and medium roots; common very fine and fine

interstitial pores; few thin clay films on faces of peds; 15 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary.

Btk1—11 to 17 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine and fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 15 percent pebbles and 10 percent cobbles; common fine lime filaments and seams; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Btk2—17 to 28 inches; brownish yellow (10YR 6/6) gravelly clay, dark yellowish brown (10YR 4/6) moist; strong medium prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine, fine, and coarse roots; common very fine and fine tubular pores; many moderately thick clay films lining pores and on faces of peds; 15 percent pebbles and 10 percent cobbles; common fine lime filaments and seams; violently effervescent; moderately alkaline (pH 8.4); clear irregular boundary.

2R—28 inches; fractured andesite; lime coatings on fracture planes.

Typical Pedon Location

Soil name and map unit in which located: Trunk cobbly loam, 30 to 50 percent slopes, in Trunk-Burrita-Rock outcrop association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 31 miles southwest of Battle Mountain; about 2,500 feet west and 1,250 feet south of the northeast corner of sec. 21, T. 26 N., R. 40 E.

Range in Characteristics

Soil moisture content: Moist late in fall, in winter, and early in spring, dry late in May through October

Average annual soil temperature: 48 to 53 degrees F

Depth to bedrock: 20 to 40 inches

Depth to lime accumulation: 10 to 20 inches

A horizon:

Value—5 or 6 dry, 3 to 5 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—gravelly clay loam or gravelly clay that is more than 30 percent sand

- Content of clay—35 to 50 percent
 Content of rock fragments—15 to 35 percent,
 mainly pebbles
 Reaction—neutral or mildly alkaline in the upper
 part, moderately alkaline or strongly alkaline in
 the lower part
 Other characteristics—noncalcareous in the upper
 part, calcareous in the lower part

Tulase Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Silty alluvium that is derived from
 various kinds of rock and includes some loess and
 volcanic ash

Positions on landscape: Lagoons, inset fans, fan skirts

Slope: 0 to 8 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Coarse-silty, mixed (calcareous),
 mesic Durorthidic Xeric Torriorthents

Typical Pedon

- A1—0 to 2 inches; pale brown (10YR 6/3) silt loam,
 dark brown (10YR 4/3) moist; weak medium platy
 structure; soft, very friable, slightly sticky and
 slightly plastic; common very fine and fine roots;
 common very fine vesicular pores; strongly
 effervescent; moderately alkaline (pH 8.2); abrupt
 smooth boundary.
- A2—2 to 6 inches; pale brown (10YR 6/3) silt loam,
 dark brown (10YR 4/3) moist; weak medium
 subangular blocky structure; slightly hard, very
 friable, slightly sticky and slightly plastic; common
 very fine and fine roots and few medium and coarse
 roots; common very fine and fine tubular pores;
 strongly effervescent; strongly alkaline (pH 8.6);
 clear smooth boundary.
- C—6 to 11 inches; very pale brown (10YR 7/3) very fine
 sandy loam, brown (10YR 5/3) moist; moderate
 medium subangular blocky structure; slightly hard,
 very friable, nonsticky and nonplastic; common very
 fine and fine roots; common very fine and fine
 tubular pores; strongly effervescent; strongly
 alkaline (pH 8.6); clear smooth boundary.
- Cq—11 to 21 inches; very pale brown (10YR 7/3) very
 fine sandy loam, yellowish brown (10YR 5/4) moist;
 massive; soft, very friable, slightly sticky and
 nonplastic; common very fine and fine roots;
 common very fine and fine tubular pores; 30
 percent strong durinodes 10 to 25 millimeters in

diameter; strongly effervescent; strongly alkaline
 (pH 8.8); clear wavy boundary.

- Cqk1—21 to 36 inches; very pale brown (10YR 7/3)
 very fine sandy loam, pale brown (10YR 6/3) moist;
 massive; slightly hard, very friable, nonsticky and
 nonplastic; few very fine and fine roots; few very
 fine and fine tubular pores; 45 percent strong
 durinodes 10 to 25 millimeters in diameter; 20
 percent discontinuous weak silica cementation;
 common fine lime filaments; violently effervescent;
 strongly alkaline (pH 9.0); gradual wavy boundary.
- Cqk2—36 to 60 inches; pale brown (10YR 6/3) very fine
 sandy loam, brown (10YR 5/3) moist; massive;
 slightly hard, very friable, nonsticky and nonplastic;
 few very fine and fine roots; few very fine and fine
 tubular pores; 30 percent strong durinodes 10 to 25
 millimeters in diameter; 10 percent discontinuous
 weak silica cementation; common fine lime and
 gypsum filaments; violently effervescent; strongly
 alkaline (pH 9.0).

Typical Pedon Location

Soil name and map unit in which located: Tulase silt
 loam, 2 to 8 percent slopes, in Tulase-Bubus-
 McConnel association

Location in Nevada: Lander County, Nevada, North Part,
 survey area; about 28 miles southeast of Battle
 Mountain; about 2,500 feet east and 100 feet north
 of the southwest corner of sec. 18, T. 26 N., R. 48
 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry
 late in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the Cq horizon: 11 to 20 inches

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

C horizon:

Value—4 or 5 moist

Cq and Cqk horizons:

Texture—silt loam or very fine sandy loam

Other characteristics—20 to 50 percent durinodes;
 as much as 30 percent discontinuous silica and
 lime cementation common in the Cqk horizon in
 most pedons

Typic Argixerolls

Depth class: Shallow and moderately deep

Drainage class: Well drained

Parent material: Residuum derived from granite
Positions on landscape: Side slopes of mountains
Slope: 15 to 50 percent
Mean annual precipitation: About 14 inches
Mean annual temperature: About 43 degrees F

Taxonomic class: Typic Argixerolls

Representative Pedon

About 30 percent of the surface is covered with pebbles.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine vesicular and interstitial pores; 15 percent pebbles; neutral (pH 7.0); clear smooth boundary.

A2—2 to 4 inches; dark grayish brown (10YR 4/2) coarse sandy loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.0); clear smooth boundary.

Bt1—4 to 10 inches; grayish brown (10YR 5/2) sandy 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 very fine tubular pores; few thin clay films bridging mineral grains; 5 percent pebbles; neutral (pH 6.8); clear smooth boundary.

Bt2—10 to 15 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine and fine roots; few very fine tubular pores; common thin clay films on faces of peds; 5 percent pebbles; neutral (pH 6.8); clear irregular boundary.

Cr—15 to 25 inches; soft, weathered granite.

Typical Pedon Location

Soil name and map unit in which located: Typic Argixerolls gravelly coarse sandy loam in Typic Argixerolls-Torripsammentic Haploxerolls-Glean association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 0.5 mile north of Austin; about 800 feet south and 250 feet west of the northeast corner of sec. 19, T. 19 N., R. 44 E.

Range in Characteristics

Soil moisture content: Moist in November to early in July, dry late in July through October

Average annual soil temperature: 42 to 46 degrees F
Thickness of the mollic epipedon: 10 to 20 inches
Depth to paralithic contact: 10 to 40 inches

Control section:

Texture—sandy clay loam, sandy loam, or loam
 Content of clay—18 to 30 percent
 Content of rock fragments—0 to 15 percent, mainly pebbles
 Reaction—neutral or mildly alkaline

A horizon:

Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 or 3

Bt horizon:

Value—4 or 5 dry, 3 or 4 moist
 Chroma—3 or 4

Umbreland Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty lacustrine sediment derived from various kinds of rock

Positions on landscape: Lake plains, alluvial flats, lake-plain terrace remnants

Slope: 0 to 2 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts

Typical Pedon

A—0 to 3 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; strong very fine granular structure; slightly hard, friable, sticky and plastic; few fine and medium roots; many very fine interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

C1—3 to 11 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; common coarse distinct light olive brown (2.5Y 5/4) and brown (10YR 4/3) mottles; moderate medium prismatic structure parting to strong fine granular; hard, firm, very sticky and very plastic; few fine and medium roots and common very fine and coarse roots; few fine and medium tubular pores; many fine salt masses; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

C2—11 to 24 inches; light olive gray (5Y 6/2) silty clay loam, olive gray (5Y 5/2) moist; common coarse distinct grayish brown (2.5Y 5/2) mottles; moderate medium angular blocky structure; hard, firm, very

sticky and very plastic; few fine roots; common very fine and fine tubular pores; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Ck1—24 to 41 inches; light olive gray (5Y 6/2) silty clay loam, olive gray (5Y 4/2) moist; common coarse distinct greenish gray (5GY 6/1) and light gray (N 7/0) mottles; moderate medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine, fine, and medium tubular pores; few medium lime nodules; violently effervescent; very strongly alkaline (pH 9.0); gradual wavy boundary.

Ck2—41 to 60 inches; light gray (5Y 7/2) silty clay loam, olive gray (5Y 5/2) moist; massive; hard, firm, very sticky and very plastic; common very fine and many fine tubular pores; violently effervescent; strongly alkaline (pH 8.6).

Typical Pedon Location

Soil name and map unit in which located: Umlerland silt loam, 0 to 2 percent slopes, in Umlerland-Wendane association

Location in Nevada: Lander County, Nevada, South Part, survey area; 20 miles southeast of Austin; about 2,200 feet south and 2,600 feet east of the northwest corner of sec. 25, T. 16 N., R. 44 E.

Range in Characteristics

Soil moisture content: Saturated in some part between depths of 20 and 40 inches for at least one month in most years, moist to within 6 inches of the surface as a result of the capillary fringe

Average annual soil temperature: 47 to 52 degrees F

Other characteristics: Concretions or nodules of lime present at a depth of 15 to 35 inches

Control section:

Texture—dominantly silty clay loam or silty clay, but strata of clay present in some pedons

Content of clay—35 to 50 percent

Other characteristics—strongly affected by salt and sodium in the upper part; concentrations of salt and sodium generally decrease with increasing depth

A horizon:

Hue—10YR, 2.5Y, or 5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Structure—strong, very fine or fine, and granular (as a result of flocculation), or massive

C horizon:

Hue—2.5Y or 5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Reaction—strongly alkaline or very strongly alkaline, commonly decreasing in alkalinity with increasing depth

Unius Series

Depth class: Shallow to duripan

Drainage class: Well drained

Parent material: Mixed alluvium that is derived from volcanic and sedimentary rock and includes some loess and volcanic ash

Positions on landscape: Fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 10 inches

Mean annual temperature: About 45 degrees F

Taxonomic class: Loamy, mixed, mesic, shallow Haploxerollic Durorthids

Typical Pedon

About 50 percent of the surface is covered with pebbles.

A1—0 to 2 inches; pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; moderate thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; very few very fine and fine roots; common very fine and fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—2 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, friable, sticky and plastic; few medium roots and common very fine and fine roots; common very fine and fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bw1—4 to 8 inches; light yellowish brown (10YR 6/4) silt loam, yellowish brown (10YR 5/4) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine interstitial pores; few thin clay films on peds and in pores; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bw2—8 to 12 inches; white (10YR 8/2) gravelly loam, light yellowish brown (10YR 6/4) moist; moderate medium angular blocky structure; hard, firm, sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 20 percent pebbles and duripan fragments; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

Bqkm—12 to 22 inches; white (10YR 8/2), strongly cemented duripan, light gray (10YR 7/2) moist; massive; very hard, very firm; brittle; very few very fine roots; very few very fine interstitial pores; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Cqk—22 to 44 inches; white (10YR 8/2) gravelly fine sandy loam, very pale brown (10YR 7/3) moist; massive; hard, firm, nonsticky and nonplastic; continuous weak silica cementation with strongly cemented strata; 25 percent pebbles and duripan fragments; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Ck—44 to 60 inches; very pale brown (10YR 7/3) gravelly loamy sand, pale brown (10YR 6/3) moist; single grain; loose, nonsticky and nonplastic; 20 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Unius gravelly silt loam, 2 to 8 percent slopes, in Unius-Orovada association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 26 miles east of Austin, in the Monitor Valley; about 1,000 feet east and 1,200 feet south of the northwest corner of sec. 17, T. 18 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist in some part from November through May, dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to the duripan: 10 to 20 inches

Reaction: Mildly alkaline to strongly alkaline

Calcium carbonate equivalent: 5 to 15 percent

Control section:

Content of clay—18 to 25 percent

Content of rock fragments—0 to 25 percent pebbles and duripan fragments

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Effervescence—slightly effervescent or strongly effervescent

Bw1 horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 to 4

Texture—silt loam or loam

Content of rock fragments—0 to 10 percent

Bw2 horizon (when present):

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Texture—gravelly loam, gravelly silt loam, or loam

Content of rock fragments—10 to 30 percent pebbles and duripan fragments

Bqkm horizon:

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 to 4

Other characteristics—dominantly strongly cemented, but some weakly cemented strata

2Ck horizon:

Content of rock fragments—15 to 30 percent pebbles

Unsel Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium

Positions on landscape: Fan piedmont remnants

Slope: 0 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: 51 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Haplargids

Typical Pedon

About 80 percent of the surface is covered with pebbles.

A1—0 to 3 inches; light gray (10YR 7/2) gravelly fine sandy loam, brown (10YR 5/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine and common fine interstitial pores; 20 percent pebbles; strongly alkaline (pH 8.6); clear smooth boundary.

A2—3 to 8 inches; light gray (10YR 7/2) gravelly fine sandy loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine interstitial pores and common very fine tubular pores; 15 percent pebbles; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bt—8 to 13 inches; very pale brown (10YR 7/3) gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; many very fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Btk—13 to 18 inches; very pale brown (10YR 7/3) gravelly clay loam, yellowish brown (10YR 5/4)

moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; many very fine roots; common very fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles; thick lime coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 9.0); gradual wavy boundary.

Bqk—18 to 31 inches; very pale brown (10YR 7/3) gravelly sandy clay loam, light yellowish brown (10YR 6/4) moist; moderate medium and fine subangular blocky structure; hard, friable, sticky and plastic; many very fine roots; common very fine tubular pores; 60 percent discontinuous strong cementation; 35 percent pebbles; thick lime and silica coatings on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.

2C—31 to 60 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many very fine roots; many fine interstitial pores; 65 percent pebbles; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Unsel gravelly fine sandy loam, 2 to 4 percent slopes, in Unsel-Wardenot-Belted association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 25 miles south of Austin; about 2,000 feet north and 40 feet east of the southwest corner of sec. 26, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Depth to the Bqk horizon: 10 to 22 inches

Depth to the 2C horizon: 20 to 36 inches

Control section:

Texture—clay loam or sandy clay loam

Content of clay—27 to 35 percent

Content of rock fragments—15 to 30 percent

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Structure—platy, subangular blocky, or massive

Reaction—moderately alkaline to very strongly alkaline

Bt and Btk horizons:

Value—5 to 7 dry, 3 to 6 moist

Chroma—2 to 4

Content of clay—27 to 35 percent

Texture—clay loam or sandy clay loam

Content of rock fragments—15 to 30 percent

Structure—weak or moderate, fine or medium, and subangular blocky; weak, medium or coarse, and prismatic; or massive

Reaction—mildly alkaline to strongly alkaline

Bqk horizon:

Value—7 or 8 dry, 4 to 6 moist

Chroma—2 to 4

2C horizon:

Value—7 or 8 dry, 3 to 5 moist

Chroma—2 to 4

Content of rock fragments—50 to 70 percent

Unsel Variant

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from tuffaceous sediment

Positions on landscape: Side slopes of fan piedmonts

Slope: 15 to 30 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Fine-loamy, mixed, mesic Duric Haplargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 15 percent with cobbles.

A—0 to 2 inches; light gray (10YR 7/2) very gravelly loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and nonplastic; few fine roots; common very fine and few fine vesicular pores; 40 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

BA—2 to 4 inches; light gray (10YR 7/2) very gravelly clay loam, brown (10YR 5/3) moist; strong thin platy structure; slightly hard, friable, sticky and plastic; few fine and very fine roots; common fine vesicular pores and few very fine tubular pores; 30 percent pebbles and 10 percent cobbles; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bt—4 to 11 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; common white (10YR 8/2) bleached faces of peds concentrated in the lower part; strong medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine

and fine tubular pores; common thin and moderately thick clay films on peds; 20 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—11 to 15 inches; very pale brown (10YR 7/3) gravelly clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; common very fine and fine tubular pores; many thin and common moderately thick clay films on peds; 25 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Bqk—15 to 22 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 30 percent medium durinodes; few thin silica pendants on the underside of rock fragments; 25 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Cr—22 to 46 inches; soft tuff.

Typical Pedon Location

Soil name and map unit in which located: Unsel Variant very gravelly loam, 30 to 50 percent slopes, in Grassval-Grina-Unsel Variant association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 36 miles south of Battle Mountain; about 300 feet south and 1,400 feet west of the northeast corner of sec. 22, T. 26 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in May to early in November

Average annual soil temperature: 47 to 52 degrees F

Depth to soft bedrock: 20 to 40 inches

Reaction: Moderately alkaline to very strongly alkaline, increasing in alkalinity with increasing depth

Control section:

Content of clay—27 to 35 percent

Content of rock fragments—20 to 30 percent when mixed, mainly pebbles

A horizon:

Hue—10YR or 2.5Y

Chroma—2 to 4

Bt horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Exchangeable sodium percentage—less than 5 in the upper part, 5 to 15 in the lower part

Bqk horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 5 or 6 moist

Chroma—2 to 4

Texture—loam or sandy loam

Content of rock fragments—20 to 30 percent when mixed, mainly pebbles

Other characteristics—20 to 50 percent durinodes or discontinuous weak silica cementation

Valmy Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Thin loess cap that is high in content of volcanic ash over loamy alluvium

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents

Typical Pedon

A1—0 to 3 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine vesicular pores; 5 percent pebbles; slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—3 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 5 percent pebbles; slightly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

C—6 to 18 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few very fine tubular pores; 10 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); gradual wavy boundary.

Cqk—18 to 29 inches; pale brown (10YR 6/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few very fine tubular pores; 40 percent hard, firm durinodes 3 to 30 millimeters in diameter; 5 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary.

Ck—29 to 46 inches; light yellowish brown (2.5Y 6/4) fine sandy loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; 5 percent pebbles; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

2C'qk—46 to 60 inches; light brownish gray (2.5Y 6/2) silty clay loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, sticky and plastic; few very fine tubular pores; 90 percent discontinuous weak cementation; strongly effervescent; strongly alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Valmy very fine sandy loam, silty substratum, 0 to 2 percent slopes, in Batan-Wendane-Valmy association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 33 miles southeast of Battle Mountain; about 2,300 feet north and 300 feet west of the southeast corner of sec. 7, T. 27 N., R. 48 E.

Range in Characteristics

Soil moisture content: Moist for short periods in winter and spring, dry in May through November

Average annual soil temperature: 47 to 53 degrees F

Depth to the Cq horizon: 8 to 20 inches

Content of durinodes: Ranges from 5 to 85 percent in individual layers, including more than 25 percent in one or more layers that are more than 6 inches thick

Depth to unconformable material: Dominantly 30 to 50 inches, but more than 50 inches to sandy material in some pedons

Control section:

Texture—dominantly fine sandy loam or sandy loam, but strata of very fine sandy loam or coarse sandy loam in some pedons

Content of clay—5 to 15 percent

Content of rock fragments—0 to 30 percent, mainly pebbles

A horizon:

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Reaction—moderately alkaline or strongly alkaline

C horizon:

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 to 4

Reaction—strongly alkaline or very strongly alkaline

Effervescence—slightly effervescent to violently effervescent

Other characteristics—contains durinodes that are hard to extremely hard, firm or very firm, or brittle

2C horizon:

Texture—dominantly gravelly sand or very gravelly sand, but strata of silty clay loam below a depth of 40 inches in some pedons

Content of clay—1 to 5 percent

Content of rock fragments—20 to 55 percent

Reaction—strongly alkaline or very strongly alkaline

Walti Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Colluvium and residuum derived from rhyolite, andesite, dacite, tuff, and quartzite

Positions on landscape: Crests and side slopes of mountains

Slope: 8 to 50 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Aridic Argixerolls

Typical Pedon

About 20 percent of the surface is covered with pebbles and 40 percent with cobbles and stones.

A—0 to 4 inches; grayish brown (10YR 5/2) extremely cobbly loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine vesicular pores; 35 percent pebbles and 25 percent cobbles; neutral (pH 6.8); clear smooth boundary.

Bt1—4 to 10 inches; brown (7.5YR 5/2) gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate fine angular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine tubular pores; common thin clay films on peds; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

2Bt2—10 to 24 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 3/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; very hard, firm, very sticky and very plastic; few very fine and fine roots along faces of peds; common very fine and fine tubular pores; common moderately thick clay films on peds; 10 percent pebbles; neutral (pH 7.0); gradual wavy boundary.

2Bt3—24 to 30 inches; pinkish gray (7.5YR 6/2) clay, dark brown (7.5YR 4/2) moist; weak medium prismatic structure; very hard, firm, very sticky and very plastic; few fine roots; few very fine and fine tubular pores; common thin clay films on faces of peds; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary.

3R—30 inches; fractured andesite.

Typical Pedon Location

Soil name and map unit in which located: Walti extremely cobbly loam, 30 to 50 percent slopes, in Walti-Softscrabble-Bucan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 17 miles west of Austin; about 1,300 feet east and 2,275 feet south of the northeast corner of sec. 14, T. 20 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June to mid-October

Average annual soil temperature: 44 to 46 degrees F

Thickness of the mollic epipedon: 7 to 12 inches (commonly includes the upper part of the argillic horizon)

Depth to bedrock: 20 to 30 inches

Control section:

Content of clay—40 to 50 percent

Content of rock fragments—5 to 25 percent, mainly pebbles

Reaction—neutral or mildly alkaline

A horizon:

Value—4 or 5 dry

Chroma—2 or 3

Bt horizon:

Hue—10YR or 7.5YR

Value—dominantly 4 or 5 dry, but 6 dry in the lower part; 3 or 4 moist

Chroma—3 or 4

Texture—clay loam or gravelly clay loam that is 27 to 35 percent clay in the upper part, clay or gravelly clay that is 50 to 60 percent clay in the lower part

Content of rock fragments—5 to 25 percent, mostly pebbles and cobbles

Structure—prismatic or angular blocky

Wardenot Series

Depth class: Very deep

Drainage class: Excessively drained

Parent material: Alluvium derived from various kinds of rock

Positions on landscape: Fan skirts, inset fans

Slope: 2 to 4 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Sandy-skeletal, mixed, mesic Typic Torriorthents

Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many very fine vesicular pores; 20 percent pebbles; strongly alkaline (pH 8.8); clear smooth boundary.

Bk—5 to 9 inches; very pale brown (10YR 7/3) gravelly very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common very fine and few fine roots; many very fine tubular pores; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

Bqk1—9 to 20 inches; very pale brown (10YR 7/4) very gravelly loamy fine sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 55 percent pebbles; thick lime coatings and pendants and thin silica coatings and pendants on the underside of pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bqk2—20 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; many very fine and few fine roots; many very fine interstitial pores; 50 percent pebbles; thick lime coatings and pendants and thin silica coatings and pendants on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Wardenot gravelly fine sandy loam, 2 to 4 percent slopes, in Wardenot-Laxal association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 22 miles south of Austin; about 1,200 feet south and 1,300 feet west of the northeast corner of sec. 14, T. 16 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part for short periods in winter and early in spring and for 10 to 20 days cumulatively between July and October as a result of convection storms

Average annual soil temperature: 53 to 59 degrees F

Reaction: Mildly alkaline or strongly alkaline, commonly increasing in alkalinity with increasing depth

Control section:

Texture (of the fraction less than 2 millimeters)—averages loamy sand

Content of rock fragments—40 to 75 percent, including cobbles and stones

A horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Effervescence—dominantly noneffervescent to strongly effervescent, but violently effervescent in some pedons that are influenced by eolian deposits

Structure—dominantly massive, platy, or subangular blocky, but single grain at top in some pedons

Bqk and Bk horizons:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4

Texture—stratified extremely gravelly fine sandy loam to cobbly loamy sand, strata of very gravelly or cobbly sandy loam or fine sandy loam in the upper part

Content of rock fragments—averages 40 to 75 percent; individual strata as little as 25 percent

Effervescence—strongly effervescent or violently effervescent

Structure—single grain or massive

Other characteristics—common lime and silica pendants

A2—2 to 4 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

A3—4 to 26 inches; dark gray (10YR 4/1) clay loam, very dark gray (10YR 3/1) moist; few fine distinct reddish yellow (7.5YR 6/6) mottles; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and fine roots and common medium roots; common very fine, fine, and coarse tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

AC—26 to 30 inches; light brownish gray (10YR 6/2) clay loam, very dark grayish brown (10YR 3/2) moist; common coarse distinct reddish yellow (7.5YR 6/6) mottles; moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots; many very fine and common coarse tubular pores; slightly effervescent; mildly alkaline (pH 8.0); clear smooth boundary.

C—30 to 40 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; common coarse distinct reddish yellow (7.5YR 6/6) mottles; weak medium and coarse subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine roots; many very fine and few coarse tubular pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

Ab—40 to 60 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; common coarse distinct reddish yellow (7.5YR 6/6) mottles; moderate medium and coarse prismatic structure; hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; many very fine and few medium and coarse tubular pores; mildly alkaline (pH 7.6).

Typical Pedon Location

Map unit in which located: Welch loam, drained, 2 to 8 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 22 miles southeast of Battle Mountain; about 500 feet south and 1,200 feet west of the northeast corner of sec. 34, T. 29 N., R. 46 E.

Range in Characteristics

Soil moisture content (undrained areas): Saturated at or near the surface for at least 1 month, commonly

Welch Series

Depth class: Very deep

Drainage class: Poorly drained

Parent material: Alluvium derived from volcanic rock

Positions on landscape: Flood plains and inset fans in narrow mountain valleys

Slope: 2 to 8 percent

Mean annual precipitation: About 14 inches

Mean annual temperature: About 42 degrees F

Taxonomic class: Fine-loamy, mixed, frigid Cumulic Haplaquolls

Typical Pedon

A1—0 to 2 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; many very fine interstitial pores; neutral (pH 7.2); abrupt smooth boundary.

late in winter and early in spring, in most years; then drops to a depth of 18 to 36 inches from early in spring through September

Average annual soil temperature: 42 to 46 degrees F

Thickness of the mollic epipedon: 26 to more than 60 inches

Other characteristics: Organic matter content of the mollic epipedon decreases irregularly with increasing depth; a buried A horizon commonly present; gravelly strata or strata of silty clay loam, silt loam, clay, loam, very fine sandy loam, or sandy loam present in some pedons

Control section:

Texture—dominantly stratified sandy clay loam or clay loam

Content of clay—27 to 35 percent when mixed

Other characteristics—mineralogy is mixed, but the parent material has a high content of vitric pyroclastic material

A horizon:

Hue—10YR to 5Y, or neutral

Value—3 to 5 dry, 2 or 3 moist

Chroma—0 to 3 in the upper part, 0 to 2 in the lower part

Structure—weak to strong, thin or medium, and platy; weak or moderate, very fine to medium, and prismatic, granular, or subangular blocky; or massive (only in pedons that have a thicker A horizon)

Consistence—soft to hard (dry), very friable or friable (moist), nonsticky to sticky and slightly plastic to plastic (wet)

Reaction—slightly acid or neutral

Other characteristics—high-chroma, yellowish iron mottles in some pedons

C horizon:

Hue—10YR, 5Y to 5B, or neutral

Value—5 to 8 dry, 3 to 5 moist

Chroma—0 or 1

Reaction—slightly acid to mildly alkaline

Other characteristics—high-chroma iron mottles common in many pedons

Wendane Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty alluvium derived from volcanic rock, tuff, loess, and volcanic ash

Positions on landscape: Alluvial flats

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical Pedon

A1—0 to 1 inch; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; strong thin platy structure; slightly hard, very friable, slightly sticky and plastic; few medium roots; many very fine and fine interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary.

A2—1 to 7 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; few medium distinct white (10YR 8/1) mottles; moderate thin platy structure; slightly hard, friable, sticky and plastic; few medium roots and common very fine and fine roots; common very fine and fine interstitial and tubular pores; common fine lime filaments or threads; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C—7 to 18 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; few medium distinct white (10YR 8/1) mottles; moderate medium subangular blocky structure; soft, very friable, sticky and plastic; few medium and fine roots and common very fine and coarse roots; common fine and medium tubular pores; violently effervescent; very strongly alkaline (pH 9.4); clear smooth boundary.

Cqk1—18 to 24 inches; pale brown (10YR 6/3) silty clay loam, dark yellowish brown (10YR 4/4) moist; common medium distinct mottles that are brown (7.5YR 5/4) and gray (5Y 5/1) moist; massive; slightly hard, friable, sticky and plastic; many very fine and fine roots and few medium roots; many very fine and fine and common medium tubular pores; 25 percent strongly cemented durinodes; few moderately thick reoriented silt linings in pores; violently effervescent; strongly alkaline (pH 8.9); clear smooth boundary.

Cqk2—24 to 37 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 4/3) moist; common medium distinct mottles that are brown (7.5YR 5/4) and gray (5Y 5/1) moist; massive; slightly hard, friable, sticky and plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular pores; 25 percent strongly cemented durinodes; 10 percent discontinuous weak cementation; few moderately thick reoriented silt linings in pores; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.

2Ab—37 to 48 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; many coarse distinct mottles that are dark

grayish brown (10YR 4/2) and gray (5Y 5/1) moist; massive; slightly hard, friable, very sticky and plastic; few fine roots; common fine and medium tubular pores; 10 percent discontinuous weak cementation; few moderately thick reoriented silt linings in pores; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

2C'—48 to 62 inches; light gray (10YR 7/2) silty clay loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, friable, very sticky and very plastic; few fine roots; common fine and medium tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Typical Pedon Location

Soil name and map unit in which located: Wendane silt loam, 0 to 2 percent slopes, in Wendane-Umberland association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles east of Austin; about 50 feet north and 50 feet east of the southwest corner of sec. 18, T. 16 N., R. 50 E.

Range in Characteristics

Soil moisture content: Saturated to a depth of 28 to 40 inches in spring in most years; dry in mid-summer to mid-winter; moist in mid-winter, in spring, and early in summer

Depth to apparent seasonal high water table: 30 to 48 inches in February to July, except in areas that have been drained

Average annual soil temperature: 47 to 52 degrees F

Depth to the Cqk horizon: 11 to 20 inches

Depth to high-chroma mottles: 13 to 27 inches

Content of salt: Commonly strongly affected by salt in the upper part, nonsaline or slightly affected by salt in the lower part

Exchangeable sodium percentage: 15 to 70 in at least half of the upper 20 inches, decreasing in alkalinity with increasing depth

Reaction: Moderately alkaline to very strongly alkaline

Other characteristics: Mineralogy is mixed, but is strongly influenced by volcanic ash and other pyroclastic material; unconformable stratified gravelly sand or very gravelly sand common below a depth of 40 inches in some pedons

Control section:

Content of clay—20 to 30 percent when mixed
Texture—averages silt loam or silty clay loam that is less than 15 percent fine sand or coarser particles

A horizon:

Value—6 or 7 dry, 4 to 6 moist
Chroma—1 to 4

Structure—thin to thick and platy, fine and granular, or massive

Consistence—very friable to firm (moist), slightly sticky to very sticky and slightly plastic to very plastic (wet)

C and Cqk horizons:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 to 4

Texture—stratified very fine sandy loam, silt loam, silty clay loam, and clay loam

Other characteristics—strata of volcanic ash 4 to 10 inches thick common between depths of 13 and 36 inches

Cqk horizon:

Thickness—13 to more than 30 inches

Other characteristics—20 to 35 percent weakly or strongly cemented durinodes in a friable matrix; as much as 30 percent discontinuous weak silica cementation in individual strata

Whirlo Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium that includes some loess

Positions on landscape: Fan aprons, inset fans, fan skirts

Slope: 0 to 8 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Camborthids

Typical Pedon

A1—0 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine random roots; many very fine and few fine vesicular pores; 5 percent pebbles; very slightly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and plastic; common very fine random roots and very few fine oblique roots; common very fine vesicular and tubular pores; 5 percent pebbles; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bw—7 to 12 inches; pale brown (10YR 6/3) silt loam,

brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and plastic; many very fine random roots and very few fine oblique roots; common very fine and few fine tubular pores; 5 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

2Bk1—12 to 24 inches; very pale brown (10YR 7/3) very gravelly fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine random roots and very few fine oblique roots; common very fine tubular pores; 35 percent pebbles; 10 percent weak durinodes 10 to 30 millimeters in diameter; few fine lime filaments and thin lime coatings on pebbles; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

2Bk2—24 to 60 inches; variegated extremely gravelly coarse sandy loam; single grain; loose, nonsticky and slightly plastic; common very fine random roots; 5 percent cobbles and 70 percent pebbles; lime coatings on 50 percent of pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Map unit in which located: Whirlo silt loam, 0 to 2 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 11 miles southeast of Battle Mountain; about 1,900 feet west and 1,450 feet north of the southeast corner of sec. 29, T. 31 N., R. 46 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in mid-May through November

Average annual soil temperature: 47 to 53 degrees F

Depth to the 2Bk horizon: 10 to 20 inches

Control section:

Content of clay—5 to 15 percent

Content of rock fragments—35 to 70 percent, mainly pebbles

A horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3

Structure—weak or moderate, thin to thick, and platy, or massive

Reaction—neutral to moderately alkaline

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3

Texture—gravelly sandy loam, fine sandy loam, very fine sandy loam, silt loam, or gravelly loam

Content of rock fragments—0 to 30 percent pebbles

Structure—weak or moderate, fine or medium, and subangular blocky; weak, coarse, and prismatic; or massive

Reaction—neutral to moderately alkaline

2Bk horizon:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 3 to 6 moist

Chroma—2 or 3

Texture—stratified very gravelly loam to extremely gravelly coarse sandy loam

Content of rock fragments—35 to 75 percent, mainly pebbles and some cobbles and stones

Reaction—moderately alkaline or strongly alkaline

Effervescence—slightly effervescent to violently effervescent

Other characteristics—as much as 10 percent weak durinodes common in the lower part in some pedons

Wholan Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mantle of loess over silty alluvium derived from various kinds of rock

Positions on landscape: Inset fans, fan skirts

Slope: 0 to 2 percent

Mean annual precipitation: About 7 inches

Mean annual temperature: About 49 degrees F

Taxonomic class: Coarse-silty, mixed, mesic Typic Camborthids

Typical Pedon

A—0 to 5 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; mildly alkaline (pH 7.8); abrupt smooth boundary.

Bw—5 to 13 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; mildly alkaline (pH 7.8); clear smooth boundary.

Bk—13 to 21 inches; white (10YR 8/2) very fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; few fine lime filaments or threads; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

C—21 to 25 inches; white (10YR 8/1) very fine sandy loam, light brownish gray (10YR 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; slightly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

Cq—25 to 60 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 5 percent weakly cemented durinodes; strongly effervescent; very strongly alkaline (pH 9.2).

Typical Pedon Location

Soil name and map unit in which located: Wholan silt loam, 0 to 2 percent slopes, in McConnel-Rasille-Wholan association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 21 miles west of Austin; about 1,200 feet south and 400 feet west of the northeast corner of sec. 1, T. 18 N., R. 39 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in May through October

Average annual soil temperature: 47 to 53 degrees F

Depth to the Bk horizon: 11 to 24 inches

Reaction: Mildly alkaline to very strongly alkaline, increasing in alkalinity with increasing depth

Content of salt and sodium: Nonsaline and nonsodic or slightly affected by salt and sodium to a depth of 30 inches, moderately or strongly affected below this depth

Other characteristics: Thin strata that have as much as 5 percent very hard, firm, brittle durinodes 0.5 to 0.75 inch in diameter present in the C horizon in some pedons

Control section:

Content of clay—5 to 15 percent

Texture—dominantly silt loam or very fine sandy loam, but thin strata of loam or fine sandy loam in some pedons

A horizon:

Value—5 to 7 dry, 3 to 5 moist (5 dry and 3 moist in the A1 horizon only)

Chroma—2 to 4

Structure—weak or moderate, very thin to medium and platy or coarse and subangular blocky; or massive

Consistence—soft or slightly hard

Effervescence—noneffervescent or slightly effervescent

Bw horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4

Structure—weak, fine to coarse and subangular blocky or medium or coarse and prismatic; or massive

Bk and C horizons:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4

Content of durinodes—as much as 5 percent in some strata in some pedons

Other characteristics—few to many, fine or medium veins and soft masses of lime in the Bk horizon, no segregated lime in the C horizon

Wieland Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Mixed alluvium that is derived from volcanic and sedimentary rock and includes some loess and volcanic ash

Positions on landscape: Summits and side slopes of fan piedmont remnants

Slope: 2 to 15 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 48 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Durixerollic Haplargids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 5 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine vesicular pores; 15 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

A2—5 to 8 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary.

Bt1—8 to 14 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, friable, very sticky and very plastic; few very fine and fine roots; few

very fine tubular pores; few thin clay films on faces of peds; 15 percent pebbles; mildly alkaline (pH 7.6); gradual wavy boundary.

Bt2—14 to 20 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; many moderately thick and few thick clay films on faces of peds; common silica and lime pendants on the underside of rock fragments; 30 percent pebbles; few fine irregular seams of lime; slightly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

Bqk1—20 to 25 inches; very pale brown (10YR 7/4) very gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; massive; very hard, firm, slightly sticky and slightly plastic; few fine roots; few very fine and fine tubular pores; 40 percent discontinuous weak silica cementation; many silica and lime pendants on the underside of rock fragments; 50 percent pebbles and 5 percent cobbles; common fine irregular seams of lime; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bqk2—25 to 44 inches; very pale brown (10YR 8/4), continuous, weakly silica-cemented gravelly loam, light yellowish brown (10YR 6/4) moist; massive; very hard, very firm, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; 20 percent strong durinodes 5 to 25 millimeters in diameter, mostly in few thin strata of noncemented material; 25 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Cqk—44 to 60 inches; light gray (10YR 7/2), continuous, weakly silica-cemented gravelly loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine tubular pores; 15 percent pebbles; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Wieland gravelly loam, 4 to 15 percent slopes, in Allor-Wieland association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 8 miles northwest of Austin; about 800 feet east and 750 feet north of the southwest corner of sec. 21, T. 20 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist late in October to early in June

Average annual soil temperature: 47 to 52 degrees F
Depth to continuous weak silica cementation: 19 to 30 inches

Depth to the base of the Bt horizon: 19 to 30 inches
Other characteristics: 2C horizon that is variegated very gravelly loam present at a depth of 40 inches or more in some pedons; 2Cq horizon that is 50 to 65 percent pebbles present in some pedons

Control section (when mixed):

Content of clay—40 to 55 percent

Content of rock fragments—15 to 35 percent pebbles

A horizon:

Value—5 or 6 dry

Chroma—2 or 3

Structure—weak or moderate, very thin to very thick, and platy; or weak or moderate, fine to coarse, and subangular blocky

Reaction—mildly alkaline or moderately alkaline

Bt1 horizon (when present):

Value—5 or 6 dry

Chroma—2 or 3

Structure—weak or moderate, very fine, fine, or medium, and subangular blocky or prismatic

Consistence—very friable or friable (moist), sticky or very sticky and plastic or very plastic (wet)

Reaction—mildly alkaline or moderately alkaline

Bt2 horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry, 3 or 4 moist

Content of clay—dominantly 40 to 55 percent when mixed, but as much as 60 percent clay in some pedons

Content of rock fragments—15 to 35 percent pebbles when mixed

Structure—weak or moderate, fine to coarse, and prismatic, or weak or moderate, very fine, fine, or medium, and angular blocky

Reaction—moderately alkaline or strongly alkaline

Other characteristics—slightly effervescent or strongly effervescent and lime filaments common in the lower part in some pedons

Bqk and Cqk horizons:

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—1 to 4

Effervescence—noneffervescent to violently effervescent

Other characteristics—thin, discontinuous, weakly cemented Bqk horizon above the continuously cemented layer in some pedons; relict mottles

present at a depth of more than 30 inches in many pedons

Xine Series

Depth class: Moderately deep

Drainage class: Well drained

Parent material: Residuum derived from limestone and calcareous shale

Positions on landscape: Side slopes of mountains

Slope: 30 to 75 percent

Mean annual precipitation: About 12 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Calcixerolls

Typical Pedon

About 15 percent of the surface is covered with pebbles.

A1—0 to 5 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial pores; 15 percent pebbles; slightly effervescent; mildly alkaline (pH 7.6); clear smooth boundary.

A2—5 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine tubular pores; 25 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—10 to 18 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; many fine, medium, and coarse roots; many very fine, fine, and medium tubular pores; 20 percent pebbles, 20 percent cobbles, and 5 percent stones; few fine lime filaments and coatings on rock fragments; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk2—18 to 33 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; common very fine and fine tubular pores; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; common fine lime filaments, soft masses, and coatings on rock fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Cr—33 inches; weathered, fractured, calcareous shale.

Typical Pedon Location

Soil name and map unit in which located: Xine gravelly loam, 30 to 50 percent slopes, in Attella-Xine-Kram association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 60 miles southwest of Battle Mountain; in an unsectionalized area about 1,600 feet north and 1.1 mile east of the southeast corner of the assumed sec. 24, T. 25 N., R. 39 E.

Range in Characteristics

Soil moisture content: Moist late in fall to early in summer, dry in July through October

Average annual soil temperature: 44 to 46 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

Depth to paralithic contact: 20 to 40 inches

Depth to the calcic horizon: 10 to 25 inches

Other characteristics: Content of secondary lime increases with increasing depth

Control section:

Texture—very cobbly loam or very cobbly sandy loam

Content of clay—10 to 18 percent

Content of rock fragments—35 to 60 percent, mainly cobbles

Calcium carbonate equivalent—25 to 40 percent

A horizon:

Value—dominantly 4 or 5 dry and 2 or 3 moist, but in some pedons a thin A1 horizon has value of 6 dry

Chroma—2 or 3

Reaction—mildly alkaline or moderately alkaline

Bk horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4

Reaction—moderately alkaline or strongly alkaline

Yobe Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Parent material: Silty lacustrine sediment derived from various kinds of rock

Positions on landscape: Alluvial flats

Slope: 0 to 2 percent

Mean annual precipitation: About 6 inches

Mean annual temperature: About 51 degrees F

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical Pedon

A—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak medium platy

structure; soft, very friable, slightly sticky and slightly plastic; few very fine and coarse roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

- C1—2 to 9 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
- C2—9 to 16 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; few very fine tubular pores; common firm lime nodules less than 1 millimeter in diameter; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.
- C3—16 to 24 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; few very fine tubular pores; common firm lime nodules less than 1 millimeter in diameter; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary.
- C4—24 to 36 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; few fine distinct brownish yellow (10YR 6/6) mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; common firm lime nodules less than 1 millimeter in diameter; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.
- C5—36 to 60 inches; white (2.5Y 8/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; common medium distinct and prominent brown (7.5YR 4/4), reddish yellow (7.5YR 6/6), and brownish yellow (10YR 6/6) mottles; massive; hard, friable, sticky and plastic; common very fine and fine roots; common fine tubular pores; thin shiny pressure plates on faces of peds; common firm lime nodules 5 to 10 millimeters in diameter; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Yobe silt loam, 0 to 2 percent slopes, in Yobe-Kawich-Playas association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 27 miles southeast of

Austin; about 1,200 feet north and 500 feet east of the southwest corner of sec. 8, T. 15 N., R. 45 E.

Range in Characteristics

- Depth to the seasonal high water table:* 36 to 48 inches for 1 month or more in most years
- Soil moisture content:* Moist to within at least 30 inches of the surface because of the capillary fringe
- Average annual soil temperature:* 47 to 52 degrees F
- Texture of the control section:* Stratified very fine sandy loam to silty clay loam that is less than 15 percent sand that is coarser textured than very fine sand and 18 to 25 percent clay when mixed
- Exchangeable sodium percentage:* More than 13 (decreases with increasing depth below 20 inches)
- Hue:* 10YR, 2.5Y, or 5Y
- Value:* 6 to 8 dry, 4 to 6 moist
- Chroma:* 2 or 3
- Effervescence:* Strongly effervescent or violently effervescent
- Reaction:* Strongly alkaline or very strongly alkaline in the A horizon, moderately alkaline or strongly alkaline in the C horizon
- Other characteristics:* Very few to common lime nodules in most of the lower part

Zaidy Series

- Depth class:* Moderately deep to duripan
- Drainage class:* Well drained
- Parent material:* Alluvium derived from volcanic rock
- Positions on landscape:* Fan piedmont remnants
- Slope:* 2 to 15 percent
- Mean annual precipitation:* About 9 inches
- Mean annual temperature:* About 47 degrees F
- Taxonomic class:** Fine-loamy, mixed, mesic Haploxerollic Durargids

Typical Pedon

- About 50 percent of the surface is covered with pebbles and 5 percent with cobbles.
- A—0 to 5 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few very fine roots; common very fine and fine tubular pores; 35 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.
- Bt—5 to 8 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; common very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and

slightly plastic; common very fine and fine roots; common fine and medium tubular pores; few thin clay films on faces of peds; 5 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

Btk—8 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common fine and medium tubular pores; common thin and few moderately thick clay films on faces of peds and lining pores; 20 percent pebbles; few fine soft lime masses; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqk—14 to 25 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few fine tubular pores; 10 percent pebbles; 20 percent weak discontinuous silica cementation; common medium soft lime masses and filaments; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bqkm1—25 to 32 inches; very pale brown (10YR 7/4), continuous, strongly cemented duripan, yellowish brown (10YR 5/4) moist; strong thick platy structure; extremely hard, extremely firm; few fine and very fine roots along horizontal fracture planes; 5 percent pebbles; 20 percent horizontal seams of weakly cemented material; disseminated soft powdery lime; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bqkm2—32 to 60 inches; very pale brown (10YR 7/4), strongly cemented duripan that has a discontinuous thin indurated cap; yellowish brown (10YR 5/4) moist; massive; extremely hard, extremely firm; 10 percent pebbles and 5 percent cobbles; disseminated soft powdery lime; violently effervescent; moderately alkaline (pH 8.2).

Typical Pedon Location

Soil name and map unit in which located: Zaidy very gravelly fine sandy loam, 8 to 15 percent slopes, in Zaidy-Allor association

Location in Nevada: Lander County, Nevada, South Part, survey area; in the southern part of the Grass Valley; about 1,050 feet south and 1,000 feet west of the northeast corner of sec. 11, T. 20 N., R. 45 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in some part in mid-October through May

Average annual soil temperature: 47 to 50 degrees F

Depth to the base of the Btk horizon: 12 to 25 inches

Depth to carbonates: 8 to 15 inches

Depth to the duripan: 20 to 30 inches

Reaction: Mildly alkaline or moderately alkaline

Control section:

Content of clay—25 to 35 percent when mixed

Content of rock fragments—10 to 35 percent, mainly pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Bt horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6

Sodium adsorption ratio—6 to 13

Zineb Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Loamy alluvium that is derived from various kinds of rock and includes some volcanic ash

Positions on landscape: Inset fans, fan aprons, fan skirts

Slope: 2 to 8 percent

Mean annual precipitation: About 8 inches

Mean annual temperature: About 46 degrees F

Taxonomic class: Loamy-skeletal, mixed, mesic Durixerollic Camborthids

Typical Pedon

About 20 percent of the surface is covered with pebbles.

A1—0 to 3 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine vesicular pores; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 5 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw—5 to 11 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common

fine and medium roots; common very fine tubular pores; 15 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bq—11 to 16 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots; common very fine tubular pores; 30 percent discontinuous weak silica cementation and 5 percent strongly cemented durinodes 5 to 10 millimeters in diameter; 30 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

Bqk1—16 to 20 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; 20 percent discontinuous weak silica cementation; 35 percent pebbles and 5 percent cobbles; common medium lime coatings on the underside of rock fragments; noneffervescent in matrix; moderately alkaline (pH 8.4); clear wavy boundary.

2Bqk2—20 to 45 inches; pale brown (10YR 6/3) extremely cobbly loamy coarse sand, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common medium roots; common very fine tubular pores; 70 percent discontinuous weak silica cementation; 40 percent pebbles and 25 percent cobbles; many medium lime coatings on the underside of rock fragments; slightly effervescent in matrix; strongly alkaline (pH 8.6); clear wavy boundary.

3Btbk—45 to 60 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and plastic; common fine and medium roots; common very fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles; common fine lime filaments and seams; slightly effervescent in matrix; strongly alkaline (pH 9.0).

Typical Pedon Location

Map unit in which located: Zineb gravelly loam, 2 to 8 percent slopes

Location in Nevada: Lander County, Nevada, North Part, survey area; about 33 miles southeast of Battle Mountain; in an unsectionalized area about 600 feet west and 2,400 feet north of the southeast corner of the assumed sec. 33, T. 27 N., R. 47 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry in June through October

Average annual soil temperature: 47 to 52 degrees F

Depth to carbonates and to the 2Bk horizon: 16 to 26 inches

Depth to the Bq horizon: 10 to 18 inches

Content of rock fragments in the control section:

Averages 50 to 75 percent, dominantly pebbles in the upper part and cobbles in the lower part

Other characteristics: Strata of unconformable loam below a depth of 40 inches in some pedons

A horizon:

Value—5 or 6 dry (value of more than 5.5 occurs when the upper 7 inches is mixed)

Chroma—2 or 3

Bw horizon:

Value—3 or 4 moist

Chroma—3 or 4

Structure—subangular blocky or massive

Content of rock fragments—15 to 35 percent, dominantly pebbles

Texture—gravelly loam or gravelly very fine sandy loam

Bq horizon:

Texture—very gravelly loam or very gravelly sandy loam

Content of rock fragments—35 to 60 percent, dominantly pebbles

Other characteristics—discontinuous weak silica cementation or durinodes in a friable matrix

2Bk or 2Bqk horizon:

Texture—extremely cobbly sandy loam in the upper part and extremely cobbly loamy coarse sand or extremely cobbly coarse sand in the lower part

Content of rock fragments—60 to 80 percent, dominantly cobbles

Zoesta Series

Depth class: Very deep

Drainage class: Well drained

Parent material: Alluvium and colluvium derived from various kinds of rock

Positions on landscape: Summits and side slopes of mountain valley fan remnants, partial ballenas, side slopes of mountains

Slope: 8 to 30 percent

Mean annual precipitation: About 11 inches

Mean annual temperature: About 44 degrees F

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Paleargids

Typical Pedon

About 20 percent of the surface is covered with pebbles and 15 percent with cobbles.

A1—0 to 2 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine, fine, and medium roots; many very fine and fine vesicular pores; 15 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 7 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; 10 percent pebbles, 15 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—7 to 12 inches; pale brown (10YR 6/3) cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and medium roots; common very fine and fine tubular pores; few thin clay films coating sand grains; 10 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt2—12 to 18 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong fine and medium prismatic structure; very hard, very firm, very sticky and very plastic; few very fine roots; few fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

Bt3—18 to 23 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong fine prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; few very fine roots; few fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Btk—23 to 31 inches; light yellowish brown (10YR 6/4) gravelly clay loam, yellowish brown (10YR 5/6) moist; strong fine prismatic structure parting to strong fine subangular blocky; very hard, very firm, sticky and plastic; common moderately thick clay films on faces of peds and lining pores; 30 percent pebbles; common fine soft lime masses; slightly effervescent in matrix; moderately alkaline (pH 8.2); gradual wavy boundary.

Bqk—31 to 60 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; very hard, very firm, sticky and slightly plastic; 40 percent pebbles; 15 percent strongly cemented durinodes; many coarse soft lime

masses; violently effervescent; moderately alkaline (pH 8.4).

Typical Pedon Location

Soil name and map unit in which located: Zoesta cobbly loam, 15 to 30 percent slopes, in Zoesta-Robson-Softscrabble association

Location in Nevada: Lander County, Nevada, South Part, survey area; about 16 miles north of Austin; about 1,900 feet south and 800 feet west of the northeast corner of sec. 1, T. 22 N., R. 44 E.

Range in Characteristics

Soil moisture content: Usually dry, but moist in winter and spring

Average annual soil temperature: 44 to 46 degrees F

Combined thickness of the A and Bt horizons: 30 to 40 inches

Depth to carbonates: 10 to 20 inches

Other characteristics: Effervescence increases with increasing depth, secondary lime occurs in the lower part of the solum

Control section:

Texture—clay loam or clay

Content of clay—35 to 50 percent

Content of rock fragments—less than 15 percent in the upper part and 15 to 35 percent in the lower part, mainly pebbles

A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3

Reaction—neutral or mildly alkaline

Bt horizon:

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 to 6

Structure—strong, fine to coarse, and prismatic

Reaction—mildly alkaline or moderately alkaline

Bqk horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6

Texture—clay loam or loam

Content of clay—20 to 35 percent

Content of rock fragments—35 to 60 percent, mainly pebbles

Reaction—moderately alkaline or strongly alkaline

Other characteristics—durinodes absent in some pedons

Zoesta Variant

Depth class: Very deep

Drainage class: Well drained

Parent material: Residuum and colluvium derived from chert, quartzite, and extrusive volcanic rock

Positions on landscape: Side slopes of foothills

Slope: 15 to 30 percent

Mean annual precipitation: About 9 inches

Mean annual temperature: About 47 degrees F

Taxonomic class: Fine, montmorillonitic, mesic Xerollic Paleargids

Typical Pedon

About 45 percent of the surface is covered with pebbles and 5 percent with cobbles.

A1—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 4/3) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine vesicular pores; 25 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 8 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 15 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—8 to 13 inches; light brown (7.5YR 6/4) gravelly clay loam, dark brown (7.5YR 3/4) moist; strong fine subangular blocky structure; hard, firm, sticky and very plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds; 20 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary.

2Bt2—13 to 20 inches; light brown (7.5YR 6/4) clay, dark brown (7.5YR 4/4) moist; strong medium prismatic structure parting to strong coarse angular blocky; very hard, very firm, very sticky and very plastic; continuous moderately thick clay films on faces of peds; 5 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary.

2Bt3—20 to 27 inches; light brown (7.5YR 6/4) clay, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate coarse subangular blocky; very hard, very firm, very sticky and very plastic; few fine roots; few very fine tubular pores; many moderately thick clay films on faces of peds; moderately alkaline (pH 8.0); clear wavy boundary.

2Bt4—27 to 36 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; common fine black (10YR 2/1) manganese stains; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots;

few fine tubular pores; common thin clay films on faces of peds; 10 percent pebbles; moderately alkaline (pH 8.0); gradual wavy boundary.

3Bqk—36 to 60 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; common coarse black (10YR 2/1) manganese stains; massive; very hard, firm, slightly sticky and slightly plastic; few very fine tubular pores; 40 percent discontinuous weak silica cementation; 25 percent pebbles; noneffervescent in matrix, common fine strongly effervescent lime seams; moderately alkaline (pH 8.0).

Typical Pedon Location

Soil name and map unit in which located: Zoesta Variant gravelly loam, 15 to 30 percent slopes, in Zoesta Variant-Jung-McVegas association

Location in Nevada: Lander County, Nevada, North Part, survey area; about 37 miles south of Battle Mountain; about 2,300 feet south and 100 feet east of the northwest corner of sec. 2, T. 25 N., R. 45 E.

Range in Characteristics

Soil moisture content: Moist in winter and spring, dry late in June through October

Average annual soil temperature: 47 to 52 degrees F

Combined thickness of the A and Bt horizons: 35 to 45 inches

Depth to the Bqk horizon: 35 to 45 inches

Control section (when mixed):

Content of clay—45 to 60 percent

Content of rock fragments—5 to 10 percent

A horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 to 6

Bt horizon:

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 to 6 moist

Chroma—3 to 6

Content of clay—55 to 65 percent in the upper part, 35 to 50 percent in the lower part

Bqk horizon:

Value—6 to 8 dry, 5 or 6 moist

Chroma—3 to 6

Texture—loam or sandy loam

Content of rock fragments—15 to 35 percent, mainly pebbles

Other characteristics—20 to 50 percent

discontinuous weak silica cementation, thin strata of weak continuous cementation in some pedons

Formation of the Soils

Soil is a natural body on the earth's surface in which plants grow. It is a mixture of rocks, minerals, organic matter, water, and air in varying proportions. The rocks and minerals are fragmented and are partly or wholly weathered. Soils have distinctive layers, or horizons, that are parallel to the soil surface. Soil horizons are the product of environmental forces acting upon material deposited or accumulated through geologic activity.

Soils differ from one another in different localities and within short distances. The differences are the result of the interaction of five soil-forming factors that are known to affect soil formation. These factors are (1) biological forces, mainly the plant cover and the organisms living in and on the soil; (2) climate, mainly the temperature and kind and amount of precipitation that have existed since accumulation of the parent material; (3) relief, mainly as it affects the internal and external soil properties, such as drainage, aeration, susceptibility to erosion, and exposure to sun and wind; (4) parent material, including texture and structure of the material as well as its mineralogic and chemical composition; and (5) the length of time that the soil-forming factors have been operating. These factors form the ecosystem of soil genesis (13).

The soil-forming factors interrelate to develop soil horizons that have specific properties. The age and strength of expression of the horizons is determined by the amount of weathering of the parent material. Weathering is the result of the interaction of moisture, temperature, and biological activity as influenced by time. The kinds and combinations of horizons and other diagnostic properties and their strength of expression provide clues as to the age of the soils in the area (26, 27). Diagnostic horizons present in the soils include mollic epipedons; cambic, argillic, and natric horizons; and silica-cemented horizons.

Mollic epipedons are thick, dark surface horizons that have high base saturation. They form in areas where organic matter accumulates faster than it is oxidized. The organic matter is added to the soil in the form of decomposed roots and organic residue from the surface. When conditions are favorable, mollic epipedons can form in 100 to 1,000 years. They are the

only diagnostic horizons in younger soils, but they occur in combination with other diagnostic horizons in older soils.

Cambic horizons in this survey area are identified by a redistribution of soluble salts and carbonates to a lower position in the soil profile, oxidation of the B horizon, and alteration of the original parent material to platy or blocky structure. Cambic horizons in northern and central Nevada generally are thought to be about 5,000 to 10,000 years old. This age has been determined mostly from soil mapping in areas near Lake Lahontan and other Pleistocene lakes (12, 14, 16, 17). Cambic horizons also are present in soils that have a thin layer of Mount Mazama ash in the profile.

Argillic horizons are subsurface horizons that consist of illuvial clay accumulations. Prominent argillic horizons in this area commonly are in soils that formed on surfaces of Wisconsin and pre-Wisconsin age (5, 9, 10, 12, 15, 19, 27). Generally, as argillic horizons age they become finer in texture and somewhat thicker and tend to develop an abrupt upper boundary.

Natric horizons are argillic horizons that have specific physical and chemical properties as a result of a high content of exchangeable sodium. Prominent natric horizons may have developed from argillic horizons that were influenced by the content of sodium in eolian deposits. Transportation and deposition of sodium in eolian deposits have greatly affected the soils in the survey area.

Volcanic glass in deposits derived from pyroclastic material and in eolian deposits is a source of silica that results in the formation of durinodes and duripans in many of the soils in the survey area. Duripans are massive horizons that are cemented with silica and in some areas with accessory calcium carbonate. Soils of the Holocene that developed in deposits that have a high content of volcanic ash commonly have weakly to moderately cemented horizons that contain a large amount of amorphous siliceous material. This silica cementation can form in a relatively short period of time and is probably less than 7,000 years old. Platy, or laminated, duripans and thin, discontinuous, laminar duripans tend to develop in loamy material. Duripans

capped with silica-cemented laminar layers probably are the oldest ones in the area and are of early Wisconsin to pre-Wisconsin age, as evidenced by their association with prominent argillic horizons.

The overall landscape of the area, which is mainly mountains and valleys, is the result of geologic stratigraphic and structural control. The present topography and landforms, however, primarily are the result of events that occurred during the Quaternary. The kinds of soils that formed are indicative of the stability and age of the surfaces of the landforms on which they occur. The degree of development of diagnostic horizons in the soils indicates a range in age from Holocene to pre-Wisconsin. The many kinds of soils in the area are a direct result of this range in age.

Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in this survey area. Although mammals, such as badgers and ground squirrels, and insects, such as cicadas and ants, have had some effect on soil development, plants appear to have had a major influence.

The vegetation in the area has been particularly important in stabilizing the land surfaces so that soil formation can occur. Plants provide stability by protecting the surface from erosion, and their roots help to develop soil structure and aggregate stability.

Because of climatic differences, the plant community varies considerably as elevation increases. On the flood plains, where drainage is restricted, the dense meadow vegetation has supplied the organic matter necessary for the development of Fluvaquentic Haplaquolls (Paranat series), which have a dark A horizon.

On fan piedmonts, fan skirts, alluvial flats, and lake plains at the lower elevations, the dominant plants are drought- and salt-tolerant shrubs (22). Because of the scarcity of available moisture, the plant cover in these areas is sparse. As a result, little organic matter is added to the soils and little protection from the wind and sun is provided. Salts have been moved from the lower layers to the upper layer by the salt-tolerant shrubs. Examples of soils that formed in these areas are Duric Natrargids (Beoska series) on fan piedmonts and Aeric Halaquepts (Ocala series) on alluvial flats.

Fan piedmonts, fan skirts, and foothills at the higher elevations support a plant cover of shrubs and grasses. The density of these plants is somewhat greater; therefore, moderate amounts of organic matter have accumulated in the A horizon. Soluble salts are present at a greater depth in the profile. Examples of soils that formed in these areas are Durixerollic Haplargids (Pineval series) on fan piedmonts and Xerollic

Haplargids (Trunk series) on foothills.

The mountainous areas support denser stands that include shrubs, grasses, and some trees. Because the vegetation is abundant, the A horizon in these soils is thick, dark, and high in organic matter content. An example of soils in these areas is Aridic Argixerolls (Reluctan series).

Climate

The major climatic forces that influence soil formation are precipitation and temperature. Recent soils developed under the present climate, but soils that developed before the Holocene were subject to different climatic conditions. Morrison and Frye (16, 17, 18, 19) suggest that accelerated soil formation occurs during unique climatic periods, but the climatic conditions between these periods is not conducive to soil formation.

The present desert climate began at the start of the Pleistocene (4), but both precipitation and temperature have fluctuated greatly. The present climate is characterized by warm, dry summers and cool, moist winters. Precipitation is strongly influenced by the north-south trending mountain ranges, and it generally increases as elevation increases. The average annual precipitation ranges from about 6 inches at the lowest elevations in the Antelope, Big Smoky, and Crescent Valleys to about 16 inches or more at the highest elevations in the Toiyabe Range. Most of the precipitation falls in winter and spring.

The average annual air temperature ranges from about 50 degrees F at the lower elevations in the eastern valleys to about 41 degrees or less in some of the higher mountain ranges. In winter freezing and thawing generally occur throughout the survey area, except in those areas that are insulated by snow cover. This frost action causes heaving of plants, development of miniature rings and rock stripes, and erosion as a result of solifluction. At some of the higher elevations, bedrock has been fractured and displaced as a result of freezing and thawing.

Major climatic variations are a result of the effects of topography and relief. Temperature decreases and precipitation increases as elevation increases. The soils in the survey area generally are divided into climatic zones according to elevation and longitudinal location. As the precipitation increases, the removal of soluble salts and the production of native vegetation increase, which results in a cycling of bases and an increase in organic matter. Fluctuations in temperature and moisture affect the rates of organic matter accumulation and decomposition and the rate of weathering of minerals (6, 13).

At elevations of 5,000 to 5,300 feet, the average annual precipitation is about 6 to 8 inches and the average annual air temperature is about 48 to 50 degrees. In these warm, arid areas, no surplus soil moisture is available to percolate. Chemical weathering of parent material is slow, soluble salts remain in the upper part of the soil profile, and eluviation and illuviation occur very slowly. The plant cover is sparse and consists mainly of drought- and salt-tolerant shrubs. Typically, the soils are low in organic matter content and have a thin, light-colored A horizon. Soluble salts, calcium carbonate, and silica accumulate in the soil profile at a relatively shallow depth. Duric Camborthids (Broyles series) and Duric Natrargids (Beoska series) are examples of soils that formed in this climatic zone.

At elevations of 5,300 to 6,500 feet, the average annual precipitation is about 10 inches and the average annual air temperature is about 47 degrees. In these warm, semiarid areas, the plant cover is thicker than at the lower elevations and consists mainly of drought-tolerant shrubs and grasses. Chemical weathering of parent material occurs slowly. Typically, weathering products are moved down below the root zone, and calcium carbonate and silica accumulate in the lower part of the profile. Soluble salts are completely removed or are concentrated deep in the profile. Typically, the soils are moderately low in organic matter content. They have a thin, relatively dark A horizon or a thicker, light-colored A horizon and a thicker cambic or argillic horizon over accumulations of silica or carbonates. Durixerollic Camborthids (Orovada series) in valleys and Lithic Xerollic Haplargids (Punchbowl series) on foothills are examples of soils that formed in this climatic zone.

At elevations of 6,500 to 8,000 feet, the average annual precipitation is about 12 to 14 inches and the average annual air temperature is about 43 to 46 degrees. In these cool, semiarid areas, the increased precipitation and decreased evapotranspiration rate result in a dense plant cover consisting mainly of shrubs and perennial grasses and localized stands of singleleaf pinyon and Utah juniper. Because of the lower temperatures, organic matter decomposes at a slower rate and accumulates in the A horizon. Chemical weathering is moderate in this climatic zone, soluble salts and calcium carbonate are completely removed from the soil profile, and eluviation and illuviation commonly occur at a moderate rate. Typically, the soils have a thick, dark mollic epipedon and a weak B horizon. Aridic Haploxerolls (Loncan series) and Aridic Argixerolls (Sumine series) are examples of soils that formed in this climatic zone.

At elevations of as much as 10,200 feet, the average annual precipitation is about 14 to more than 16 inches

and the average annual air temperature is about 41 to 43 degrees. These cold areas are mainly on windswept crests and side slopes of mountains, in sheltered areas where snow accumulates, and on back slopes of mountains, where drifted snow accumulates. All soluble salts and calcium carbonate and some exchangeable cations have been removed from the soil profile, resulting in a base saturation that generally is lower than in other climatic zones. Organic matter decomposes slowly, and a thick, dark A horizon forms. Areas where drifted snow accumulates support thick mountain shrubs and grasses. Windswept areas receive less effective precipitation, which is reflected in lower plant production. Soils on stable, north-facing, concave back slopes in areas where snow accumulates may be older than their degree of development indicates because they remain cold for most of the year, which inhibits development. During glacial periods these soils may have remained frozen or under snow cover throughout the year. Pachic Cryoborolls (Hapgood series) on back slopes of mountains and Argic Cryoborolls (Packer series) on windswept crests of mountains are examples of soils that formed in this climatic zone.

Time

Time is required for the weathering of rocks and minerals and the formation of soil horizons. The interaction of time and other soil-forming factors is not well understood by soil scientists and geologists working in this field. Some suggest that the weathering of parent material and the development of soil profiles essentially have been continuous and at a constant rate throughout the Quaternary (20, 21, 24, 29). Recently, however, geologists concerned with differentiating Quaternary deposits have suggested that soil development has not proceeded continuously at the same rate but has taken place intermittently at rapid rates (16, 17, 18, 23).

The present desert climate began at the start of the Pleistocene (4), but precipitation and temperature have fluctuated greatly. During cooler and wetter glacial periods, or pluvials, the rate of runoff increased, resulting in increased erosion, mass wasting, and deposition. These conditions reduced the rate of evaporation in the basins, and permanent lakes developed on the bolson floors. A change to a cool, drier climate at the beginning of the interglacial periods commonly was marked by maximum eolian activity. Following this was a warm, dry period and then a warm, wet period, which was most conducive to soil development (3, 5, 17). These periods of peak soil development occurred worldwide; therefore, the profiles

of soils that formed in different regions during these periods can be correlated and are similar in age.

The peak soil-forming periods generally followed periods of increased erosion and deposition. During these periods, the land surfaces stabilized and the climate was favorable for a greatly accelerated rate of chemical weathering. Geologists have developed a technique of mapping soils called soil stratigraphy that uses weathering profiles to differentiate and correlate Quaternary deposits. Researchers have found soils in other parts of Nevada that are similar in age to those that formed on stratigraphic surfaces identified by Morrison (5, 12, 15). Comparing soils in this survey area with similar soils in other areas has helped to identify local soils that are similar in age. Although soils developed during each peak soil-forming period, representative profiles have eroded away or have been covered by subsequent depositions in some areas. Because of this, gaps occur in the time-soil profile sequence. In the following paragraphs, some of the time-stratigraphic ages as set forth by Birkeland are discussed (6). These include the Holocene, Wisconsin, and pre-Wisconsin ages.

Holocene.—Volcanic ash and eolian material, presumed to be from Mount Mazama ashfalls, are the main sources of soluble silica that forms durinodes and duripans in the soils in the survey area. Thin strata of this material are in some of the soils on fan skirts, alluvial flats, and flood plains (7).

Hawley and Wilson (12) proposed that a distinct Mount Mazama volcanic ash bed (7) along the Humboldt River overlies late Wisconsin deposits and is the boundary between the Pleistocene and Recent soils in the Winnemucca area. This widely spread volcanic ash bed extends into northern Lander County and is interbedded with flood plain deposits along the Humboldt River and with young alluvium on fan skirts in the lower part of the Antelope Valley. Mifflin and Wheat (14) proposed that the Pleistocene shorelines in Buffalo Valley near Battle Mountain and in the Grass Valley can be correlated with that of ancient Lake Lahontan (late Wisconsin). After the lakes receded, Durorthidic Torriorthents (Bubus series) and Aquic Durorthidic Torriorthents (Gund series) formed on these geomorphic surfaces. Many of these soils are still subject to aggradation. These soils and those exhibiting less soil development are considered to be of the Holocene.

The youngest soils in the area are those that formed in recently aggraded material or in material recently exposed by erosion. These soils have no diagnostic horizons, and they resemble the original parent material. Among these are Aquic Torriorthents (Needle Peak series) and Typic Torriorthents (Fenster series)

that formed in recent alluvium, Typic Torripsamments (Isolde series) that are subject to eolian activity and are on semistabilized sand dunes and dunes superimposed over beach plains, and Lithic Xeric Torriorthents (Tessfive series) and shallow Xeric Torriorthents (Puett series) that formed in material weathered from Tertiary sediment on low, rolling hills where geologic erosion has been active.

Somewhat older are soils that formed in alluvium on axial-stream flood plains, slowly aggrading inset fans, and relatively recently eroded mountain slopes. These soils have been stable long enough to accumulate organic matter and form a mollic epipedon. They do not have a cambic, argillic, natric, or calcic horizon, a duripan, or durinodes. They are probably less than about 1,000 years old. Examples of these soils are Fluvaquentic Haplaquolls (Paranat series) on axial-stream flood plains, Cumulic Haplaquolls (Welch series) on inset fans in narrow mountain valleys, and Aridic Haploxerolls (Loncan series) and Lithic Haploxerolls (Gando series) on mountain slopes.

Soils that formed in alluvium and have subsurface horizons that contain durinodes or are weakly cemented with silica are also older than the youngest soils in the area and possibly are slightly older than the soils that have a dark A horizon as their only diagnostic feature. These soils formed in salt- and sodium-affected parent material that contains appreciable amounts of volcanic ash. They are on lake plains, alluvial flats, and alluvial-flat remnants. The content of soluble silica in the volcanic ash and the alkalinity and fluctuating water table probably contributed to the relatively rapid formation of durinodes and incipient silica cementation. Examples of these soils are Aquic Durorthidic Torriorthents (Gund series) on lake plains, Aeric Halaquepts (Ocala series) on alluvial flats, and Durorthidic Torriorthents (Bubus series) on alluvial-flat remnants.

Stable Holocene land surfaces that are 2,000 to 8,000 years old are extensive in the survey area (8, 9). The soils that formed on these surfaces have a cambic horizon and are cemented with silica in some areas. These soils are on fan skirts, offshore bars, lagoons, and foothills. Examples are Xerollic Camborthids (McConnel series) on offshore bars, Duric Camborthids (Creemon series) in lagoons, and Xerollic Camborthids (Minat series) on foothills.

The landscape in some areas is less stable and was stripped by erosion during the late Wisconsin period, exposing a relict duripan. Following redeposition during the mid to early Holocene, thin layers of loess and loamy alluvium from surrounding areas covered these relict subsurface horizons. Soil development in this material is minimal. Xerollic Durorthids (Chiara series)

on fan piedmonts and Typic Durorthids (Osoll series) on foothills are examples of soils that developed in this material.

Wisconsin.—Deposits of Wisconsin age are widely distributed in the survey area. Early Wisconsin deposits on fan and stream terraces generally are more extensive and coarser than those of the late Wisconsin and early Holocene. A widespread veneer of loess covered these coarse deposits during the mid-Wisconsin. Typically, these deposits are on the higher geomorphic surfaces and are dissected. Morrison (18) proposed that a weathering profile, the Churchill soil in the Lake Lahontan area, be used to differentiate early Wisconsin from late Wisconsin deposits. Hawley and Wilson (12) tentatively correlated a soil of similar age in the Winnemucca area. Soils in this survey area that consist of loess-influenced alluvium over coarse alluvium have characteristics similar to those of the soils correlated in the Winnemucca area. An example of these soils is Duric Natrargids (Beoska series). They are considered to be mid-Wisconsin age.

About half of the soil series in the survey area are late Wisconsin to pre-Wisconsin age. These soils are mainly on mountains, plateaus, foothills, and fan piedmonts. Because extensive areas of these soils are present, it is evident that excessive erosion and deposition have not taken place since the late Pleistocene, when the climate stabilized.

Stable late Wisconsin or early Holocene land surfaces are not believed to be extensive in this survey area. Soils that formed on these surfaces have a thin or weak argillic horizon. An example is Xerollic Haplargids (Genaw series), which are on low, rolling hills. These soils have a thin, medium textured argillic horizon underlain by soft bedrock at a depth of less than 20 inches.

Stable mid-Wisconsin land surfaces are extensive in this survey area. The soils on these surfaces have a dominantly fine-loamy or loamy-skeletal argillic or natric horizon. Durixerollic Haplargids (Allor series) on fan piedmonts are examples of soils that have an argillic horizon, Duric Natrargids (Ricert series) on fan piedmonts are examples of soils that have a natric horizon, Lithic Xerollic Haplargids (Old Camp series) on foothills are examples of soils that have an argillic horizon, and Aridic Argixerolls (Reluctan series) and Typic Argixerolls (Clanalpine series) are examples of soils on mountain slopes.

Stable early Wisconsin land surfaces are extensive in this area. These soils have a well developed argillic horizon. They are on the older land surfaces where the original subsurface horizons have not been eroded or deeply buried by sediment. Haploxerollic Nadurargids (Filiran series), which have a thick natric horizon and a

thick duripan, are examples of these soils on fan piedmonts. Xerollic Haplargids (Roca series), which have a clayey-skeletal argillic horizon and formed in residuum, are examples of these soils on foothills. Aridic Argixerolls (Chad and Walti series), which have a clayey argillic horizon and formed in residuum, are examples of these soils on mountain slopes.

Pre-Wisconsin.—These alluvial deposits are limited in the survey area. Two pre-Wisconsin deposits are recognized by Morrison (18)—one that is similar to soils of the Kansan Glaciation (pre-Cocoon soils) and a younger one that is somewhat less dissected, is at somewhat lower elevations, and is similar to soils of the Illinois Glaciation (Cocoon soils). Examples of soils in this survey area that are similar to these soils in age are those of the Kingingham and Wieland series, respectively.

Stable pre-Wisconsin land surfaces are moderately extensive in this area. These surfaces have been deeply dissected and are on fan piedmont remnants and partial ballenas bordering mountain slopes. Because these surfaces have been relatively stable since they were dissected, the soils that developed on them are considered to be the oldest in the survey area. Xerollic Durargids (Buffaran series) and Aridic Durixerolls (Stampede series) are examples of soils on fan piedmont remnants. These soils generally have a thick, clayey argillic horizon and a thick duripan. Xerollic Paleargids (Zoesta series), which have a thick argillic horizon that is 45 to 60 percent clay, are examples of soils that formed on partial ballenas.

Relief

Relief is the shape of the landscape. It is determined by the position of the water table, percent of slope, length of slope, shape of slope (convex or concave), and exposure to wind and sun. Any activity on a slope that affects the soil, including erosion and deposition, affects soil formation (13).

The landscapes in this survey area are dominated by subparallel mountain ranges rising abruptly from broad alluvium-filled valleys. Fan piedmonts and fan skirts slope downward from the mountains until they merge with alluvial flats and into central playas or axial-stream flood plains (22).

The mountain ranges mainly are characterized by excessive relief. The soils in these positions are well drained. Runoff is rapid or very rapid, and the hazard of erosion is severe. Mountain slopes that are only partially stabilized are subject to a high rate of geologic erosion, and soil development on these slopes primarily is limited to an accumulation of organic matter that forms a mollic epipedon. Lithic Haploxerolls (Gando

series) and Lithic Xeric Torriorthents (Attella series) are examples of soils on these slopes. Soil formation has been unable to act on parent material long enough for a cambic or argillic horizon to form in these soils.

Mountain slopes that are more stable are subject to a slower rate of geologic erosion, and an argillic horizon has formed in the soils on these slopes. Xerollic Haplargids (Trunk series) and Aridic Argixerolls (Sumine series) are examples.

Most of the foothills and mountains exhibit pronounced aspect-related differences in microclimate. Some soils on steep, north-facing slopes at the lower elevations are similar to soils on all aspects at the higher elevations, and some soils on steep, south-facing slopes at the higher elevations are similar to soils at the lower elevations (6, 13).

Fan piedmonts flank the mountain ranges. The soils in these positions are well drained. Runoff is slow or medium, and the hazard of erosion is slight or moderate. The fan piedmonts typically are dissected because the stream channel has been altered as a result of changes in climate or local faulting. This dissection has resulted in the formation of smooth areas on the summits of fan piedmont remnants, younger side slopes of fan piedmont remnants, and very young inset fans along drainageways. Duric Natrargids (Oxcorel series) and Haploxerollic Durargids (Novacan series) are examples of soils on the summits of fan piedmont remnants. Durixerollic Camborthids (Orovada series) are examples of soils on the side slopes of fan piedmont remnants, and Typic Torriorthents (Fenster series) are examples of soils on inset fans.

Fan skirts are extensive in this area. They border the fan piedmonts and extend to the alluvial flats. The soils in these positions are well drained. Runoff is slow or medium, and the hazard of erosion is slight or moderate. These surfaces are relatively smooth and are not dissected. Durixerollic Camborthids (Rasille series), Typic Camborthids (Whirlo series), and Duric Camborthids (Broyles series) are examples of soils on fan skirts.

Remnants of flood plains, alluvial flats, and lake plains originally had a high water table and were flooded. The fluctuating water table combined with the high content of volcanic ash and the alkalinity of the parent material produced horizons that have firm durinodes or are cemented with silica. As the streams slowly downcut the flood plains and the lakes receded in the bolsons, subtle dissection took place. This dissection left stable flood-plain, alluvial-flat, and lake-plain remnants that had water tables at a lower depth and were subject to little or no flooding. The soils in these positions are moderately well drained or well drained. Runoff is slow, and the hazard of erosion is

slight. These soils contain soluble salts. Durorthidic Torriorthents (Bubus series) are examples of soils on alluvial-flat and lake-plain remnants.

The soils on alluvial flats and lake plains are somewhat poorly drained. Runoff is slow, and the hazard of erosion is slight. These soils have horizons that are cemented with silica to various degrees. The soils are light colored, and they contain soluble salts. Aeric Halaquepts (Umlerland and Ocala series) are examples of soils in these areas.

The soils on the nearly level axial-stream flood plains along the Reese River are poorly drained or very poorly drained. Runoff is very slow. Most areas of these soils are subject to flooding, and some areas are subject to deposition. The soils in these areas support dense stands of meadow vegetation that contributes large amounts of organic matter; thus, these soils have a thin to thick, dark A horizon. Some of these soils have excess soluble salts in the upper horizons. Fluvaquentic Haplaquolls (Paranat series) and Aeric Fluvaquents (Sonoma series) are examples of soils in these positions.

Parent Material

Parent material is the weathered rock or unconsolidated material from which soils form. The hardness, grain size, and porosity of the parent material and its mineralogic and chemical composition greatly influence soil formation. The parent material in this survey area is mainly material derived from sedimentary rock and associated metamorphic rock, material derived from intrusive and extrusive volcanic rock, and colluvium, alluvium, lacustrine sediment, and eolian material.

The sedimentary rock in the area includes shale, chert, conglomerate, and breccia and localized areas of limestone and dolostone. The soils in the New Pass and Toiyabe Ranges and the Desatoya, Shoshone, and Simpson Park Mountains formed in material derived from sedimentary rock. Most of the material contains minerals that weather to clay. The soils that formed on stable landscapes have an argillic horizon. Lithic Argixerolls (Itca series) and Aridic Argixerolls (Walti series) are examples of these soils. In some areas the soils have not been stable long enough for an argillic horizon to form. Aridic Haploxerolls (Loncan series) and Lithic Xeric Torriorthents (Attella series) are examples of these soils.

Late Tertiary sedimentary rock occurs primarily along the ancient alluvial divides between the Reese River, Carico Lake, and Grass Valleys. This material consists of older alluvium and lakebed deposits derived from interbedded tuffaceous shale, diatomaceous shale,

siltstone, sandstone, and conglomerate. The older alluvium has remained stable for long periods and contains rock fragments and minerals that weather to clay. Typic Haplargids (Spike series) are examples of soils on older, stable surfaces that have an argillic horizon. The lakebed deposits are severely dissected and resemble low, rolling hills. The summits have been stable for short periods of time, and the side slopes are actively eroding and are too unstable for an argillic horizon to form. Xerollic Haplargids (Genaw series) are examples of soils on the stable summits. Xeric Torriorthents (Puett series) and Typic Torriorthents (Perlor series) are examples of shallow, weakly developed soils on the unstable side slopes.

The volcanic rock in the area includes andesite, rhyolite, ashflow tuff, basalt, and small, localized areas of granite. The soils in parts of the New Pass Range, the Shoshone and Simpson Park Mountains, and the Toiyabe Range derived from volcanic rock. This rock contains large amounts of minerals that weather to clay; therefore, most of the soils that formed in this material on stable landforms have an argillic horizon. Lithic Argixerolls (Ninemile series) and Xerollic Haplargids (Bucan series) are examples.

The colluvium, alluvium, and basin fill material in adjacent valleys are derived mainly from sedimentary and volcanic rock. The soils in the valleys throughout the area are strongly influenced by pyroclastic material from this rock. Those derived from the more siliceous rock, particularly chert and tuff, have layers of silica cementation.

Colluvium has accumulated on steep mountain slopes as a result of gravitational forces and mass wasting. The colluvium generally is poorly sorted, contains many rock fragments, and includes minerals that weather to clay. Many of these areas have not

been stable long enough for an argillic horizon to form. Xerollic Camborthids (Minat series) are examples of soils that formed in colluvium on steep mountain slopes.

Alluvium derived from various kinds of rock and deposited as fan piedmonts is mostly loamy and contains pebbles, cobbles, and stones. It is porous, contains minerals that weather to clay, and contains soluble silica that results in the cementation of horizons. Haploxerollic Nadurargids (Filiran series) and Xerollic Durargids (Buffaran series) are examples of soils that formed on stable fan piedmonts. These soils have an argillic horizon and a duripan.

Alluvium deposited as fan skirts below the fan piedmonts consists of loamy and silty material mixed with loess that is high in content of volcanic ash. Some localized areas along drainageways contain pebbles, cobbles, and stones. The soils in these areas typically have horizons that are cemented with silica. Examples of soils that formed on fan skirts are Durorthidic Torriorthents (Misad series) and Duric Camborthids (Relley series).

Alluvium deposited as alluvial flats and flood plains below the fan skirts consists of silty and clayey material. Soluble salts are common in some of the soils in these areas. Although this material contains minerals that can be weathered, the soils are young and exhibit limited soil development. Aeric Halaquepts (Ocala series) and Fluvaquentic Haplaquolls (Paranat series) are examples.

Sandy eolian material is of limited extent in this survey area. It occurs mainly in the Grass Valley. Typic Torripsamments (Isolde series), which formed in wind-active areas on semistabilized dunes and on dunes superimposed over beach plains, are examples of soils that formed in this material.



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Glossary

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 percentage of exchangeable sodium (15 percent or more of the total exchangeable bases) that plant growth is restricted. The degrees of alkalinity (sodicity) are expressed as an exchangeable sodium percentage. They are:

Nonalkali.....	less than 15
Slightly alkali.....	15 to 40
Strongly alkali.....	more than 40

Alkaline soil. A soil having so a high degree of alkalinity (pH 8.5 or higher) that plant growth is restricted.

Alluvial fan. A semiconical, or fan-shaped, constructional, major landform that is mainly stratified alluvium with debris flow deposits in some areas. It is on the upper margin of a piedmont slope, and its apex is a source of alluvium debouching from a mountain valley into an intermontane basin. Also, a generic term for similar landforms in various other landscape positions.

Alluvial flat. The nearly level alluvial surface between a piedmont slope and the playa of a bolson or the axial-stream flood plain of a semibolson. This landform can include both recent and relict components.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal-unit-month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (as a restrictive feature). An area difficult to reclaim after the removal of soil for construction and other uses.

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.

Back slope. The slope component that is the steepest, straight to concave or merely concave middle portion of an erosional slope.

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 major landform comprised of distinctively round-topped ridgeline remnants of fan alluvium. The broadly rounded shoulder slopes of the ridge meet from either side to form a narrow crest and merge smoothly with the concave back slopes. In ideal examples, the slightly concave foot slopes of adjacent ballenas merge to form a smoothly rounded drainageway.

Bar (offshore and barrier). A component landform comprised of elongated, commonly curving, low ridges of well sorted sand and gravel that stand above the general level of a bolson floor. It is the result of the wave action of a Pleistocene lake.

Basal area. The area of a cross section of a tree. It is a measure of stand density, commonly expressed in square feet. For pinyon pine and juniper stands, it is the section at a height of 1 foot and measured outside the bark.

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. A general term for an intermontane basin, a bolson, a semibolson, an area of centripetal

drainage, or a structural depressional area.

- Basin floor.** The lowermost, nearly level major physiographic part of a bolson or semibolson. It includes all alluvial, eolian, and erosional landforms that are below the piedmont slopes.
- Basin-floor remnant.** A generally flat-topped erosional remnant of a basin floor that has been dissected by an axial stream.
- Beach plain.** A major landform of bolson floors comprised of numerous, closely spaced offshore bars and intervening lagoons. It is the result of a receding Pleistocene lake.
- Beach terrace.** A component landform that is on the lower piedmont slope. It consists of a wavecut scarp and wavebuilt terrace of well sorted sand and gravel marking a still-stand of a Pleistocene lake.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bolson.** An internally drained intermontane basin.
- Bolson floor.** The specific identification of the floor of a bolson, as compared with the floor of a semibolson; both are basin floors.
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- Brush management.** Use of mechanical, chemical, or biological methods to reduce or eliminate competition of woody vegetation to allow understory grasses and forbs to recover or to make conditions favorable for reseeding. It increases production of forage, which reduces the hazard of erosion. Brush management may improve the habitat for some species of wildlife.
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- Cemented pan** (as a restrictive feature). A cemented pan is too close to the surface for the specified use.
- Channel.** The bed of a single or braided waterway that commonly is barren of vegetation. Channels form in young alluvium. They may be enclosed by banks, or they may be splayed across a fan surface and slightly mounded above it. They may include bars and dumps of cobbles and stones. Channels, except flood-plain playas, are landform elements.
- Chemical treatment.** Control of unwanted vegetation by use of chemicals.
- Clay.** As a soil separate, the mineral soil particles less

than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

- Clay 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.
- Coarse textured soil.** Sand or loamy sand.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that 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.
- Colluvium.** Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Component landform.** A feature of the earth's surface that is part of a major landform and was created by partial dissection of the major landform or by alluvial or eolian accretion. A component landform is the smallest type of landform that can be described as a single unit. Its morphological parts are called landform elements. A side slope element can be subdivided into slope components.
- 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 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.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

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.

Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

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.

Crest. The slope component comprising a very narrow, commonly linear top of an erosional ridge, hill, mountain, or other landform.

Crop residue management. Returning crop residue to the soil. Crop residue management helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops using a planned system of rotation and management practices.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (as a restrictive feature). 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 to water (as a restrictive feature). The soil is deep to a permanent water table during dry periods.

Deferred grazing. Postponing or arresting grazing for a prescribed period.

Depth (soil depth). Depth to a restricting layer is measured from the soil surface. The restricting layer is either a duripan (strongly cemented or indurated) or consolidated bedrock (soft or hard). The depth classes used in this survey are—

Very shallow.....	less than 10 inches
Shallow.....	10 to 20 inches
Moderately deep.....	20 to 40 inches
Deep.....	40 to 60 inches
Very deep.....	more than 60 inches

Depth to rock (as a restrictive feature). Bedrock is too near the surface for the specified use.

Desert pavement. A layer of gravel or coarser fragments on a desert soil surface that was emplaced by the upward movement of fragments from underlying sediment or that remains after finer particles have been removed by running water or wind.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless artificial drainage is provided. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet

close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless artificial drainage is provided. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. They are wet enough to prevent the growth of important crops (except rice) unless artificially drained.

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Droughty (as a restrictive feature). The soil holds too little water for plants during dry periods.

Duff. A term used to identify 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.

Effervescence. A soil quality 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.

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.

Erodes easily (as a restrictive feature). Water erodes the soil easily.

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 the activities of man or other animals or of a catastrophe in nature, for example, 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 produced by erosion or faulting. Synonym: scarp.

Excess fines (as a restrictive feature). Excess silt and clay are in the soil. The soil does not provide a source of gravel or sand for use in construction.

Excess salt (as a restrictive feature). The soil has excess water-soluble salts that restrict the growth of most plants.

Excess sodium (as a restrictive feature). The soil has excess exchangeable sodium that restricts the growth of plants.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fan apron. A component landform consisting of a sheetlike mantle of relatively young alluvium that partially covers the surface of an older fan piedmont or, in some places, an alluvial fan. A fan apron buries a pedogenic soil.

Fanlette. A very small, normally undissected alluvial fan, something less than a few tenths of a square mile in area, that may occur below a gully, inset fan, or ravine in a variety of positions on the piedmont slope or within mountain valleys.

Fan piedmont. The most extensive major landform of most piedmont slopes. It is formed by the lateral coalescence of mountain-front alluvial fans into one generally smooth slope and by accretion of fan aprons. Fan piedmonts commonly are complexes of many component landforms.

Fan remnant. A generic term for a component landform that is the remainder of various older fans that

have been dissected (erosional fan remnants) or partially buried (nonburied fan remnants).

Erosional fan remnants have a flattish summit that consists of a relict fan surface; nonburied fan remnants consist entirely of a relict fan surface.

Fan remnants may also be specifically identified, for example, fan-piedmont remnants, fan-skirt remnants, or inset-fan remnants.

Fan-remnant side slope. A landform element comprised of the relatively young erosional slope around the sides of an erosional fan remnant. It is composed of shoulder slopes, back slopes, and foot slopes.

Fan skirt. A major landform comprised of laterally coalescing, small alluvial fans that originate from gullies that are cut into or that extend from inset fans of a fan piedmont and merge along their toe slopes with the basin floor. Fan skirts are smooth or only slightly dissected.

Fine textured soil. Sandy clay, silty clay, and clay.

Flooding (as a restrictive feature). The soil is flooded by moving water from stream overflow, runoff, or high tides.

Flood plain. The transversely level floor of an axial stream of a semibolson or of a major desert stream valley that is occasionally or regularly alluviated by the stream overflowing its channel during periods of flooding.

Flood-plain playa. A component landform consisting of very low gradient, barren, axial stream segments in an intermontane basin. It is subject to broad and shallow floods and is veneered with barren, fine textured sediment that crusts. A flood-plain playa commonly is segmented by transverse, narrow bands of vegetation, and it may alternate with ordinary, narrow or braided channel segments.

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 relatively gently sloping, slightly concave slope component of an erosional slope that is at the base of the back slope component. Synonym: pediment.

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (as a restrictive feature). The moisture in the soil freezes and thaws. Frost action can damage roads, buildings, and other structures.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other

elements in the profile and in gray colors and mottles.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter. Very gravelly soil material is 35 to 60 percent of these rock fragments, and extremely gravelly soil material is more than 60 percent.

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 silica or calcium carbonate.

Hard to pack (as a restrictive feature). The soil is difficult to compact.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons 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.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon 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) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some 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 horizon. 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, the number 2 precedes the letter C.

R layer.—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff rate. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

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.

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.

Inset fan. The flood plain of a commonly ephemeral stream that is confined between fan remnants, basin-floor remnants, ballenas, or closely opposed fan toe slopes. Its transversely level cross section is evidence of alluviation of a fluvial. It is wide enough that raw channels cover only a fraction of its surface.

Intermittent stream. A stream or reach of a stream that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Irrigation. Application of water to soils to assist in production of crops.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A major landform of some bolson floors that is nearly level and consists of fine textured, stratified bottom sediment of a Pleistocene lake.

Lake-plain terrace. A somewhat elevated area and component landform of a lake plain.

Landform element. The morphological part of a component landform. Side slope landform elements may be divided into slope components.

Large stones (as a restrictive feature). The soil has rock fragments that are 3 inches (7.6 centimeters) in diameter or more.

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.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength (as a restrictive feature). The soil is not strong enough to support a load.

Major landform. A subdivision of the piedmont slope or basin floor major physiographic part that reflects a major morphogenetic process taking place over a long period or that is the result of a special erosional or depositional process. Many major landforms are dissected, and their original area is occupied by component landforms.

Major physiographic part. The very large part of an intermontane basin that is characterized by dominant slope and position and is comprised of major landforms (e.g., steeply sloping mountains that stand above less sloping piedmonts that in turn grade to nearly level basin floors).

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

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, and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

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. Mottling generally indicates poor aeration and impeded drainage. 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 and considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mountain-valley fan. A major landform that is the result of alluvial filling of a mountain valley or intramontane basin by coalescent valley-side slope fans whose toe slopes meet from either side of the valley along an axial drainageway. It is an extension of the upper piedmont slope into mountain valleys. Most mountain-valley fans have been dissected.

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.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan* or *claypan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Pebbles. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pediment. The foot slope component of an erosional slope.

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.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 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 20.0 inches
Very rapid	more than 20.0 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (as a restrictive feature). Water moving through the soil forms subsurface tunnels or pipelike cavities.

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 the adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. An ephemerally flooded, barren area on a basin floor that is veneered with fine textured sediment and acts as a temporary or final sink for drainage water.

Ponding. Standing water on soils in closed depressional areas. The water can be removed

only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

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. The application of fire to land under such conditions of weather, soil moisture, and time of day as presumably will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

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. Proper grazing use increases the vigor and reproduction of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community 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—

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
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

Relict. Old, or remaining from previous times; in the present context, of Pleistocene age.

Relief. The elevations or inequalities of a land surface, considered collectively.

Remnant. The remainder of a larger landform or of a land surface that has been dissected or partially buried.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (as a restrictive feature). The soil is shallow to a layer that greatly restricts roots; shallow root zone.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water. Six classes of runoff are recognized:

Ponded.—Little of the precipitation and run-on escapes as runoff, and free water stands on the surface for significant periods. The amount of water that must be removed from ponded areas by movement through the soil, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs in level to nearly level depressional areas, and the water depth may fluctuate greatly.

Very slow.—Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soil. Most of the water passes through the soil, is used by plants, or evaporates. The soils commonly are level or nearly level or are very open and porous.

Slow.—Surface water flows away slowly enough

that free water stands on the surface for moderate periods or enters the soil rapidly. Most of the water passes through the soil, is used by plants, or evaporates. The soils commonly are either nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.

Medium.—Surface water flows away fast enough that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils commonly are either nearly level or gently sloping and absorb precipitation at a moderate rate, or they are steeper but absorb water rapidly.

Rapid.—Surface water flows away fast enough that the period of concentration is brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly moderately steep or steep, and they have a moderate to slow rate of absorption.

Very rapid.—Surface water flows away so fast that the period of concentration is very brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly steep or very steep, and they absorb precipitation slowly.

Run-on. Soil moisture received as runoff from adjacent areas.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium. The conductivity of extract, in millimhos per centimeter, is expressed as—

Nonsaline	0 to 4
Slightly saline	4 to 8
Moderately saline.....	8 to 16
Strongly saline.....	more than 16

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand dune. A component landform made up of eolian, sand-sized mineral particles. Dunes commonly are on the leeward side of a Pleistocene lakebed.

Sand sheet. A major landform comprised of an extensive layer, several feet thick, of eolian sand from pluvial lake beaches, sometimes partly redeposited by water. It is spread across alluvial flats, onto piedmont slopes, or over low mountains and has an undulating and commonly duned surface.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

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 (as a restrictive feature). The movement of water through the soil. Seepage adversely affects the specified use of the soil.

Semibolson. An externally drained intermontane basin.

Semibolson floor. A specific identification for the floor of a semibolson as compared with a bolson floor.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the substratum. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shoulder slope. The convex slope component at the top of an erosional side slope.

Shrink-swell (as a restrictive feature). The soil shrinks when dry and swells when wet.

Side slope. The erosional slope around the sides of an erosional fan remnant, hill, ballena, mountain, or other landform. It is composed of shoulder slopes, back slopes, foot slopes, and toe slopes. Also, the planimetrically linear parts of the slopes around a digitately dissected fan remnant or hill or other landform as compared with the planimetrically convex nose slope and concave head slope parts.

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.

Site index. A designation of the quality of a forest site. For pinyon pine and juniper stands, it is based on tree diameter at a height of 1 foot and the spacing between trees.

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.....	more than 75 percent

Slope (as a restrictive feature). The slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specified use.

Slope component. A morphological element of an erosional slope and a morphological subdivision of the side slope landform element.

Small stones (as a restrictive feature). The soil has rock fragments that are 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 $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are—

Nonsodic.....	less than 13:1
Slightly sodic	13-46:1
Strongly sodic	more than 46:1

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 blowing (as a restrictive feature). The soil is easily moved by wind.

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 substratum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony soil material. Material, commonly a subsurface layer, that contains 15 to 35 percent, by volume, rock fragments that are mainly 10 to 24 inches in diameter. Very stony soil material is 35 to 60 percent stone-sized rock fragments, and extremely stony soil material is more than 60 percent.

Stream terrace. A transversely level erosional remnant of a former axial stream or major desert stream flood plain that slopes in the same direction as the adjacent, incised stream and is underlain by well sorted, stratified sand and gravel or by loamy or clayey sediment.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from about 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Summit. The flattish top of an erosional fan remnant, hill, mountain, or other landform. The term is used

for both a landform element and a slope component.

Tailwater. The water just downstream of a structure.

Talus. Rock fragments of any size or shape, commonly coarse and angular, derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose, broken rock formed chiefly by falling, rolling, or sliding.

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.

Terrace. Any part of a general slope that stands above a short, steep scarp and has a generally flat, nearly level or gently sloping summit. It may have another short scarp above the summit. Synonym: bench.

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."

Toe slope. The lowest part of a foot slope component of an erosional slope. It is distinguished from the upper part of a foot slope by a greater accumulation of pedisegment. Also, the lowest and most gently sloping part of a slope.

Too arid (as a restrictive feature). The soil is dry most of the time, and vegetation is difficult to establish.

Too clayey (as a restrictive feature). The soil is slippery

and sticky when wet and is slow to dry.

Too crusty (as a restrictive feature). Crusting of the soil surface interferes with water intake and seedling emergence.

Too sandy (as a restrictive feature). The soil is soft and loose; it is droughty and low in fertility.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Valley. An elongated depressional area cut by stream erosion and the associated water erosion of its side slopes (stream valley). Also used to describe intermontane basins.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

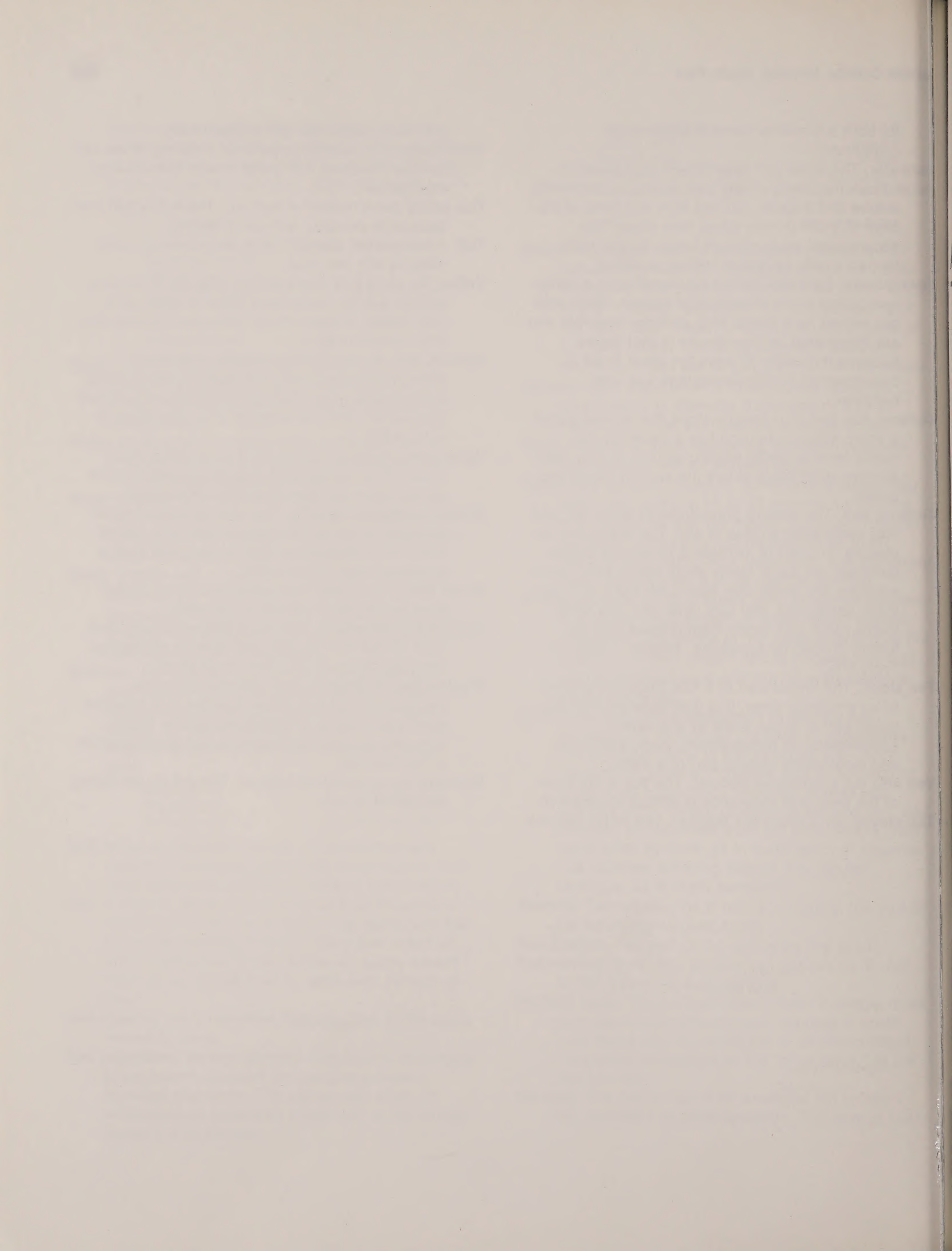
Water-supplying capacity. The total amount of water available in the soil for plant growth in a normal year from precipitation, from run-on, and from a capillary fringe minus runoff.

Water table. The upper level of ground water or that level below which the soil is saturated.

Water table (perched). The water table of a saturated layer of soil that is separated from an underlying saturated layer by an unsaturated layer.

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.

Wetness (as a restrictive feature). The soil is wet during the period of use.



Appendix

Criteria Used in Rating Soils for Selected Uses
Roadfill

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture.....	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>60	40-60	<40	Depth to rock.
3. Depth to cemented pan (inches)....	>60	40-60	<40	Cemented pan.
4. Shrink-swell potential ¹	Low	Moderate	High, very high	Shrink-swell.
5. AASHTO group index number ^{1 2 3}	<5	5-8	>8	Low strength.
6. Layer thickness (inches).....	>60	30-60	<30	Thin layer.
7. Fraction greater than 3 inches (percent by weight) ⁴	<25	25-50	>50	Large stones.
8. Depth to high water table (feet)	>3	1-3	<1	Wetness.
9. Slope (percent)	<15	15-25	>25	Slope.

¹ Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

² If in kaolinitic family, rate one class better if experience confirms.

³ $GIN = (F-35)[.2 + .005(LL-40)] + .01 (F-15)(PI-10)$ where F = percent passing No. 200 sieve. If F is <35 and PI is >11, use only part 2 of equation. Use median values.

⁴ Weighted average to 40 inches.

Shallow Excavations

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches):				
Hard	>60	40-60	<40	Depth to rock.
Soft	>40	20-40	<20	Depth to rock.
3. Depth to cemented pan (inches):				
Thick	>60	40-60	<40	Cemented pan.
Thin	>40	20-40	<20	Cemented pan.
4. USDA texture (20 to 60 inches) ...	---	SI ¹	COS, S, FS, VFS, LCOS, LS, LFS, LVFS, G, SG	Cutbanks cave.
5. USDA texture (20 to 60 inches) ...	---	C, SIC	---	Too clayey.
6. Soil order	---	---	Vertisols	Cutbanks cave.
7. Bulk density (g/cc)	---	>1.8	---	Dense layer.
8. Unified (20 to 60 inches)	---	---	OL, OH, PT	Excess humus.
9. Fraction greater than 3 inches (percent by weight) ²	<25	25-50	>50	Large stones.
10. Depth to high water table (feet) ...	---	---	+	Ponding.
	>6	2.5-6	<2.5	Wetness.
11. Flooding	None, rare	Common	---	Flooding.
12. Slope (percent)	<8	8-15	>15	Slope.
13. Downslope movement.....	---	---	(³)	Slippage.

¹ In areas of loess, rating should be *slight*.

² Weighted average to 40 inches.

³ If the soil is susceptible to movement downslope when loaded, excavated, or wet, rate "Severe—slippage."

Local Roads and Streets

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Total subsidence	---	---	>12	Subsides.
3. Depth to bedrock (inches):				
Hard	>40	20-40	<20	Depth to rock.
Soft	>20	<20	---	Depth to rock.
4. Depth to cemented pan (inches):				
Thick	>40	20-40	<20	Cemented pan.
Thin	>20	<20	---	Cemented pan.
5. Shrink-swell potential ¹	Low	Moderate	High, very high	Shrink-swell.
6. AASHTO group index number ^{1 2 3}	<5	5-8	>8	Low strength.
7. Depth to high water table (feet) ...				
>2.5	---	---	+	Ponding.
<2.5	>2.5	1.0-2.5	<1.0	Wetness.
8. Slope (percent)	<8	8-15	>15	Slope.
9. Flooding	None	Rare	Common	Flooding.
10. Potential frost action	Low	Moderate	High	Frost action.
11. Fraction greater than 3 inches (percent by weight) ⁴	<25	25-50	>50	Large stones.
12. Downslope movement	---	---	(⁵)	Slippage.
13. Formation of pits	---	---	(⁶)	Pitting.
14. Differential settling	---	---	(⁷)	Unstable fill.

¹ Thickest layer between 10 and 40 inches.

² $GIN = (F-35)[.2 + .005(LL-40)] + .01 (F-15)(PI-10)$ where F = percent passing No. 200 sieve. If F is <35 and PI is >11, use only part 2 of equation. Use median values.

³ If in kaolinitic family, rate one class better if experience confirms.

⁴ Weighted average to 40 inches.

⁵ If the soil is susceptible to movement downslope when loaded, excavated, or wet, rate "Severe—slippage."

⁶ If the soil is susceptible to the formation of pits caused by the melting of ground ice when the ground cover is removed, rate "Severe—pitting."

⁷ If the soil is susceptible to differential settling, rate "Severe—unstable fill."

Embankments, Dikes, and Levees

Property	Limits			Restrictive feature
	Slight	Moderate	Severe-	
1. USDA texture	---	---	Ice	Permafrost.
2. Layer thickness (inches).....	>60	30-60	<30	Thin layer.
3. Unified ¹	---	---	GW, GP, SW, SP, GW-GM, GP-GM, SW-SM, SP-SM, SM, ² GM ²	Seepage.
4. Unified ¹	---	GM, ³ CL ⁴	ML, ⁵ SM, ⁶ SP, ⁶ CL-ML	Piping.
5. Unified ¹	---	---	PT, OL, OH	Excess humus.
6. Unified ¹	---	---	MH, CH ⁷	Hard to pack.
7. Fraction greater than 3 inches (percent by weight) ⁸	<15	15-35	>35	Large stones.
8. Depth to high water table (feet) ... Apparent..... Perched	---	---	+	Ponding.
	>4	2-4	<2	Wetness.
	>3	1-3	<1	Wetness.
9. Sodium adsorption ratio in the upper 40 inches (great group or phase).....	---	---	>12 (natric, halic, alkali phases)	Excess sodium.
10. Salinity (mmhos/cm)	<8	8-16	>16	Excess salt.

¹ Thickest layer between 10 and 60 inches.
² Rate *moderate* if more than 20 percent passing No. 200 sieve and *slight* if more than 30 percent passing No. 200 sieve.
³ Rate *slight* if less than 35 percent passing No. 200 sieve, less than 50 percent passing No. 40 sieve, and less than 65 percent passing No. 10 sieve. The soil must meet all three criteria before it is rated *slight*.
⁴ Rate *slight* if PI is greater than 15.
⁵ Rate *moderate* if PI is greater than 10.
⁶ Rate *moderate* if less than 70 percent passing No. 40 sieve and less than 90 percent passing No. 10 sieve, and rate *slight* if less than 60 percent passing No. 40 sieve and less than 75 percent passing No. 10 sieve.
⁷ Rate *moderate* if PI is less than 40.
⁸ Weighted average to 40 inches.

Topsoil

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>40	20-40	<20	Depth to rock.
3. Depth to cemented pan (inches) ..	>40	20-40	<20	Cemented pan.
4. Depth to bulk density greater than 1.8 g/cc (inches).....	>40	20-40	<20	Area reclaim.
5. USDA texture ¹	---	LCOS, LS, LFS, LVFS	COS, S, FS, VFS	Too sandy.
6. USDA texture ¹	---	SCL, CL, SICL ²	SIC, C, SC	Too clayey.
7. USDA texture ¹	---	---	FB, HM, SP, MPT, muck, peat, CE	Excess humus.
8. Fraction greater than 3 inches (percent by weight): ³				
0 to 40 inches	<5	5-25	>25	Large stones.
40 to 60 inches	<15	15-30	>30	Area reclaim.
9. Coarse fragments (percent): ³				
0 to 40 inches	<5	5-25	>25	Small stones.
40 to 60 inches	<25	25-50	>50	Area reclaim.
10. Salinity (mmhos/cm) ¹	<4	4-8	>8	Excess salt.
11. Layer thickness (inches).....	>40	20-40	<20	Thin layer.
12. Depth to high water table (feet) ...	---	---	<1	Wetness.
13. Sodium adsorption ratio in the upper 40 inches (great group or phase)	---	---	>12 (halic, natric, alkali phases)	Excess sodium.
14. Soil reaction (pH) ¹	---	---	<3.6	Too acid.
15. Slope (percent)	<8	8-15	>15	Slope.
16. Carbonates	---	---	(⁴)	Excess lime.

¹ Thickest layer between 0 and 40 inches.

² If soil contains more than 3 percent organic matter and has less than 35 percent clay, rate *good*.

³ Sum (100 minus percent passing No. 10 sieve) and fraction greater than 3 inches. Use dominant condition for restrictive feature.

⁴ If the amount of carbonate is so high that it restricts the growth of plants, rate "Poor—excess lime."

Pond Reservoir Areas

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture.....	---	---	Ice	Permafrost.
2. Permeability between 20 and 60 inches (inches/hour).....	<0.6	0.6-2.0	>2.0	Seepage.
3. Depth to bedrock (inches)	>60	20-60	<20	Depth to rock.
4. Depth to cemented pan (inches)....	>60	20-60	<20	Cemented pan.
5. Slope (percent)	<3	3-8	>8	Slope.
6. USDA texture (all depths).....	---	---	Marl, gyp	Seepage.
7. Downslope movement.....	---	---	(¹)	Slippage.
8. Formation of pits.....	---	---	(²)	Pitting.

¹ If the soil is susceptible to movement downslope when loaded, excavated, or wet, rate "Severe—slippage."

² If the soil is susceptible to the formation of pits caused by the melting of ground ice when the surface cover is removed, rate "Severe—pitting."

Drainage

Property	Limits	Restrictive feature
1. USDA texture	Ice	Permafrost.
2. Depth to high water table (feet) ¹	>3 ² +	Deep to water. Ponding.
3. Permeability in the upper 40 inches (inches/hour)	<0.2	Percs slowly.
4. Depth to bedrock (inches)	<40	Depth to rock.
5. Depth to cemented pan (inches)	<40	Cemented pan.
6. Flooding	Common	Flooding.
7. Total subsidence	Any entry	Subsides.
8. Fraction greater than 3 inches (percent by weight) ³	>25	Large stones.
9. Potential frost action	High	Frost action.
10. Slope (percent)	>3	Slope.
11. USDA texture ³	COS, S, FS, VFS, LCOS, LS, LFS, LVFS, SG, G	Cutbanks cave.
12. Salinity (mmhos/cm) (any depth)	>8	Excess salt.
13. Sodium adsorption ratio in the upper 40 inches (great group or phase)	>12 (natric, halic, alkali phases)	Excess sodium.
14. Sulfidic materials (great group)	Sulfaquents, Sulfihemists	Excess sulfur.
15. Soil reaction (pH) (any depth)	<3.6	Too acid.
16. Downslope movement	(⁴)	Slippage.
17. Complex landscape	(⁵)	Complex slope.
18. Availability of outlets	(⁶)	Poor outlets.

¹ If "Deep to water," disregard other properties.

² If irrigated, consider other restrictive features if the water table is between 3 and 5 feet.

³ Thickest layer between 10 and 60 inches.

⁴ If the soil is susceptible to movement downslope when loaded, excavated, or wet, list "Slippage" as a restrictive feature.

⁵ If complex and irregular slopes cause difficulty in design, installation, or functioning of the system, list "Complex slope" as a restrictive feature.

⁶ If good outlets are difficult to find, list "Poor outlets" as a restrictive feature.

Irrigation

Property	Limits	Restrictive feature
1. USDA texture	Ice	Permafrost.
2. Slope (percent)	>3	Slope.
3. Fraction greater than 3 inches (percent by weight) ¹	>25	Large stones.
4. Depth to high water table (feet)	+ <3 ²	Ponding. Wetness.
5. Available water capacity (inches/inch)	<0.10	Droughty.
6. USDA texture (surface layer)	COS, S, FS, VFS, LCOS, LS, LFS, LVFS	Fast intake.
7. USDA texture (surface layer)	SIC, C, SC	Slow intake.
8. Wind erodibility group	1, 2, 3	Soil blowing.
9. Permeability in the upper 60 inches (inches/hour)	<0.2	Percs slowly.
10. Depth to bedrock (inches)	<40	Depth to rock.
11. Depth to cemented pan (inches)	<40	Cemented pan.
12. Fragipan (great group)	All fragi	Rooting depth.
13. Bulk density in the upper 40 inches (g/cc) ..	>1.7	Rooting depth.
14. Erosion factor K (surface layer)	>.35	Erodes easily.
15. Flooding	Common	Flooding.
16. Sodium adsorption ratio in the upper 40 inches (great group or phase)	>12 (natric, halic, alkali phases)	Excess sodium.
17. Salinity in the upper 40 inches (mmhos/cm)	>4	Excess salt.
18. Soil reaction (pH) (any depth)	<3.6	Too acid.
19. Complex landscape	(³)	Complex slope.
20. Formation of pits	(⁴)	Pitting.
21. Carbonates	(⁵)	Excess lime.

¹ Weighted average to 40 inches.

² Disregard if depth to water table is below 3 feet during growing season.

³ If complex and irregular slopes cause difficulty in design, installation, or functioning of the system, list "Complex slope" as a restrictive feature.

⁴ If the soil is susceptible to the formation of pits caused by the melting of ground ice when ground cover is removed, list "Pitting" as a restrictive feature.

⁵ If the amount of carbonate is so high that it restricts the growth of plants, list "Excess lime" as a restrictive feature.

Terraces and Diversions

Property	Limits	Restrictive feature
1. USDA texture	Ice	Permafrost.
2. Slope (percent)	>8	Slope.
3. Fraction greater than 3 inches (percent by weight) ¹	>15	Large stones.
4. Depth to bedrock (inches)	<40	Depth to rock.
5. Depth to cemented pan (inches)	<40	Cemented pan.
6. Erosion factor K (upper 40 inches)	>.35	Erodes easily.
7. Depth to high water table (feet)	+ <3.0	Ponding. Wetness.
8. Fragipan (great group)	All fragi	Rooting depth.
9. USDA texture ²	COS, S, FS, LS, LCOS, SG	Too sandy.
10. Wind erodibility group	1, 2, 3	Soil blowing.
11. Permeability (inches/hour) ²	<0.2	Percs slowly.
12. Downslope movement	(³)	Slippage.
13. Complex landscape	(⁴)	Complex slope.
14. Availability of outlets	(⁵)	Poor outlets.

¹ Weighted average to 40 inches.

² Thickest layer between 10 and 60 inches.

³ If the soil is susceptible to movement downslope when loaded, excavated, or wet, list "Slippage" as a restrictive feature.

⁴ If complex and irregular slopes cause difficulty in design, installation, or functioning of the system, list "Complex slope" as a restrictive feature.

⁵ If good outlets are difficult to find, list "Poor outlets" as a restrictive feature.

Sand

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. USDA texture	---	Ice	Permafrost.
2. Unified ¹	SW, SP, SW-SM, SP-SM	---	---
	GW, GP, GW-GM, GP-GM ²	---	---
	---	GW, GP, GW-GM, GP-GM ³	Small stones.
	---	PT	Excess humus.
	---	All other	Excess fines.
3. Layer thickness (inches)	>36	<36	Thin layer.
4. Fraction greater than 3 inches (percent by weight) ⁴	<50	>50	Large stones.

¹ Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

² Percent passing No. 4 sieve minus percent passing No. 200 sieve is greater than 25.

³ Percent passing No. 4 sieve minus percent passing No. 200 sieve is less than 25.

⁴ Thickest layer between 10 and 60 inches.

Gravel

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. USDA texture	---	Ice	Permafrost.
2. Unified ¹	GW, GP, GW-GM, GP-GM	---	---
	SW, SP, SW-SM, SP-SM ²	SW, SP, SW-SM, SP-SM ³	Too sandy.
	---	PT	Excess humus.
	---	All other	Excess fines.
3. Layer thickness (inches)	>36	<36	Thin layer.
4. Fraction greater than 3 inches (percent by weight) ⁴	<50	>50	Large stones.

¹ Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

² 100 minus percent passing No. 4 sieve is greater than 25.

³ 100 minus percent passing No. 4 sieve is less than 25.

⁴ Thickest layer between 10 and 60 inches.

Daily Cover for Landfill

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>60	40-60	<40	Depth to rock.
3. Depth to cemented pan (inches) ..	>60	40-60	<40	Cemented pan.
4. Unified ¹	---	---	SP, SW, SP-SM, SW-SM, GP, GW, GP-GM, GW-GM	Seepage.
5. USDA texture ^{1 2 3}	---	CL, SICL, SC	SIC, C	Too clayey.
6. USDA texture ¹	---	LCOS, LS, LFS, VFS	S, FS, COS, SG	Too sandy.
7. Unified ^{1 2}	---	---	OL, OH, CH, MH	Hard to pack.
8. Coarse fragments (percent) ^{1 4} ...	<25	25-50	>50	Small stones.
9. Fraction greater than 3 inches (percent by weight) ^{1 4}	<25	25-50	>50	Large stones.
10. Slope (percent)	<8	8-15	>15	Slope.
11. Depth to high water table (feet) ...	---	---	+	Ponding.
	>3.5	1.5-3.5	<1.5	Wetness.
12. Unified ¹	---	---	PT	Excess humus.
13. Layer thickness (inches)	>60	40-60	<40	Thin layer.
14. Soil reaction (pH) ¹	---	---	<3.6	Too acid.
15. Salinity in the upper 60 inches (mmhos/cm) ³	---	---	>16	Excess salt.
16. Sodium adsorption ratio (great group) ^{1 3}	---	---	>12 (halic, natric, alkali phases)	Excess sodium.
17. Carbonates	---	---	(⁵)	Excess lime.

¹ Thickest layer between 10 and 60 inches.

² If in kaolinitic family, rate one class better if experience confirms.

³ Disregard in all Aridisols except Salorthids and Aquic intergrades and all Torri great groups of Entisols except Aquic.

⁴ Sum (100 minus percent passing No. 10 sieve) and fraction greater than 3 inches. Use dominant condition for restrictive feature.

⁵ If the amount of carbonate is so high that it restricts the growth of plants, rate "Poor—excess lime."

Guide for Estimating the Hazard of Erosion on Bare Soil in Nevada

"K" means erosion factor K; "S" means percent slope; "I" means wind erodibility index; "C" means climatic factor.

	Water (K x S)	Wind (I x C)
Slight.....	<4	<60
Moderate	4-8	60-100
High.....	>8	>100

Range Seeding

Property	Limits			Restrictive feature
	Good	Fair	Poor	
Moisture regime	Aquic, xeric, ustic, and xeric and ustic bordering on aridic or torric.	Aridic and torric bordering on aquic, xeric, or ustic.	Aridic and torric.	Too arid.
Effective moisture ¹	>10 in. (25 cm)	7-10 in. (17.5-25 cm)	<7 in. (17.5 cm)	Too arid.
Available water capacity	Surface 10 in. (27 cm) >1.25 in. (3.2 cm). Soil profile > 4 in. (10.2 cm).	Surface 10 in. (25 cm) 0.75-1.25 in. (1.9-3.2 cm). Soil profile 2.5-4 in. (6.4-10.2 cm).	Surface 10 in. (25 cm) <0.75 in. (1.9 cm). Soil profile < 2-5 in. (6.4 cm).	Droughty.
Texture surface 7 in. (17.5 cm)	LVFS, COSL, SL, FSL, VFSL, L SIL, SCL, and CL SICL with <35% C.	VFS, LFS, SC, SIC, C and CL and SICL with >35% C.	LS, LCOS, FS, COS.	Too sandy. Too clayey.
Rock fragments in surface 7 in. (17.5 cm)	GR <35%; CB <15%; ST <3%. Total rock fragments <35%.	GR <35%; CB 15-35%; ST 3-15%. Total rock fragments <35%.	GR >35%; CB 35%; ST >15%. Total rock fragments >35%.	Small stones. Large stones.
Depth to abrupt A-B texture boundary ²	>10 in. (25 cm)	>10 in. (25 cm)	<10 in. (25 cm)	Rooting depth.
Depth to bedrock or hardpan	>20 in. (50 cm)	10-20 in. (25-50 cm)	<10 in. (25 cm)	Depth to rock/pan.
Electrical conductivity-saturation extract-25°C	<2 mmhos/cm (0.2 s/m) in upper 20 in. (50 cm).	2-4 mmhos/cm (0.2-0.4 s/m) in upper 10 in. (25 cm) and 4-8 mmhos/cm (0.4-0.8 s/m) in 10-20 (25-50 cm).	>4 mmhos/cm (0.4 s/m) in upper 10 in. (25 cm) and/or >8 mmhos/cm (0.8 s/m) in 10-20 in. (25-50 cm).	Excess salt.
Sodium adsorption ratio	<8 in upper 20 in. (50 cm).	8-13 in upper 10 in. (25 cm) and <20 in 10-20 in. (25-50 cm).	>13 in upper 10 in. (25 cm) and/or >20 in 10-20 in. (25-50 cm).	Excess sodium.
K x percent slope ³	<4 ⁴ ; <6 ⁵	4-6 ⁴ ; 6-8 ⁵	>6 ⁴ ; >8 ⁵	Erodes easily.
I x C ⁶	<60	<60	>60	Soil blowing.
Soil surface morphological types ⁷ ..	Types I and II >60%; Type IV <5%; or with mollic epipedon ⁸	Types I and II 20-60%; Type IV <10% ⁸	Type III <60%; Type IV >10% ⁸	Too crusty.

¹ Moisture from precipitation, run-on, and ground water budgeted to actual evapotranspiration.

² Rate Vertisols and Vertic subgroups as poor.

³ Sheet and rill erosion hazard (bare soil).

⁴ For ustic bordering on aridic or torric, and aridic or torric bordering on ustic moisture regimes.

⁵ For xeric, xeric bordering on aridic or torric, and aridic or torric bordering on xeric moisture regimes.

⁶ Wind erosion hazard (bare soil).

⁷ See: (1) Final Report. Properties, Occurrence and Management of Soils with Vesicular Surface Horizons, 1977. Contract No. 52500-CT 5(N). USDI-BLM and UNR-Ag. Exp. Stn. Eckert, Peterson, Wood, and Blackburn; and (2) Final Report. Properties, Occurrence and Management of Soils with Vesicular Surface Horizons—Effects of Trampling on Seedling Emergence. 1979. Contract No. YA 512-CT 7-14. USDI-BLM and UNR-Ag. Exp. Stn. Stephens, Eckert, and Peterson.

⁸ Soils without crusting morphology are to be included in Types I and II for rating.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	2 years in 10 will have--			Average number of days with snowfall or more	
				Maximum temperature higher than--	Minimum temperature lower than--		Average	Less than--	More than--		
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>	<u>In</u>	

Recorded in the period 1951-78 at Austin

January----	41.0	19.0	30.0	61	-8	10	1.02	0.45	1.50	4	12.1
February---	43.9	21.8	32.9	63	0	40	1.17	.47	1.75	5	12.6
March-----	47.8	23.8	35.8	69	3	67	1.33	.41	2.06	4	13.6
April-----	54.8	29.0	41.9	77	12	161	1.68	.42	2.67	5	17.5
May-----	65.6	37.5	51.6	87	19	379	1.36	.38	2.15	4	6.0
June-----	76.9	45.6	61.0	95	29	630	1.35	.36	2.15	3	.5
July-----	87.3	53.9	70.6	98	40	949	.62	.12	1.00	2	.0
August-----	84.9	52.2	68.6	96	36	887	.68	.06	1.14	2	.0
September--	76.2	44.7	60.5	92	25	615	.70	.05	1.19	2	.2
October----	64.8	36.0	50.4	84	15	348	.87	.08	1.43	2	3.6
November---	50.3	26.7	38.6	70	5	76	.94	.39	1.40	3	5.9
December---	41.7	20.4	31.1	59	-4	24	1.18	.28	1.89	5	12.6
Yearly:											
Average--	61.2	34.2	47.8	---	---	---	---	---	---	---	---
Extreme--	---	---	---	98	-9	---	---	---	---	---	---
Total----	---	---	---	---	---	4,186	12.90	10.31	16.53	41	84.6

Recorded in the period 1951-78 at Battle Mountain

January----	41.3	16.2	28.7	62	-16	36	0.58	0.23	0.88	3	4.9
February---	47.6	21.7	34.7	68	-2	54	.56	.17	.88	2	4.2
March-----	53.4	24.3	38.9	76	3	86	.61	.15	.98	3	3.6
April-----	61.8	29.4	45.6	83	12	198	.79	.21	1.25	3	3.1
May-----	72.3	38.0	55.2	94	19	477	.77	.12	1.27	3	.4
June-----	82.1	45.6	63.8	99	29	714	1.04	.22	1.68	3	.0
July-----	93.0	51.7	72.4	104	39	1,004	.26	.04	.43	1	.0
August-----	90.4	48.2	69.3	103	31	908	.34	---	.62	1	.0
September--	81.0	39.1	60.1	97	21	603	.47	---	.80	1	.0
October----	68.5	29.7	49.2	87	12	295	.57	---	.99	2	.2
November---	52.2	22.0	37.2	73	0	62	.57	.20	.87	2	1.9
December---	41.8	15.9	28.9	61	-14	22	.77	.26	1.19	3	6.5
Yearly:											
Average--	65.5	31.8	48.7	---	---	---	---	---	---	---	---
Extreme--	---	---	---	104	-19	---	---	---	---	---	---
Total----	---	---	---	---	---	4,459	7.33	5.34	9.17	27	24.8

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature					Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--	
	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>°</u> <u>F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>	<u>In</u>

Recorded in the period 1965-78 at Central Field Laboratory

January----	42.6	13.4	28.0	61	-17	0	0.49	0.18	0.74	1	5.9
February---	46.9	17.9	32.5	65	-10	17	.49	.18	.75	1	5.8
March-----	52.5	21.2	36.9	74	-7	68	.49	.10	.78	1	3.8
April-----	56.7	24.0	40.4	77	5	109	.71	.23	1.09	2	7.6
May-----	70.3	32.1	51.4	89	14	360	.61	.18	.95	2	2.2
June-----	78.7	40.3	59.4	94	22	582	1.13	.05	1.93	3	.1
July-----	88.5	45.9	67.2	97	32	843	.53	.11	.85	1	.0
August-----	86.4	43.2	64.8	96	28	769	.84	.18	1.34	2	.0
September--	77.6	34.7	56.2	91	15	486	.56	.01	.93	2	.0
October----	65.5	24.9	45.2	81	5	179	.57	---	1.00	1	.8
November---	52.5	20.1	36.3	72	-1	22	.47	.24	.67	2	2.9
December---	40.2	11.1	26.0	59	-19	12	.47	.20	.69	2	6.3
Yearly:											
Average--	63.2	27.4	45.4	---	---	---	---	---	---	---	---
Extreme--	---	---	---	97	-23	---	---	---	---	---	---
Total----	---	---	---	---	---	3,447	7.36	6.26	8.61	20	35.4

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Recorded in the period 1951-78 at Austin			
Last freezing temperature in spring:			
1 year in 10 later than--	May 21	June 8	June 19
2 years in 10 later than--	May 14	June 2	June 13
5 years in 10 later than--	May 3	May 21	June 3
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 27	Sept. 27	Sept. 5
2 years in 10 earlier than--	Oct. 4	Sept. 23	Sept. 11
5 years in 10 earlier than--	Oct. 18	Oct. 4	Sept. 23
Recorded in the period 1951-78 at Battle Mountain			
Last freezing temperature in spring:			
1 year in 10 later than--	May 18	June 4	June 21
2 years in 10 later than--	May 13	May 28	June 14
5 years in 10 later than--	May 3	May 15	May 31
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 16	Sept. 3	Aug. 26
2 years in 10 earlier than--	Sept. 21	Sept. 9	Aug. 31
5 years in 10 earlier than--	Oct. 1	Sept. 20	Sept. 11

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Recorded in the period 1965-78 at Central Field Laboratory			
Last freezing temperature in spring:			
1 year in 10 later than--	June 19	June 29	June 3
2 years in 10 later than--	June 11	June 22	June 27
5 years in 10 later than--	May 27	June 10	June 17
First freezing temperature in fall:			
1 year in 10 earlier than--	Aug. 31	Aug. 22	July 16
2 years in 10 earlier than--	Sept. 8	Aug. 29	July 28
5 years in 10 earlier than--	Sept. 23	Sept. 11	Aug. 20

TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
Recorded in the period 1951-78 at Austin			
9 years in 10	138	112	88
8 years in 10	148	120	96
5 years in 10	168	136	111
2 years in 10	188	151	127
1 year in 10	198	159	135
Recorded in the period 1951-78 at Battle Mountain			
9 years in 10	129	99	73
8 years in 10	137	109	83
5 years in 10	151	127	103
2 years in 10	165	146	122
1 year in 10	173	155	133
Recorded in the period 1965-78 at Central Field Laboratory			
9 years in 10	83	60	17
8 years in 10	95	71	33
5 years in 10	118	92	64
2 years in 10	141	113	95
1 year in 10	153	124	111

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
120	Akerue-Simpark-Robson association-----	12,660	0.8
121	Akerue-Simpark-Punchbowl association-----	7,920	0.5
141	Unsel-Wardenot-Belted association-----	8,275	0.5
142	Unsel-Caphor-Chedehap association-----	3,225	0.2
150	Chedehap-Enko-Ricert association-----	6,130	0.4
160	Batan association-----	1,800	0.1
161	Batan silt loam-----	1,470	0.1
162	Batan-Kelk association-----	4,485	0.3
168	Batan-Bubus-Ocala association-----	7,765	0.5
169	Batan-Ocala association-----	1,525	0.1
170	Beoska-Orovada association-----	3,270	0.2
171	Beoska silt loam, 2 to 8 percent slopes-----	4,255	0.3
172	Beoska-Tenabo complex-----	8,770	0.6
173	Beoska-Allor association-----	4,320	0.3
174	Beoska-Chiara association-----	1,165	0.1
175	Beoska-Whirlo-Misad association-----	965	0.1
177	Beoska-Dewar-Orovada association-----	4,560	0.3
180	Needle Peak-Batan-Yobe association-----	7,205	0.5
190	Wardenot-Sundown association-----	2,395	0.2
191	Wardenot-Laxal association-----	2,115	0.1
200	Izo-Misad association-----	11,765	0.8
201	Izo-Bubus association-----	1,545	0.1
210	Laxal association-----	20,480	1.3
211	Laxal gravelly fine sandy loam, occasionally flooded, 0 to 2 percent slopes-----	2,040	0.1
212	Laxal-Tomel association-----	3,040	0.2
220	Blackhawk very fine sandy loam, 2 to 8 percent slopes-----	1,335	0.1
221	Blackhawk-Tenabo-Desatoya Variant association-----	1,295	0.1
231	Broyles very fine sandy loam, 2 to 4 percent slopes-----	1,125	0.1
235	Broyles-Creemon association-----	1,765	0.1
236	Broyles association-----	2,860	0.2
237	Broyles-Beoska-Orovada association-----	7,935	0.5
239	Broyles-Tessfive-Perlor association-----	2,790	0.2
249	Bubus association-----	795	0.1
260	Umberland-Wendane association-----	5,530	0.4
261	Umberland-Wendane-Ocala association-----	3,790	0.2
262	Umberland silt loam, frequently flooded, 0 to 2 percent slopes-----	545	*
270	Tomel-Laxal association-----	380	*
280	Chiara-Filiran association-----	5,770	0.4
284	Chiara-Dewar association-----	1,565	0.1
290	Creemon silt loam, 0 to 2 percent slopes-----	3,005	0.2
291	Creemon-Wholan association-----	12,460	0.8
295	Creemon-Cren association-----	4,150	0.3
296	Creemon-Hessing association-----	19,210	1.2
297	Creemon-Rasille-Tulase association-----	2,840	0.2
298	Creemon-Misad association-----	2,945	0.2
301	Cren-Ocala-Playas association-----	2,785	0.2
310	Yobe-Kawich-Playas association-----	1,810	0.1
320	Newpass-Jung association-----	16,380	1.1
321	Newpass-Old Camp association-----	16,625	1.1
360	Eastwell-Blackhawk-Pineval association-----	3,785	0.2
404	Glean-Gando association-----	890	0.1
441	Gund-Umberland association-----	4,265	0.3
442	Gund-Bubus-Wendane association-----	3,560	0.2
443	Gund-Batan association-----	2,165	0.1
444	Gund association-----	2,845	0.2
461	Hapgood-Packer-Layview association-----	15,200	1.0
463	Hapgood-Packer-Rubble land association-----	1,245	0.1
465	Hapgood-Halacan-Hatur association-----	3,840	0.2
491	Enko-Orovada association, gently sloping-----	19,035	1.2
492	Enko-Glyphs association-----	2,790	0.2
493	Enko-Orovada association, nearly level-----	1,100	0.1
512	Hessing-Relley association-----	520	*
560	Jesse Camp silt loam-----	945	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
621	Loncan-Gando-Glean association-----	1,485	0.1
632	McConnel-Orovada-Misad association-----	7,285	0.5
633	McConnel-Rasille-Wholan association-----	42,315	2.7
635	McConnel-Rasille association-----	3,620	0.2
636	McConnel-Defler-Rasille association-----	2,325	0.1
637	McConnel-Orovada association-----	2,045	0.1
638	McConnel-Wholan association-----	4,220	0.3
670	Filiran-Pineval-Kingingham association-----	4,070	0.3
674	Filiran-Bufferan association-----	4,505	0.3
675	Filiran-Bufferan-Orovada association-----	3,610	0.2
680	Skullwak-Umberland-Wendane association-----	1,785	0.1
683	Ocala-Sonoma-Paranat association-----	8,880	0.6
700	Orovada-Rasille-Wholan association-----	28,985	1.9
701	Orovada fine sandy loam, 2 to 4 percent slopes-----	1,975	0.1
702	Orovada-Creemon association-----	1,305	0.1
703	Orovada fine sandy loam, 0 to 2 percent slopes-----	885	0.1
704	Orovada-McConnel association-----	2,965	0.2
705	Orovada-Valmy association-----	2,110	0.1
740	Playas-----	14,655	0.9
751	Poorcal-Lopwash association-----	1,410	0.1
811	Ravenswood-Itca-Walti association-----	1,790	0.1
812	Ravenswood-Shagnasty-Walti association-----	4,245	0.3
850	Relley silt loam, 0 to 2 percent slopes-----	995	0.1
854	Relley silt loam, frequently flooded, 0 to 2 percent slopes-----	2,530	0.2
910	Rutab loam, 0 to 2 percent slopes-----	2,210	0.1
931	Shagnasty-Roca-Rock outcrop association-----	15,125	1.0
932	Shagnasty-Softscrabble association-----	9,045	0.6
942	ShIPLEY silt loam, occasionally flooded, 0 to 2 percent slopes-----	800	0.1
950	Silverado sandy loam, 0 to 2 percent slopes-----	1,325	0.1
990	Sonoma-Wendane association-----	3,980	0.3
998	Sonoma-Paranat association-----	8,430	0.5
999	Sonoma-Wendane-Paranat association-----	4,420	0.3
1011	Stampede-Handy-Caniwe association-----	1,460	0.1
1041	Tenabo-Orovada-Bufferan association-----	4,775	0.3
1042	Tenabo-Ricert-Desatoya association-----	2,045	0.1
1092	Tulase-Bubus-McConnel association-----	2,900	0.2
1131	Fortank gravelly loam, 4 to 8 percent slopes-----	785	0.1
1140	Wendane silt loam, frequently flooded-----	10,726	0.7
1141	Wendane-Umberland association-----	4,070	0.3
1142	Wendane-Gund association-----	10,900	0.7
1143	Wendane silt loam, occasionally flooded-----	2,020	0.1
1145	Wendane-Playas association-----	1,810	0.1
1146	Wendane-Sonoma-Valmy association-----	9,115	0.6
1148	Wendane-Bubus association-----	6,090	0.4
1169	Whirlo-Broyles association-----	395	*
1173	Wholan silt loam, alkaline-----	1,420	0.1
1177	Wholan-Rasille association, alkaline-----	3,125	0.2
1178	Wholan-Rasille association, nonalkaline-----	17,740	1.1
1281	Ricert-Whirlo-Pineval association-----	2,110	0.1
1282	Ricert-Broyles association-----	7,595	0.5
1284	Ricert-Zineb-Pineval association-----	6,080	0.4
1285	Ricert-Bubus-Broyles association-----	1,480	0.1
1286	Ricert-Tenabo-Broyles association-----	3,480	0.2
1287	Ricert-Orovada-Broyles association-----	8,385	0.5
1288	Ricert-Orovada-Tenabo association-----	16,150	1.0
1289	Ricert-Blackhawk-Orovada association-----	6,140	0.4
1371	Chad-Gando-Softscrabble association-----	2,530	0.2
1450	Atlow-Stingdorn association-----	1,480	0.1
1600	Dumps and pits-----	640	*
1670	Wieland-Allor association-----	8,915	0.6
1680	Zineb gravelly loam, 2 to 8 percent slopes-----	2,040	0.1
1681	Zineb-Chiara-Wieland association-----	3,015	0.2
1682	Zineb-Orovada association-----	8,425	0.5

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
2003	Unius-Orovada association-----	5,640	0.4
2010	Glyphs-Silverado association-----	2,170	0.1
2011	Glyphs-Muni association-----	10,845	0.7
2012	Glyphs-Muni-Orovada association-----	12,410	0.8
2015	Glyphs-Enko association-----	5,090	0.3
2021	Rotinom-Wholan association-----	9,460	0.6
2022	Rotinom-Orovada association-----	5,260	0.3
2031	Muni-Orovada-Unius association-----	38,090	2.5
2060	Oxcorel-Beoska-Whirlo association-----	6,180	0.4
2061	Oxcorel-Zaidy-Grassval association-----	11,485	0.7
2063	Oxcorel-Pineval association-----	4,105	0.3
2069	Oxcorel-Wieland-Spasprey association-----	4,515	0.3
2081	Fenster-Jesse Camp association-----	275	*
2088	Punchbowl-Jung-Teguro association-----	2,570	0.2
2089	Punchbowl-Jung-Locane association-----	11,490	0.7
2090	Punchbowl gravelly loam, 4 to 15 percent slopes-----	2,050	0.1
2091	Punchbowl-Teguro-Sumine association-----	10,480	0.7
2092	Punchbowl-Belate-Reluctan association-----	2,125	0.1
2093	Punchbowl-Rock outcrop association-----	9,520	0.6
2094	Punchbowl-Simpark-Akerue association-----	13,220	0.9
2095	Punchbowl-Robson-Rock outcrop association-----	2,775	0.2
2096	Punchbowl-Locane-Nobuck association-----	9,525	0.6
2097	Punchbowl-Itca association-----	5,725	0.4
2099	Punchbowl-Roca-Rock outcrop association-----	890	0.1
2100	Grassval-Grina-Unsel Variant association-----	1,685	0.1
2101	Grassval-Oxcorel association-----	12,020	0.8
2102	Grassval-Wieland association-----	1,120	0.1
2104	Grassval-Punchbowl association-----	8,025	0.5
2105	Grassval-Glyphs-Muni association-----	8,940	0.6
2110	Isolde-Davey association-----	625	*
2540	Buffaran-Wieland association-----	5,075	0.3
2541	Buffaran-Zoesta association-----	2,030	0.1
2542	Buffaran-Chiara association-----	20,795	1.3
2543	Buffaran-Spasprey-Allor association-----	17,795	1.1
2545	Buffaran-Pineval association-----	1,250	0.1
2546	Buffaran-Spasprey-Locane association-----	3,055	0.2
2547	Buffaran-Desatoya association-----	4,710	0.3
2548	Buffaran-Tenabo-Pineval association-----	5,495	0.4
2554	Laped-Hooplite-Osoll association-----	5,730	0.4
2555	Laped-Colbar association-----	4,575	0.3
2570	Colbar-Atlow-Burrita association-----	3,565	0.2
2603	Grina-Genaw association-----	1,360	0.1
2640	Rasille-Kelk association-----	885	0.1
2672	Zoesta Variant-Jung-Trunk association-----	3,035	0.2
2681	Tessfive-Puett-Grina association-----	4,735	0.3
2683	Tessfive-Genaw-Orovada association-----	4,230	0.3
2684	Tessfive-Perlor-Orovada association-----	3,700	0.2
2690	Itca Variant-Reluctan-Handy association-----	2,390	0.2
2730	Pula-Spike-Buffaran association-----	3,840	0.2
2731	Pula-Spike association-----	2,505	0.2
2740	Spike-Desatoya Variant-Grassval association-----	5,745	0.4
2771	Kram-Hopeka-Rock outcrop association-----	1,215	0.1
2780	Desatoya-Tenabo-Pineval association-----	2,045	0.1
2781	Desatoya-Orovada association-----	9,325	0.6
2782	Desatoya-Pineval-Grassval association-----	7,460	0.5
2783	Desatoya-Spike association-----	3,290	0.2
2791	Old Camp-Colbar-Rock outcrop association-----	4,015	0.3
2792	Old Camp-Allor-Puett association-----	3,840	0.2
2793	Old Camp-Laped association-----	2,035	0.1
2797	Old Camp-Colbar association-----	15,855	1.0
2798	Old Camp-Atlow-Osoll association-----	1,670	0.1
3001	Barrier-Kobeh association-----	4,940	0.3
3011	Defler-Orovada association-----	2,250	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
3050	Novacan cobbly loam, 2 to 8 percent slopes-----	2,635	0.2
3071	Allor-Wieland association-----	14,650	0.9
3072	Allor-Orovada association, moderately sloping-----	11,585	0.7
3073	Allor-Kelk association-----	2,255	0.1
3074	Allor-Orovada association, nearly level-----	2,190	0.1
3080	Zaidy-Ricert association-----	3,450	0.2
3081	Zaidy-Allor association-----	5,435	0.3
3091	Packer-Newlands association-----	1,350	0.1
3092	Packer-Hapgood-Rock outcrop association-----	2,040	0.1
3093	Packer-Layview-Hapgood association-----	7,810	0.5
3094	Packer-Hapgood-Torro association-----	10,290	0.7
3101	Hackwood-Newlands-Hapgood association-----	1,025	0.1
3111	Ninemile-Zoesta-Itca association-----	3,515	0.2
3120	Walti-Softscrabble-Chad association-----	3,265	0.2
3121	Walti-Softscrabble-Bucan association-----	4,320	0.3
3122	Walti-Sumine-Softscrabble association-----	10,005	0.6
3123	Walti-Softscrabble-Itca association-----	5,325	0.3
3125	Walti-Softscrabble-Robson association-----	800	0.1
3130	Itca-Clanalpine-Reluctan association-----	9,435	0.6
3131	Itca-Ninemile-Rock outcrop association-----	3,380	0.2
3132	Itca-Softscrabble-Cleavage association-----	2,675	0.2
3134	Itca-Clanalpine-Torro association-----	18,670	1.2
3135	Itca-Clanalpine-Rock outcrop association-----	4,295	0.3
3136	Itca-Roca-Reluctan association-----	21,745	1.4
3137	Itca-Reluctan-Walti association-----	6,625	0.4
3140	Sodhouse-Tenabo-Desatoya Variant association-----	1,940	0.1
3151	Robson-Ninemile-Ravenswood association-----	4,755	0.3
3153	Robson-Locane-Softscrabble association-----	4,970	0.3
3154	Robson-Locane-Rock outcrop association-----	3,555	0.2
3155	Robson-Itca-Softscrabble association-----	3,530	0.2
3170	Teguro-Rubble land-Punchbowl association-----	2,275	0.1
3181	Newlands-Packer-Hapgood association, moderately steep-----	6,495	0.4
3182	Newlands-Packer-Hapgood association, strongly sloping-----	3,330	0.2
3190	Softscrabble-Clanalpine-Walti association-----	12,080	0.8
3192	Softscrabble-Walti-Cleavage association-----	2,315	0.1
3200	Dewar gravelly loam, 2 to 8 percent slopes-----	5,880	0.4
3210	Typic Argixerolls-Torripsammentic Haploxerolls-Glean association-----	1,200	0.1
3231	Stingdorn-Hooplite association-----	3,595	0.2
3251	Caphor-Tenabo-Spasprey association-----	2,130	0.1
3252	Caphor-Batan-Unsel association-----	9,280	0.6
3253	Caphor association-----	5,665	0.4
3270	Koyen fine sandy loam, 2 to 4 percent slopes-----	340	*
3310	Spasprey-Allor association-----	12,205	0.8
3312	Spasprey-Bufferan-Orovada association-----	3,665	0.2
3314	Spasprey-Allor-Orovada association-----	5,100	0.3
3341	Halacan-Hatur-Rock outcrop association-----	1,425	0.1
3342	Halacan-Hapgood-Granzan association-----	4,860	0.3
3411	Zoesta-Robson-Softscrabble association-----	12,560	0.8
3415	Zoesta-Handy association-----	2,710	0.2
3417	Zoesta-Roca-Softscrabble association-----	1,830	0.1
3421	Belate-Softscrabble-Torro association-----	14,860	1.0
3422	Belate-Robson-Torro association-----	2,450	0.2
3423	Belate-Cleavage-Softscrabble association-----	9,345	0.6
3450	Reluctan-Robson-Cleavage association-----	2,885	0.2
3453	Reluctan-Locane-Itca association-----	15,785	1.0
3455	Reluctan-Roca-Colbar association-----	1,820	0.1
3457	Reluctan-Clanalpine-Roca association-----	2,440	0.2
3461	Torro-Rubble land-Cleavage association-----	1,535	0.1
3462	Torro-Reluctan-Cleavage association-----	2,420	0.2
3463	Torro-Clanalpine-Itca association-----	1,605	0.1
3464	Torro-Itca-Softscrabble association-----	7,420	0.5
3465	Torro-Clanalpine-Softscrabble association-----	4,195	0.3
3562	Locane-Coztur-Punchbowl association-----	14,370	0.9

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
3563	Locane-Muni association-----	4,565	0.3
3625	Minat-Coztur-Belate association-----	1,585	0.1
3690	Izod-Koynik-Rock outcrop association-----	1,400	0.1
3740	Kelk silt loam, saline-----	1,480	0.1
3741	Kelk-Settlemyer association-----	3,540	0.2
3742	Kelk-Ocala association-----	4,450	0.3
3840	Jung-Newpass association-----	14,670	0.9
3841	Jung-Itca-Roca association-----	14,260	0.9
3842	Jung-Hooplite association-----	7,460	0.5
3843	Jung-Newpass-Teguro association-----	4,115	0.3
3845	Jung-Stingdorn-Atlow association-----	3,605	0.2
3846	Jung-Atlow-McVegas association-----	5,935	0.4
3847	Jung-Old Camp-Clanalpine association-----	265	*
3848	Jung-McVegas-Enko association-----	2,945	0.2
3851	Decram-Hapgood association-----	4,710	0.3
3852	Decram-Hapgood-Chad association-----	3,605	0.2
3861	Duco-Itca-Roca association-----	4,930	0.3
3863	Duco-Clanalpine-Jung association-----	1,080	0.1
3881	Layview-Packer-Hapgood association-----	2,095	0.1
3891	Labshaft-Hapgood-Rock outcrop association-----	1,790	0.1
3950	Hooplite-Jung-Izod association-----	3,000	0.2
3951	Hooplite-Old Camp-Puett association-----	1,345	0.1
3952	Hooplite-Stingdorn association-----	5,650	0.4
3960	Pineval gravelly loam, 2 to 4 percent slopes-----	1,130	0.1
3961	Pineval-Orovada-Beoska association-----	4,420	0.3
3964	Pineval-Orovada association-----	17,190	1.1
3990	Settlemyer fine sandy loam, drained, 0 to 2 percent slopes-----	975	0.1
3991	Settlemyer-Pineval association-----	3,340	0.2
3992	Settlemyer complex-----	1,185	0.1
4041	Hymas-Xine-Attella association-----	9,255	0.6
4070	Genaw-Wieland-Grina association-----	2,125	0.1
4072	Genaw-Orovada-Puett association-----	3,155	0.2
4073	Genaw-Broyles-Perlor association-----	3,060	0.2
4140	Welch loam, drained, 2 to 8 percent slopes-----	1,825	0.1
	Total-----	1,554,671	100.0

* Less than 0.1 percent.

TABLE 5.--ENGINEERING INDEX PROPERTIES

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
120*: Akerue-----	0-3	Very stony loam	SM-SC	A-4	30-40	75-80	55-65	50-60	40-50	25-30	5-10
	3-15	Very cobbly clay loam, very cobbly clay.	GC, SC, CL	A-7	40-55	60-85	50-80	45-65	35-55	40-50	15-25
	15-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simpark-----	0-13	Very stony loam	SM-SC	A-2, A-4	25-40	65-80	50-70	45-60	25-40	20-25	5-10
	13-18	Very cobbly loam, very gravelly loam.	GC, SC	A-2, A-6	10-40	60-75	30-65	25-55	20-45	25-35	10-15
	18-22	Indurated-----	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Robson-----	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
121*: Akerue-----	0-3	Very cobbly loam	SM-SC	A-4	30-40	75-80	55-65	50-60	40-50	25-30	5-10
	3-15	Very cobbly clay loam, very cobbly clay.	GC, SC, CL	A-7	40-55	60-85	50-80	45-65	35-55	40-50	15-25
	15-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simpark-----	0-13	Very cobbly loam	SM-SC	A-2, A-4	40-55	65-80	50-70	45-60	25-40	20-25	5-10
	13-18	Very cobbly loam, very gravelly loam.	GC, SC	A-2, A-6	10-40	60-75	30-65	25-55	20-45	25-35	10-15
	18-22	Indurated-----	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Punchbowl-----	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
141*: Unsel-----	0-8	Gravelly fine sandy loam.	SM-SC	A-2	0	75-85	55-75	40-60	25-35	25-30	5-10
	8-18	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0	75-85	55-75	45-60	35-45	35-40	15-20
	18-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC	A-2	0	60-75	50-70	35-50	20-35	20-30	5-10
	31-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand.	GP-GM, GP	A-1	0	40-50	20-35	10-25	0-10	---	NP
Wardenot-----	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
Belted-----	0-4	Gravelly fine sandy loam.	SM, GM	A-1, A-2	0-10	55-80	50-75	40-60	15-30	---	NP
	4-14	Sandy clay loam, loam, gravelly clay loam.	SC, CL	A-6, A-2	0	65-100	55-100	45-80	25-60	30-40	10-15
	14-25	Cemented-----	---	---	---	---	---	---	---	---	---
	25-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0-15	20-40	15-35	10-20	0-5	---	NP
142*: Unsel-----	0-8	Gravelly fine sandy loam.	SM-SC	A-2	0	75-85	55-75	40-60	25-35	25-30	5-10
	8-18	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0	75-85	55-75	45-60	35-45	35-40	15-20
	18-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC	A-2	0	60-75	50-70	35-50	20-35	20-30	5-10
	31-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand.	GP-GM, GP	A-1	0	40-50	20-35	10-25	0-10	---	NP
Caphor-----	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Sandy loam, fine sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	17-35	Sandy loam, fine sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
142*: Chedehap-----	0-5	Coarse sandy loam	SM	A-1, A-2	0-5	90-100	85-95	35-50	20-35	15-25	NP-5
	5-12	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	12-37	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	37-60	Coarse sand, loamy coarse sand.	SM	A-1	0-5	90-100	85-95	20-40	10-20	---	NP
150*: Chedehap-----	0-5	Coarse sandy loam	SM	A-1, A-2	0-5	90-100	85-95	35-50	20-35	15-25	NP-5
	5-12	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	12-37	Sandy loam, coarse sandy loam.	SM	A-1, A-2	0-5	90-100	85-95	40-55	20-35	15-25	NP-5
	37-60	Coarse sand, loamy coarse sand.	SM	A-1	0-5	90-100	85-95	20-40	10-20	---	NP
Enko-----	0-6	Gravelly fine sandy loam.	SM-SC	A-2	0	60-80	50-75	40-65	15-30	20-25	5-10
	6-12	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	12-18	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	18-60	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-2, A-4	0	95-100	75-100	60-90	30-65	20-25	5-10
Ricert-----	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
160*: Batan-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Batan, slightly saline-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	85-95	30-35	NP-5
	5-68	Stratified silt loam to silty clay.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
161----- Batan	0-5 5-68	Silt loam----- Stratified silt loam to silty clay loam.	ML CL	A-4 A-6	0 0	100 100	100 100	95-100 95-100	85-95 85-95	30-35 30-40	5-10 15-25
162*: Batan-----	0-5 5-68	Silt loam----- Stratified silt loam to silty clay loam.	ML CL	A-4 A-6	0 0	100 100	100 100	95-100 95-100	85-95 85-95	30-35 30-40	5-10 15-25
Kelk, saline----	0-3 3-20 20-40 40-60	Silt loam----- Silt loam----- Silt loam----- Silt loam-----	CL-ML, ML CL-ML, ML CL-ML, ML CL-ML, ML	A-4 A-4 A-4 A-4	0 0 0 0	100 95-100 95-100 95-100	100 95-100 95-100 95-100	95-100 95-100 95-100 95-100	85-95 85-95 85-95 85-95	25-35 25-35 25-35 25-35	5-10 5-10 5-10 5-10
Kelk, occasionally flooded-----	0-14 14-51 51-60	Silt loam----- Silt loam----- Silt loam-----	CL-ML, CL CL-ML, CL CL-ML, CL	A-4, A-6 A-4, A-6 A-4, A-6	0 0 0	95-100 95-100 95-100	95-100 95-100 90-100	95-100 95-100 90-100	75-90 85-95 80-95	25-35 25-35 25-35	5-15 5-15 5-15
168*: Batan-----	0-5 5-68	Silt loam----- Stratified silt loam to silty clay loam.	ML CL	A-4 A-6	0 0	100 100	100 100	95-100 95-100	85-95 85-95	30-35 30-40	5-10 15-25
Bubus-----	0-6 6-60	Very fine sandy loam. Stratified sandy loam to silt loam.	ML ML	A-4 A-4	0 0	85-95 95-100	75-90 90-100	70-80 80-90	50-60 50-60	25-30 25-30	NP-5 NP-5
Ocala-----	0-4 4-36 36-60	Silt loam----- Silt loam, silty clay loam. Silt loam, silty clay loam.	ML, CL ML, CL ML, CL	A-4, A-6 A-6, A-7 A-6, A-7	0 0 0	100 100 90-100	100 100 90-100	95-100 95-100 90-95	85-95 85-95 85-90	30-40 30-50 30-50	5-15 10-20 10-20
169*: Batan-----	0-5 5-68	Silt loam----- Stratified silt loam to silty clay loam.	ML CL	A-4 A-6	0 0	100 100	100 100	95-100 95-100	85-95 85-95	30-35 30-40	5-10 15-25
Ocala, occasionally flooded-----	0-4 4-36 36-60	Silty clay loam Silt loam, silty clay loam. Silt loam, silty clay loam.	CL, ML ML, CL ML, CL	A-7 A-6, A-7 A-6, A-7	0 0 0	100 100 90-100	100 100 90-100	95-100 95-100 90-95	85-95 85-95 85-90	40-50 30-50 30-50	15-20 10-20 10-20
Ocala, rarely flooded-----	0-6 6-13 13-60	Silty clay loam Silt loam, silty clay loam. Silt loam, silty clay loam.	CL, ML ML, CL ML, CL	A-7 A-6, A-7 A-6, A-7	0 0 0	100 100 90-100	100 100 90-100	95-100 95-100 90-95	85-95 85-95 85-90	40-50 30-50 30-50	15-20 10-20 10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
170*: Beoska-----	0-13	Gravelly sandy loam.	SM	A-1, A-2	0-10	70-80	55-75	35-60	20-35	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	60-80	55-70	30-50	20-35	---	NP
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
171----- Beoska	0-13	Silt loam-----	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
172*: Beoska-----	0-13	Silt loam-----	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
172*: Tenabo-----	0-13	Silt loam-----	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	13-20	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	20-39	Indurated-----	---	---	---	---	---	---	---	---	---
	39-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
173*: Beoska-----	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
174*: Beoska-----	0-13	Silt loam-----	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
174*: Chiara-----	0-5	Fine sandy loam	SM	A-4	0	95-100	90-100	65-75	40-50	---	NP
	5-16	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	16-20	Indurated-----	---	---	---	---	---	---	---	---	---
175*: Beoska-----	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Whirlo-----	0-12	Silt loam-----	ML	A-4	0	80-95	75-90	70-85	55-70	20-25	NP-5
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
Misad-----	0-7	Gravelly sandy loam.	SM, SM-SC	A-1, A-2	0-5	65-80	55-70	45-60	20-35	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
177*: Beoska-----	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Dewar-----	0-4	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	4-14	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	14-50	Indurated-----	---	---	---	---	---	---	---	---	---
Orovada-----	0-8	Gravelly very fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	45-70	30-50	15-25	NP-5
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
180*: Needle Peak-----	0-8	Silt loam-----	CL, ML	A-6, A-7	0	100	100	95-100	80-90	30-45	10-15
	8-60	Silt loam, silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
Batan-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Yobe-----	0-16	Silt loam-----	ML	A-4, A-6	0	100	95-100	95-100	75-90	30-40	5-15
	16-60	Silty clay loam, silt loam.	CL, ML	A-6, A-7	0	100	95-100	95-100	85-90	30-50	10-20
190*: Wardenot-----	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
Sundown-----	0-7	Fine sand-----	SM, SP-SM	A-2, A-3	0	95-100	85-100	80-90	5-20	---	NP
	7-60	Loamy fine sand	SM	A-2	0-5	95-100	85-100	70-85	15-30	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
191*: Wardenot-----	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
Laxal-----	0-10	Very gravelly fine sandy loam.	GM-GC, GM	A-1, A-2	5-10	45-60	35-50	30-40	10-25	15-25	NP-10
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
Wardenot, strongly saline	0-5	Gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	60-80	50-75	40-60	20-40	20-25	NP-5
	5-60	Stratified very gravelly fine sandy loam to extremely cobbly loamy sand.	GP-GM, GM	A-1	10-40	25-50	20-45	15-40	5-15	---	NP
200*: Izo-----	0-2	Very gravelly loamy sand.	GM, GP-GM, SM, SP-SM	A-1	0-15	35-60	30-50	15-35	5-15	---	NP
	2-60	Stratified gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-40	15-35	10-20	0-10	---	NP
Misad-----	0-7	Gravelly sandy loam.	SM, SM-SC	A-1, A-2	0-5	65-80	55-70	45-60	20-35	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP
201*: Izo-----	0-2	Gravelly loam----	SM, GM	A-2, A-4	0-5	60-80	55-75	35-65	30-50	15-25	NP-5
	2-60	Stratified gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-40	15-35	10-20	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
201*: Bubus-----	0-4	Very gravelly very fine sandy loam.	GM	A-1, A-2	0	35-60	25-50	20-45	10-35	25-30	NP-5
	4-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
210*: Laxal-----	0-6	Gravelly fine sandy loam.	GM	A-2, A-4	0-5	60-70	50-60	40-50	25-40	20-30	NP-5
	6-60	Stratified very gravelly sandy loam to very gravelly loamy coarse sand.	GM	A-1	0-15	35-45	30-40	15-25	10-15	---	NP
Laxal, occasionally flooded-----	0-10	Very gravelly fine sandy loam.	GM-GC, GM	A-1, A-2	5-10	45-60	35-50	30-40	10-25	15-25	NP-10
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
211----- Laxal	0-10	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0-5	60-80	50-75	45-65	25-40	20-25	NP-5
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
212*: Laxal-----	0-10	Gravelly fine sandy loam.	GM	A-2, A-4	0-5	60-70	50-60	40-50	25-40	20-30	NP-5
	10-60	Stratified very gravelly sandy loam to very gravelly loamy coarse sand.	GM	A-1	0-15	35-45	30-40	15-25	10-15	---	NP
Tomel-----	0-4	Gravelly fine sandy loam.	GM-GC, SM-SC	A-2, A-4	0	55-80	50-75	40-65	15-40	20-25	5-10
	4-18	Very gravelly silty clay loam, very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2, A-6	0	40-60	35-50	25-45	25-45	30-40	10-20
	18-33	Indurated-----	---	---	---	---	---	---	---	---	---
	33-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	20-40	15-35	10-20	0-5	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
212*: Laxal, occasionally flooded-----	0-10	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0-5	60-80	50-75	45-65	25-40	20-25	NP-5
	10-60	Stratified gravelly loam to very gravelly sand.	GP-GM, GM	A-1	0-10	35-55	30-50	20-40	5-15	---	NP
220----- Blackhawk	0-8	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	8-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-17	Cemented-----	---	---	---	---	---	---	---	---	---
	17-38	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	38-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP
221*: Blackhawk-----	0-8	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	8-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-17	Cemented-----	---	---	---	---	---	---	---	---	---
	17-38	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	38-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP
Tenabo-----	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	4-15	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
221*: Desatoya Variant	0-3	Very gravelly sandy loam.	GM-GC	A-2	0	45-60	35-50	25-40	10-25	20-30	5-10
	3-13	Gravelly clay loam, gravelly sandy clay loam.	SC, CL	A-6, A-7	0	70-85	55-70	45-60	40-55	35-45	15-20
	13-26	Very gravelly sandy loam.	GM	A-1	0	45-60	35-50	25-40	10-25	15-20	NP-5
	26-60	Very gravelly sand.	GP-GM, SP-SM	A-1	0	45-60	35-50	20-35	5-10	---	NP
231----- Broyles	0-11	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
235*: Broyles-----	0-11	Silt loam-----	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
Creemon-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	7-18	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	18-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
236*: Broyles-----	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
Broyles, moderately saline-----	0-5	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-100	50-70	20-25	NP-5
	5-11	Silt loam, very fine sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	75-90	40-55	20-25	NP-5
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
237*: Broyles-----	0-11	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
237*: Beoska-----	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
239*: Broyles-----	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
Tessfive-----	0-6	Gravelly loam----	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Perlor-----	0-7	Fine sandy loam	SM	A-2, A-4	0-5	85-100	80-100	70-90	25-40	15-25	NP-5
	7-14	Loam, sandy loam, gravelly sandy loam.	SM, ML	A-4	0-5	75-100	70-95	50-80	35-65	15-25	NP-5
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
249*: Bubus, slightly saline-----	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
Bubus-----	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
260*: Umberland-----	0-11	Silt loam-----	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	11-60	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
261*: Umberland-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Ocala-----	0-4	Silt loam-----	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-16	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	16-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
262----- Umberland	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	90-100	85-95	40-55	20-30
270*: Tomel-----	0-3	Very gravelly sandy loam.	GM	A-1	0	35-60	25-50	20-35	10-25	20-25	NP-5
	3-12	Very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2	0	40-60	35-50	30-40	20-35	30-35	10-15
	12-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0-5	20-40	15-35	10-20	0-5	---	NP
Laxal-----	0-10	Gravelly loam----	GM	A-2, A-4	0-5	60-70	50-60	40-50	25-40	20-30	NP-5
	10-60	Stratified very gravelly sandy loam to very gravelly loamy coarse sand.	GM	A-1	0-15	35-45	30-40	15-25	10-15	---	NP
280*: Chiara-----	0-5	Gravelly loam----	SM	A-4	0-5	70-80	55-70	50-65	35-50	15-25	NP-5
	5-16	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	16-20	Indurated-----	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
280*: Filiran-----	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-5	45-60	35-50	30-40	20-30	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented-----	---	---	---	---	---	---	---	---	---
284*: Chiara-----	0-5	Gravelly loam----	SM	A-4	0-5	70-80	55-70	50-65	35-50	15-25	NP-5
	5-16	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	16-20	Indurated-----	---	---	---	---	---	---	---	---	---
Dewar-----	0-4	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	4-14	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	14-50	Indurated-----	---	---	---	---	---	---	---	---	---
290----- Creemon	0-10	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
291*: Creemon-----	0-10	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Wholan-----	0-13	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	13-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Wholan, alkaline	0-13	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	13-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
295*: Creemon-----	0-10	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Cren-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	7-26	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	26-60	Stratified fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
296*: Creemon-----	0-10	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Hessing-----	0-4	Silt loam-----	CL-ML	A-4	0	100	100	95-100	85-95	25-30	5-10
	4-11	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
	11-18	Very fine sandy loam, silt loam.	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	18-30	Gravelly loam----	GM	A-4	0	60-70	55-65	45-55	35-50	25-30	NP-5
	30-60	Stratified very gravelly loamy coarse sand to extremely gravelly sand.	GP-GM, GW-GM	A-1	0	35-45	20-35	10-20	5-10	---	NP
297*: Creemon-----	0-10	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-60	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
Rasille-----	0-6	Very fine sandy loam.	ML	A-4	0	100	100	95-100	60-80	15-25	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
Tulase-----	0-6	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	60-70	15-25	NP-10
	6-60	Very fine sandy loam, silt loam.	CL-ML, ML	A-4	0	100	100	95-100	70-85	15-25	NP-10
298*: Creemon-----	0-10	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	---	NP
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-45	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	45-60	Stratified gravelly very fine sandy loam to fine sandy loam.	SM	A-4	0	80-90	70-85	60-70	35-50	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
298*: Misad-----	0-7	Gravelly sandy loam.	SM, SM-SC	A-1, A-2	0-5	65-80	55-70	45-60	20-35	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP
301*: Cren-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	7-26	Silt loam-----	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	26-60	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	15-25	NP-5
Ocala-----	0-4	Silt loam-----	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-16	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	16-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
Playas.											
310*: Yobe-----	0-16	Silt loam-----	ML	A-4, A-6	0	100	95-100	95-100	75-90	30-40	5-15
	16-60	Silty clay loam, silt loam.	CL, ML	A-6, A-7	0	100	95-100	95-100	85-90	30-50	10-20
Kawich-----	0-4	Fine sand-----	SM	A-2	0	100	100	75-90	15-30	---	NP
	4-60	Fine sand-----	SM	A-2	0	100	100	75-90	15-30	---	NP
Playas.											
320*: Newpass-----	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay-----	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented-----	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung-----	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
321*: Newpass-----	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay-----	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented-----	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp, strongly sloping-----	0-2	Gravelly loam----	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp, moderately steep-----	0-2	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-15	50-60	35-45	30-40	20-30	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
360*: Eastwell-----	0-5	Gravelly loam----	SM, ML, GM	A-4	0-5	65-80	60-75	40-60	35-55	25-35	NP-10
	5-15	Very gravelly loam, very gravelly sandy loam.	GM, GM-GC, GC	A-1, A-2	0-10	40-60	35-50	20-40	10-30	20-35	NP-15
	15-17	Cemented-----	---	---	---	---	---	---	---	---	---
	17-60	Very gravelly loam, very cobbly loam.	GM, GM-GC	A-2, A-4	25-45	50-70	45-65	35-55	30-50	20-30	NP-10
Blackhawk-----	0-3	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	3-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-30	Cemented-----	---	---	---	---	---	---	---	---	---
	30-48	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	48-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
360*: Pineval-----	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
404*: Glean-----	0-6	Very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	6-39	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-25	30-65	25-60	20-50	10-35	20-30	NP-5
	39-51	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-25	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando-----	0-4	Very cobbly loam	SM	A-2, A-4	30-40	65-75	60-70	40-50	30-40	20-25	NP-5
	4-10	Very gravelly loam, extremely gravelly loam.	GM	A-1, A-2	10-25	30-45	25-40	20-35	15-30	20-25	NP-5
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
441*: Gund-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Umlerland-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay loam, silty clay, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
442*: Gund-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Bubus-----	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
442*: Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
443*: Gund-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Batan-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
444*: Gund-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Gund, drained---	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
461*: Hapgood-----	0-17	Very gravelly loam.	GM-GC	A-2	5-10	50-60	35-50	30-45	25-35	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Packer-----	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Layview-----	0-3	Very gravelly sandy loam.	GM-GC	A-2	10-15	35-60	30-55	20-35	10-20	25-30	5-10
	3-12	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	10-15	35-60	30-55	25-45	20-40	30-40	15-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
463*: Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Packer-----	0-10	Extremely cobbly sandy loam.	GM-GC	A-2	40-50	35-50	20-35	15-30	10-25	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	45-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam, very cobbly loam.	GM	A-1, A-2	40-50	40-55	30-50	20-45	10-35	20-25	NP-5
Rubble land.											
465*: Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Halacan-----	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	45-55	35-50	30-45	25-40	30-40	NP-5
	5-17	Extremely channery loam, very channery loam.	GM	A-2, A-4, A-1	40-55	30-55	20-50	15-45	10-40	30-40	NP-5
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hatur-----	0-14	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	25-40	20-35	20-25	NP-5
	14-29	Extremely gravelly loam, extremely gravelly sandy loam.	GM, GP-GM	A-1	0-25	20-30	15-25	10-25	5-20	20-25	NP-5
	29-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
491*: Enko-----	0-6	Sandy loam-----	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	6-12	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	12-18	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	18-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
491*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
492*: Enko-----	0-14	Sandy loam-----	SM, ML	A-4	0	90-100	85-100	50-80	35-55	15-25	NP-5
	14-53	Loam, fine sandy loam, sandy loam.	CL-ML, SM-SC, ML, SM	A-4	0	90-100	85-100	50-90	35-70	15-25	NP-10
	53-63	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand.	GP-GM, GP	A-1	0-20	30-55	25-45	15-25	0-10	---	NP
Glyphs-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
493*: Enko-----	0-6	Sandy loam-----	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	6-12	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	12-18	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	18-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
512*: Hessing-----	0-4	Gravelly silt loam.	CL-ML	A-4	0	75-85	60-75	55-65	50-60	25-30	5-10
	4-11	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
	11-18	Very fine sandy loam, silt loam.	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	18-30	Gravelly loam----	GM	A-4	0	60-70	55-65	45-55	35-50	25-30	NP-5
	30-60	Stratified very gravelly loamy coarse sand to extremely gravelly sand.	GP-GM, GW-GM	A-1	0	35-45	20-35	10-20	5-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
512*: Relley-----	0-8	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	75-90	25-35	5-10
	8-16	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	16-28	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	28-60	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
560----- Jesse Camp	0-4	Silt loam-----	ML	A-4	0	100	100	90-100	65-80	25-35	NP-10
	4-12	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-85	25-35	NP-10
	12-60	Silt loam-----	ML	A-4, A-6	0	100	100	95-100	75-85	30-40	5-15
621*: Loncan-----	0-9	Gravelly loam----	GC, CL	A-6	0-15	65-80	60-75	50-70	35-60	30-35	10-15
	9-22	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando-----	0-4	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	4-10	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Glean-----	0-6	Very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	6-39	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-25	30-65	25-60	20-50	10-35	20-30	NP-5
	39-51	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-25	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
632*: McConnel-----	0-6	Gravelly loam----	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
632*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Misad-----	0-7	Gravelly very fine sandy loam.	SM, SM-SC, GM, GM-GC	A-2, A-4	0-5	65-80	55-70	50-65	30-50	15-25	NP-10
	7-31	Stratified fine sandy loam to very gravelly sandy loam.	GM, GM-GC, SM, SM-SC	A-1, A-2	5-10	45-65	40-60	25-40	10-25	15-25	NP-10
	31-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP-GM	A-1	5-10	40-55	20-40	10-30	5-10	---	NP
633*: McConnel-----	0-6	Gravelly loam----	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
Wholan-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
635*: McConnel-----	0-6	Gravelly loam----	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
635*: Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	41-60	Stratified fine sandy loam to very gravelly coarse sand.	SM, GM	A-1	0	55-80	50-75	15-35	10-20	---	NP
636*: McConnel-----	0-6	Gravelly loam----	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
Defler-----	0-5	Gravelly fine sandy loam.	GM, SM	A-2, A-4, A-1	0-5	55-80	50-75	40-60	20-40	15-25	NP-5
	5-35	Very gravelly fine sandy loam, very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-10	30-55	25-50	15-40	10-30	15-25	NP-5
	35-70	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	0-10	25-40	20-35	10-20	5-15	---	NP
Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
637*: McConnel-----	0-6	Fine sandy loam	ML	A-4	0	95-100	85-95	70-80	50-60	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
637*: Orovada-----	0-8	Very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
McConnel, gravelly-----	0-6	Gravelly fine sandy loam.	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
638*: McConnel-----	0-6	Fine sandy loam	ML	A-4	0	95-100	85-95	70-80	50-60	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
Wholan-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
670*: Filiran-----	0-7	Silt loam-----	ML, CL-ML	A-4	0	90-100	90-100	80-95	50-70	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented-----	---	---	---	---	---	---	---	---	---
Pineval-----	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
670*: Kingingham-----	0-7	Gravelly very fine sandy loam.	SM	A-2, A-4	0-5	70-85	55-70	50-65	30-50	15-25	NP-5
	7-22	Gravelly clay loam, gravelly clay, gravelly silty clay loam.	GC, CL, CH	A-7	0-5	70-85	55-70	50-65	45-60	40-55	20-30
	22-60	Indurated-----	---	---	---	---	---	---	---	---	---
674*: Filiran-----	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-5	45-60	35-50	30-40	20-30	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented-----	---	---	---	---	---	---	---	---	---
Buffaran-----	0-5	Extremely gravelly loam.	GC	A-2	0-5	30-45	15-25	10-20	10-15	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
675*: Filiran-----	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-5	45-60	35-50	30-40	20-30	15-25	NP-10
	7-12	Gravelly silt loam.	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	65-80	55-70	45-60	35-50	20-35	5-20
	12-33	Clay, silty clay loam, gravelly clay.	CL, CH	A-7	0	80-100	70-90	65-85	60-80	40-55	25-35
	33-60	Cemented-----	---	---	---	---	---	---	---	---	---
Buffaran-----	0-5	Gravelly loam-----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
680*: Skullwak-----	0-10	Silt loam-----	CL	A-6	0	100	100	90-100	85-100	30-40	10-20
	10-60	Stratified silty clay loam to silty clay.	CH, CL	A-7	0	100	100	95-100	90-100	40-60	20-40
Umberland-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam.	CL, CH	A-7	0	100	100	90-100	85-95	40-55	20-30

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
680*: Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
683*: Ocala-----	0-4	Silt loam-----	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-36	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
Sonoma-----	0-12	Silt loam-----	CL	A-6	0	100	100	95-100	75-90	30-35	10-15
	12-60	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	35-50	15-25
Paranat-----	0-11	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	25-35	NP-10
	11-60	Silt loam, silty clay loam.	ML	A-4, A-6	0	100	100	95-100	90-100	30-40	5-15
700*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	26-61	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
Wholan-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
701----- Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
702*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
702*: Creemon-----	0-10	Fine sandy loam	SM	A-4	0	100	100	80-95	35-50	15-20	NP-5
	10-15	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	15-45	Stratified very fine sandy loam to silt loam.	ML	A-4	0	100	100	95-100	85-90	25-30	NP-5
	45-60	Stratified gravelly very fine sandy loam to fine sandy loam.	SM	A-4	0	80-90	70-85	60-70	35-50	---	NP
703----- Orovada	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
704*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
McConnel-----	0-6	Gravelly fine sandy loam.	GM	A-2, A-4	0	60-70	50-70	40-60	25-45	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
705*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Valmy-----	0-3	Very fine sandy loam.	SM	A-4	0	90-100	85-100	60-75	35-50	15-25	NP-5
	3-43	Stratified very fine sandy loam to gravelly coarse sandy loam.	SM	A-4, A-2, A-1	0-5	80-95	75-90	40-70	20-45	15-25	NP-5
	43-66	Gravelly sand, very gravelly sand.	SP-SM, SM, GP-GM, GM	A-1	0-10	40-75	30-70	20-45	5-15	---	NP
740*. Playas											

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
751*: Poorcal-----	0-9	Loam-----	CL-ML	A-4	0	95-100	90-100	85-95	60-70	20-25	5-10
	9-30	Gravelly sandy loam, loam, gravelly loam.	SM-SC	A-2, A-4	0	65-90	55-85	40-60	20-50	15-25	5-10
	30-62	Very gravelly loamy sand, very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0	45-60	40-50	15-40	10-35	---	NP
Lopwash-----	0-12	Loam-----	CL-ML, SM-SC	A-4	0	90-100	80-90	75-85	45-55	20-25	5-10
	12-60	Very gravelly coarse sandy loam, very gravelly sandy loam.	GM-GC	A-2	0	40-50	30-40	20-30	10-20	20-25	5-10
811*: Ravenswood-----	0-9	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-15	60-75	55-70	45-65	30-45	25-30	5-10
	9-13	Very gravelly clay loam.	GC	A-2	5-15	45-60	35-50	30-45	20-35	40-50	15-25
	13-36	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-15	45-60	35-50	30-45	25-40	40-55	20-30
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca-----	0-2	Stony loam-----	CL, CL-ML	A-4, A-6	25-60	70-90	65-85	60-70	50-60	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Walti-----	0-4	Cobbly loam-----	CL-ML	A-4	25-40	70-85	65-80	55-70	50-60	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
812*: Ravenswood-----	0-9	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-15	60-75	55-70	45-65	30-45	25-30	5-10
	9-13	Very gravelly clay loam.	GC	A-2	5-15	45-60	35-50	30-45	20-35	40-50	15-25
	13-36	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-15	45-60	35-50	30-45	25-40	40-55	20-30
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
812*: Shagnasty-----	0-15	Very cobbly loam	SC, SM-SC	A-6, A-4	40-60	70-85	55-70	50-65	35-50	25-35	5-15
	15-36	Clay, clay loam	CL, CH	A-7	5-10	90-100	85-95	75-90	60-75	40-60	20-35
	36-57	Cobbly clay loam, cobbly silty clay loam.	CL, CH, MH	A-7	15-25	70-90	65-85	55-80	50-70	40-55	15-25
	57-61	Weathered bedrock	---	---	---	---	---	---	---	---	---
Walti-----	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
850, 854----- Relley	0-8	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	75-90	25-35	5-10
	8-16	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	16-28	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	28-60	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
910----- Rutab	0-8	Loam-----	ML	A-4	0	90-100	85-95	75-85	50-60	20-25	NP-5
	8-21	Very gravelly sandy loam, very gravelly loam, gravelly loam.	SM-SC, SM	A-2, A-4, A-1	0	65-90	35-75	30-50	15-45	15-25	NP-10
	21-60	Extremely gravelly sandy loam, extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM	A-1	0	40-50	20-35	10-25	5-10	15-20	NP-5
931*: Shagnasty-----	0-15	Very cobbly loam	SC, SM-SC	A-6, A-4	40-60	70-85	55-70	50-65	35-50	25-35	5-15
	15-36	Clay, clay loam	CL, CH	A-7	5-10	90-100	85-95	75-90	60-75	40-60	20-35
	36-57	Cobbly clay loam, cobbly silty clay loam.	CL, CH, MH	A-7	15-25	70-90	65-85	55-80	50-70	40-55	15-25
	57-61	Weathered bedrock	---	---	---	---	---	---	---	---	---
Roca-----	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
932*: Shagnasty-----	0-15	Very cobbly loam	SC, SM-SC	A-6, A-4	40-60	70-85	55-70	50-65	35-50	25-35	5-15
	15-36	Clay, clay loam	CL, CH	A-7	5-10	90-100	85-95	75-90	60-75	40-60	20-35
	36-57	Cobbly clay loam, cobbly silty clay loam.	CL, CH, MH	A-7	15-25	70-90	65-85	55-80	50-70	40-55	15-25
	57-61	Weathered bedrock	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
942----- Shipley	0-5	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-80	20-30	NP-10
	5-41	Silt loam, very fine sandy loam.	CL-ML, ML	A-4	0	100	95-100	80-90	60-70	20-30	NP-10
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	5-10	40-50	25-40	15-30	0-5	---	NP
950----- Silverado	0-2	Sandy loam-----	SM	A-4	0	95-100	90-100	70-80	40-50	20-25	NP-5
	2-19	Sandy loam-----	SM	A-4	0	95-100	90-100	60-70	35-45	20-25	NP-5
	19-38	Gravelly sandy loam, sandy loam.	GM, SM	A-1	0	60-90	55-85	40-50	15-25	15-25	NP-5
	38-60	Very gravelly coarse sand.	GP	A-1	0	40-50	35-45	10-20	0-5	---	NP
990*: Sonoma-----	0-12	Silt loam-----	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45*	10-20
998*: Sonoma, frequently flooded-----	0-12	Silt loam-----	CL	A-6	0	100	100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Paranat-----	0-20	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	25-35	NP-10
	20-48	Stratified silt loam to silty clay loam.	ML	A-4, A-6	0	100	100	95-100	90-100	30-40	5-15
	48-60	Stratified very fine sandy loam to silty clay.	ML	A-4, A-6	0	100	100	85-95	75-90	30-40	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
998*: Sonoma, occasionally flooded-----	0-12	Silt loam-----	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
999*: Sonoma-----	0-12	Silt loam-----	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	12-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Paranat-----	0-20	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	25-35	NP-10
	20-48	Stratified silt loam to silty clay loam.	ML	A-4, A-6	0	100	100	95-100	90-100	30-40	5-15
	48-60	Stratified very fine sandy loam to silty clay.	ML	A-4, A-6	0	100	100	85-95	75-90	30-40	5-15
1011*: Stampede-----	0-10	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	10-31	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	31-60	Indurated-----	---	---	---	---	---	---	---	---	---
Handy-----	0-4	Gravelly loam----	SC	A-2, A-6	0-10	65-75	55-65	40-50	30-40	30-35	10-15
	4-30	Gravelly clay, clay.	CH, CL	A-7	0-10	70-100	60-100	60-75	50-70	45-55	30-35
	30-60	Stratified gravelly loam to very gravelly loamy sand.	GM	A-1, A-2	0-10	35-65	30-60	20-55	10-35	15-25	NP-5
Caniwe-----	0-17	Very fine sandy loam.	ML	A-4	0	100	100	95-100	65-80	15-25	NP-5
	17-60	Stratified silt loam to silty clay loam.	ML	A-4, A-7	0	100	100	95-100	85-95	30-50	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1041*: Tenabo-----	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	26-61	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Buffaran-----	0-5	Gravelly loam----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
1042*: Tenabo-----	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Ricert-----	0-6	Very gravelly very fine sandy loam.	GM-GC	A-2	0-10	50-60	40-50	35-50	25-35	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1042*: Desatoya-----	0-6	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
1092*: Tulase-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	100	90-100	15-25	NP-10
	6-60	Very fine sandy loam, silt loam.	CL-ML, ML	A-4	0	100	100	95-100	70-85	15-25	NP-10
Bubus-----	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
McConnel-----	0-6	Loam-----	ML	A-4	0	95-100	85-95	70-80	50-60	15-25	NP-5
	6-12	Loam, sandy loam, fine sandy loam.	ML, SM	A-4	0	95-100	90-100	65-80	45-60	15-25	NP-5
	12-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP	A-1	0-15	25-35	10-35	5-15	0-5	---	NP
1131----- Fortank	0-6	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	25-30	65-75	60-70	50-60	30-50	20-30	5-10
	6-30	Gravelly clay, gravelly clay loam.	GC, CL	A-7	0-10	65-85	55-75	45-65	40-60	40-50	20-30
	30-34	Weathered bedrock	---	---	---	---	---	---	---	---	---
1140----- Wendane	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
1141*: Wendane, strongly sodic	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
141*: Wendane, frequently flooded-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Umberland-----	0-7	Silt loam-----	ML	A-4	0	100	100	95-100	60-80	25-35	NP-10
	7-60	Silty clay, silty clay loam, clay.	CL, CH	A-7	0	100	100	95-100	85-95	40-55	20-30
1142*: Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Gund-----	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
Gund, drained---	0-4	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	80-90	25-35	5-10
	4-23	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-90	25-35	5-15
	23-60	Silty clay, clay	CH	A-7	0	100	100	95-100	85-95	50-60	25-35
1143----- Wendane	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
1145*: Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Playas.											
1146*: Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Sonoma-----	0-10	Silt loam-----	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	10-60	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit. index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1146*: Valmy-----	0-6	Very fine sandy loam.	SM	A-4	0	90-100	85-100	60-75	35-50	15-25	NP-5
	6-42	Stratified very fine sandy loam to gravelly coarse sandy loam.	SM	A-4, A-2, A-1	0-5	80-95	75-90	40-70	20-45	15-25	NP-5
	42-60	Gravelly sand, very gravelly sand.	SP-SM, SM, GP-GM, GM	A-1	0-10	40-75	30-70	20-45	5-15	---	NP
1148*: Wendane-----	0-7	Silt loam-----	ML	A-4	0	100	100	90-100	70-95	30-40	NP-10
	7-18	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-80	30-40	NP-10
	18-60	Stratified silt loam to clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	35-45	10-20
Bubus-----	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
1169*: Whirlo-----	0-12	Gravelly very fine sandy loam.	ML, GM	A-4	0	60-75	55-75	50-70	40-60	---	NP
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
Broyles-----	0-11	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	11-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1173----- Wholan	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
1177*: Wholan-----	0-5	Very fine sandy loam.	ML	A-4	0	100	100	95-100	75-80	15-25	NP-5
	5-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1178*: Wholan-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	80-90	20-30	NP-5
	5-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	41-60	Stratified fine sandy loam to very gravelly coarse sand.	SM, GM	A-1	0	55-80	50-75	15-35	10-20	---	NP
1281*: Ricert-----	0-6	Gravelly silt loam.	SM-SC	A-4	0	75-85	55-75	40-55	35-50	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Whirlo-----	0-12	Fine sandy loam	ML, SM	A-4	0	80-95	75-85	65-80	45-60	20-25	NP-5
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
Pineval-----	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
1282*: Ricert-----	0-6	Very fine sandy loam.	ML, CL-ML	A-4	0-5	90-100	90-100	80-95	55-70	15-25	NP-10
	6-18	Clay loam, loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	15-20	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1282*: Broyles-----	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1284*: Ricert-----	0-6	Very gravelly very fine sandy loam.	GM-GC	A-2	0-10	50-60	40-50	35-50	25-35	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Zineb-----	0-6	Very gravelly sandy loam.	SM-SC, GM-GC	A-2	0-10	40-65	25-55	20-45	10-25	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP
Pineval-----	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
1285*: Ricert-----	0-6	Gravelly silt loam.	SM-SC	A-4	0	75-85	55-75	40-55	35-50	20-30	5-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1285*: Bubus-----	0-6	Very fine sandy loam.	ML	A-4	0	85-95	75-90	70-80	50-60	25-30	NP-5
	6-60	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	90-100	80-90	50-60	25-30	NP-5
Broyles-----	0-13	Silt loam-----	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1286*: Ricert-----	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Tenabo-----	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Broyles-----	0-13	Very fine sandy loam.	ML	A-4	0	100	95-100	85-95	60-75	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2	0	70-100	60-95	30-40	25-35	---	NP
1287*: Ricert-----	0-7	Very gravelly very fine sandy loam.	GM-GC	A-2	0-10	50-60	40-50	35-50	25-35	20-30	5-10
	7-20	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	20-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
1287*: Orovada-----	0-8	Gravelly very fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	45-70	30-50	15-25	NP-5
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Broyles-----	0-13	Gravelly very fine sandy loam.	SM, GM	A-4	0	65-85	60-75	55-70	35-50	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2, A-4	0	70-100	60-95	30-50	25-45	---	NP
1288*: Ricert-----	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Tenabo-----	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	4-15	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
1289*: Ricert-----	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
289*: Blackhawk-----	0-3	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	65-75	---	NP
	3-14	Silt loam, loam, very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	70-80	30-35	NP-5
	14-30	Cemented-----	---	---	---	---	---	---	---	---	---
	30-48	Stratified loam to gravelly coarse sand.	SM	A-1, A-2	0	75-90	70-85	35-50	10-30	---	NP
	48-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, SP, GP, SP-SM	A-1	0	45-60	20-50	10-35	0-10	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
1371*: Chad-----	0-17	Cobbly loam-----	SM-SC, CL-ML	A-4	15-25	70-80	65-75	40-60	35-55	20-30	5-10
	17-42	Gravelly clay, gravelly clay loam, clay.	CL, MH, SM, SC	A-7	0-5	75-95	55-85	45-75	40-65	40-55	15-25
	42-50	Weathered bedrock	---	---	---	---	---	---	---	---	---
Gando-----	0-4	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	4-10	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-14	Fine sandy loam	SM-SC, CL-ML	A-4	5-15	85-100	80-100	60-80	35-65	20-30	5-10
	14-27	Extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	10-25	35-60	30-55	25-45	20-35	35-45	15-20
	27-60	Very gravelly loam, very gravelly clay loam, extremely gravelly loam.	GC, GM	A-2	10-25	35-60	30-55	25-45	20-35	30-40	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1450*: Atlow, steep----	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobble clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow, strongly sloping-----	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobble clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn-----	0-7	Cobbly loam-----	SM-SC	A-4	25-40	85-95	75-90	55-80	40-50	20-30	5-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated-----	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1600*. Dumps and pits											
1670*: Wieland-----	0-8	Loam-----	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	8-20	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	20-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Allor-----	0-12	Very cobbly loam	SM-SC, GM-GC	A-2, A-4	30-50	60-75	45-70	40-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
1680----- Zineb	0-6	Gravelly loam----	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1681*: Zineb-----	0-6	Gravelly loam----	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP
Chiara-----	0-4	Gravelly loam----	SM	A-4	0-5	70-80	55-70	50-65	35-50	15-25	NP-5
	4-13	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	13-60	Indurated-----	---	---	---	---	---	---	---	---	---
Wieland-----	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
1682*: Zineb-----	0-6	Very gravelly sandy loam.	SM-SC, GM-GC	A-2	0-10	40-65	25-55	20-45	10-25	20-30	5-10
	6-13	Gravelly loam, gravelly very fine sandy loam.	SM-SC, CL-ML	A-4	0-10	70-90	55-75	50-70	35-55	20-30	5-10
	13-19	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-10	30-60	25-55	20-45	10-25	15-25	NP-5
	19-27	Extremely cobbly sandy loam.	GP-GM, GM	A-1	50-75	20-50	15-45	10-30	5-20	15-25	NP-5
	27-60	Extremely cobbly coarse sand, extremely cobbly loamy coarse sand.	GP, GP-GM	A-1	50-75	20-50	15-45	5-25	0-10	---	NP
Orovada-----	0-8	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	50-70	25-40	---	NP
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2003*: Unius-----	0-4	Gravelly silt loam.	CL	A-6	0	85-100	65-75	60-70	55-65	25-35	10-15
	4-12	Silt loam, loam, gravelly loam.	CL, GC	A-6	0	65-100	60-100	55-80	45-70	25-35	10-15
	12-44	Cemented-----	---	---	---	---	---	---	---	---	---
	44-60	Gravelly loamy sand.	SM	A-1	0	60-80	55-75	20-30	10-20	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	26-61	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2010*: Glyphs-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Silverado-----	0-2	Gravelly sandy loam.	SM	A-2	0	65-80	60-75	45-60	25-35	20-25	NP-5
	2-19	Sandy loam-----	SM	A-4	0	95-100	90-100	60-70	35-45	20-25	NP-5
	19-38	Gravelly sandy loam, sandy loam.	GM, SM	A-1	0	60-90	55-85	40-50	15-25	15-25	NP-5
	38-60	Very gravelly coarse sand.	GP	A-1	0	40-50	35-45	10-20	0-5	---	NP
2011*: Glyphs-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Muni-----	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented-----	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2012*: Glyphs-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Muni-----	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented-----	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP
Orovada-----	0-5	Fine sandy loam	SM-SC, SM	A-4	0	90-100	85-95	75-90	35-50	20-30	NP-10
	5-15	Fine sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-90	50-70	20-30	NP-10
	15-40	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	70-85	30-45	20-30	NP-10
	40-60	Stratified gravelly sandy loam to very gravelly sand.	SP-SM, SM	A-1	0-5	75-90	45-60	30-45	5-15	---	NP
2015*: Glyphs, gently sloping-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Glyphs, moderately steep-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Enko-----	0-4	Gravelly loamy sand.	SM	A-1, A-2	0	65-85	50-70	25-45	15-30	15-25	NP-5
	4-18	Sandy loam, loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-60	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	85-100	60-90	30-65	15-20	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2021*: Rotinom-----	0-9	Silt loam-----	ML	A-4	0	95-100	95-100	95-100	75-90	30-40	5-10
	9-60	Silt loam-----	ML	A-4, A-5	0	95-100	95-100	95-100	75-90	35-45	5-10
Wholan-----	0-6	Very fine sandy loam.	ML	A-4	0	100	100	95-100	75-80	15-25	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
Wholan, alkaline-----	0-6	Very fine sandy loam.	ML	A-4	0	100	100	95-100	75-80	15-25	NP-5
	6-60	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
2022*: Rotinom-----	0-9	Silt loam-----	ML	A-4	0	95-100	95-100	95-100	75-90	30-40	5-10
	9-60	Silt loam-----	ML	A-4, A-5	0	95-100	95-100	95-100	75-90	35-45	5-10
Orovada-----	0-8	Very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2031*: Muni-----	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented-----	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP
Orovada-----	0-5	Fine sandy loam	SM-SC, SM	A-4	0	90-100	85-95	75-90	35-50	20-30	NP-10
	5-15	Fine sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-90	50-70	20-30	NP-10
	15-40	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	70-85	30-45	20-30	NP-10
	40-60	Stratified gravelly sandy loam to very gravelly sand.	SP-SM, SM	A-1	0-5	75-90	45-60	30-45	5-15	---	NP
Unius-----	0-4	Gravelly silt loam.	CL	A-6	0	85-100	65-75	60-70	55-65	25-35	10-15
	4-12	Silt loam, loam, gravelly loam.	CL, GC	A-6	0	65-100	60-100	55-80	45-70	25-35	10-15
	12-44	Cemented-----	---	---	---	---	---	---	---	---	---
	44-60	Gravelly loamy sand.	SM	A-1	0	60-80	55-75	20-30	10-20	---	NP
2060*: Oxcorel-----	0-5	Gravelly very fine sandy loam.	SM, GM	A-4	0-10	60-85	55-75	45-70	35-50	15-25	NP-5
	5-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2060*: Beoska-----	0-9	Silt loam-----	ML	A-4	0	85-95	75-85	70-80	55-70	30-35	NP-5
	9-18	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	18-60	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
Whirlo-----	0-12	Gravelly loam----	ML, GM	A-4	0	60-75	55-75	50-70	40-60	---	NP
	12-24	Very gravelly fine sandy loam, very gravelly loam.	GM	A-1, A-2	0-5	45-55	35-50	30-40	15-35	---	NP
	24-60	Stratified very gravelly loam to extremely gravelly coarse sandy loam.	GW-GM, GP-GM	A-1	0-5	40-50	20-35	10-25	5-10	---	NP
2061*: Oxcorel-----	0-8	Gravelly sandy loam.	SM-SC, GM-GC	A-2, A-4	0-10	60-85	55-75	40-60	25-40	25-30	5-10
	8-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
Zaidy-----	0-5	Very gravelly sandy loam.	GM-GC, GM	A-2, A-1	10-15	50-65	40-55	25-40	15-30	20-30	NP-10
	5-25	Loam, clay loam, gravelly clay loam.	SC, CL	A-6	0	75-90	60-85	55-70	45-60	30-40	10-15
	25-60	Cemented-----	---	---	---	---	---	---	---	---	---
Grassval-----	0-4	Very gravelly sandy loam.	GM-GC	A-2	5-10	45-60	35-50	25-45	15-30	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
2063*: Oxcorel-----	0-8	Gravelly very fine sandy loam.	SM, GM	A-4	0-10	60-85	55-75	45-70	35-50	15-25	NP-5
	8-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
2063*: Pineval, moderately steep-----	In										
	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
Pineval, strongly sloping-----											
	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
2069*: Oxcorel-----											
	0-6	Gravelly very fine sandy loam.	SM, GM	A-4	0-10	60-85	55-75	45-70	35-50	15-25	NP-5
	6-37	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	37-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
Wieland-----											
	0-8	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-25	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	25-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Spasprey-----											
	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
081*: Fenster-----	0-5	Silt loam-----	ML, CL	A-4, A-6	0	100	100	95-100	70-90	30-40	5-15
	5-10	Silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	0	100	100	95-100	80-100	30-45	5-20
	10-60	Silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	0	100	100	95-100	75-100	30-45	5-20
Jesse Camp-----	0-4	Silt loam-----	ML	A-4	0	100	100	90-100	65-80	25-35	NP-10
	4-12	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	70-85	25-35	NP-10
	12-60	Silt loam-----	ML	A-4, A-6	0	100	100	95-100	75-85	30-40	5-15
2088*: Punchbowl-----	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teguro-----	0-6	Very gravelly loam.	GM	A-1, A-2, A-4	10-35	30-55	25-50	20-45	15-40	15-25	NP-5
	6-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2089*: Punchbowl-----	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2089*: Locane-----	0-6	Very gravelly loam.	GM-GC	A-2	5-15	50-65	30-45	25-40	15-30	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2090----- Punchbowl	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2091*: Punchbowl-----	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teguro-----	0-4	Very gravelly loam.	GM	A-1, A-2	0-5	40-55	35-50	30-45	20-35	15-25	NP-5
	4-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	10-30	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2092*: Punchbowl-----	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Belate-----	0-14	Very gravelly loam.	GM-GC	A-2	5-15	50-65	35-50	30-40	25-35	20-25	5-10
	14-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
092*: Reluctan-----	0-8	Very gravelly loam.	GM-GC	A-2, A-4	10-25	35-65	30-55	25-55	20-40	25-30	5-10
	8-33	Gravelly clay loam, gravelly loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	33-37	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
093*: Punchbowl-----	0-3	Loam-----	SM, ML	A-4	0-5	85-100	80-90	60-75	45-60	15-25	NP-5
	3-7	Loam, gravelly loam.	CL, SC, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
094*: Punchbowl-----	0-3	Gravelly loam-----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simpark-----	0-13	Very cobbly loam	SM-SC	A-2, A-4	40-55	65-80	50-70	45-60	25-40	20-25	5-10
	13-18	Very cobbly loam, very gravelly loam.	GC, SC	A-2, A-6	10-40	60-75	30-65	25-55	20-45	25-35	10-15
	18-22	Indurated-----	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Akerue-----	0-3	Very cobbly loam	SM-SC	A-4	30-40	75-80	55-65	50-60	40-50	25-30	5-10
	3-15	Very cobbly clay loam, very cobbly clay.	GC, SC, CL	A-7	40-55	60-85	50-80	45-65	35-55	40-50	15-25
	15-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2095*: Punchbowl-----	0-3	Cobbly loam-----	SM, ML	A-4	25-40	80-90	75-85	60-75	40-55	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2095*: Robson-----	0-7	Cobbly loam-----	SM-SC, SC, CL-ML, CL	A-4, A-6	15-45	90-95	65-95	55-65	45-60	25-35	5-15
	7-19	Very cobbly clay, extremely cobbly clay.	GC	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2096*: Punchbowl-----	0-3	Cobbly loam-----	SM, ML	A-4	25-40	80-90	75-85	60-75	40-55	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane-----	0-5	Cobbly loam-----	CL-ML, SM-SC	A-4	25-40	80-100	80-95	60-80	45-60	20-30	5-10
	5-19	Very gravelly clay loam.	GC	A-2	0-10	45-55	35-50	25-35	25-35	40-45	20-25
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nobuck-----	0-7	Very cobbly loam	SM-SC	A-2, A-4	30-45	65-75	50-65	40-55	25-40	20-30	5-10
	7-42	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC	A-2	10-25	50-65	35-50	30-45	20-35	35-45	15-20
	42-60	Very gravelly loam, very gravelly sandy loam.	GC, GM-GC	A-2	10-25	50-65	35-50	25-40	15-30	25-35	5-15
2097*: Punchbowl-----	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca-----	0-9	Cobbly loam-----	CL-ML, CL	A-4, A-6	15-30	80-90	70-90	65-80	50-65	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2099*: Punchbowl-----	0-3	Very gravelly loam.	GM	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, CL, GC	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca-----	0-5	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	5-27	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2100*: Grassval-----	0-4	Gravelly loam----	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
Grina-----	0-3	Very gravelly loam.	GM-GC, GC	A-2	0-5	45-60	30-45	25-40	15-30	25-35	5-15
	3-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14-18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Unsel Variant---	0-2	Very gravelly loam.	GM-GC	A-2	10-15	45-60	35-50	30-45	20-35	20-30	5-10
	2-15	Gravelly clay loam.	SC	A-6, A-7	0	70-80	55-70	45-60	35-50	35-45	15-20
	15-22	Gravelly loam----	SM-SC, SC	A-4, A-6	0	70-85	55-70	45-60	35-50	25-35	5-15
	22	Weathered bedrock	---	---	---	---	---	---	---	---	---
2101*: Grassval-----	0-4	Fine sandy loam	SM-SC	A-2, A-4	0	85-95	80-90	65-80	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
Oxcorel, eroded	0-3	Very gravelly clay loam.	GC	A-2, A-6	5-10	45-55	40-50	35-45	30-40	30-40	15-20
	3-30	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	30-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5
Oxcorel-----	0-8	Gravelly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	0-10	60-85	55-75	40-60	25-40	25-30	5-10
	8-34	Clay, clay loam	CL, CH	A-7	0-5	85-95	80-90	75-85	65-80	40-55	20-30
	34-60	Very gravelly sandy loam, very gravelly loam.	GM	A-1	0-15	30-60	25-50	20-40	15-25	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2102*: Grassval-----	0-4	Gravelly loam----	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
Wieland-----	0-8	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-25	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	25-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
2104*: Grassval-----	0-4	Gravelly loam----	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
Punchbowl-----	0-3	Gravelly fine sandy loam.	SM	A-2, A-4	5-10	65-85	60-75	55-70	25-40	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2105*: Grassval-----	0-4	Gravelly loam----	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
Glyphs-----	0-7	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	85-95	75-85	45-60	25-30	5-10
	7-17	Gravelly sandy clay loam, gravelly clay loam.	CL, SC	A-6, A-7	0	80-90	60-75	55-65	40-55	35-45	15-20
	17-37	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0	60-80	55-75	40-55	20-30	20-25	5-10
	37-60	Very gravelly coarse sand.	GP, GP-GM, SP, SP-SM	A-1	0-5	40-65	35-45	15-25	0-10	---	NP
Muni-----	0-3	Fine sandy loam	SM-SC	A-4	0	90-100	85-95	75-90	35-50	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented-----	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2110*: Isolde-----	0-6	Fine sand-----	SP, SP-SM	A-3	0	100	100	75-90	0-10	---	NP
	6-60	Fine sand, sand	SP, SP-SM	A-3	0	100	100	50-80	0-10	---	NP
Davey-----	0-5	Fine sandy loam	SM	A-2	0	100	100	80-95	25-35	---	NP
	5-14	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	100	100	80-90	30-40	20-25	NP-5
	14-67	Fine sand, loamy fine sand.	SM	A-2	0	85-100	85-100	70-80	10-20	---	NP
2540*: Buffaran-----	0-4	Cobbly loam-----	SC, CL	A-6	15-30	75-90	75-85	50-75	40-60	25-35	10-15
	4-15	Gravelly clay loam, gravelly clay, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	15-60	Indurated-----	---	---	---	---	---	---	---	---	---
Wieland-----	0-8	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
2541*: Buffaran-----	0-4	Gravelly loam----	SC, CL	A-6	5-15	75-90	70-80	50-75	40-60	25-35	10-15
	4-15	Gravelly clay loam, gravelly clay, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	15-60	Indurated-----	---	---	---	---	---	---	---	---	---
Zoesta-----	0-7	Cobbly loam-----	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay-----	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
2542*: Buffaran, gravelly-----	0-5	Gravelly loam----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Buffaran, very gravelly-----	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	40-55	30-45	25-40	15-25	20-30	5-10
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2542*: Chiara-----	0-4	Very gravelly loam.	GM	A-1, A-2	0-5	50-60	35-50	30-45	20-35	15-25	NP-5
	4-13	Very fine sandy loam, silt loam, loam.	ML	A-4	0	95-100	95-100	95-100	75-85	15-25	NP-5
	13-60	Indurated-----	---	---	---	---	---	---	---	---	---
2543*: Buffaran-----	0-5	Gravelly loam----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Spasprey-----	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
2545*: Buffaran-----	0-5	Gravelly loam----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Pineval-----	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2546*: Buffaran-----	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	40-55	30-45	25-40	15-25	20-30	5-10
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Spasprey-----	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Locane-----	0-6	Gravelly loam-----	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2547*: Buffaran-----	0-2	Gravelly loam-----	SC, CL	A-6	5-15	75-90	70-80	50-75	40-60	25-35	10-15
	2-16	Gravelly clay loam, gravelly clay, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Desatoya-----	0-6	Very gravelly loam.	GM-GC	A-2	0-10	50-60	40-50	35-45	25-35	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
2548*: Buffaran-----	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	40-55	30-45	25-40	15-25	20-30	5-10
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
2548*: Tenabo-----	In										
	0-4	Gravelly very fine sandy loam.	SM, GM	A-2, A-4	0-5	60-70	50-60	45-55	25-40	---	NP
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Pineval-----	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
2554*: Laped-----	0-6	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	45-60	35-50	25-40	15-30	20-30	5-10
	6-18	Gravelly clay loam.	GC, SC	A-6, A-7	0-10	60-80	55-75	45-60	35-50	35-45	15-20
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hooplite-----	0-4	Very gravelly fine sandy loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	10-20	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Osoll-----	0-5	Very gravelly fine sandy loam.	GM-GC	A-2	10-15	40-60	35-55	35-55	15-35	20-25	5-10
	5-12	Very gravelly loam, very gravelly fine sandy loam.	GM-GC	A-2	10-25	30-55	25-50	20-50	10-35	20-25	5-10
	12-35	Indurated-----	---	---	---	---	---	---	---	---	---
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2555*: Laped-----	0-6	Very cobbly loam	SM-SC, GM-GC	A-4	30-50	65-80	50-70	45-60	35-50	20-30	5-10
	6-18	Gravelly clay loam.	GC, SC	A-6, A-7	0-5	60-80	55-70	45-60	35-50	35-45	15-20
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Colbar-----	0-3	Very cobbly loam	CL-ML	A-4	50-60	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2570*: Colbar-----	0-6	Gravelly loam----	SM-SC, SM, GM, GM-GC	A-4	0-5	65-85	60-75	50-65	35-50	20-30	NP-10
	6-16	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	75-90	70-85	60-80	50-65	30-40	10-20
	16-21	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow-----	0-3	Very cobbly loam	SM-SC	A-4	35-50	70-80	60-75	50-65	35-50	20-30	5-10
	3-14	Very gravelly clay loam.	GC	A-2, A-6	5-15	45-60	35-50	30-45	25-40	30-40	10-15
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Burrita-----	0-7	Very cobbly loam	GM-GC	A-4	25-40	60-70	55-65	50-60	35-45	15-25	5-10
	7-14	Very cobbly clay, very stony clay loam, very gravelly clay loam.	GC, SC	A-2, A-7	10-55	35-75	30-55	25-50	20-45	40-55	20-30
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2603*: Grina-----	0-5	Gravelly loam----	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	5-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
Genaw-----	0-6	Gravelly loam----	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2640*: Rasille-----	0-6	Silt loam-----	ML	A-4	0	100	100	95-100	85-100	20-30	NP-5
	6-15	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	15-41	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-100	20-30	NP-5
	41-60	Stratified fine sandy loam to very gravelly coarse sand.	SM, GM	A-1	0	55-80	50-75	15-35	10-20	---	NP
Kelk-----	0-14	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
2672*: Zoesta Variant--	0-8	Gravelly loam----	GM, SM	A-4	0-5	65-80	55-70	50-65	35-50	20-30	NP-5
	8-27	Clay-----	CH	A-7	0	85-95	85-95	80-95	70-85	60-70	30-40
	27-36	Clay loam, clay	CL, CH	A-7	0	85-95	85-95	80-90	65-80	45-55	20-30
	36-60	Gravelly loam, gravelly sandy loam.	SM-SC	A-2, A-4	0-5	65-80	55-70	40-55	25-40	25-30	5-10
Jung-----	0-8	Very cobbly fine sandy loam.	SM-SC	A-2	35-50	65-80	50-65	40-60	20-35	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Trunk-----	0-3	Cobbly loam-----	CL-ML, ML	A-4	15-30	75-95	70-90	60-90	50-70	20-30	NP-10
	3-30	Gravelly clay, gravelly clay loam.	CL, CH, GC	A-7	0-10	55-85	50-80	45-75	40-65	40-55	20-30
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2681*: Tessfive-----	0-6	Gravelly loam----	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Puett-----	0-4	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	4-15	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---
Grina-----	0-3	Gravelly loam----	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	3-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14-18	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2683*: Tessfive-----	0-6	Gravelly loam----	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Genaw-----	0-6	Gravelly loam----	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2684*: Tessfive-----	0-6	Gravelly loam----	SM-SC, GM-GC	A-4	0-5	65-80	55-70	45-60	35-50	20-30	5-10
	6-16	Gravelly loam, gravelly sandy loam.	SM-SC, GM-GC	A-4, A-1, A-2	0-5	55-80	50-70	35-60	20-50	20-30	5-10
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Perlor-----	0-7	Fine sandy loam	SM	A-2, A-4	0-5	85-100	80-100	70-90	25-40	15-25	NP-5
	7-14	Loam, sandy loam, gravelly sandy loam.	SM, ML	A-4	0-5	75-100	70-95	50-80	35-65	15-25	NP-5
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
Orovada-----	0-8	Gravelly very fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	45-70	30-50	15-25	NP-5
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2690*: Itca Variant----	0-3	Very gravelly loam.	GC	A-2	0-10	45-60	30-45	25-35	15-25	25-35	10-15
	3-12	Gravelly clay loam.	SC	A-6	0	70-80	55-70	45-60	35-50	30-40	15-20
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
2690*: Reluctan-----	In 0-9 9-27 27	Very gravelly loam. Gravelly clay loam, gravelly loam. Unweathered bedrock.	GM-GC GC, CL ---	A-2, A-4 A-6, A-7 ---	10-25 0-15 ---	35-65 65-85 ---	30-55 60-75 ---	25-55 55-75 ---	20-40 40-60 ---	25-30 35-45 ---	5-10 15-20 ---
Handy-----	0-4 4-30 30-60	Gravelly loam---- Gravelly clay, clay. Stratified gravelly loam to very gravelly loamy sand.	SC CH, CL GM	A-2, A-6 A-7 A-1, A-2	0-10 0-10 0-10	65-75 70-100 35-65	55-65 60-100 30-60	40-50 60-75 20-55	30-40 50-70 10-35	30-35 45-55 15-25	10-15 30-35 NP-5
2730*: Pula-----	0-2 2-24 24-60	Very gravelly sandy loam. Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly clay. Extremely gravelly sandy loam, extremely gravelly sandy clay loam.	GM, GM-GC, SM, SM-SC GC GM-GC, GC, GP-GM, GP-GC	A-1, A-2 A-2, A-7 A-1, A-2	0-10 10-30 20-30	50-65 30-60 35-45	35-50 20-55 15-25	25-40 20-50 10-20	10-25 15-45 5-15	20-30 50-60 20-35	NP-10 30-40 NP-15
Spike-----	0-2 2-6 6-60	Very gravelly sandy loam. Very gravelly clay, very gravelly clay loam, very gravelly sandy clay. Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GM-GC GC GP-GC, GC	A-2 A-2 A-2	0-5 5-15 10-25	50-65 50-65 30-50	35-50 35-50 10-35	25-40 30-45 5-30	15-30 20-35 5-20	20-30 45-55 25-35	5-10 25-30 10-15
Buffaran-----	0-5 5-16 16-27 27-60	Gravelly loam---- Gravelly clay, gravelly clay loam, clay. Indurated----- Cemented-----	GC, SC CL, CH --- ---	A-6 A-7 --- ---	0-5 0-5 --- ---	65-80 75-90 --- ---	55-70 70-85 --- ---	45-60 65-80 --- ---	35-50 50-65 --- ---	25-35 40-55 --- ---	10-15 20-30 --- ---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2731*: Pula-----	0-2	Very cobbly loam	GC	A-2, A-6	25-50	50-75	45-70	40-60	30-50	30-35	10-15
	2-24	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly clay.	GC	A-2, A-7	10-30	30-60	20-55	20-50	15-45	50-60	30-40
	24-60	Extremely gravelly sandy loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GM, GP-GC	A-1, A-2	20-30	35-45	15-25	10-20	5-15	20-35	NP-15
Spike-----	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
2740*: Spike-----	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
Desatoya Variant	0-3	Very gravelly sandy loam.	GM-GC	A-2	0	45-60	35-50	25-40	10-25	20-30	5-10
	3-13	Gravelly clay loam, gravelly sandy clay loam.	SC, CL	A-6, A-7	0	70-85	55-70	45-60	40-55	35-45	15-20
	13-26	Very gravelly sandy loam.	GM	A-1	0	45-60	35-50	25-40	10-25	15-20	NP-5
	26-60	Very gravelly sand.	GP-GM, SP-SM	A-1	0	45-60	35-50	20-35	5-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2740*: Grassval-----	0-4	Gravelly loam----	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
2771*: Kram-----	0-3	Very gravelly very fine sandy loam.	GM	A-1, A-2	10-15	50-60	35-50	30-50	20-30	15-25	NP-5
	3-10	Very gravelly loam, very gravelly very fine sandy loam, extremely gravelly loam.	GM	A-1, A-2	0-15	25-60	15-55	15-45	10-30	15-25	NP-5
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hopeka-----	0-8	Very gravelly loam.	GC	A-2	0-15	40-55	25-50	25-45	20-35	25-35	10-15
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2780*: Desatoya-----	0-6	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Tenabo-----	0-5	Very gravelly fine sandy loam.	GM	A-1, A-2	5-10	40-55	35-50	25-45	20-30	15-25	NP-5
	5-17	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	17-31	Indurated-----	---	---	---	---	---	---	---	---	---
	31-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2780*: Pineval-----	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
2781*: Desatoya-----	0-6	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	6-13	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	13-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Orovada-----	0-8	Gravelly fine sandy loam.	GM, SM	A-2, A-4	0	60-80	55-75	50-70	25-40	---	NP
	8-20	Fine sandy loam, loam, very fine sandy loam.	SM, ML	A-4	0	75-100	75-95	60-85	40-70	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
2782*: Desatoya-----	0-3	Very gravelly loam.	GM-GC	A-2	0-10	50-60	40-50	35-45	25-35	20-30	5-10
	3-14	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	14-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Pineval-----	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2782*: Grassval-----	0-4	Gravelly loam----	SM-SC	A-2, A-4	0-5	65-80	55-70	45-60	30-45	20-25	5-10
	4-13	Gravelly clay loam, gravelly loam.	GC	A-6	0-10	65-75	55-70	50-65	35-50	30-40	15-20
	13	Indurated-----	---	---	---	---	---	---	---	---	---
2783*: Desatoya, steep	0-3	Very gravelly sandy loam.	GM-GC, SM-SC	A-2	0-10	50-70	35-50	25-40	15-30	20-30	5-10
	3-14	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	14-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
Spike-----	0-2	Very gravelly sandy loam.	GM-GC	A-2	0-5	50-65	35-50	25-40	15-30	20-30	5-10
	2-6	Very gravelly clay, very gravelly clay loam, very gravelly sandy clay.	GC	A-2	5-15	50-65	35-50	30-45	20-35	45-55	25-30
	6-60	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly loam.	GP-GC, GC	A-2	10-25	30-50	10-35	5-30	5-20	25-35	10-15
Desatoya, strongly sloping	0-3	Gravelly sandy loam.	SM-SC	A-2, A-4	0-10	65-80	50-75	45-60	25-40	20-30	5-10
	3-14	Gravelly clay loam, gravelly clay.	GC	A-7	0-5	65-75	55-70	50-60	40-50	40-50	20-30
	14-60	Stratified extremely gravelly sandy loam to very gravelly loamy sand.	GM	A-1	25-35	35-50	25-45	15-30	10-15	15-25	NP-5
2791*: Old Camp-----	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2791*: Colbar-----	0-3	Very cobbly loam	CL-ML	A-4	50-60	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
2792*: Old Camp-----	0-2	Gravelly loam----	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Puett-----	0-3	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	40-50	35-45	20-35	15-20	NP-5
	3-13	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---
2793*: Old Camp-----	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Laped-----	0-6	Very cobbly loam	SM-SC, GM-GC	A-4	30-50	65-80	50-70	45-60	35-50	20-30	5-10
	6-18	Gravelly clay loam.	GC, SC	A-6, A-7	0-5	60-80	55-70	45-60	35-50	35-45	15-20
	18-23 23	Indurated----- Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
2797*: Old Camp, steep	0-2	Gravelly loam----	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Colbar-----	0-3	Cobbly loam-----	CL-ML	A-4	35-45	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp, strongly sloping-----	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2798*: Old Camp-----	0-2	Gravelly loam----	SM-SC	A-4	0-5	70-85	60-75	50-65	35-50	25-30	5-10
	2-11	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow-----	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Osoll-----	0-5	Very gravelly loam.	GM-GC	A-4, A-2	0	30-60	25-50	20-50	15-40	20-25	5-10
	5-12	Very gravelly loam, very gravelly fine sandy loam.	GM-GC	A-2	10-25	30-55	25-50	20-50	10-35	20-25	5-10
	12-35	Indurated-----	---	---	---	---	---	---	---	---	---
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

see footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3001*: Barrier-----	0-7	Cobbly loam-----	SM, ML	A-4	15-30	85-95	80-90	60-75	45-60	20-25	NP-5
	7-12	Gravelly loam, gravelly sandy loam, fine sandy loam.	SM, GM	A-2, A-4	0	60-90	50-80	40-70	25-50	20-25	NP-5
	12-27	Cemented-----	---	---	---	---	---	---	---	---	---
	27-60	Very cobbly loamy sand.	SM	A-1	50-60	70-90	65-85	40-50	10-25	---	NP
Kobeh-----	0-7	Gravelly fine sandy loam.	SM	A-1, A-2	0	70-80	55-70	45-60	20-35	---	NP
	7-20	Gravelly sandy loam, gravelly fine sandy loam.	SM	A-1, A-2	0	70-80	55-70	45-55	20-30	15-25	NP-5
	20-60	Stratified gravelly fine sandy loam to very gravelly sand.	GP-GM, GM, SP-SM, SM	A-1	0	40-65	35-50	25-45	5-20	---	NP
3011*: Defler-----	0-4	Gravelly fine sandy loam.	GM, SM	A-2, A-4, A-1	0-5	55-80	50-75	40-60	20-40	15-25	NP-5
	4-38	Very gravelly fine sandy loam, very gravelly loam, very gravelly sandy loam.	GM	A-1, A-2	0-10	30-55	25-50	15-40	10-30	15-25	NP-5
	38-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	0-10	25-40	20-35	10-20	5-15	---	NP
Orovada-----	0-5	Gravelly fine sandy loam.	SM-SC, SM	A-2, A-4	0-5	70-90	55-70	45-60	25-40	20-30	NP-10
	5-15	Fine sandy loam, loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-90	50-70	20-30	NP-10
	15-40	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	70-85	30-45	20-30	NP-10
	40-60	Stratified gravelly sandy loam to very gravelly sand.	SP-SM, SM	A-1	0-5	75-90	45-60	30-45	5-15	---	NP
3050 Novacan-----	0-5	Cobbly loam-----	CL-ML	A-4	25-40	80-95	75-90	65-80	50-65	25-30	5-10
	5-24	Clay, gravelly clay.	CH	A-7	0-5	65-90	60-85	55-80	50-75	50-60	25-35
	24-45	Cemented-----	---	---	---	---	---	---	---	---	---
	45-60	Very cobbly loamy sand.	SM	A-1	50-60	65-90	55-80	35-50	10-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3071*: Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Wieland-----	0-8	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
3072*: Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3073*: Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Kelk-----	0-4	Very fine sandy loam.	ML	A-4	0	100	95-100	90-100	75-90	15-25	NP-5
	4-12	Silt loam-----	ML, CL-ML	A-4	0	100	95-100	90-100	85-95	25-35	5-10
	12-40	Silt loam-----	CL-ML	A-4	0	100	95-100	90-100	85-95	20-30	5-10
	40-60	Silty clay loam	ML	A-6, A-7	0	100	100	95-100	90-100	35-45	10-15
3074*: Allor-----	0-12	Fine sandy loam	SM-SC, SM	A-2, A-4	0-5	85-100	85-95	65-80	25-40	25-35	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	GC, CL, SC	A-6, A-7	0-10	60-80	55-75	45-65	35-55	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3074*: Orovada-----	0-8	Very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3080*: Zaidy-----	0-5	Very gravelly sandy loam.	GM-GC, GM	A-2, A-1	10-15	50-65	40-55	25-40	15-30	20-30	NP-10
	5-25	Loam, clay loam, gravelly clay loam.	SC, CL	A-6	0	75-90	60-85	55-70	45-60	30-40	10-15
	25-60	Cemented-----	---	---	---	---	---	---	---	---	---
Ricert-----	0-6	Gravelly fine sandy loam.	SM, SM-SC	A-2, A-4	0	65-80	50-75	40-60	25-40	20-30	NP-10
	6-18	Loam, clay loam	CL	A-6, A-7	0	90-100	85-100	80-90	70-80	35-45	15-20
	18-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand.	GM, GP-GM	A-1	0-15	30-60	20-50	15-35	5-25	---	NP
3081*: Zaidy-----	0-5	Very gravelly fine sandy loam.	GM-GC, GM	A-2, A-1	10-15	50-65	40-55	35-50	20-30	20-30	NP-10
	5-25	Loam, clay loam, gravelly clay loam.	SC, CL	A-6	0	75-90	60-85	55-70	45-60	30-40	10-15
	25-60	Cemented-----	---	---	---	---	---	---	---	---	---
Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
3091*: Packer-----	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
3091*: Packer, cobbly--	0-10	Extremely cobbly loam.	GM-GC	A-2	40-50	35-50	20-35	15-30	10-25	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	45-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam, very cobbly loam.	GM	A-1, A-2	40-50	40-55	30-50	20-45	10-35	20-25	NP-5
Newlands-----	0-10	Loam-----	CL-ML, CL	A-4, A-6	0-5	85-95	80-90	70-85	50-65	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3092*: Packer-----	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Rock outcrop.											
3093*: Packer-----	0-10	Very gravelly loam.	GM-GC	A-2	5-10	45-60	35-50	30-45	20-35	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Layview-----	0-3	Very gravelly sandy loam.	GM-GC	A-2	10-15	35-60	30-55	20-35	10-20	25-30	5-10
	3-12	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	10-15	35-60	30-55	25-45	20-40	30-40	15-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3093*: Hapgood-----	0-17	Fine sandy loam	SM	A-2, A-4	0	80-95	75-95	55-65	30-40	25-30	NP-5
	17-40	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	40-60	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
3094*: Packer-----	0-10	Extremely gravelly sandy loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Torro-----	0-10	Very gravelly loam.	GM	A-1, A-2	0	45-55	35-50	30-40	20-35	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
3101*: Hackwood-----	0-18	Gravelly loam----	CL	A-6	40-50	75-80	65-80	60-75	50-65	25-35	10-15
	18-32	Gravelly loam, gravelly silt loam.	GM-GC, SM-SC, CL-ML, CL	A-4, A-6	0	60-80	50-75	40-70	35-65	25-35	5-15
	32-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam.	GC	A-2, A-6	0	40-60	35-50	30-45	25-40	35-40	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
3101*: Newlands-----	0-10	Extremely bouldery loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	50-65	75-90	65-80	60-75	45-60	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
3111*: Ninemile-----	0-9	Extremely cobbly loam.	GM-GC	A-4, A-2	45-65	30-50	30-45	25-45	20-40	25-30	5-10
	9-19	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	19-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Zoesta-----	0-7	Cobbly loam-----	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay-----	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Itca-----	0-9	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3120*: Walti-----	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3120*: Chad-----	0-11	Cobbly loam-----	SM-SC, CL-ML	A-4	15-25	70-80	65-75	40-60	35-55	20-30	5-10
	11-43	Gravelly clay, gravelly clay loam, clay.	CL, MH, SM, SC	A-7	0-5	75-95	55-85	45-75	40-65	40-55	15-25
	43-47	Weathered bedrock	---	---	---	---	---	---	---	---	---
3121*: Walti-----	0-4	Extremely cobbly loam.	GM-GC	A-2	50-60	40-55	25-40	20-35	15-30	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Gravelly clay, clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very cobbly loam	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Bucan-----	0-4	Very cobbly loam	GC, CL	A-6	25-50	55-70	50-65	45-60	35-55	30-35	10-15
	4-18	Clay-----	CH	A-7	0-10	85-95	80-90	75-85	65-75	50-60	35-45
	18-52	Cobbly clay, gravelly clay loam, gravelly clay.	CL	A-7	10-30	75-90	70-85	60-70	50-60	40-50	25-35
	52-56	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3122*: Walti-----	0-4	Gravelly loam-----	SM-SC, GM-GC, CL-ML	A-4	5-10	65-80	55-75	40-60	35-55	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine-----	0-10	Cobbly loam-----	CL-ML	A-4	20-30	80-90	75-85	65-75	50-65	20-30	5-10
	10-30	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Cobbly loam-----	SM-SC	A-4	25-40	75-90	70-85	55-70	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3123*: Walti-----	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very gravelly loam.	GM-GC	A-2	0-5	45-60	35-50	30-45	20-35	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
Itca-----	0-2	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3125*: Walti-----	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Robson-----	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3130*: Itca-----	0-9	Very gravelly loam.	GM-GC	A-2	5-10	50-60	35-50	30-40	25-35	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Reluctan-----	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3131*: Itca-----	0-9	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ninemile-----	0-2	Extremely cobbly loam.	GM-GC	A-4, A-2	45-65	30-50	30-45	25-45	20-40	25-30	5-10
	2-14	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3132*: Itca-----	0-2	Extremely stony loam.	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
3132*: Softscrabble-----	0-16	Cobbly loam-----	SM-SC	A-4	25-40	75-90	70-85	55-70	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Cleavage-----	0-4	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	4-18	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3134*: Itca-----	0-9	Extremely cobbly fine sandy loam.	SM-SC	A-2	55-65	60-75	45-55	35-50	20-35	20-30	5-10
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine-----	0-12	Extremely cobbly loam.	GM-GC	A-2	45-55	35-45	25-35	20-30	15-25	20-25	5-10
	12-38	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	38-42	Weathered bedrock	---	---	---	---	---	---	---	---	---
Torro-----	0-10	Very gravelly loam.	GM	A-1, A-2	0	45-55	35-50	30-40	20-35	20-25	NP-5
	10-38	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	38-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
3135*: Itca-----	0-2	Stony loam-----	CL, CL-ML	A-4, A-6	25-60	70-90	65-85	60-70	50-60	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
3135*: Clan Alpine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3136*: Itca-----	0-2	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca-----	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Reluctan-----	0-9	Cobbly loam-----	SM-SC, CL-ML	A-4	15-30	80-90	70-90	60-85	40-70	20-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3137*: Itca-----	0-2	Stony loam-----	CL, CL-ML	A-4, A-6	25-60	70-90	65-85	60-70	50-60	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Reluctan-----	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
3137*: Walti-----	In				Pct					Pct	
	0-4	Cobbly loam-----	CL-ML	A-4	25-40	70-85	65-80	55-70	50-60	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3140*: Sodhouse-----	0-7	Very fine sandy loam.	ML, SM	A-4	0	90-100	85-100	75-95	45-65	15-25	NP-5
	7-14	Very fine sandy loam, silt loam, loam.	ML	A-4	0	80-100	75-100	60-90	50-60	20-25	NP-5
	14-42	Indurated-----	---	---	---	---	---	---	---	---	---
	42-60	Gravelly sandy loam.	SM	A-2, A-4	0-10	65-80	60-75	50-65	25-40	15-25	NP-5
Tenabo-----	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	75-85	25-35	NP-10
	4-15	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-95	60-90	50-85	30-40	15-25
	15-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP
Desatoya Variant	0-3	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0	70-85	55-70	50-65	25-40	20-30	5-10
	3-13	Gravelly clay loam, gravelly sandy clay loam.	SC, CL	A-6, A-7	0	70-85	55-70	45-60	40-55	35-45	15-20
	13-26	Very gravelly sandy loam.	GM	A-1	0	45-60	35-50	25-40	10-25	15-20	NP-5
	26-60	Very gravelly sand.	GP-GM, SP-SM	A-1	0	45-60	35-50	20-35	5-10	---	NP
3151*: Robson-----	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ninemile-----	0-7	Extremely cobbly loam.	GM-GC	A-4, A-2	45-65	30-50	30-45	25-45	20-40	25-30	5-10
	7-19	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	55-65	30-35
	19-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3151*: Ravenswood-----	0-9	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-15	60-75	55-70	45-65	30-45	25-30	5-10
	9-13	Very gravelly clay loam.	GC	A-2	5-15	45-60	35-50	30-45	20-35	40-50	15-25
	13-36	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-15	45-60	35-50	30-45	25-40	40-55	20-30
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3153*: Robson-----	0-2	Cobbly loam-----	SM-SC, SC, CL-ML, CL	A-4, A-6	15-45	90-95	65-95	55-65	45-60	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane-----	0-6	Gravelly loam----	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Gravelly loam----	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3154*: Robson-----	0-2	Very gravelly loam.	GM-GC, GC	A-2	5-15	40-50	30-40	20-35	15-30	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane-----	0-6	Very gravelly fine sandy loam.	GM-GC	A-2	5-15	50-65	30-45	25-40	15-30	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3155*: Robson-----	0-2	Very gravelly loam.	GM-GC, GC	A-2	5-15	40-50	30-40	20-35	15-30	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3155*: Itca-----	0-9	Very gravelly loam.	GC, GM-GC	A-2	5-10	50-60	35-50	30-40	25-35	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Gravelly loam----	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3170*: Teguro-----	0-6	Very gravelly loam.	GM	A-1, A-2, A-4	10-35	30-55	25-50	20-45	15-40	15-25	NP-5
	6-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rubble land.											
Punchbowl-----	0-3	Cobbly loam-----	SM, ML	A-4	25-40	80-90	75-85	60-75	40-55	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3181*: Newlands-----	0-10	Loam-----	CL-ML, CL	A-4, A-6	0-5	85-95	80-90	70-85	50-65	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Packer-----	0-10	Very gravelly loam.	GM-GC	A-2	5-10	45-60	35-50	30-45	20-35	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3182*: Newlands-----	0-10	Extremely bouldery loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	50-65	75-90	65-80	60-75	45-60	25-35	5-15
	10-46	Gravelly clay loam.	GC, CL	A-6	5-10	60-75	55-70	50-65	40-55	35-40	15-20
	46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Packer-----	0-10	Extremely gravelly loam.	GM-GC, GP-GC	A-2	15-25	30-40	15-30	10-25	5-20	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
3190*: Softscrabble----	0-16	Very cobbly fine sandy loam.	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
Clanalpine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Walti-----	0-4	Very cobbly loam	CL-ML, ML	A-4	30-40	75-90	65-80	55-70	50-60	20-30	NP-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Clay, gravelly clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3192*: Softscrabble----	0-16	Very gravelly fine sandy loam.	GM-GC	A-2	0-5	45-60	35-50	25-45	10-25	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
3192*: Walti-----	0-4	Extremely cobbly fine sandy loam.	GM-GC	A-2	50-60	40-55	25-40	20-35	10-25	20-30	5-10
	4-10	Clay loam, gravelly clay loam.	CL	A-6	0-10	90-100	65-90	60-80	50-65	35-40	15-20
	10-30	Gravelly clay, clay.	CH, MH	A-7	0-10	90-100	65-90	60-80	50-75	55-65	25-35
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage-----	0-4	Very gravelly fine sandy loam.	GM, SM	A-1	0-10	50-70	30-50	20-45	15-25	20-25	NP-5
	4-18	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3200----- Dewar	0-4	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	4-14	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	14-50	Indurated-----	---	---	---	---	---	---	---	---	---
3210*: Typic Argixerolls----	0-4	Gravelly coarse sandy loam.	SM-SC	A-2	0-5	80-95	50-75	30-50	20-30	20-30	5-10
	4-15	Sandy clay loam, loam.	SC	A-2, A-6	0	85-100	85-95	60-85	30-50	30-35	10-15
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---
Torripsammentic Haploxerolls----	0-2	Cobbly loamy coarse sand.	SM	A-1	30-45	90-100	85-95	35-50	15-25	---	NP
	2-7	Loamy coarse sand, coarse sand, gravelly loamy coarse sand.	SM	A-1	0	90-100	50-95	35-50	15-25	---	NP
	7	Weathered bedrock	---	---	---	---	---	---	---	---	---
Glean-----	0-6	Very gravelly loam.	GM	A-1, A-2	0-10	30-55	25-50	20-40	10-30	20-30	NP-5
	6-39	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-25	30-65	25-60	20-50	10-35	20-30	NP-5
	39-51	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-25	20-30	NP-5
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3231*: Stingdorn, moderately steep-----	0-7	Extremely cobbly loam.	GM, GM-GC	A-1, A-2	50-60	45-60	35-50	30-45	15-30	15-25	NP-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20 20	Indurated----- Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn, moderately sloping-----	0-7	Very gravelly loam.	GM, GM-GC	A-1, A-2	5-10	45-60	35-50	30-45	20-35	15-25	NP-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20 20	Indurated----- Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hooplite-----	0-4	Very gravelly loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	20-35	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3251*: Caphor-----	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Sandy loam, fine sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	17-35	Sandy loam, fine sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP
Tenabo-----	0-4	Very gravelly fine sandy loam.	GM	A-1, A-2	5-10	40-55	35-50	25-45	20-30	15-25	NP-5
	4-15	Silty clay loam, clay loam, gravelly clay loam.	CL	A-6	0	95-100	70-90	60-90	50-80	30-40	10-20
	15-28 28-60	Indurated----- Stratified very gravelly sandy loam to extremely gravelly coarse sand.	GP-GM, GM	A-1	5-25	40-60	35-55	25-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3251*: Spasprey-----	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
3252*: Caphor-----	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Fine sandy loam, sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	20-40	20-30	NP-10
	17-35	Fine sandy loam, sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP
Batan-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	85-95	30-35	5-10
	5-68	Stratified silt loam to silty clay loam.	CL	A-6	0	100	100	95-100	85-95	30-40	15-25
Unsel-----	0-8	Gravelly fine sandy loam.	SM-SC	A-2	0	75-85	55-75	40-60	25-35	25-30	5-10
	8-18	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6	0	75-85	55-75	45-60	35-45	35-40	15-20
	18-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC	A-2	0	60-75	50-70	35-50	20-35	20-30	5-10
	31-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand.	GP-GM, GP	A-1	0	40-50	20-35	10-25	0-10	---	NP
3253*: Caphor-----	0-7	Gravelly fine sandy loam.	SM-SC, SM	A-2, A-1	0-5	65-80	55-75	45-65	15-30	20-30	NP-10
	7-17	Sandy loam, fine sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	17-35	Sandy loam, fine sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3253*: Caphor, moderately saline-----	0-7	Fine sandy loam	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	25-40	20-30	NP-10
	7-17	Fine sandy loam, sandy loam.	SM-SC, SM	A-2, A-4	0	90-100	80-95	65-85	20-40	20-30	NP-10
	17-35	Fine sandy loam, sandy loam.	SM, SM-SC	A-2	0	90-100	80-95	65-85	20-35	20-30	NP-10
	35-60	Stratified gravelly coarse sand to very gravelly loamy sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	50-75	35-60	20-35	5-20	---	NP
3270----- Koyen	0-4	Fine sandy loam	SM	A-4	0	90-100	85-100	75-90	35-50	15-25	NP-5
	4-14	Sandy loam-----	SM	A-4	0	90-95	85-95	50-75	35-50	15-25	NP-5
	14-60	Stratified loam to gravelly loamy sand.	SM	A-2, A-4	0	80-90	75-85	50-60	25-40	15-25	NP-5
3310*: Spasprey-----	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
3312*: Spasprey-----	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Buffaran-----	0-5	Gravelly loam----	GC, SC	A-6	0-5	65-80	55-70	45-60	35-50	25-35	10-15
	5-16	Gravelly clay, gravelly clay loam, clay.	CL, CH	A-7	0-5	75-90	70-85	65-80	50-65	40-55	20-30
	16-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3314*: Spasprey-----	0-5	Gravelly fine sandy loam.	SM, SM-SC	A-1, A-2	0-5	70-90	55-70	45-60	20-35	15-25	NP-10
	5-26	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	95-100	90-100	70-95	45-65	30-40	10-20
	26-33	Cemented-----	---	---	---	---	---	---	---	---	---
	33-60	Fine sandy loam, sandy loam, loamy sand.	SM	A-2	0	90-100	85-95	50-65	15-30	---	NP
Allor-----	0-12	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-80	55-75	45-65	30-45	20-30	5-10
	12-34	Gravelly clay loam, gravelly sandy clay loam.	SC	A-6, A-7	0-10	70-85	55-75	45-65	35-50	35-45	15-20
	34-60	Gravelly loamy sand, very gravelly loamy sand.	SM	A-1	0-10	55-75	45-65	30-50	10-20	---	NP
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3341*: Halacan-----	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	45-55	35-50	30-45	25-40	30-40	NP-5
	5-17	Extremely channery loam, very channery loam.	GM	A-2, A-4, A-1	40-55	30-55	20-50	15-45	10-40	30-40	NP-5
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hatur-----	0-14	Gravelly loam----	SM	A-2, A-4	0-5	65-80	55-70	45-60	25-45	20-25	NP-5
	14-29	Extremely gravelly loam, extremely gravelly sandy loam.	GM, GP-GM	A-1	0-25	20-30	15-25	10-25	5-20	20-25	NP-5
	29-33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3342*: Halacan-----	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	45-55	35-50	30-45	25-40	30-40	NP-5
	5-17	Extremely channery loam, very channery loam.	GM	A-2, A-4, A-1	40-55	30-55	20-50	15-45	10-40	30-40	NP-5
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
342*: Hapgood-----	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Granzan-----	0-12	Very cobbly loam	SM-SC, SC, GM-GC, GC	A-4, A-6	30-50	65-80	50-70	45-60	35-50	25-35	5-15
	12-43	Very gravelly loam, very gravelly silt loam.	GM-GC, GC	A-2, A-4, A-6	0-25	40-65	30-60	25-45	20-40	25-35	5-15
	43-47	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3411*: Zoesta-----	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Robson-----	0-2	Very cobbly loam	GM-GC, GC, SM-SC, SC	A-2	30-50	55-75	50-65	30-50	25-35	25-35	5-15
	2-5	Very cobbly clay loam.	GC	A-7	30-45	55-75	50-60	40-60	35-50	40-45	15-20
	5-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Very cobbly loam	GM-GC, SM-SC	A-4	40-50	65-80	60-75	50-65	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
3415*: Zoesta-----	0-7	Cobbly loam	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Handy-----	0-4	Gravelly loam	SM-SC, GM-GC, SC, GC	A-4, A-6	10-25	65-80	55-70	45-60	35-50	25-35	5-15
	4-30	Gravelly clay, clay.	CL, CH	A-7	0-5	80-100	70-90	65-80	55-70	45-55	20-30
	30-60	Gravelly loam	SM-SC, GM-GC	A-4	0-10	65-80	55-70	50-65	35-50	20-30	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3417*: Zoesta-----	0-7	Cobbly loam-----	CL-ML, ML	A-4	25-40	80-90	75-90	65-80	50-65	20-30	NP-10
	7-23	Clay-----	CL, CH	A-7	0-10	90-100	85-95	75-90	65-80	45-60	20-30
	23-31	Gravelly clay loam, gravelly clay.	GC, CL	A-6, A-7	0	60-75	55-70	50-65	40-55	35-50	15-25
	31-60	Very gravelly clay loam, very gravelly loam.	GC	A-2	0	45-55	30-45	25-40	20-35	30-40	10-15
Roca-----	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Gravelly loam----	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3421*: Belate-----	0-14	Very gravelly loam.	GM-GC	A-2	5-15	50-65	35-50	30-40	25-35	20-25	5-10
	14-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
Softscrabble----	0-16	Gravelly loam----	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
Torro-----	0-10	Gravelly loam----	SM	A-4	15-25	70-80	55-70	45-60	35-50	20-25	NP-5
	10-34	Extremely gravelly clay loam, extremely gravelly loam.	GC	A-2	10-25	30-50	15-30	15-25	10-20	25-35	10-15
	34-60	Very gravelly coarse sandy loam, very gravelly sandy loam.	GM, SM	A-1	5-15	50-65	35-50	15-35	10-20	---	NP
3422*: Belate-----	0-12	Gravelly loam----	SM-SC, CL-ML	A-4	5-10	75-85	60-75	55-70	45-60	20-25	5-10
	12-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
Robson-----	0-2	Gravelly loam----	SM-SC, SC, CL-ML, CL	A-4, A-6	5-15	70-85	60-75	50-65	40-55	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
422*: Torro-----	0-10	Gravelly loam----	SM	A-4	5-10	70-85	60-75	50-65	35-50	20-25	NP-5
	10-38	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	38-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
423*: Belate-----	0-14	Very gravelly loam.	GM-GC	A-2	5-15	50-65	35-50	30-40	25-35	20-25	5-10
	14-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
Cleavage-----	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Gravelly loam----	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
450*: Reluctan-----	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Robson-----	0-2	Very gravelly loam.	GM-GC, GC	A-2	5-15	40-50	30-40	20-35	15-30	25-35	5-15
	2-15	Very cobbly clay, extremely cobbly clay.	GC, GM	A-7	50-80	60-70	50-65	40-55	35-50	45-55	20-25
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3450*: Cleavage-----	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-18	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3453*: Reluctan-----	0-9	Very gravelly loam.	GM-GC	A-2, A-4	10-25	35-65	30-55	25-55	20-40	25-30	5-10
	9-27	Gravelly clay loam, gravelly loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Locane-----	0-6	Extremely gravelly sandy loam.	GM-GC, GP-GC	A-2	5-20	40-55	15-25	10-20	5-15	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca-----	0-9	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3455*: Reluctan-----	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca-----	0-5	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	5-27	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Colbar-----	0-3	Cobbly loam-----	CL-ML	A-4	35-45	90-100	85-95	75-85	50-60	20-30	5-10
	3-22	Cobbly loam, gravelly clay loam, cobbly clay loam.	CL	A-6	10-35	90-95	70-85	60-80	50-65	30-40	10-20
	22-26	Gravelly loam, cobbly loam.	SM-SC, CL-ML	A-4	5-30	75-95	60-90	55-75	35-55	20-30	5-10
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3457*: Reluctan-----	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clan Alpine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Roca-----	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3461*: Torro-----	0-10	Very gravelly loam.	GM	A-1, A-2	0	45-55	35-50	30-40	20-35	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Rubble land.											
Cleavage-----	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3462*: Torro-----	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Reluctan-----	0-9	Very cobbly loam	GM-GC	A-2, A-4	30-50	55-65	45-60	40-55	30-45	25-30	5-10
	9-27	Gravelly loam, gravelly clay loam.	GC, CL	A-6, A-7	0-15	65-85	60-75	55-75	40-60	35-45	15-20
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage-----	0-4	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	4-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3463*: Torro-----	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Clanalpine-----	0-10	Very cobbly loam	GM-GC, SM-SC	A-4	25-40	65-75	55-70	45-60	35-50	20-25	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---

see footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3463*: Itca-----	0-2	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3464*: Torro-----	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP
Itca-----	0-2	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	2-14	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Gravelly loam	SM-SC	A-4	0-5	70-85	55-70	45-60	35-50	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Gravelly clay loam.	GC, CL	A-6, A-7	5-10	65-80	55-70	50-65	40-55	35-45	15-20
3465*: Torro-----	0-10	Extremely gravelly loam.	GM	A-1	5-10	45-60	20-30	15-25	10-20	20-25	NP-5
	10-34	Extremely gravelly loam, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GM-GC, GC, GP-GC	A-2	0	20-35	15-25	10-20	5-15	25-35	5-15
	34-60	Extremely gravelly sandy loam, extremely gravelly loamy coarse sand.	GP-GM	A-1	5-15	30-40	20-30	10-20	5-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3465*: Clanalpine-----	0-10	Extremely cobbly loam.	GM-GC	A-2	45-55	35-45	25-35	20-30	15-25	20-25	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Softscrabble----	0-16	Loam-----	SM-SC, CL-ML	A-4	0-5	85-100	80-90	65-80	40-65	20-30	5-10
	16-30	Very cobbly clay loam.	GC	A-6, A-7	30-45	60-75	50-65	45-60	35-50	35-45	15-20
	30-60	Very gravelly clay loam.	GC	A-2, A-6, A-7	0-5	45-60	35-50	30-45	25-40	35-45	15-20
3562*: Locane-----	0-6	Gravelly loam----	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Coztur-----	0-11	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-10	60-80	55-75	50-70	30-50	20-25	5-10
	11-17	Loam, clay loam	CL	A-6	0	90-100	85-95	70-85	50-65	30-40	10-15
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Punchbowl-----	0-3	Gravelly loam----	SM	A-2, A-4	5-10	65-85	60-75	45-60	30-45	15-25	NP-5
	3-7	Loam, gravelly loam.	SC, GC, CL	A-6	0-5	70-100	65-95	60-85	45-55	25-35	10-15
	7-11	Gravelly clay loam, gravelly sandy clay loam.	GC	A-6, A-7	0-5	55-65	50-60	45-55	35-45	35-45	15-20
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3563*: Locane-----	0-6	Gravelly sandy loam.	SM-SC	A-4, A-2	0-5	70-85	55-70	45-60	30-50	20-30	5-10
	6-14	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Muni-----	0-3	Gravelly sandy loam.	SM-SC	A-2	0	80-90	60-75	50-65	25-35	20-25	5-10
	3-18	Sandy clay loam, clay loam, loam.	CL	A-6	0	90-100	85-95	70-80	50-60	30-40	10-20
	18-49	Cemented-----	---	---	---	---	---	---	---	---	---
	49-60	Very gravelly loamy sand.	GM, SM	A-1	0-10	50-65	35-55	20-30	10-20	---	NP
Locane, eroded--	0-2	Very gravelly loam.	GM-GC	A-2	5-15	50-65	30-45	25-40	15-30	20-30	5-10
	2-10	Very gravelly clay loam.	GC	A-2, A-7, A-6	0-10	50-65	35-50	30-45	25-40	35-45	15-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3625*: Minat-----	0-9	Very gravelly fine sandy loam.	GM-GC	A-2	5-10	45-60	35-50	30-45	10-25	20-30	5-10
	9-27	Very gravelly loam.	GC, GM-GC	A-2	0-10	45-60	30-50	25-45	20-35	25-35	5-15
	27-60	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	45-60	30-50	20-45	15-30	25-35	5-15
Coztur-----	0-11	Extremely gravelly loam.	GM-GC	A-2	5-10	20-35	15-25	10-25	10-20	20-25	5-10
	11-17	Loam, clay loam	CL	A-6	0	90-100	85-95	70-85	50-65	30-40	10-15
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Belate-----	0-12	Very cobbly loam	GM-GC	A-4	30-40	65-75	50-65	45-60	35-50	20-25	5-10
	12-60	Very gravelly clay loam, very gravelly loam.	GC	A-2, A-6	5-10	50-65	35-50	35-45	30-40	25-35	10-15
3690*: Izod-----	0-4	Cobbly loam-----	SM-SC, SM, CL-ML, ML	A-4	15-30	80-95	70-90	55-75	45-65	25-35	5-10
	4-10	Very gravelly loam, extremely gravelly loam.	GM-GC, GM	A-2	0-25	20-55	15-50	15-45	10-35	25-35	5-10
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Koynik-----	0-6	Extremely gravelly sandy loam.	GM-GC, GM	A-2, A-1	10-25	35-50	20-35	15-30	10-25	20-30	NP-10
	6-8	Very gravelly loam, very gravelly very fine sandy loam, very gravelly silt loam.	GM-GC, SM-SC, GC, SC	A-2	0-5	55-70	35-50	30-45	15-30	25-35	5-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
3740----- Kelk	0-3	Silt loam-----	CL-ML, ML	A-4	0	100	100	95-100	85-95	25-35	5-10
	3-18	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	18-42	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
	42-60	Silt loam-----	CL-ML, ML	A-4	0	95-100	95-100	95-100	85-95	25-35	5-10
3741*: Kelk-----	0-14	Very fine sandy loam.	CL-ML	A-4	0	100	100	90-95	65-75	25-30	5-10
	14-51	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3741*: Settlemyer-----	0-16	Fine sandy loam	SM	A-2	0	90-100	80-95	70-85	20-35	20-25	NP-5
	16-36	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-85	35-40	15-20
	36-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15
3742*: Kelk-----	0-14	Very fine sandy loam.	CL-ML	A-4	0	100	100	90-95	65-75	25-30	5-10
	14-51	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
Ocala-----	0-4	Silt loam-----	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	4-36	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
3840*: Jung, moderately steep-----	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Newpass-----	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay-----	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented-----	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung, strongly sloping-----	0-8	Very cobbly fine sandy loam.	SM-SC	A-2	35-50	65-80	50-65	40-60	20-35	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3841*: Jung-----	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca-----	0-9	Very cobbly loam	GM-GC, GC	A-4, A-6	30-50	60-75	50-65	45-60	35-50	25-35	5-15
	9-17	Very cobbly clay loam, very gravelly clay, extremely gravelly clay.	CL, GC	A-7, A-2	0-55	40-80	30-75	25-70	20-60	40-50	15-25
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca-----	0-5	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	5-27	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3842*: Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hooplite-----	0-4	Very gravelly loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	20-35	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3843*: Jung-----	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3843*: Newpass-----	0-4	Very gravelly fine sandy loam.	GM, GM-GC	A-1, A-2	5-10	40-55	30-45	25-40	10-20	15-25	NP-10
	4-14	Clay-----	CH	A-7	0-5	85-100	80-95	75-90	70-85	50-65	25-35
	14-24	Very cobbly silty clay, very gravelly clay, gravelly clay.	CH	A-7	15-50	70-85	55-75	50-70	50-65	50-65	25-35
	24-26	Cemented-----	---	---	---	---	---	---	---	---	---
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teguro-----	0-6	Very gravelly loam.	GM	A-1, A-2, A-4	10-35	30-55	25-50	20-45	15-40	15-25	NP-5
	6-16	Gravelly clay loam, gravelly loam.	SC	A-2, A-6	0-10	65-80	50-75	35-60	30-50	30-40	15-20
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3845*: Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn-----	0-7	Extremely cobbly loam.	GM, GM-GC	A-1, A-2	50-60	45-60	35-50	30-45	15-30	15-25	NP-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated-----	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Atlow-----	0-3	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	3-14	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3846*: Jung-----	0-8	Very cobbly loam	GM-GC, SM-SC	A-4	35-50	65-80	50-65	45-60	35-50	25-30	5-10
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3846*: Atlow-----	0-6	Very gravelly loam.	GC, SC	A-2, A-6	0-15	35-85	30-50	20-45	15-40	25-35	10-15
	6-15	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-6, A-7	0-45	35-60	25-50	20-50	15-40	35-45	15-20
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McVegas-----	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	50-65	35-50	30-45	25-40	20-30	NP-5
	5-19	Very cobbly clay, very cobbly clay loam.	CL, CH	A-7	30-40	75-90	65-75	50-70	45-60	40-55	20-30
	19-22	Cemented-----	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3847*: Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp-----	0-2	Very cobbly loam	GM, GM-GC, SM, SM-SC	A-2, A-4	25-55	60-70	55-65	45-55	30-40	15-25	NP-10
	2-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3848*: Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McVegas-----	0-5	Very gravelly loam.	GM	A-2, A-4	5-15	50-65	35-50	30-45	25-40	20-30	NP-5
	5-19	Very cobbly clay, very cobbly clay loam.	CL, CH	A-7	30-40	75-90	65-75	50-70	45-60	40-55	20-30
	19-22	Cemented-----	---	---	---	---	---	---	---	---	---
	22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Enko-----	0-6	Gravelly fine sandy loam.	SM-SC	A-2	0	60-80	50-75	40-65	15-30	20-25	5-10
	6-18	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-60	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-2, A-4	0	95-100	75-100	60-90	30-65	20-25	5-10
3851*: Decram, moderately steep-----	0-11	Extremely gravelly loam.	GC	A-2	10-25	35-50	20-35	15-30	10-20	25-35	10-15
	11-28	Very gravelly loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	15-55	40-65	35-60	25-55	20-50	25-35	10-15
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Decram, steep---	0-11	Very gravelly loam.	GC	A-2	5-15	40-55	30-45	25-40	20-35	25-35	10-15
	11-28	Very gravelly loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	15-55	40-65	35-60	25-55	20-50	25-35	10-15
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3852*: Decram-----	0-11	Very gravelly loam.	GC	A-2	5-15	40-55	30-45	25-40	20-35	25-35	10-15
	11-28	Very gravelly loam, very cobbly loam, extremely gravelly loam.	GC	A-2, A-6	15-55	40-65	35-60	25-55	20-50	25-35	10-15
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood-----	0-17	Gravelly loam	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Chad-----	0-17	Cobbly loam	SM-SC, CL-ML	A-4	15-25	70-80	65-75	40-60	35-55	20-30	5-10
	17-42	Gravelly clay, gravelly clay loam, clay.	CL, MH, SM, SC	A-7	0-5	75-95	55-85	45-75	40-65	40-55	15-25
	42-50	Weathered bedrock	---	---	---	---	---	---	---	---	---
3861*: Duco-----	0-6	Very cobbly loam	SM-SC, GM-GC	A-2, A-4	35-55	55-80	50-75	35-60	25-50	20-30	5-10
	6-15	Very gravelly clay loam, extremely stony clay loam, very cobbly sandy clay loam.	GC	A-2	15-55	35-60	30-55	20-35	15-30	35-40	15-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Itca-----	0-9	Very gravelly loam.	GC, GM-GC	A-2	5-10	50-60	35-50	30-40	25-35	25-35	5-15
	9-17	Very gravelly clay, very gravelly clay loam.	GC	A-7, A-2	10-20	50-65	40-50	35-45	25-40	40-50	15-25
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca-----	0-4	Very cobbly loam	CL	A-6	50-60	85-100	75-85	70-80	50-60	25-35	10-15
	4-24	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-10	60-75	30-50	25-45	20-35	45-60	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3863*: Duco-----	0-7	Stony loam-----	SM-SC, GM-GC, CL-ML	A-4	5-10	60-80	55-75	45-65	35-55	20-30	5-10
	7-19	Very gravelly clay loam, extremely stony clay loam, very cobbly sandy clay loam.	GC	A-2	15-55	35-60	30-55	20-35	15-30	35-40	15-20
	19-23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Clanalpine-----	0-10	Very gravelly loam.	GM-GC	A-2, A-4	15-25	60-70	50-60	35-45	30-40	25-30	5-10
	10-39	Very cobbly loam, very cobbly clay loam, very gravelly clay loam.	GC	A-2, A-6	15-35	50-70	35-60	25-50	20-40	30-40	10-20
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3881*: Layview-----	0-3	Extremely cobbly loam.	GM-GC	A-4	50-65	60-75	55-65	45-60	35-50	25-30	5-10
	3-12	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	10-15	45-55	40-50	35-45	30-40	30-40	15-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Packer-----	0-10	Gravelly loam----	SM-SC, GM-GC	A-4	0-10	65-80	55-70	45-60	35-50	20-30	5-10
	10-21	Extremely cobbly clay loam, extremely cobbly loam.	GC	A-2	40-55	40-55	30-45	25-40	15-30	30-40	10-15
	21-60	Extremely cobbly sandy loam, extremely cobbly loam.	GM	A-1	40-55	40-55	30-45	20-35	10-25	20-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3881*: Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
3891*: Labshaft-----	0-8	Extremely stony loam.	SC, CL	A-2, A-6	50-65	65-80	60-75	40-65	30-55	30-35	10-15
	8-15	Very gravelly loam, very gravelly clay loam, extremely gravelly sandy clay loam.	GC	A-2	15-25	35-60	25-50	20-40	10-30	35-45	15-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood-----	0-17	Gravelly loam----	SM-SC	A-4	5-10	70-80	60-75	55-70	35-50	25-30	5-10
	17-40	Very gravelly loam.	GC, GM-GC	A-2	5-25	50-60	35-50	30-40	20-35	25-35	5-15
	40-60	Very cobbly loam, very gravelly loam.	GC, GM-GC	A-2	15-40	55-65	50-60	35-45	25-35	25-35	5-15
Rock outcrop.											
3950*: Hooplite-----	0-4	Very gravelly loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	20-35	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Jung-----	0-8	Very gravelly loam.	GM	A-1, A-2	0-10	50-60	35-50	25-45	20-35	20-25	NP-5
	8-19	Very cobbly clay loam, very cobbly clay, very gravelly clay loam.	GC	A-7	15-40	55-65	50-60	40-50	35-45	40-55	20-30
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Izod-----	0-4	Very cobbly loam	SM-SC, SM, GM-GC, GM	A-2, A-4	25-40	60-80	40-65	35-55	25-50	25-35	5-10
	4-10	Very gravelly loam, extremely gravelly loam.	GM-GC, GM	A-2	0-25	20-55	15-50	15-45	10-35	25-35	5-10
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
3951*: Hooplite-----	0-4	Very gravelly fine sandy loam.	GM-GC, SM-SC	A-2	10-25	55-70	45-50	40-50	20-30	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Old Camp-----	0-2	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-15	50-60	35-45	30-40	20-30	15-25	NP-10
	2-14	Very cobbly clay loam, extremely stony sandy clay loam, very stony clay loam.	GC	A-2, A-6	35-50	40-55	35-50	30-45	25-40	30-40	15-25
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Puett-----	0-3	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	3-13	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---
3952*: Hooplite-----	0-4	Very gravelly fine sandy loam.	GM-GC	A-2	0-10	45-60	35-50	30-45	10-20	20-30	5-10
	4-8	Very gravelly loam, very gravelly clay loam.	GC	A-2, A-6	0-15	45-60	35-50	30-45	25-40	30-40	10-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Stingdorn-----	0-7	Gravelly loam----	SM-SC	A-2, A-4	5-10	70-85	55-70	40-55	30-40	20-30	5-10
	7-15	Very cobbly clay loam.	GC	A-6	30-50	60-75	50-65	45-60	35-50	35-40	15-20
	15-20	Indurated-----	---	---	---	---	---	---	---	---	---
	20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3960----- Pineval	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
961*: Pineval-----	0-5	Very cobbly loam	SM-SC, GM-GC	A-4	30-40	65-80	55-70	45-60	35-50	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0-5	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0	30-60	20-50	15-40	5-20	---	NP
Orovada-----	0-8	Cobbly fine sandy loam.	SM	A-4	25-35	85-95	75-90	60-75	35-50	15-25	NP-5
	8-26	Fine sandy loam, loam.	SM, ML	A-4	0	90-100	80-95	60-80	40-60	20-30	NP-5
	26-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	90-100	80-95	60-85	35-55	20-30	NP-5
Beoska-----	0-13	Very fine sandy loam.	ML, SM	A-4	0	85-95	75-95	70-80	45-65	15-25	NP-5
	13-24	Silt loam, silty clay loam, clay loam.	CL	A-6, A-7	0	80-100	75-100	70-85	60-85	35-45	15-25
	24-55	Stratified gravelly very fine sandy loam to gravelly sandy loam.	GM, SM	A-1, A-2	0-10	55-80	50-75	30-50	20-35	15-25	NP-5
	55-60	Stratified very gravelly sandy loam to extremely gravelly very fine sandy loam.	GM	A-1	0-15	30-55	25-50	15-35	10-25	15-25	NP-5
964*: Pineval-----	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-85	60-75	50-70	20-35	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticit index
			Unified	AASHTO		4	10	40	200		
3964*: Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-65	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
3990----- Settlemeier	0-16	Fine sandy loam	SM	A-2	0	90-100	80-95	70-85	20-35	20-25	NP-5
	16-36	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-85	35-40	15-20
	36-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15
3991*: Settlemeier-----	0-16	Loam-----	CL-ML, CL	A-4, A-6	0	100	100	80-100	70-80	25-35	5-15
	16-36	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-85	35-40	15-20
	36-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15
Pineval-----	0-5	Gravelly loam----	CL-ML, GM-GC	A-4	0	65-85	60-75	45-65	40-55	20-30	5-10
	5-11	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2	0	35-60	25-50	20-40	15-35	30-40	10-15
	11-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GP-GM, GM	A-1	0-25	30-60	20-50	15-40	5-20	---	NP
3992*: Settlemeier, drained-----	0-16	Loam-----	CL, CL-ML	A-4, A-6	0	100	100	80-95	60-75	25-35	5-15
	16-40	Silt loam, silty clay loam.	CL	A-6, A-7	0	95-100	90-100	85-90	60-85	35-45	15-20
	40-60	Fine sandy loam	CL-ML, SM-SC	A-4	0	95-100	90-100	80-90	40-60	20-30	5-10
Settlemeier, frequently flooded-----	0-15	Loam-----	CL	A-6	0	90-100	90-100	75-90	50-65	25-35	10-15
	15-35	Silty clay loam, clay loam.	CL	A-6	0	100	100	80-100	75-90	35-40	15-20
	35-60	Stratified very gravelly loamy sand to silty clay loam.	GC, CL, GM-GC, CL-ML	A-4, A-6	0-5	60-90	60-85	45-80	35-60	15-25	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1041*: Hymas-----	0-9	Gravelly loam----	GC, SC	A-6	5-10	65-80	55-70	50-60	35-50	25-35	10-15
	9-15	Very cobbly loam, extremely gravelly loam, extremely cobbly loam.	GM, GM-GC	A-2, A-1, A-4	30-70	35-65	30-60	25-55	20-45	20-30	NP-10
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Xine-----	0-10	Gravelly loam----	SM	A-2, A-4	0-5	65-80	50-75	45-60	30-45	15-25	NP-5
	10-33	Very cobbly loam, very cobbly sandy loam.	GM, SM	A-2, A-4, A-1	35-50	55-80	50-75	35-60	20-45	15-25	NP-5
	33	Weathered bedrock	---	---	---	---	---	---	---	---	---
Attella-----	0-3	Very gravelly loam.	GM	A-1, A-2	5-15	35-55	30-50	25-40	20-35	25-35	NP-10
	3-7	Very gravelly loam, very gravelly silt loam.	GC, GM-GC	A-2	5-15	35-55	30-50	25-40	20-35	25-40	5-15
	7	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1070*: Genaw-----	0-6	Gravelly loam----	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wieland-----	0-8	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	8-20	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	20-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Grina-----	0-3	Very gravelly loam.	GM-GC, GC	A-2	0-5	45-60	30-45	25-40	15-30	25-35	5-15
	3-14	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	14-18	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
4072*: Genaw-----	0-6	Very fine sandy loam.	SM, SM-SC	A-4	0	90-100	85-95	75-90	35-50	15-30	NP-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Orovada-----	0-8	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	8-20	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	20-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Puett-----	0-4	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	4-15	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	15-19	Weathered bedrock	---	---	---	---	---	---	---	---	---
4073*: Genaw-----	0-6	Gravelly loam	GM-GC, SM-SC	A-4	0-5	65-80	55-75	45-65	35-50	20-30	5-10
	6-11	Gravelly loam, gravelly clay loam.	GC, SC	A-6	0-5	60-80	55-75	45-65	35-50	25-35	10-15
	11-16	Very gravelly loam.	GM-GC	A-2	0-5	45-55	35-50	25-45	20-35	25-30	5-10
	16	Weathered bedrock	---	---	---	---	---	---	---	---	---
Broyles-----	0-13	Gravelly very fine sandy loam.	SM, GM	A-4	0	65-85	60-75	55-70	35-50	---	NP
	13-60	Stratified loam to gravelly loamy sand.	SM	A-2, A-4	0	70-100	60-95	30-50	25-45	---	NP
Perlor-----	0-7	Fine sandy loam	SM	A-2, A-4	0-5	85-100	80-100	70-90	25-40	15-25	NP-5
	7-14	Loam, sandy loam, gravelly sandy loam.	SM, ML	A-4	0-5	75-100	70-95	50-80	35-65	15-25	NP-5
	14	Weathered bedrock	---	---	---	---	---	---	---	---	---
4140----- Welch	0-4	Loam	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	4-60	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

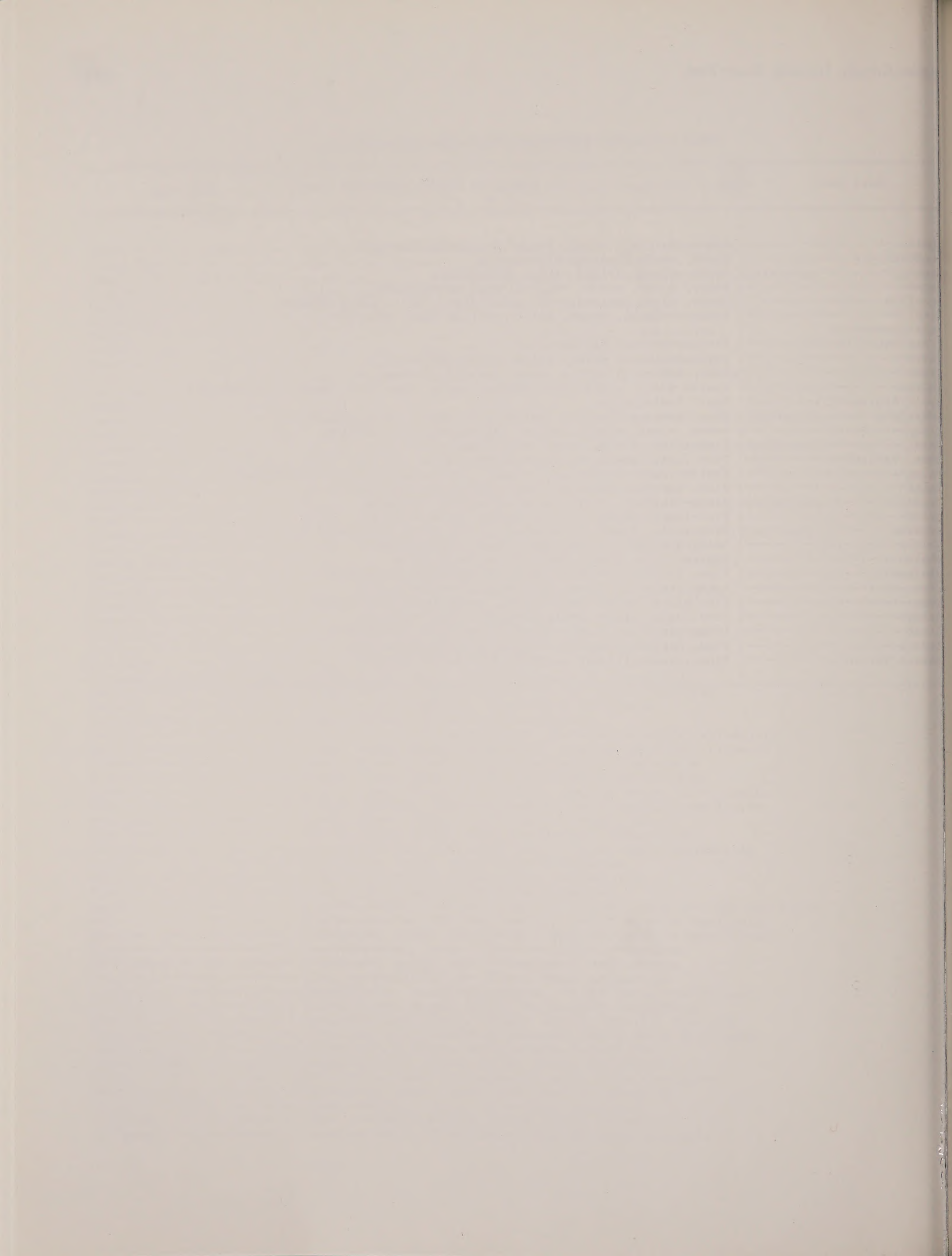
Soil name	Family or higher taxonomic class
Akerue-----	Clayey-skeletal, montmorillonitic, frigid, shallow Xerollic Durargids
Allor-----	Fine-loamy, mixed, mesic Durixerollic Haplargids
Atlow-----	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Attella-----	Loamy-skeletal, mixed (calcareous), frigid Lithic Xeric Torriorthents
Barrier-----	Loamy, mixed, frigid, shallow Haploxerollic Durorthids
Batan-----	Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Belate-----	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Belted-----	Loamy, mixed, mesic, shallow Haplic Durargids
Beoska-----	Fine-loamy, mixed, mesic Duric Natrargids
Blackhawk-----	Loamy, mixed, mesic, shallow Entic Durorthids
Broyles-----	Coarse-loamy, mixed, mesic Duric Camborthids
Bubus-----	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Bucan-----	Fine, montmorillonitic, frigid Xerollic Haplargids
Buffaran-----	Clayey, montmorillonitic, mesic, shallow Xerollic Durargids
Burrita-----	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Caniwe-----	Fine-silty, mixed, mesic Aridic Duric Haploxerolls
Caphor-----	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Chad-----	Fine, mixed, frigid Aridic Argixerolls
Chedehap-----	Coarse-loamy, mixed, mesic Xerollic Camborthids
Chiara-----	Loamy, mixed, mesic, shallow Xerollic Durorthids
Clanalpine-----	Loamy-skeletal, mixed, frigid Typic Argixerolls
Cleavage-----	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Colbar-----	Fine-loamy, mixed, mesic Xerollic Haplargids
Coztur-----	Loamy, mixed, frigid Lithic Xerollic Haplargids
Creemon-----	Coarse-silty, mixed, mesic Duric Camborthids
Cren-----	Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Davey-----	Sandy, mixed, mesic Xerollic Camborthids
Decram-----	Loamy-skeletal, mixed Typic Cryoborolls
Defler-----	Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents
Desatoya-----	Clayey over loamy-skeletal, montmorillonitic, mesic Durixerollic Haplargids
Desatoya Variant-----	Fine-loamy, mixed, mesic Xerollic Haplargids
Dewar-----	Loamy, mixed, mesic, shallow Xerollic Durargids
Duco-----	Loamy-skeletal, mixed, mesic Lithic Argixerolls
Eastwell-----	Loamy-skeletal, mixed, mesic, shallow Haploxerollic Durorthids
Enko-----	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Fenster-----	Fine-silty, mixed (calcareous), frigid Typic Torriorthents
Filiran-----	Fine, montmorillonitic, mesic Haploxerollic Nadurargids
Fortank-----	Fine, montmorillonitic, frigid Xerollic Haplargids
Gando-----	Loamy-skeletal, mixed, frigid Lithic Haploxerolls
Genaw-----	Loamy, mixed, mesic, shallow Xerollic Haplargids
Glean-----	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
Glyphs-----	Fine-loamy, mixed, mesic Durixerollic Haplargids
Granzan-----	Loamy-skeletal, carbonatic, frigid Typic Calcixerolls
Grassval-----	Loamy, mixed, mesic, shallow Xerollic Durargids
Grina-----	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Gund-----	Fine-silty over clayey, mixed, nonacid, mesic Aquic Durorthidic Torriorthents
Hackwood-----	Fine-loamy, mixed Pachic Cryoborolls
Halacan-----	Loamy-skeletal, carbonatic Cryic Lithic Rendolls
Handy-----	Fine, montmorillonitic, frigid Xerollic Haplargids
Hapgood-----	Loamy-skeletal, mixed Pachic Cryoborolls
Hatur-----	Loamy-skeletal, carbonatic Cryic Rendolls
Hessing-----	Coarse-loamy, mixed, mesic Typic Camborthids
Hooplite-----	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Hopeka-----	Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents
Hymas-----	Loamy-skeletal, carbonatic, frigid Lithic Haploxerolls
Isolde-----	Mixed, mesic Typic Torripsamments
Itca-----	Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls
Itca Variant-----	Loamy, mixed, frigid, shallow Aridic Argixerolls
Izo-----	Sandy-skeletal, mixed, mesic Typic Torriorthents

TABLE 6.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Izod-----	Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents
Jesse Camp-----	Fine-silty, mixed, frigid Xerollic Camborthids
Jung-----	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Kawich-----	Mixed, mesic Typic Torripsamments
Kelk-----	Fine-silty, mixed, mesic Durixerollic Camborthids
Kingingham-----	Fine, montmorillonitic, mesic Typic Nadurargids
Kobeh-----	Loamy-skeletal, mixed, frigid Durixerollic Camborthids
Koyen-----	Coarse-loamy, mixed, mesic Typic Camborthids
Koynik-----	Loamy-skeletal, carbonatic, mesic Lithic Torriorthents
Kram-----	Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents
Labshaft-----	Loamy-skeletal, mixed Lithic Cryoborolls
Laped-----	Loamy, mixed, mesic, shallow Typic Durargids
Laxal-----	Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents
Layview-----	Loamy-skeletal, mixed Argic Lithic Cryoborolls
Locane-----	Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids
Loncan-----	Loamy-skeletal, mixed, frigid Aridic Haploxerolls
Lopwash-----	Loamy-skeletal, mixed, frigid Typic Camborthids
McConnel-----	Sandy-skeletal, mixed, mesic Xerollic Camborthids
McVegas-----	Clayey-skeletal, montmorillonitic, mesic, shallow Haplic Nadurargids
Minat-----	Loamy-skeletal, mixed, mesic Xerollic Camborthids
Misad-----	Loamy-skeletal, mixed (calcareous), mesic Durorthidic Torriorthents
Muni-----	Loamy, mixed, mesic, shallow Haploxerollic Durargids
Needle Peak-----	Fine-silty, mixed (calcareous), mesic Aquic Torriorthents
Newlands-----	Fine-loamy, mixed Argic Cryoborolls
Newpass-----	Fine, montmorillonitic, mesic Haploxerollic Nadurargids
Ninemile-----	Clayey, montmorillonitic, frigid Lithic Argixerolls
Nobuck-----	Loamy-skeletal, mixed, frigid Xerollic Haplargids
Novacan-----	Fine, montmorillonitic, mesic Haploxerollic Durargids
Ocala-----	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
*Old Camp-----	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Orovada-----	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Osoll-----	Loamy-skeletal, mixed, mesic, shallow Typic Durorthids
Oxcorel-----	Fine, montmorillonitic, mesic Duric Natrargids
Packer-----	Loamy-skeletal, mixed Argic Cryoborolls
Paranat-----	Fine-silty, mixed (calcareous), mesic Fluvaquentic Haplaquolls
Perlor-----	Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents
Pineval-----	Loamy-skeletal, mixed, mesic Durixerollic Haplargids
Poorcal-----	Coarse-loamy, mixed, frigid Durixerollic Calciorthids
Puett-----	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Pula-----	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
Punchbowl-----	Loamy, mixed, frigid Lithic Xerollic Haplargids
Rasille-----	Coarse-silty, mixed, mesic Durixerollic Camborthids
Ravenswood-----	Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls
Relley-----	Fine-silty, mixed, mesic Duric Camborthids
Reluctan-----	Fine-loamy, mixed, frigid Aridic Argixerolls
Ricert-----	Fine-loamy, mixed, mesic Duric Natrargids
Robson-----	Clayey-skeletal, montmorillonitic, frigid Lithic Xerollic Haplargids
Roca-----	Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids
Rotinom-----	Fine-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Rutab-----	Loamy-skeletal, mixed, frigid Xerollic Camborthids
Settlemyer-----	Fine-loamy, mixed, mesic Fluvaquentic Haplaquolls
Shagnasty-----	Fine, montmorillonitic, frigid Typic Argixerolls
Shiplely-----	Coarse-loamy, mixed (calcareous), frigid Xeric Torriorthents
Silverado-----	Coarse-loamy, mixed, frigid Durixerollic Camborthids
Simpark-----	Loamy-skeletal, mixed, frigid, shallow Xerollic Durargids
Skullwak-----	Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts
Sodhouse-----	Loamy, mixed, mesic, shallow Typic Durorthids
Softscrabble-----	Loamy-skeletal, mixed, frigid Pachic Argixerolls
Sonoma-----	Fine-silty, mixed (calcareous), mesic Aeric Fluvaquents
Spasprey-----	Fine-loamy, mixed, mesic Haploxerollic Durargids
Spike-----	Loamy-skeletal, mixed, mesic Typic Haplargids
Stampede-----	Fine, montmorillonitic, frigid Aridic Durixerolls
Stingdorn-----	Loamy-skeletal, mixed, mesic, shallow Typic Durargids

TABLE 6.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Sumine-----	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Sundown-----	Mixed, mesic Typic Torripsamments
Teguro-----	Loamy, mixed, frigid Lithic Argixerolls
Tenabo-----	Loamy, mixed, mesic, shallow Typic Nadurargids
Tessfive-----	Loamy, mixed (calcareous), mesic Lithic Xeric Torriorthents
Tomel-----	Loamy-skeletal, mixed, mesic, shallow Typic Durargids
Torripsammentic Haploxerolls-----	Torripsammentic Haploxerolls
Torro-----	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Trunk-----	Fine, montmorillonitic, mesic Xerollic Haplargids
Tulase-----	Coarse-silty, mixed (calcareous), mesic Durorthidic Xeric Torriorthents
Typic Argixerolls-----	Typic Argixerolls
Umland-----	Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts
Unius-----	Loamy, mixed, mesic, shallow Haploxerollic Durorthids
Unsel-----	Fine-loamy, mixed, mesic Duric Haplargids
Unsel Variant-----	Fine-loamy, mixed, mesic Duric Haplargids
Valmy-----	Coarse-loamy, mixed (calcareous), mesic Durorthidic Torriorthents
Walti-----	Fine, montmorillonitic, frigid Aridic Argixerolls
Wardenot-----	Sandy-skeletal, mixed, mesic Typic Torriorthents
Welch-----	Fine-loamy, mixed, frigid Cumulic Haplaquolls
Wendane-----	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
Whirlo-----	Loamy-skeletal, mixed, mesic Typic Camborthids
Wholan-----	Coarse-silty, mixed, mesic Typic Camborthids
Wieland-----	Fine, montmorillonitic, mesic Durixerollic Haplargids
Xine-----	Loamy-skeletal, mixed, frigid Aridic Calcixerolls
Yobe-----	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
Zaidy-----	Fine-loamy, mixed, mesic Haploxerollic Durargids
Zineb-----	Loamy-skeletal, mixed, mesic Durixerollic Camborthids
Zoesta-----	Fine, montmorillonitic, frigid Xerollic Paleargids
Zoesta Variant-----	Fine, montmorillonitic, mesic Xerollic Paleargids



Rangeland Plants and Woodland Understory

120--Akerue-Simpark-Robson 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			Inclusion number--			
		Akerue	Simpark	Robson	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	5-10	---	5-10	---	---
Needleandthread	STCO4	5-15	5-15	---	---	2-5	---	---
Pine bluegrass	POSC	2-5	2-5	---	5-10	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	2-5	5-10	5-10	---	---
Thurber needlegrass	STTH2	---	---	5-15	---	20-30	---	---
Sandberg bluegrass	POSE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Idaho fescue	FEID	---	---	---	10-15	---	---	---
Other perennial grasses	PPGG	5-10	5-10	---	10-15	5-10	---	---
Perennial forbs	PPFF	5-15	5-15	5-10	5-10	5-10	---	---
Black sagebrush	ARARN	20-25	20-25	---	5-15	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	---	25-30	5-15	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-15	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10	---	---
Other shrubs	SSSS	10-20	10-20	10-15	5-10	---	---	---

Range site symbol	028B016N	028B016N	028B045N	028B038N	028B007N	None	None
Potential production (lb/acre):							
Favorable years	500	500	800	800	1,000	---	---
Normal years	250	250	600	600	750	---	---
Unfavorable years	150	150	400	400	600	---	---

121--Akerue-Simpark-Punchbowl 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			Inclusion number--		
		Akerue	Simpark	Punchbowl	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	5-10	20-30	---
Needleandthread	STCO4	5-15	5-15	5-15	---	10-20	---
Fine bluegrass	POSC	2-5	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	1-3	2-5	---	---
Curber needlegrass	STTH2	---	---	---	5-15	---	---
Grandberg bluegrass	POSE	---	---	---	5-10	2-5	---
Chollabrush squirreltail	SIHY	---	---	---	2-5	5-10	---
Other perennial grasses	PPGG	5-10	5-10	5-10	---	---	---
Perennial forbs	PPFF	5-15	5-15	5-15	5-10	2-5	---
Black sagebrush	ARARN	20-25	20-25	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	2-5	---	---	---
Wood sagebrush	ARSP5	2-5	2-5	2-5	---	---	---
Low sagebrush	ARAR8	---	---	---	25-30	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20	---
Other shrubs	SSSS	10-20	10-20	10-20	10-15	5-15	---

Range site symbol	028B016N	028B016N	028B016N	028B045N	028B010N	None
Potential production (lb/acre):						
Favorable years	500	500	500	800	800	---
Normal years	250	250	250	600	600	---
Unfavorable years	150	150	150	400	400	---

141--Unsel-Wardenot-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			Inclusion number--	
		Unsel	Wardenot	Belted	1	2
Galleta	HIJA	10-25	10-25	10-25	---	---
Indian ricegrass	ORHY	5-10	5-10	5-10	5-15	20-30
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	---	5-10
Desert needlegrass	STSP3	2-5	2-5	2-5	---	---
Needleandthread	STC04	---	---	---	5-15	10-20
Pine bluegrass	POSC	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	1-3	---
Sandberg bluegrass	POSE	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	5-10	---
Perennial forbs	PPFF	4-10	4-10	4-10	5-15	2-5
Shadscale	ATC0	10-25	10-25	10-25	---	---
Bailey greasewood	SAVEB	5-15	5-15	5-15	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	2-5	---
Winterfat	EULA5	5-10	5-10	5-10	---	---
Black sagebrush	ARARN	---	---	---	20-25	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20
Other shrubs	SSSS	---	---	---	10-20	5-15

Range site symbol	029X017N	029X017N	029X017N	028B016N	028B010N
Potential production (lb/acre):					
Favorable years	350	350	350	500	800
Normal years	250	250	250	250	600
Unfavorable years	100	100	100	150	400

142--Unsel-Caphor-Chedehap association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Unsel	Caphor	Chedehap	1	2	3
alleta	HIJA	10-25	---	---	---	---	---
ndian ricegrass	ORHY	5-10	5-15	15-25	---	5-15	20-30
ottlebrush squirreltail	SIHY	2-5	2-5	2-5	5-10	5-15	5-10
esert needlegrass	STSP3	2-5	---	---	---	---	---
eedleandthread	STCO4	---	5-10	---	---	1-3	10-20
hurber needlegrass	STTH2	---	---	5-10	---	---	---
andberg bluegrass	POSE	---	---	---	---	2-5	2-5
ther perennial grasses	PPGG	---	5-10	---	T-10	---	---
carlet globemallow	SPCO	---	---	2-5	---	---	---
ther perennial forbs	PPFF	4-10	5-10	---	2-8	2-8	2-5
hadscale	ATCO	10-25	30-40	---	30-50	30-40	---
alley greasewood	SAVEB	5-15	---	---	---	---	---
ud sagebrush	ARSP5	5-10	5-10	5-10	5-15	20-30	---
interfat	EULA5	5-10	2-5	---	---	2-5	---
ourwing saltbush	ATCA2	---	2-5	---	---	---	---
pinny hopsage	GRSP	---	---	20-30	---	2-5	---
oming big sagebrush	ARTRW*	---	---	15-25	---	---	15-20
lack greasewood	SAVE4	---	---	---	15-30	---	---
leepweed	SUAED	---	---	---	2-15	---	---
ther shrubs	SSSS	---	5-15	5-10	---	2-5	5-15

range site symbol	029X017N	028B017N	028B052N	024X003N	024X002N	028B010N
potential production (lb/acre):						
Favorable years	350	700	600	600	700	800
Normal years	250	500	400	450	450	600
Unfavorable years	100	250	300	300	300	400

150--Chedehap-Enko-Ricert 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			Inclusion number--		
		Chedehap	Enko	Ricert	1	2	3
Indian ricegrass	ORHY	15-25	20-30	5-15	15-25	20-30	5-15
Thurber needlegrass	STTH2	5-10	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	2-5	5-10	2-5	2-5	5-10	---
Needleandthread	STCO4	---	10-20	5-10	---	10-20	5-15
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5
Bluebunch wheatgrass	AGSP	---	---	---	---	---	1-3
Other perennial grasses	PPGG	---	---	5-10	---	---	5-10
Scarlet globemallow	SPCO	2-5	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-5	5-10	---	2-5	5-15
Spiny hopsage	GRSP	20-30	---	---	20-30	---	---
Wyoming big sagebrush	ARTRW*	15-25	15-20	---	15-25	15-20	---
Bud sagebrush	ARSP5	5-10	---	5-10	5-10	---	2-5
Shadscale	ATCO	---	---	30-40	---	---	---
Winterfat	EULA5	---	---	2-5	---	---	---
Fourwing saltbush	ATCA2	---	---	2-5	---	---	2-5
Black sagebrush	ARARN	---	---	---	---	---	20-25
Other shrubs	SSSS	5-10	5-15	5-15	5-10	5-15	10-20

Range site symbol	028B052N	028B010N	028B017N	028B052N	028B010N	028B016N
Potential production (lb/acre):						
Favorable years	600	800	700	600	800	500
Normal years	400	600	500	400	600	250
Unfavorable years	300	400	250	300	400	150

160--Batan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Batan	Batan, slightly saline	1	2
Bottlebrush squirreltail	SIHY	5-10	5-15	2-10	5-10
Indian ricegrass	ORHY	---	5-15	10-20	20-30
Sandberg bluegrass	POSE	---	2-5	---	2-5
Needleandthread	STCO4	---	1-3	---	10-20
Other perennial grasses	PPGG	T-10	---	---	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-5
Shadscale	ATCO	30-50	30-40	---	---
Black greasewood	SAVE4	15-30	---	---	---
Bud sagebrush	ARSP5	5-15	20-30	2-5	---
Seepweed	SUAED	2-15	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---
Winterfat	EULA5	---	2-5	60-70	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20
Other shrubs	SSSS	---	2-5	---	5-15

Range site symbol	024X003N	024X002N	024X004N	028B010N
Potential production (lb/acre):				
Favorable years	600	700	500	800
Normal years	450	450	350	600
Unfavorable years	300	300	200	400

161--Batan silt loam

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Batan	1	2	3
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---
Indian ricegrass	ORHY	---	---	10-30	---
Alkali sacaton	SPAI	---	---	T-5	15-30
Basin wildrye	ELCI2	---	---	---	40-60
Inland saltgrass	DISPS2	---	---	---	5-10
Other perennial grasses	PPGG	T-10	T-10	---	---
Perennial forbs	PPFF	2-8	2-8	T-5	---
Shadscale	ATCO	30-50	30-50	---	---
Black greasewood	SAVE4	15-30	15-30	---	5-15
Bud sagebrush	ARSP5	5-15	5-15	---	---
Seepweed	SUAED	2-15	2-15	---	---
Sickle saltbush	ATFA	---	---	50-65	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2
Rubber rabbitbrush	CHNA2	---	---	---	1-2

Range site symbol	024X003N	024X003N	024X012N	024X007N
Potential production (lb/acre):				
Favorable years	600	600	700	1,900
Normal years	450	450	400	1,400
Unfavorable years	300	300	200	800

162--Batan-Kelk association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Batan	Kelk, saline	Kelk, occasionally flooded	1	2
Bottlebrush squirreltail	SIHY	5-10	2-5	---	---	2-5
Basin wildrye	ELCI2	---	5-20	50-60	5-15	---
Indian ricegrass	ORHY	---	2-5	---	---	5-15
Western wheatgrass	AGSM	---	---	5-15	---	---
Inland saltgrass	DISPS2	---	---	---	5-10	---
Needleandthread	STCO4	---	---	---	---	5-10
Other perennial grasses	PPGG	T-10	---	---	---	5-10
Thelypody	THELY	---	2-4	---	---	---
Other perennial forbs	PPFF	2-8	---	2-8	T-5	5-10
Shadscale	ATCO	30-50	---	---	---	30-40
Black greasewood	SAVE4	15-30	20-30	2-10	60-75	---
Bud sagebrush	ARSP5	5-15	---	---	---	5-10
Seepweed	SUAED	2-15	---	---	---	---
Basin big sagebrush	ARTRT*	---	5-15	15-20	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---
Spiny hopsage	GRSP	---	5-15	---	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Winterfat	EULA5	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-15

Range site symbol	024X003N	024X022N	024X006N	024X011N	028B017N
Potential production (lb/acre):					
Favorable years	600	800	1,500	500	700
Normal years	450	600	1,100	350	500
Unfavorable years	300	350	600	200	250

168--Batan-Bubus-Ocala association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Batan	Bubus	Ocala	1	2
Bottlebrush squirreltail	SIHY	5-10	5-10	---	---	5-15
Basin wildrye	ELCI2	---	---	40-60	50-60	---
Alkali sacaton	SPAI	---	---	15-30	---	---
Inland saltgrass	DISPS2	---	---	5-10	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Sandberg bluegrass	POSE	---	---	---	---	2-5
Needleandthread	STCO4	---	---	---	---	1-3
Other perennial grasses	PPGG	T-10	T-10	---	---	---
Perennial forbs	PPFF	2-8	2-8	---	2-8	2-8
Shadscale	ATCO	30-50	30-50	---	---	30-40
Black greasewood	SAVE4	15-30	15-30	5-15	2-10	---
Bud sagebrush	ARSP5	5-15	5-15	---	---	20-30
Seepweed	SUAED	2-15	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	---	1-2	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---
Spiny hopsage	GRSP	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	2-5

Range site symbol	024X003N	024X003N	024X007N	024X006N	024X002N
Potential production (lb/acre):					
Favorable years	600	600	1,900	1,500	700
Normal years	450	450	1,400	1,100	450
Unfavorable years	300	300	800	600	300

169--Batan-Ocala association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Batan	Ocala, occasionally flooded	Ocala, rarely flooded	1	2	3
ottlebrush squirreltail	SIHY	5-10	---	---	---	---	---
asin wildrye	ELCI2	---	5-15	5-15	50-60	---	---
nland saltgrass	DISPS2	---	5-10	5-10	---	---	---
estern wheatgrass	AGSM	---	---	---	5-15	---	---
hurber needlegrass	STTH2	---	---	---	---	---	20-50
luebunch wheatgrass	AGSP	---	---	---	---	---	5-10
ther perennial grasses	PPGG	T-10	---	---	---	---	---
alsamroot	BALSA	---	---	---	---	---	2-4
apertip hawksbeard	CRAC2	---	---	---	---	---	2-4
ther perennial forbs	PPFF	2-8	T-5	T-5	2-8	---	---
hadscale	ATCO	30-50	---	---	---	---	---
lack greasewood	SAVE4	15-30	60-75	60-75	2-10	---	---
ud sagebrush	ARSP5	5-15	---	---	---	---	---
leepweed	SUAED	2-15	---	---	---	---	---
asin big sagebrush	ARTRT*	---	---	---	15-20	---	---
ubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
yoming big sagebrush	ARTRW*	---	---	---	---	---	15-20
owny rabbitbrush	CHVIP	---	---	---	---	---	2-5
piny hopsage	GRSP	---	---	---	---	---	2-5
ther shrubs	SSSS	---	---	---	---	---	2-10

ange site symbol	024X003N	024X011N	024X011N	024X006N	None	024X005N
otential production (lb/acre):						
Favorable years	600	500	500	1,500	---	800
Normal years	450	350	350	1,100	---	600
Unfavorable years	300	200	200	600	---	400

170--Beoska-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Beoska	Orovada	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	2-10	---	5-15
Indian ricegrass	ORHY	5-15	20-30	5-15	---	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-10	---	2-5
Needleandthread	STCO4	1-3	10-20	---	---	1-3
Thurber needlegrass	STTH2	---	---	0-20	20-50	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---
Tapertip hawksbeard	CRAC2	---	---	1-2	2-4	---
Globemallow	SPHAE	---	---	1-2	---	---
Phlox	PHLOX	---	---	1-2	---	---
Balsamroot	BALSA	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	2-5	---	---	2-8
Shadscale	ATCO	30-40	---	---	---	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30
Spiny hopsage	GRSP	2-5	---	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	30-35	15-20	---
Downy rabbitbrush	CHVIP	---	---	---	2-5	---
Other shrubs	SSSS	2-5	5-15	---	2-10	2-5

Range site symbol	024X002N	028B010N	024X020N	024X005N	024X002N
Potential production (lb/acre):					
Favorable years	700	800	700	800	700
Normal years	450	600	450	600	450
Unfavorable years	300	400	300	400	300

171--Beoska silt 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	Inclusion number--			
		Beoska	1	2	3	4
bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-15	2-10
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Andberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-10
Needleandthread	STCO4	1-3	1-3	1-3	1-3	---
Curber needlegrass	STTH2	---	---	---	---	10-20
Sharp tip hawksbeard	CRAC2	---	---	---	---	1-2
Yarrow	SPHAE	---	---	---	---	1-2
Yarrow	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Mad scale	ATCO	30-40	30-40	30-40	30-40	---
Red sagebrush	ARSP5	20-30	20-30	20-30	20-30	---
Pinon hopsage	GRSP	2-5	2-5	2-5	2-5	5-15
Interfat	EULA5	2-5	2-5	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35
Other shrubs	SSSS	2-5	2-5	2-5	2-5	---

Range site symbol	024X002N	024X002N	024X002N	024X002N	024X020N
Potential production (lb/acre):					
Favorable years	700	700	700	700	700
Normal years	450	450	450	450	450
Unfavorable years	300	300	300	300	300

172--Beoska-Tenabo complex

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Beoska	Tenabo	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	---	1-3
Thurber needlegrass	STTH2	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	1-2	---
Globemallow	SPHAE	---	---	1-2	---
Phlox	PHLOX	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	20-30
Spiny hopsage	GRSP	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	30-35	---
Other shrubs	SSSS	2-5	2-5	---	2-5

Range site symbol	024X002N	024X002N	024X020N	024X002N
Potential production (lb/acre):				
Favorable years	700	700	700	700
Normal years	450	450	450	450
Unfavorable years	300	300	300	300

173--Beoska-Allor 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		Inclusion number--		
		Beoska	Allor	1	2	3
Littlebrush squirreltail	SIHY	5-15	5-10	2-10	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	---	2-10	2-10	2-5
Redleandthread	STCO4	1-3	---	---	---	1-3
Blue bluegrass	POSC	---	5-15	---	---	---
Turber needlegrass	STTH2	---	---	10-20	10-20	---
Other perennial grasses	PPGG	---	5-10	---	---	---
Spertip hawksbeard	CRAC2	---	---	1-2	1-2	---
Cobemallow	SPHAE	---	---	1-2	1-2	---
Yarrow	PHLOX	---	---	1-2	1-2	---
Other perennial forbs	PPFF	2-8	5-10	---	---	2-8
Badscale	ATCO	30-40	---	---	---	30-40
Old sagebrush	ARSP5	20-30	---	---	---	20-30
Siny hopsage	GRSP	2-5	10-20	5-15	5-15	2-5
Interfat	EULA5	2-5	---	---	---	2-5
Young big sagebrush	ARTRW*	---	10-20	30-35	30-35	---
Nevada ephedra	EPNE	---	5-10	---	---	---
Other shrubs	SSSS	2-5	---	---	---	2-5

Range site symbol	024X002N	027X008N	024X020N	024X020N	024X002N
Potential production (lb/acre):					
Favorable years	700	700	700	700	700
Normal years	450	500	450	450	450
Unfavorable years	300	300	300	300	300

174--Beoska-Chiara 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		Inclusion number--		
		Beoska	Chiara	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	2-10	---	5-15
Indian ricegrass	ORHY	5-15	---	5-15	---	5-15
Sandberg bluegrass	POSE	2-5	---	2-10	---	2-5
Needleandthread	STCO4	1-3	---	---	---	1-3
Thurber needlegrass	STTH2	---	20-50	10-20	---	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	15-25	---
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	1-2	---	---
Globemallow	SPHAE	---	---	1-2	---	---
Phlox	PHLOX	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	---	---	2-5	2-8
Shadscale	ATCO	30-40	---	---	---	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	5-15	---	2-5
Winterfat	EULA5	2-5	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	30-35	---	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---
Other shrubs	SSSS	2-5	2-10	---	5-10	2-5

Range site symbol	024X002N	024X005N	024X020N	028B003N	024X0021
Potential production (lb/acre):					
Favorable years	700	800	700	2,600	700
Normal years	450	600	450	1,250	450
Unfavorable years	300	400	300	800	300

175--Beoska-Whirlo-Misad 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			Inclusion number--	
		Beoska	Whirlo	Misad	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	1-3	---	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	30-35	---
Other shrubs	SSSS	2-5	2-5	2-5	---	2-5

Range site symbol	024X002N	024X002N	024X002N	024X020N	024X002N
Potential production (lb/acre):					
Favorable years	700	700	700	700	700
Normal years	450	450	450	450	450
Unfavorable years	300	300	300	300	300

177--Beoska-Dewar-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Beoska	Dewar	Orovada	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	5-10	---	---	5-15
Indian ricegrass	ORHY	5-15	---	20-30	---	15-30	5-15
Sandberg bluegrass	POSE	2-5	---	2-5	---	---	2-5
Needleandthread	STCO4	1-3	---	10-20	---	---	1-3
Thurber needlegrass	STTH2	---	20-50	---	20-50	5-10	---
Bluebunch wheatgrass	AGSP	---	5-10	---	5-10	---	---
Other perennial grasses	PPGG	---	---	---	---	5-15	---
Balsamroot	BALSA	---	2-4	---	2-4	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	2-4	---	---
Globemallow	SPHAE	---	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	---	2-5	---	---	2-8
Shadscale	ATCO	30-40	---	---	---	2-5	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	---	2-5	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-20	15-30	---
Downy rabbitbrush	CHVIP	---	2-5	---	2-5	---	---
Other shrubs	SSSS	2-5	2-10	5-15	2-10	2-5	2-5

Range site symbol	024X002N	024X005N	028B010N	024X005N	024X045N	024X002N
Potential production (lb/acre):						
Favorable years	700	800	800	800	350	700
Normal years	450	600	600	600	200	450
Unfavorable years	300	400	400	400	100	300

180--Needle Peak-Batan-Yobe association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Needle Peak	Batan	Yobe	1	2
Basin wildrye	ELCI2	50-60	---	40-60	5-20	---
Western wheatgrass	AGSM	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	2-5	2-5
Alkali sacaton	SPAI	---	---	15-30	---	---
Inland saltgrass	DISPS2	---	---	5-10	---	---
Indian ricegrass	ORHY	---	---	---	2-5	5-15
Needleandthread	STCO4	---	---	---	---	5-10
Other perennial grasses	PPGG	---	T-10	---	---	5-10
Thelypody	THELY	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	2-8	---	---	5-10
Basin big sagebrush	ARTRT*	15-20	---	---	5-15	---
Black greasewood	SAVE4	2-10	15-30	5-15	20-30	---
Rubber rabbitbrush	CHNA2	2-5	---	1-2	---	---
Shadscale	ATCO	---	30-50	---	---	30-40
Bud sagebrush	ARSP5	---	5-15	---	---	5-10
Seepweed	SUAED	---	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	1-2	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	5-10	---
Spiny hopsage	GRSP	---	---	---	5-15	---
Winterfat	EULA5	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-15

Range site symbol	024X006N	024X003N	024X007N	024X022N	028B017N
Potential production (lb/acre):					
Favorable years	1,500	600	1,900	800	700
Normal years	1,100	450	1,400	600	500
Unfavorable years	600	300	800	350	250

190--Wardenot-Sundown 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		Inclusion number--	
		Wardenot	Sundown	1	2
Galleta	HIJA	10-25	---	10-25	---
Indian ricegrass	ORHY	5-10	20-30	5-10	15-25
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---
Desert needlegrass	STSP3	2-5	---	2-5	---
Sand dropseed	SPCR	---	3-10	---	---
Needleandthread	STCO4	---	---	---	5-10
Basin wildrye	ELCI2	---	---	---	2-5
Bluebunch wheatgrass	AGSP	---	---	---	2-5
Other perennial grasses	PPGG	---	5-15	---	---
Perennial forbs	PPFF	4-10	5-10	4-10	5-10
Shadscale	ATCO	10-25	---	10-25	---
Bailey greasewood	SAVEB	5-15	---	5-15	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	2-5
Winterfat	EULA5	5-10	5-10	5-10	5-10
Fourwing saltbush	ATCA2	---	15-25	---	---
Spiny hopsage	GRSP	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	20-30
Small rabbitbrush	CHVIS	---	---	---	2-5
Other shrubs	SSSS	---	10-20	---	---

Range site symbol	029X017N	029X012N	029X017N	028B011N
Potential production (lb/acre):				
Favorable years	350	500	350	950
Normal years	250	350	250	700
Unfavorable years	100	200	100	400

191--Wardenot-Laxal association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Wardenot	Laxal	Wardenot, strongly saline	1	2
Galleta	HIJA	10-25	10-25	---	10-25	---
Indian ricegrass	ORHY	5-10	5-10	---	5-10	---
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	2-5	---
Desert needlegrass	STSP3	2-5	2-5	---	2-5	---
Alkali sacaton	SPAI	---	---	---	---	5-10
Inland saltgrass	DISPS2	---	---	---	---	5-8
Basin wildrye	ELCI2	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	T-10	---	2-5
Perennial forbs	PPFF	4-10	4-10	2-8	4-10	2-5
Shadscale	ATCO	10-25	10-25	30-50	10-25	2-5
Bailey greasewood	SAVEB	5-15	5-15	---	5-15	---
Bud sagebrush	ARSP5	5-10	5-10	5-15	5-10	---
Winterfat	EULA5	5-10	5-10	---	5-10	---
Black greasewood	SAVE4	---	---	15-30	---	50-60
Seepweed	SUAED	---	---	2-15	---	---
Iodinebush	ALOC2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-10

Range site symbol	029X017N	029X017N	024X003N	029X017N	028B020N
Potential production (lb/acre):					
Favorable years	350	350	600	350	600
Normal years	250	250	450	250	450
Unfavorable years	100	100	300	100	200

200--Izo-Misad association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Izo	Misad	1	2
Galleta	HIJA	10-25	---	10-25	---
Indian ricegrass	ORHY	5-10	5-15	5-10	---
Bottlebrush squirreltail	SIHY	2-5	5-15	2-5	5-10
Desert needlegrass	STSP3	2-5	---	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---
Needleandthread	STC04	---	1-3	---	---
Other perennial grasses	PPGG	---	---	---	T-10
Perennial forbs	PPFF	4-10	2-8	4-10	2-8
Shadscale	ATCO	10-25	30-40	10-25	30-50
Bailey greasewood	SAVEB	5-15	---	5-15	---
Bud sagebrush	ARSP5	5-10	20-30	5-10	5-15
Winterfat	EULA5	5-10	2-5	5-10	---
Spiny hopsage	GRSP	---	2-5	---	---
Black greasewood	SAVE4	---	---	---	15-30
Seepweed	SUAED	---	---	---	2-15
Other shrubs	SSSS	---	2-5	---	---

Range site symbol	029X017N	024X002N	029X017N	024X003N
Potential production (lb/acre):				
Favorable years	350	700	350	600
Normal years	250	450	250	450
Unfavorable years	100	300	100	300

201--Izo-Bubus association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Izo	Bubus	1	2
Galleta	HIJA	10-25	---	---	---
Indian ricegrass	ORHY	5-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	---
Desert needlegrass	STSP3	2-5	---	---	---
Other perennial grasses	PPGG	---	T-10	T-10	---
Perennial forbs	PPFF	4-10	2-8	2-8	---
Shadscale	ATCO	10-25	30-50	30-50	---
Bailey greasewood	SAVEB	5-15	---	---	---
Bud sagebrush	ARSP5	5-10	5-15	5-15	---
Winterfat	EULA5	5-10	---	---	---
Black greasewood	SAVE4	---	15-30	15-30	---
Peepweed	SUAED	---	2-15	2-15	---

Range site symbol	029X017N	024X003N	024X003N	None
Potential production (lb/acre):				
Favorable years	350	600	600	---
Normal years	250	450	450	---
Unfavorable years	100	300	300	---

210--Laxal association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Laxal	Laxal, occasionally flooded	1	2	3
Galleta	HIJA	10-25	10-25	5-20	---	---
Indian ricegrass	ORHY	5-10	5-10	5-10	2-5	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	2-5	5-1
Desert needlegrass	STSP3	2-5	2-5	---	---	---
Needlegrass	STIPA	---	---	5-15	---	---
Basin wildrye	ELCI2	---	---	---	10-20	---
Needleandthread	STCO4	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	10-15	5-10	T-1
Perennial forbs	PPFF	4-10	4-10	3-8	5-10	2-8
Annual forbs	AAFF	---	---	2-5	---	---
Shadscale	ATCO	10-25	10-25	---	---	30-5
Bailey greasewood	SAVEB	5-15	5-15	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	---	5-1
Winterfat	EULA5	5-10	5-10	2-5	---	---
Nevada ephedra	EPNE	---	---	2-5	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	---	15-3
Seepweed	SUAED	---	---	---	---	2-1
Other shrubs	SSSS	---	---	10-20	5-10	---

Range site symbol	029X017N	029X017N	029X008N	028B009N	024X00
Potential production (lb/acre):					
Favorable years	350	350	700	700	600
Normal years	250	250	400	400	450
Unfavorable years	100	100	200	300	300

211--Laxal gravelly fine sandy loam, occasionally flooded, 0 to 2 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Laxal	1	2
Galleta	HIJA	10-25	---	5-20
Indian ricegrass	ORHY	5-10	2-5	5-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---
Desert needlegrass	STSP3	2-5	---	---
Basin wildrye	ELCI2	---	10-20	---
Needleandthread	STCO4	---	2-5	---
Needlegrass	STIPA	---	---	5-15
Other perennial grasses	PPGG	---	5-10	10-15
Perennial forbs	PPFF	4-10	5-10	3-8
Annual forbs	AAFF	---	---	2-5
Shadscale	ATCO	10-25	---	---
Bailey greasewood	SAVEB	5-15	---	---
Bud sagebrush	ARSP5	5-10	---	5-10
Basin big sagebrush	ARTRT*	---	10-15	---
Greene rabbitbrush	CHGR6	---	2-5	---
Nevada ephedra	EPNE	---	2-5	2-5
Fourwing saltbush	ATCA2	---	2-5	---
Other shrubs	SSSS	---	5-10	10-20

Range site symbol	029X017N	028B009N	029X008N
Potential production (lb/acre):			
Favorable years	350	700	700
Normal years	250	400	400
Unfavorable years	100	300	200

212--Laxal-Tomel association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Laxal	Tomel	Laxal, occasionally flooded	1	2	3
Galleta	HIJA	10-25	10-25	10-25	---	5-20	---
Indian ricegrass	ORHY	5-10	5-10	5-10	---	5-10	2-5
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	5-10	---	---
Desert needlegrass	STSP3	2-5	2-5	2-55	---	---	---
Needlegrass	STIPA	---	---	---	---	5-15	---
Basin wildrye	ELCI2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	T-10	10-15	5-1
Perennial forbs	PPFF	4-10	4-10	4-10	2-8	3-8	5-1
Annual forbs	AAFF	---	---	---	---	2-5	---
Shadscale	ATCO	10-25	10-25	10-25	30-50	---	---
Bailey greasewood	SAVEB	5-15	5-15	5-15	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	5-10	5-15	5-10	---
Winterfat	EULA5	5-10	5-10	5-10	---	2-5	---
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Nevada ephedra	EPNE	---	---	---	---	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-20
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	10-20	10-20

Range site symbol	029X017N	029X017N	029X017N	024X003N	029X008N	029X008N
Potential production (lb/acre):						
Favorable years	350	350	350	600	700	700
Normal years	250	250	250	450	400	500
Unfavorable years	100	100	100	300	200	200

220--Blackhawk very fine sandy loam, 2 to 8 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Blackhawk	1	2	3
Bottlebrush squirreltail	SIHY	5-15	2-5	2-10	5-10
Indian ricegrass	ORHY	5-15	2-5	5-15	---
Sandberg bluegrass	POSE	2-5	---	2-10	---
Needleandthread	STC04	1-3	2-5	---	---
Basin wildrye	ELCI2	---	10-20	---	---
Thurber needlegrass	STTH2	---	---	10-20	---
Other perennial grasses	PPGG	---	5-10	---	T-10
Tapertip hawksbeard	CRAC2	---	---	1-2	---
Globemallow	SPHAE	---	---	1-2	---
Phlox	PHLOX	---	---	1-2	---
Other perennial forbs	PPFF	2-8	5-10	---	2-8
Shadscale	ATCO	30-40	---	---	30-50
Bud sagebrush	ARSP5	20-30	---	---	5-15
Spiny hopsage	GRSP	2-5	---	5-15	---
Winterfat	EULA5	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	10-15	---	---
Greene rabbitbrush	CHGR6	---	2-5	---	---
Nevada ephedra	EPNE	---	2-5	---	---
Fourwing saltbush	ATCA2	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	30-35	---
Black greasewood	SAVE4	---	---	---	15-30
Seepweed	SUAED	---	---	---	2-15
Other shrubs	SSSS	2-5	5-10	---	---

Range site symbol	024X002N	028B009N	024X020N	024X003N
Potential production (lb/acre):				
Favorable years	700	700	700	600
Normal years	450	400	450	450
Unfavorable years	300	300	300	300

221--Blackhawk-Tenabo-Desatoya Variant 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			Inclusion number--		
		Blackhawk	Tenabo	Desatoya Variant	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	---	---	5-10
Indian ricegrass	ORHY	5-15	5-15	10-15	10-15	15-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---
Needleandthread	STCO4	1-3	1-3	---	---	---	---
Thurber needlegrass	STTH2	---	---	10-15	10-15	5-10	---
Bluegrass	POA++	---	---	2-10	2-10	---	---
Pine bluegrass	POSC	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	5-20	5-20	5-15	5-10
Globemallow	SPHAE	---	---	2-5	2-5	2-4	---
Other perennial forbs	PPFF	2-8	2-8	---	---	---	5-10
Shadscale	ATCO	30-40	30-40	---	---	2-5	---
Bud sagebrush	ARSP5	20-30	20-30	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	10-20
Winterfat	EULA5	2-5	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	25-35	25-35	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-30	10-20
Nevada ephedra	EPNE	---	---	---	---	---	5-10
Other shrubs	SSSS	2-5	2-5	5-35	5-35	2-5	---

Range site symbol	024X002N	024X002N	024X030N	024X030N	024X045N	027X008
Potential production (lb/acre):						
Favorable years	700	700	500	500	350	700
Normal years	450	450	350	350	200	500
Unfavorable years	300	300	250	250	100	300

231--Broyles very fine sandy loam, 2 to 4 percent slopes

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Needleandthread	STCO4	1-3	1-3	1-3	1-3
Perennial forbs	PPFF	2-8	2-8	2-8	2-8
Shadscale	ATCO	30-40	30-40	30-40	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	2-5
Winterfat	EULA5	2-5	2-5	2-5	2-5
Other shrubs	SSSS	2-5	2-5	2-5	2-5

Range site symbol	024X002N	024X002N	024X002N	024X002N
Potential production (lb/acre):				
Favorable years	700	700	700	700
Normal years	450	450	450	450
Unfavorable years	300	300	300	300

235--Broyles-Creemon association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Broyles	Creemon	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-15	2-10
Indian ricegrass	ORHY	5-15	5-15	---	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-10
Needleandthread	STCO4	1-3	1-3	---	1-3	---
Thurber needlegrass	STTH2	---	---	---	---	10-20
Other perennial grasses	PPGG	---	---	T-10	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Shadscale	ATCO	30-40	30-40	30-50	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	5-15	20-30	---
Spiny hopsage	GRSP	2-5	2-5	---	2-5	5-15
Winterfat	EULA5	2-5	2-5	---	2-5	---
Black greasewood	SAVE4	---	---	15-30	---	---
Seepweed	SUAED	---	---	2-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35
Other shrubs	SSSS	2-5	2-5	---	2-5	---

Range site symbol	024X002N	024X002N	024X003N	024X002N	024X020
Potential production (lb/acre):					
Favorable years	700	700	600	700	700
Normal years	450	450	450	450	450
Unfavorable years	300	300	300	300	300

236--Broyles association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Broyles	Broyles, moderately saline	1	2	3
Brittlebrush squirreltail	SIHY	5-15	5-10	2-5	5-15	2-10
Indian ricegrass	ORHY	5-15	---	2-5	5-15	5-15
Sandberg bluegrass	POSE	2-5	---	---	2-5	2-10
Nedleandthread	STCO4	1-3	---	---	1-3	---
Esin wildrye	ELCI2	---	---	5-20	---	---
Turber needlegrass	STTH2	---	---	---	---	10-20
Other perennial grasses	PPGG	---	T-10	---	---	---
Telypody	THELY	---	---	2-4	---	---
Portia hawkbeard	CRAC2	---	---	---	---	1-2
Gobemallow	SPHAE	---	---	---	---	1-2
Flox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	---	2-8	---
Sadscale	ATCO	30-40	30-50	---	30-40	---
Ed sagebrush	ARSP5	20-30	5-15	---	20-30	---
Siny hopsage	GRSP	2-5	---	5-15	2-5	5-15
Waterfat	EULA5	2-5	---	---	2-5	---
Black greasewood	SAVE4	---	15-30	20-30	---	---
Sepweed	SUAED	---	2-15	---	---	---
Esin big sagebrush	ARTRT*	---	---	5-15	---	---
Woming big sagebrush	ARTRW*	---	---	5-10	---	30-35
Other shrubs	SSSS	2-5	---	---	2-5	---

Range site symbol	024X002N	024X003N	024X022N	024X002N	024X020N
Potential production (lb/acre):					
Favorable years	700	600	800	700	700
Normal years	450	450	600	450	450
Unfavorable years	300	300	350	300	300

237--Broyles-Beoska-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Broyles	Beoska	Orovada	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	10-20	---	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-5	---	2-8
Shadscale	ATCO	30-40	30-40	---	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	---	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	15-20	30-35	---
Other shrubs	SSSS	2-5	2-5	5-15	---	2-5

Range site symbol	024X002N	024X002N	028B010N	024X020N	024X002N
Potential production (lb/acre):					
Favorable years	700	700	800	700	700
Normal years	450	450	600	450	450
Unfavorable years	300	300	400	300	300

239--Broyles-Tessfive-Perlor association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Broyles	Tessfive	Perlor	1	2	3
ottlebrush squirreltail	SIHY	5-15	---	5-15	5-10	5-10	2-10
ndian ricegrass	ORHY	5-15	10-15	5-15	---	10-30	5-15
andberg bluegrass	POSE	2-5	---	2-5	---	---	2-10
eedleandthread	STCO4	1-3	---	1-3	---	---	---
urber needlegrass	STTH2	---	10-15	---	---	---	10-20
uegrass	POA++	---	2-10	---	---	---	---
ther perennial grasses	PPGG	---	5-20	---	T-10	10-20	---
lobemallow	SPHAE	---	2-5	---	---	---	1-2
apertip hawksbeard	CRAC2	---	---	---	---	---	1-2
nlox	PHLOX	---	---	---	---	---	1-2
ther perennial forbs	PPFF	2-8	---	2-8	2-8	5-15	---
adscale	ATCO	30-40	---	30-40	30-50	---	---
ud sagebrush	ARSP5	20-30	---	20-30	5-15	---	---
piny hopsage	GRSP	2-5	---	2-5	---	1-5	5-15
interfat	EULA5	2-5	---	2-5	---	---	---
lack sagebrush	ARARN	---	25-35	---	---	5-15	---
lack greasewood	SAVE4	---	---	---	15-30	---	---
leepweed	SUAED	---	---	---	2-15	---	---
owny rabbitbrush	CHVIP	---	---	---	---	1-5	---
ntelope bitterbrush	PUTR2	---	---	---	---	1-5	---
urple sage	SADOC2	---	---	---	---	T-5	---
oming big sagebrush	ARTRW*	---	---	---	---	10-25	30-35
ther shrubs	SSSS	2-5	5-35	2-5	---	2-4	---

Range site symbol	024X002N	024X030N	024X002N	024X003N	025X025N	024X020N
Potential production (lb/acre):						
Favorable years	700	500	700	600	200	700
Normal years	450	350	450	450	150	450
Unfavorable years	300	250	300	300	100	300

249--Bubus association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Bubus, slightly saline	Bubus	1	2	
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	5-10	--
Indian ricegrass	ORHY	5-15	---	5-15	---	--
Sandberg bluegrass	POSE	2-5	---	2-5	---	--
Needleandthread	STCO4	1-3	---	1-3	---	--
Other perennial grasses	PPGG	---	T-10	---	T-10	--
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	--
Shadscale	ATCO	30-40	30-50	30-40	30-50	--
Bud sagebrush	ARSP5	20-30	5-15	20-30	5-15	--
Spiny hopsage	GRSP	2-5	---	2-5	---	--
Winterfat	EULA5	2-5	---	2-5	---	--
Black greasewood	SAVE4	---	15-30	---	15-30	--
Seepweed	SUAED	---	2-15	---	2-15	--
Other shrubs	SSSS	2-5	---	2-5	---	--

Range site symbol	024X002N	024X003N	024X002N	024X003N	No
Potential production (lb/acre):					
Favorable years	700	600	700	600	--
Normal years	450	450	450	450	--
Unfavorable years	300	300	300	300	--

260--Umberland-Wendane association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Umberland	Wendane	1	2
Alkali sacaton	SPAI	40-70	15-30	---	5-10
Inland saltgrass	DISPS2	T-15	5-10	5-10	2-5
Basin wildrye	ELCI2	T-55	40-60	5-15	15-25
Other perennial grasses	PPGG	---	---	---	2-5
Perennial forbs	PPFF	2-8	---	T-5	2-5
Iodinebush	ALOC2	10-20	---	---	---
Saltbush	ATRIP	5-10	---	---	---
Black greasewood	SAVE4	2-5	5-15	60-75	5-15
Alkali rabbitbrush	CHAL9	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	1-2	---	---
Silver buffaloberry	SHAR	---	---	---	10-20
Other shrubs	SSSS	---	---	---	5-15

Range site symbol	024X010N	024X007N	024X011N	028B057N
Potential production (lb/acre):				
Favorable years	450	1,900	500	1,500
Normal years	300	1,400	350	1,000
Unfavorable years	150	800	200	600

261--Umberland-Wendane-Ocala association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Umberland	Wendane	Ocala	1	2
Alkali sacaton	SPAI	40-70	15-30	---	5-10	---
Inland saltgrass	DISPS2	T-15	5-10	5-10	2-5	---
Basin wildrye	ELCI2	T-5	40-60	5-15	15-25	---
Other perennial grasses	PPGG	---	---	---	2-5	---
Perennial forbs	PPFF	2-8	---	T-5	2-5	---
Iodinebush	ALOC2	10-20	---	---	---	---
Saltbush	ATRIP	5-10	---	---	---	---
Black greasewood	SAVE4	2-5	5-15	60-75	5-15	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---
Rubber rabbitbrush	CHNA2	---	1-2	---	---	---
Silver buffaloberry	SHAR	---	---	---	10-20	---
Other shrubs	SSSS	---	---	---	5-15	---

Range site symbol	024X010N	024X007N	024X011N	028B057N	None
Potential production (lb/acre):					
Favorable years	450	1,900	500	1,500	---
Normal years	300	1,400	350	1,000	---
Unfavorable years	150	800	200	600	---

262--Umberland silt loam, frequently flooded, 0 to 2 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Umberland	1	2	3
Alkali sacaton	SPAI	30-40	15-30	---	5-10
Alkali muhly	MUAS	5-15	---	---	---
Alkali cordgrass	SPGR	5-10	---	---	---
Basin wildrye	ELCI2	---	40-60	50-60	15-25
Inland saltgrass	DISPS2	---	5-10	---	2-5
Western wheatgrass	AGSM	---	---	5-15	---
Other perennial grasses	PPGG	10-15	---	---	2-5
Perennial forbs	PPFF	5-10	---	2-8	2-5
Black greasewood	SAVE4	---	5-15	2-10	5-15
Alkali rabbitbrush	CHAL9	---	1-2	---	---
Rubber rabbitbrush	CHNA2	---	1-2	2-5	---
Basin big sagebrush	ARTRT*	---	---	15-20	---
Silver buffaloberry	SHAR	---	---	---	10-20
Other shrubs	SSSS	5-10	---	---	5-15

Range site symbol	028B002N	024X007N	024X006N	028B057N
Potential production (lb/acre):				
Favorable years	3,000	1,900	1,500	1,500
Normal years	1,500	1,400	1,100	1,000
Unfavorable years	700	800	600	600

270--Tomel-Laxal 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		Inclusion number--	
		Tomel	Laxal	1	2
Galleta	HIJA	10-25	10-25	---	5-20
Indian ricegrass	ORHY	5-10	5-10	2-5	5-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---
Desert needlegrass	STSP3	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	2-5	---
Needlegrass	STIPA	---	---	---	5-15
Other perennial grasses	PPGG	---	---	5-10	10-15
Perennial forbs	PPFF	4-10	4-10	5-10	3-8
Annual forbs	AAFF	---	---	---	2-5
Shadscale	ATCO	10-25	10-25	---	---
Bailey greasewood	SAVEB	5-15	5-15	---	---
Bud sagebrush	ARSP5	5-10	5-10	---	5-10
Winterfat	EULA5	5-10	5-10	---	2-5
Basin big sagebrush	ARTRT*	---	---	10-20	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5
Other shrubs	SSSS	---	---	10-25	10-20

Range site symbol	029X017N	029X017N	029X009N	029X008N
Potential production (lb/acre):				
Favorable years	350	350	700	700
Normal years	250	250	500	400
Unfavorable years	100	100	200	200

280--Chiara-Filiran 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		Inclusion number--		
		Chiara	Filiran	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	15-30
Needleandthread	STCO4	10-20	10-20	10-20	1-3	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-15	---
Andberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Curber needlegrass	STTH2	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	5-15
Lobemallow	SPHAE	---	---	---	---	2-4
Other perennial forbs	PPFF	2-5	2-5	2-5	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-30
Madscale	ATCO	---	---	---	30-40	2-5
Wood sagebrush	ARSP5	---	---	---	20-30	---
Piny hopsage	GRSP	---	---	---	2-5	2-5
Interfat	EULA5	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	2-5	2-5
Range site symbol		028B010N	028B010N	028B010N	024X002N	024X045N
Potential production (lb/acre):						
Favorable years		800	800	800	700	350
Normal years		600	600	600	450	200
Unfavorable years		400	400	400	300	100

284--Chiara-Dewar 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		Inclusion number--		
		Chiara	Dewar	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	20-30
Needleandthread	STCO4	10-20	10-20	10-20	5-10	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5
Other perennial grasses	PPGG	---	---	---	5-10	---
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-20
Shadscale	ATCO	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15

Range site symbol	028B010N	028B010N	028B010N	028B017N	028B010
Potential production (lb/acre):					
Favorable years	800	800	800	700	800
Normal years	600	600	600	500	600
Unfavorable years	400	400	400	250	400

290--Creemon 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	Inclusion number--		
		Creemon	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10
Indian ricegrass	ORHY	5-15	5-15	5-15	10-20
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Needleandthread	STC04	1-3	1-3	1-3	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-8
Shadscale	ATCO	30-40	30-40	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5	---
Winterfat	EULA5	2-5	2-5	2-5	60-70
Other shrubs	SSSS	2-5	2-5	2-5	---

Range site symbol	024X002N	024X002N	024X002N	024X004N
Potential production (lb/acre):				
Favorable years	700	700	700	500
Normal years	450	450	450	350
Unfavorable years	300	300	300	200

291--Creemon-Wholan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Creemon	Wholan	Wholan, alkaline	1	2	3
Bottlebrush squirreltail	SIHY	5-15	2-10	5-10	2-5	5-10	5-10
Indian ricegrass	ORHY	5-15	10-20	10-30	5-15	---	20-30
Sandberg bluegrass	POSE	2-5	---	---	---	---	2-5
Needleandthread	STCO4	1-3	---	---	5-10	---	10-20
Alkali sacaton	SPAI	---	---	T-5	---	---	---
Other perennial grasses	PPGG	---	---	---	5-10	T-10	---
Perennial forbs	PPFF	2-8	2-8	T-5	5-10	2-8	2-5
Shadscale	ATCO	30-40	---	---	30-40	30-50	---
Bud sagebrush	ARSP5	20-30	2-5	---	5-10	5-15	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Winterfat	EULA5	2-5	60-70	---	2-5	---	---
Sickle saltbush	ATFA	---	---	50-65	---	---	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Black greasewood	SAVE4	---	---	---	---	15-30	---
Seepweed	SUAED	---	---	---	---	2-15	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	15-20
Other shrubs	SSSS	2-5	---	---	5-15	---	5-15

Range site symbol	024X002N	024X004N	024X012N	028B017N	024X003N	028B010
Potential production (lb/acre):						
Favorable years	700	500	700	700	600	800
Normal years	450	350	400	500	450	600
Unfavorable years	300	200	200	250	300	400

295--Creemon-Cren association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Creemon	Cren	1	2	3
Littlebrush squirreltail	SIHY	5-15	5-15	---	5-10	2-5
Indian ricegrass	ORHY	5-15	5-15	---	---	2-10
Sandberg bluegrass	POSE	2-5	2-5	---	---	2-5
Medleandthread	STCO4	1-3	1-3	---	---	---
Esin wildrye	ELCI2	---	---	50-60	---	10-20
Western wheatgrass	AGSM	---	---	5-15	---	---
Other perennial grasses	PPGG	---	---	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	---
Sadscale	ATCO	30-40	30-40	---	30-50	---
Red sagebrush	ARSP5	20-30	20-30	---	5-15	---
Siny hopsage	GRSP	2-5	2-5	---	---	15-30
Winterfat	EULA5	2-5	2-5	---	---	---
Esin big sagebrush	ARTRT*	---	---	15-20	---	15-25
Black greasewood	SAVE4	---	---	2-10	15-30	2-10
Black rabbitbrush	CHNA2	---	---	2-5	---	2-5
Peppeweed	SUAED	---	---	---	2-15	---
Anderson peachbrush	PRAN2	---	---	---	---	2-10
Other shrubs	SSSS	2-5	2-5	---	---	---

Large site symbol	024X002N	024X002N	024X006N	024X003N	024X041N
Potential production (lb/acre):					
Favorable years	700	700	1,500	600	1,000
Normal years	450	450	1,100	450	800
Unfavorable years	300	300	600	300	600

296--Creemon-Hessing 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		Inclusion number--		
		Creemon	Hessing	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	2-10	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-10	2-5	2-5
Needleandthread	STC04	1-3	1-3	---	---	1-3
Thurber needlegrass	STTH2	---	---	10-20	---	---
Tapertip hawksbeard	CRAC2	---	---	1-2	---	---
Globemallow	SPHAE	---	---	1-2	1-4	---
Phlox	PHLOX	---	---	1-2	1-4	---
Other perennial forbs	PPFF	2-8	2-8	---	---	2-8
Shadscale	ATCO	30-40	30-40	---	2-5	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	20-30	20-30
Spiny hopsage	GRSP	2-5	2-5	5-15	---	2-5
Winterfat	EULA5	2-5	2-5	---	20-40	2-5
Wyoming big sagebrush	ARTRW*	---	---	30-35	---	---
Other shrubs	SSSS	2-5	2-5	---	---	2-5
Range site symbol		024X002N	024X002N	024X020N	024X014N	024X002N
Potential production (lb/acre):						
Favorable years		700	700	700	400	700
Normal years		450	450	450	300	450
Unfavorable years		300	300	300	200	300

297--Creemon-Rasille-Tulase association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Creemon	Rasille	Tulase	1	2	3
Littlebrush squirreltail	SIHY	5-15	---	---	5-10	2-5	2-10
Indian ricegrass	ORHY	5-15	---	---	---	2-10	5-15
Sandberg bluegrass	POSE	2-5	---	---	---	2-5	2-10
Medleandthread	STCO4	1-3	---	---	---	---	---
Gurber needlegrass	STTH2	---	20-50	20-50	---	---	10-20
Bluebunch wheatgrass	AGSP	---	5-10	5-10	---	---	---
Alsin wildrye	ELCI2	---	---	---	---	10-20	---
Other perennial grasses	PPGG	---	---	---	T-10	---	---
Yucca root	BALSA	---	2-4	2-4	---	---	---
Spertip hawksbeard	CRAC2	---	2-4	2-4	---	---	1-2
Bobemallow	SPHAE	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	2-8	---	---	2-8	---	---
Sadscale	ATCO	30-40	---	---	30-50	---	---
Old sagebrush	ARSP5	20-30	---	---	5-15	---	---
Siny hopsage	GRSP	2-5	2-5	2-5	---	15-30	5-15
Winterfat	EULA5	2-5	---	---	---	---	---
Young big sagebrush	ARTRW*	---	15-20	15-20	---	---	30-35
Lowny rabbitbrush	CHVIP	---	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	---	15-30	2-10	---
Sepweed	SUAED	---	---	---	2-15	---	---
Alsin big sagebrush	ARTRT*	---	---	---	---	15-25	---
Anderson peachbrush	PRAN2	---	---	---	---	2-10	---
Robber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Other shrubs	SSSS	2-5	2-10	2-10	---	---	---

Large site symbol	024X002N	024X005N	024X005N	024X003N	024X041N	024X020N
Potential production (lb/acre):						
Favorable years	700	800	800	600	1,000	700
Normal years	450	600	600	450	800	450
Unfavorable years	300	400	400	300	600	300

298--Creemon-Misad association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Creemon	Misad	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-10	2-10	2-10
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-10	2-10
Needleandthread	STCO4	1-3	1-3	1-3	---	---	---
Thurber needlegrass	STTH2	---	---	---	---	10-20	10-20
Other perennial grasses	PPGG	---	---	---	T-10	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2	1-2
Globemallow	SPHAE	---	---	---	---	1-2	1-2
Phlox	PHLOX	---	---	---	---	1-2	1-2
Other perennial forbs	PPFF	2-8	2-8	2-8	2-8	---	---
Shadscale	ATCO	30-40	30-40	30-40	30-50	---	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	5-15	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	5-15	5-15
Winterfat	EULA5	2-5	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	---	15-30	---	---
Seepweed	SUAED	---	---	---	2-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35	30-35
Other shrubs	SSSS	2-5	2-5	2-5	---	---	---

Range site symbol	024X002N	024X002N	024X002N	024X003N	024X020N	024X020N
Potential production (lb/acre):						
Favorable years	700	700	700	600	700	700
Normal years	450	450	450	450	450	450
Unfavorable years	300	300	300	300	300	300

301--Cren-Ocala-Playas association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cren	Ocala	Playas	1	2	3
Littlebrush squirreltail	SIHY	5-10	---	---	---	5-10	---
Esin wildrye	ELCI2	---	5-15	---	40-60	---	---
Upland saltgrass	DISPS2	---	5-10	---	5-10	---	---
Alkali sacaton	SPAI	---	---	---	15-30	---	---
Indian ricegrass	ORHY	---	---	---	---	---	10-20
Nedleandthread	STCO4	---	---	---	---	---	5-10
Other perennial grasses	PPGG	T-10	---	---	---	T-10	2-5
Perennial forbs	PPFF	2-8	T-5	---	---	2-8	2-5
Sadscale	ATCO	30-50	---	---	---	30-50	---
Black greasewood	SAVE4	15-30	60-75	---	5-15	15-30	10-40
Red sagebrush	ARSP5	5-15	---	---	---	5-15	---
Sepweed	SUAED	2-15	---	---	---	2-15	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---	---
Hooper rabbitbrush	CHNA2	---	---	---	1-2	---	---
Other shrubs	SSSS	---	---	---	---	---	5-20

Range site symbol	024X003N	024X011N	None	024X007N	024X003N	027X016N
Potential production (lb/acre):						
Favorable years	600	500	---	1,900	600	300
Normal years	450	350	---	1,400	450	200
Unfavorable years	300	200	---	800	300	50

310--Yobe-Kawich-Playas association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Yobe	Kawich	Playas	1	2
Basin wildrye	ELCI2	5-15	---	---	---	40-60
Inland saltgrass	DISPS2	5-10	---	---	---	5-10
Indian ricegrass	ORHY	---	10-20	---	---	---
Needleandthread	STCO4	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Other perennial grasses	PPGG	---	2-5	---	T-10	---
Perennial forbs	PPFF	T-5	2-5	---	2-8	---
Black greasewood	SAVE4	60-75	10-40	---	15-30	5-15
Shadscale	ATCO	---	---	---	30-50	---
Bud sagebrush	ARSP5	---	---	---	5-15	---
Seepweed	SUAED	---	---	---	2-15	---
Alkali rabbitbrush	CHAL9	---	---	---	---	1-2
Rubber rabbitbrush	CHNA2	---	---	---	---	1-2
Other shrubs	SSSS	---	5-20	---	---	---

Range site symbol	024X011N	027X016N	None	024X003N	024X007N
Potential production (lb/acre):					
Favorable years	500	300	---	600	1,900
Normal years	350	200	---	450	1,400
Unfavorable years	200	50	---	300	800

320--Newpass-Jung 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		Inclusion number--		
		Newpass	Jung	1	2	3
pine bluegrass	POSC	5-15	---	---	---	5-15
Indian ricegrass	ORHY	5-15	---	2-5	---	5-15
ottlebrush squirreltail	SIHY	5-10	---	2-10	---	5-10
bluegrass	POA++	---	10-40	---	---	---
hurber needlegrass	STTH2	---	2-10	---	---	---
desert needlegrass	STSP3	---	---	2-10	---	---
andberg bluegrass	POSE	---	---	1-3	---	---
ther perennial grasses	PPGG	5-10	5-10	---	---	5-10
perennial forbs	PPFF	5-10	5-10	2-8	---	5-10
oming big sagebrush	ARTRW*	10-20	---	---	---	10-20
iny hopsage	GRSP	10-20	---	---	---	10-20
evada ephedra	EPNE	5-10	---	---	---	5-10
lack sagebrush	ARARN	---	20-30	---	---	---
hadscale	ATCO	---	5-10	30-50	---	---
ud sagebrush	ARSP5	---	---	15-30	---	---
ther shrubs	SSSS	---	5-10	---	---	---

range site symbol	027X008N	027X032N	024X025N	None	027X008N
potential production (lb/acre):					
Favorable years	700	600	250	---	700
Normal years	500	400	150	---	500
Unfavorable years	300	200	75	---	300

321--Newpass-Old Camp 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			Inclusion number--	
		Newpass	Old Camp, strongly sloping	Old Camp, moderately steep	1	2
Pine bluegrass	POSC	5-15	20-30	20-30	---	---
Indian ricegrass	ORHY	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	5-10	---	X
Basin wildrye	ELCI2	---	---	---	50-60	X
Western wheatgrass	AGSM	---	---	---	5-15	---
Bluebunch wheatgrass	AGSP	---	---	---	---	X
Nevada bluegrass	PONE3	---	---	---	---	X
Idaho fescue	FEID	---	---	---	---	X
Other perennial grasses	PPGG	5-10	5-15	5-15	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	X
Arrowleaf balsamroot	BASA3	---	---	---	---	X
Other perennial forbs	PPFF	5-10	5-10	5-10	2-8	---
Wyoming big sagebrush	ARTRW*	10-20	10-20	10-20	---	---
Spiny hopsage	GRSP	10-20	5-15	5-15	---	---
Nevada ephedra	EPNE	5-10	5-10	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---
Black greasewood	SAVE4	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	X
Snowberry	SYMPH	---	---	---	---	X
Currant	RIBES	---	---	---	---	X
Other shrubs	SSSS	---	5-10	5-10	---	---
Singleleaf pinyon	PIMO	---	---	---	---	X
Utah juniper	JUOS	---	---	---	---	X

Range site symbol	027X008N	027X007N	027X007N	024X006N	---
Woodland site symbol	---	---	---	---	025X062N
Potential production (lb/acre):					
Favorable years	700	600	600	1,500	500
Normal years	500	450	450	1,100	350
Unfavorable years	300	300	300	600	200

360--Eastwell-Blackhawk-Pineval 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			Inclusion number--	
		Eastwell	Blackhawk	Pineval	1	2
Bluegrass	POA++	10-40	---	---	---	---
Thurber needlegrass	STTH2	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-15	5-10	5-10	5-10
Indian ricegrass	ORHY	---	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	---	2-5	---	---	---
Needleandthread	STC04	---	1-3	---	---	---
Pine bluegrass	POSC	---	---	5-15	5-15	5-15
Other perennial grasses	PPGG	5-10	---	5-10	5-10	5-10
Perennial forbs	PPFF	5-10	2-8	5-10	5-10	5-10
Black sagebrush	ARARN	20-30	---	---	---	---
Shadscale	ATCO	5-10	30-40	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	---	---
Spiny hopsage	GRSP	---	2-5	10-20	10-20	10-20
Winterfat	EULA5	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-20	10-20	10-20
Nevada ephedra	EPNE	---	---	5-10	5-10	5-10
Other shrubs	SSSS	5-10	2-5	---	---	---

Range site symbol	027X032N	024X002N	027X008N	027X008N	027X008N
Potential production (lb/acre):					
Favorable years	600	700	700	700	700
Normal years	400	450	500	500	500
Unfavorable years	200	300	300	300	300

404--Glean-Gando 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		Inclusion number--			
		Glean	Gando	1	2	3	4
Idaho fescue	FEID	30-60	2-5	---	---	---	10-15
Bluebunch wheatgrass	AGSP	5-10	10-15	---	---	---	5-10
Cusick bluegrass	POCU3	5-10	---	---	---	---	---
Mountain brome	BRCA5	2-5	---	---	---	---	---
Sedge	CAREX	2-5	---	---	---	5-10	---
Indian ricegrass	ORHY	---	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	5-10	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	5-10	---
Meadow barley	HOBR2	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	5-10	---	5-15	2-10	10-15
Tapertip hawksbeard	CRAC2	1-3	---	---	---	---	---
Lupine	LUPIN	1-2	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-10	---	5-10	10-20	5-10
Mountain big sagebrush	ARVA2	5-15	---	---	---	---	---
Snowberry	SYMPH	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	10-15	---	---	---	5-15
Black sagebrush	ARARN	---	10-15	---	---	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Willow	SALIX	---	---	---	---	2-5	---
Other shrubs	SSSS	---	5-10	---	5-10	2-5	5-10

Range site symbol	024X023N	028B034N	None	028B024N	025X005N	028B038N
Potential production (lb/acre):						
Favorable years	1,500	600	---	2,800	2,000	800
Normal years	1,200	400	---	1,700	1,700	600
Unfavorable years	900	250	---	1,000	1,000	400

441--Gund-Umberland association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Gund	Umberland	1	2	3
Bain wildrye	ELCI2	50-60	---	15-20	40-60	---
Western wheatgrass	AGSM	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-10	---	---
Land saltgrass	DISPS2	---	---	2-10	5-10	---
Alkali sacaton	SPAI	---	---	---	15-30	---
Other perennial grasses	PPGG	---	T-10	---	---	---
Perennial forbs	PPFF	2-8	2-8	2-8	---	---
Bain big sagebrush	ARTRT*	15-20	---	---	---	---
Black greasewood	SAVE4	2-10	15-30	40-60	5-15	---
Robert rabbitbrush	CHNA2	2-5	---	---	1-2	---
Sadscale	ATCO	---	30-50	---	---	---
Bl sagebrush	ARSP5	---	5-15	---	---	---
Seepweed	SUAED	---	2-15	---	---	---
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---

Ridge site symbol	024X006N	024X003N	024X008N	024X007N	None
Potential production (lb/acre):					
Favorable years	1,500	600	800	1,900	---
Normal years	1,100	450	600	1,400	---
Unfavorable years	600	300	400	800	---

442--Gund-Bubus-Wendane association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Gund	Bubus	Wendane	1	2	3
Basin wildrye	ELCI2	15-20	---	40-60	50-60	15-20	5-15
Bottlebrush squirreltail	SIHY	2-10	5-10	---	---	2-10	---
Inland saltgrass	DISPS2	2-10	---	5-10	---	2-10	5-10
Alkali sacaton	SPAI	---	---	15-30	---	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Other perennial grasses	PPGG	---	T-10	---	---	---	---
Perennial forbs	PPFF	2-8	2-8	---	2-8	2-8	T-5
Black greasewood	SAVE4	40-60	15-30	5-15	2-10	40-60	60-75
Shadscale	ATCO	---	30-50	---	---	---	---
Bud sagebrush	ARSP5	---	5-15	---	---	---	---
Seepweed	SUAED	---	2-15	---	---	---	---
Alkali rabbitbrush	CHAL9	---	---	1-2	---	---	---
Rubber rabbitbrush	CHNA2	---	---	1-2	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	---

Range site symbol	024X008N	024X003N	024X007N	024X006N	024X008N	024X011
Potential production (lb/acre):						
Favorable years	800	600	1,900	1,500	800	500
Normal years	600	450	1,400	1,100	600	350
Unfavorable years	400	300	800	600	400	200

443--Gund-Batan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Gund	Batan	1	2	3
Bein wildrye	ELCI2	15-20	---	5-15	40-60	---
Botlebrush squirreltail	SIHY	2-10	5-10	---	---	---
Irland saltgrass	DISPS2	2-10	---	5-10	5-10	10-25
Alali sacaton	SPAI	---	---	---	15-30	---
Nutall alkaligrass	PUAI	---	---	---	---	5-10
Batic rush	JUBA	---	---	---	---	5-10
Other perennial grasses	PPGG	---	T-10	---	---	---
Ciquefoil	POTEN	---	---	---	---	5-10
Erogonum	ERIOG	---	---	---	---	2-5
Other perennial forbs	PPFF	2-8	2-8	T-5	---	---
Blck greasewood	SAVE4	40-60	15-30	60-75	5-15	T-5
Shdscale	ATCO	---	30-50	---	---	---
Bu sagebrush	ARSP5	---	5-15	---	---	---
Sepweed	SUAED	---	2-15	---	---	---
Alali rabbitbrush	CHAL9	---	---	---	1-2	20-35
Ruber rabbitbrush	CHNA2	---	---	---	1-2	T-5

Range site symbol	024X008N	024X003N	024X011N	024X007N	024X044N
Potential production (lb/acre):					
Favorable years	800	600	500	1,900	350
Normal years	600	450	350	1,400	225
Unfavorable years	400	300	200	800	150

444--Gund 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		Inclusion number--		
		Gund	Gund, drained	1	2	3
Basin wildrye	ELCI2	50-60	15-20	5-20	---	40-60
Western wheatgrass	AGSM	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-10	2-5	5-10	---
Inland saltgrass	DISPS2	---	2-10	---	---	5-10
Indian ricegrass	ORHY	---	---	2-5	20-30	---
Needleandthread	STC04	---	---	---	10-20	---
Sandberg bluegrass	POSE	---	---	---	2-5	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Thelypody	THELY	---	---	2-4	---	---
Other perennial forbs	PPFF	2-8	2-8	---	2-5	---
Basin big sagebrush	ARTRT*	15-20	---	5-15	---	---
Black greasewood	SAVE4	2-10	40-60	20-30	---	5-15
Rubber rabbitbrush	CHNA2	2-5	---	---	---	1-2
Wyoming big sagebrush	ARTRW*	---	---	5-10	15-20	---
Spiny hopsage	GRSP	---	---	5-15	---	---
Alkali rabbitbrush	CHAL9	---	---	---	---	1-2
Other shrubs	SSSS	---	---	---	5-15	---

Range site symbol	024X006N	024X008N	024X022N	028B010N	024X007
Potential production (lb/acre):					
Favorable years	1,500	800	800	800	1,900
Normal years	1,100	600	600	600	1,400
Unfavorable years	600	400	350	400	800

461--Hapgood-Packer-Layview association

[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			Inclusion number--			
		Hapgood	Packer	Layview	1	2	3	4
Mountain brome	BRCA5	10-15	---	---	---	---	---	X
Snyder wheatgrass	AGTR	20-30	---	---	2-5	---	---	X
Idaho fescue	FEID	5-15	10-20	10-20	---	---	25-50	X
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	15-30	X
Spike fescue	LEKI2	2-15	---	---	---	---	2-10	---
Bubous oniongrass	MEBU	2-5	---	---	---	---	---	X
Nevada bluegrass	PONE3	2-5	---	---	---	---	---	X
Weber ricegrass	STWE	---	5-10	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	---	---	---
Cluck bluegrass	POCU3	---	2-5	2-5	---	---	---	---
Sadberg bluegrass	POSE	---	2-5	2-5	---	---	---	---
Pie bluegrass	POSC	---	2-5	2-5	---	---	---	---
Leterman needlegrass	STLE4	---	---	---	60-70	---	---	X
Columbia needlegrass	STNE3	---	---	---	2-5	---	---	X
Thurber needlegrass	STTH2	---	---	---	---	---	2-10	---
Sege	CAREX	---	---	---	---	---	---	X
Blue wildrye	ELGL	---	---	---	---	---	---	X
Bain wildrye	ELCI2	---	---	---	---	---	---	X
Other perennial grasses	PPGG	---	---	---	2-5	---	---	---
Geranium	GERAN	2-5	---	---	---	---	---	---
Groundsel	SENEC	2-5	---	---	---	---	---	X
Lupine	LUPIN	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	2-5	---	---	---	---
Phlox	PHLOX	---	2-5	2-5	---	---	---	---
Talcup lupine	LUCA	---	---	---	20-40	---	---	---
Basamroot	BALSA	---	---	---	---	---	2-5	---
Hosemint	AGUR	---	---	---	---	---	---	X
Sewiceberry	AMELA	5-10	---	---	---	---	---	X
Mountain big sagebrush	ARVA2	5-10	1-5	1-5	---	---	---	X
Sawberry	SYMPH	2-10	---	---	---	---	---	X
Low sagebrush	ARAR8	---	5-15	5-15	---	---	10-20	---
Black sagebrush	ARARN	---	5-15	5-15	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	2-5	---
Woods rose	ROWO	---	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	---	X
Quaking aspen	POTR5	---	---	---	---	---	---	X

Ridge site symbol	024X032N	024X016N	024X016N	025X028N	None	024X027N	---
Woodland site symbol	---	---	---	---	---	---	025X065N
Potential production (lb/acre):							
Favorable years	2,200	350	350	1,000	---	1,200	800
Normal years	1,700	250	250	800	---	800	600
Unfavorable years	1,200	150	150	500	---	600	400

463--Hapgood-Packer-Rubble land association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hapgood	Packer	Rubble land	1	2	3
Mountain brome	BRCA5	10-15	---	---	---	---	5-1
Slender wheatgrass	AGTR	20-30	---	---	---	---	2-5
Idaho fescue	FEID	5-15	10-20	---	10-20	25-50	5-1
Bluebunch wheatgrass	AGSP	5-10	---	---	---	15-30	5-1
Spike fescue	LEKI2	2-15	---	---	---	2-10	---
Bulbous oniongrass	MEBU	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	2-5	---	---	---	---	2-5
Webber ricegrass	STWE	---	5-10	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	---	---
Cusick bluegrass	POCU3	---	2-5	---	2-5	---	2-5
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	---
Pine bluegrass	POSC	---	2-5	---	2-5	---	---
Thurber needlegrass	STTH2	---	---	---	---	2-10	---
Letterman needlegrass	STLE4	---	---	---	---	---	2-5
Basin wildrye	ELCI2	---	---	---	---	---	2-5
Geranium	GERAN	2-5	---	---	---	---	---
Groundsel	SENEC	2-5	---	---	---	---	---
Lupine	LUPIN	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	2-5	---	---
Phlox	PHLOX	---	2-5	---	2-5	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	---	---	---	---	5-15
Serviceberry	AMELA	5-10	---	---	---	---	5-10
Mountain big sagebrush	ARVA2	5-10	1-5	---	1-5	---	5-10
Snowberry	SYMPH	2-10	---	---	---	---	2-10
Low sagebrush	ARAR8	---	5-15	---	5-15	10-20	---
Black sagebrush	ARARN	---	5-15	---	5-15	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Oceanspray	HOLOD	---	---	---	---	---	5-10
Threetip sagebrush	ARTR4	---	---	---	---	---	2-10
Currant	RIBES	---	---	---	---	---	2-5

Range site symbol	024X032N	024X016N	None	024X016N	024X027N	024X03
Potential production (lb/acre):						
Favorable years	2,200	350	---	350	1,200	1,600
Normal years	1,700	250	---	250	800	1,300
Unfavorable years	1,200	150	---	150	600	800

465--Hapgood-Halacan-Hatur 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			Inclusion number--			
		Hapgood	Halacan	Hatur	1	2	3	4
Mountain brome	BRCA5	10-15	---	15-20	---	---	---	---
Snyder wheatgrass	AGTR	20-30	---	---	---	---	---	---
icho fescue	FEID	5-15	10-20	10-15	30-60	---	---	---
Blebunch wheatgrass	AGSP	5-10	---	---	2-10	---	---	---
Spike fescue	LEKI2	2-15	---	5-10	---	---	---	---
Bubous oniongrass	MEBU	2-5	---	---	---	---	---	---
Nevada bluegrass	PONE3	2-5	---	---	---	---	5-15	---
Weber ricegrass	STWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---	---
Cluck bluegrass	POCU3	---	2-5	---	5-10	---	---	---
Sadberg bluegrass	POSE	---	2-5	---	---	---	---	---
Pie bluegrass	POSC	---	2-5	---	---	---	---	---
Leterman needlegrass	STLE4	---	---	5-10	---	---	---	---
Bain wildrye	ELCI2	---	---	---	---	---	50-60	---
Ma. muhly	MURI	---	---	---	---	---	2-10	---
Sage	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	---	---	5-15	---	---	15-20	---
Geranium	GERAN	2-5	---	---	---	---	---	---
Groundsel	SENEC	2-5	---	---	---	---	---	---
Lupine	LUPIN	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Plox	PHLOX	---	2-5	---	---	---	---	---
Thertip hawksbeard	CRAC2	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	---	---	5-10	---	---	5-10	---
Serviceberry	AMELA	5-10	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	5-10	1-5	10-20	---	---	---	---
Snowberry	SYMPH	2-10	---	5-10	---	---	---	---
Ly sagebrush	ARAR8	---	5-15	---	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	10-20	---	---	---
Utah serviceberry	AMUT	---	---	5-10	---	---	---	---
Bain big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	---	---	---	---	---	2-5	---

Ridge site symbol	024X032N	024X016N	028B029N	024X042N	None	025X003N	None
Potential production (lb/acre):							
Favorable years	2,200	350	1,500	1,000	---	2,500	---
Normal years	1,700	250	900	800	---	1,900	---
Unfavorable years	1,200	150	650	500	---	1,200	---

491--Enko-Orovada association, gently sloping

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Orovada	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

492--Enko-Glyphs association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Glyphs	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

493--Enko-Orovada association, nearly level

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Enko	Orovada	1	2	
Indian ricegrass	ORHY	20-30	20-30	20-30	2-5	---
Needleandthread	STCO4	10-20	10-20	10-20	2-5	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	10-20	30-
Nevada bluegrass	PONE3	---	---	---	---	2-
Western wheatgrass	AGSM	---	---	---	---	2-
Other perennial grasses	PPGG	---	---	---	5-10	15-
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	5-
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-

Range site symbol	028B010N	028B010N	028B010N	028B009N	028B009N
Potential production (lb/acre):					
Favorable years	800	800	800	700	2,600
Normal years	600	600	600	400	1,250
Unfavorable years	400	400	400	300	800

512--Hessing-Relley association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Hessing	Relley	1	2	3
Littlebrush squirreltail	SIHY	5-15	5-10	5-15	5-15	---
Indian ricegrass	ORHY	5-15	10-30	5-15	5-15	---
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---
Medleandthread	STCO4	1-3	---	1-3	1-3	---
Ykali sacaton	SPAI	---	T-5	---	---	---
Ulsin wildrye	ELCI2	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	5-15
Other perennial forbs	PPFF	2-8	T-5	2-8	2-8	2-8
Sadscale	ATCO	30-40	---	30-40	30-40	---
Old sagebrush	ARSP5	20-30	---	20-30	20-30	---
Siny hopsage	GRSP	2-5	---	2-5	2-5	---
Winterfat	EULA5	2-5	---	2-5	2-5	---
Rockle saltbush	ATFR	---	50-65	---	---	---
Ulsin big sagebrush	ARTRT*	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	2-10
Ybber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	2-5	---	2-5	2-5	---

Large site symbol	024X002N	024X012N	024X002N	024X002N	024X006N
Potential production (lb/acre):					
Favorable years	700	700	700	700	1,500
Normal years	450	400	450	450	1,100
Unfavorable years	300	200	300	300	600

560--Jesse Camp silt loam

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Jesse Camp	1	2	3
Basin wildrye	ELCI2	30-50	---	---	10-20
Nevada bluegrass	PONE3	2-5	---	---	---
Western wheatgrass	AGSM	2-5	---	---	---
Indian ricegrass	ORHY	---	20-30	5-15	2-5
Needleandthread	STCO4	---	10-20	5-10	2-5
Bottlebrush squirreltail	SIHY	---	5-10	2-5	2-5
Sandberg bluegrass	POSE	---	2-5	---	---
Other perennial grasses	PPGG	15-25	---	5-10	5-10
Perennial forbs	PPFF	2-5	2-5	5-10	5-10
Basin big sagebrush	ARTRT*	5-10	---	---	10-15
Wyoming big sagebrush	ARTRW*	---	15-20	---	---
Shadscale	ATCO	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	5-10	---
Winterfat	EULA5	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	2-5	2-5
Greene rabbitbrush	CHGR6	---	---	---	2-5
Nevada ephedra	EPNE	---	---	---	2-5
Other shrubs	SSSS	5-10	5-15	5-15	5-10

Range site symbol	028B003N	028B010N	028B017N	028B009N
Potential production (lb/acre):				
Favorable years	2,600	800	700	700
Normal years	1,250	600	500	400
Unfavorable years	800	400	250	300

621--Loncan-Gando-Glean 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			Inclusion number--			
		Loncan	Gando	Glean	1	2	3	4
Blebunch wheatgrass	AGSP	10-20	---	10-20	---	---	---	---
Thrber needlegrass	STTH2	5-10	---	5-10	---	---	---	---
Bain wildrye	ELCI2	2-5	---	2-5	---	50-60	---	---
Pie bluegrass	POSC	2-5	2-5	2-5	---	---	---	---
Idho fescue	FEID	---	10-20	---	---	---	5-10	---
Weber ricegrass	STWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---	---
Cluck bluegrass	POCU3	---	2-5	---	---	---	---	---
Sadberg bluegrass	POSE	---	2-5	---	---	---	---	---
Neda bluegrass	PONE3	---	---	---	---	5-15	---	5-10
Ma muhly	MURI	---	---	---	---	2-10	---	---
Sege	CAREX	---	---	---	---	1-5	---	5-10
Mountain brome	BRCA5	---	---	---	---	---	2-5	---
Tuted hairgrass	DECA5	---	---	---	---	---	---	30-60
Aline timothy	PHAL2	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	10-20	---	10-20	---	15-20	5-15	2-10
Godenweed	HAPLO2	---	2-5	---	---	---	---	---
Prox	PHLOX	---	2-5	---	---	---	---	---
Sirra clover	TRWO	---	---	---	---	---	---	2-5
Ciquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-12	---	5-12	---	5-10	5-15	10-20
Mountain big sagebrush	ARVA2	15-25	1-5	15-25	---	---	---	---
Arellope bitterbrush	PUTR2	5-10	---	5-10	---	---	---	---
Uth serviceberry	AMUT	2-10	---	2-10	---	---	2-5	---
Ld sagebrush	ARAR8	---	5-15	---	---	---	---	---
Blck sagebrush	ARARN	---	5-15	---	---	---	---	---
Bain big sagebrush	ARTRT*	---	---	---	---	10-15	---	---
Comon chokecherry	PRVI	---	---	---	---	---	20-30	---
Srwberry	SYMPH	---	---	---	---	---	5-10	---
Wilow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	---	5-15	---	2-5	5-15	2-5

Range site symbol	028B030N	024X016N	028B030N	None	025X003N	028B026N	025X005N
Potential production (lb/acre):							
Favorable years	1,100	350	1,100	---	2,500	1,400	2,000
Normal years	850	250	850	---	1,900	1,000	1,700
Unfavorable years	550	150	550	---	1,200	700	1,000

632--McConnel-Orovada-Misad association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		McConnel	Orovada	Misad	1	2	3
Thurber needlegrass	STTH2	20-50	---	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	---
Indian ricegrass	ORHY	---	20-30	5-15	2-5	---	10-20
Needleandthread	STCO4	---	10-20	1-3	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-15	2-5	5-10	2-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	5-20	---	---
Other perennial grasses	PPGG	---	---	---	---	T-10	---
Balsamroot	BALSA	2-4	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---	---
Thelypody	THELY	---	---	---	2-4	---	---
Other perennial forbs	PPFF	---	2-5	2-8	---	2-8	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	5-10	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	2-5	5-15	---	---
Shadscale	ATCO	---	---	30-40	---	30-50	---
Bud sagebrush	ARSP5	---	---	20-30	---	5-15	2-5
Winterfat	EULA5	---	---	2-5	---	---	60-70
Black greasewood	SAVE4	---	---	---	20-30	15-30	---
Basin big sagebrush	ARTRT*	---	---	---	5-15	---	---
Seepweed	SUAED	---	---	---	---	2-15	---
Other shrubs	SSSS	2-10	5-15	2-5	---	---	---

Range site symbol	024X005N	028B010N	024X002N	024X022N	024X003N	024X00
Potential production (lb/acre):						
Favorable years	800	800	700	800	600	500
Normal years	600	600	450	600	450	350
Unfavorable years	400	400	300	350	300	200

633--McConnel-Rasille-Wholan 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			Inclusion number--		
		McConnel	Rasille	Wholan	1	2	3
Curber needlegrass	STTH2	20-50	---	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	---
Indian ricegrass	ORHY	---	20-30	10-20	20-30	15-25	---
Needleandthread	STCO4	---	10-20	---	10-20	---	---
Littlebrush squirreltail	SIHY	---	5-10	2-10	5-10	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	---
Isin wildrye	ELCI2	---	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	---	---	5-10	---
Elmsamroot	BALSA	2-4	---	---	---	---	---
Spertip hawksbeard	CRAC2	2-4	---	---	---	---	---
Other perennial forbs	PPFF	---	2-5	2-8	2-5	5-10	2-8
Woming big sagebrush	ARTRW*	15-20	15-20	---	15-20	---	---
Lowly rabbitbrush	CHVIP	2-5	---	---	---	---	---
Siny hopsage	GRSP	2-5	---	---	---	---	---
Winterfat	EULA5	---	---	60-70	---	30-45	---
Old sagebrush	ARSP5	---	---	2-5	---	---	---
Isin big sagebrush	ARTRT*	---	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	---	2-10
Thicker rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	5-15	---	5-15	5-15	---

Large site symbol	024X005N	028B010N	024X004N	028B010N	028B013N	024X006N
Potential production (lb/acre):						
Favorable years	800	800	500	800	800	1,500
Normal years	600	600	350	600	550	1,100
Unfavorable years	400	400	200	400	300	600

635--McConnel-Rasille 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		Inclusion number--		
		McConnel	Rasille	1	2	3
Thurber needlegrass	STTH2	20-50	---	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---
Indian ricegrass	ORHY	---	20-30	20-30	20-30	10-30
Needleandthread	STCO4	---	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	2-5	---
Alkali sacaton	SPAI	---	---	---	---	1-5
Other perennial grasses	PPGG	---	---	---	---	5-10
Balsamroot	BALSA	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---
Other perennial forbs	PPFF	---	2-5	2-5	2-5	1-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---
Sickle saltbush	ATFA	---	---	---	---	50-60
Other shrubs	SSSS	2-10	5-15	5-15	5-15	---
Range site symbol		024X005N	028B010N	028B010N	028B010N	024X010N
Potential production (lb/acre):						
Favorable years		800	800	800	800	700
Normal years		600	600	600	600	400
Unfavorable years		400	400	400	400	200

636--McConnel-Defler-Rasille 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			Inclusion number--		
		McConnel	Defler	Rasille	1	2	3
Turber needlegrass	STTH2	20-50	---	---	---	---	---
Euebunch wheatgrass	AGSP	5-10	---	---	---	---	---
Indian ricegrass	ORHY	---	10-20	20-30	10-20	20-30	5-15
Littlebrush squirreltail	SIHY	---	2-10	5-10	2-10	5-10	5-15
Needleandthread	STCO4	---	---	10-20	---	10-20	1-3
Sandberg bluegrass	POSE	---	---	2-5	---	2-5	2-5
Elsamroot	BALSA	2-4	---	---	---	---	---
Topertip hawksbeard	CRAC2	2-4	---	---	---	---	---
Other perennial forbs	PPFF	---	2-8	2-5	2-8	2-5	2-8
Woming big sagebrush	ARTRW*	15-20	---	15-20	---	15-20	---
Dwiny rabbitbrush	CHVIP	2-5	---	---	---	---	---
Siny hopsage	GRSP	2-5	---	---	---	---	2-5
Waterfat	EULA5	---	60-70	---	60-70	---	2-5
Red sagebrush	ARSP5	---	2-5	---	2-5	---	20-30
Sadscale	ATCO	---	---	---	---	---	30-40
Other shrubs	SSSS	2-10	---	5-15	---	5-15	2-5

Range site symbol	024X005N	024X004N	028B010N	024X004N	028B010N	024X002N
Potential production (lb/acre):						
favorable years	800	500	800	500	800	700
normal years	600	350	600	350	600	450
unfavorable years	400	200	400	200	400	300

637--McConnel-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		McConnel	Orovada	McConnel, gravelly	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	20-30	15-25
Needleandthread	STCO4	10-20	10-20	10-20	5-10	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5	5-10	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5	---
Other perennial grasses	PPGG	---	---	---	5-10	---	5-10
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-20	---
Shadscale	ATCO	---	---	---	30-40	---	---
Bud sagebrush	ARSP5	---	---	---	5-10	---	---
Winterfat	EULA5	---	---	---	2-5	---	30-45
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15

Range site symbol	028B010N	028B010N	028B010N	028B017N	028B010N	028B013N
Potential production (lb/acre):						
Favorable years	800	800	800	700	800	800
Normal years	600	600	600	500	600	550
Unfavorable years	400	400	400	250	400	300

638--McConnel-Wholan 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		Inclusion number--
		McConnel	Wholan	1
Indian ricegrass	ORHY	20-30	15-25	20-30
Needleandthread	STC04	10-20	---	10-20
Bottlebrush squirreltail	SIHY	5-10	2-5	5-10
Sandberg bluegrass	POSE	2-5	---	2-5
Other perennial grasses	PPGG	---	5-10	---
Perennial forbs	PPFF	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	15-20
Winterfat	EULA5	---	30-45	---
Other shrubs	SSSS	5-15	5-15	5-15

Range site symbol	028B010N	028B013N	028B010N
Potential production (lb/acre):			
Favorable years	800	800	800
Normal years	600	550	600
Unfavorable years	400	300	400

670--Filiran-Pineval-Kingingham 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			Inclusion number--	
		Filiran	Pineval	Kingingham	1	2
Indian ricegrass	ORHY	20-30	20-30	5-15	20-30	20-30
Needleandthread	STCO4	10-20	10-20	1-3	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-15	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-8	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	15-20
Shadscale	ATCO	---	---	30-40	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---
Spiny hopsage	GRSP	---	---	2-5	---	---
Winterfat	EULA5	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	2-5	5-15	5-15

Range site symbol	028B010N	028B010N	024X002N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years	800	800	700	800	800
Normal years	600	600	450	600	600
Unfavorable years	400	400	300	400	400

674--Filiran-Bufferan 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		Inclusion number--		
		Filiran	Bufferan	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	5-15
Redleandthread	STCO4	10-20	10-20	10-20	10-20	1-3
Littlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-15
Andberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-8
Growing big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Madscale	ATCO	---	---	---	---	30-40
Red sagebrush	ARSP5	---	---	---	---	20-30
Pinny hopsage	GRSP	---	---	---	---	2-5
Interfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-5

Range site symbol	028B010N	028B010N	028B010N	028B010N	024X002N
Potential production (lb/acre):					
Favorable years	800	800	800	800	700
Normal years	600	600	600	600	450
Unfavorable years	400	400	400	400	300

675--Filliran-Bufferan-Orovada associaton

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Filliran	Bufferan	Orovada	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B010N
Potential production (lb/acre):						
Favorable years		800	800	800	800	800
Normal years		600	600	600	600	600
Unfavorable years		400	400	400	400	400

680--Skullwak-Umberland-Wendane association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Skullwak	Umberland	Wendane	1	2	3
Blind saltgrass	DISPS2	10-25	5-10	5-10	---	---	---
Upright alkaligrass	PUAI	5-10	---	---	---	---	---
Elitic rush	JUBA	5-10	---	---	---	---	---
Eschin wildrye	ELCI2	---	5-15	40-60	---	---	---
Alkali sacaton	SPAI	---	---	15-30	---	---	---
Littlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	---	---	---	T-10	---
Cinquefoil	POTEN	5-10	---	---	---	---	---
Eriogonum	ERIOG	2-5	---	---	---	---	---
Other perennial forbs	PPFF	---	T-5	---	---	2-8	---
Alkali rabbitbrush	CHAL9	20-35	---	1-2	---	---	---
Black greasewood	SAVE4	T-5	60-75	5-15	---	15-30	---
White rabbitbrush	CHNA2	T-5	---	1-2	---	---	---
Sadscale	ATCO	---	---	---	---	30-50	---
Red sagebrush	ARSP5	---	---	---	---	5-15	---
Sepweed	SUAED	---	---	---	---	2-15	---

Inge site symbol	024X044N	024X011N	024X007N	None	024X003N	None
Potential production (lb/acre):						
favorable years	350	500	1,900	---	600	---
normal years	225	350	1,400	---	450	---
unfavorable years	150	200	800	---	300	---

683--Ocala-Sonoma-Paranat association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Ocala	Sonoma	Paranat	1	2	3
Basin wildrye	ELCI2	40-60	2-5	2-5	50-60	T-5	5-20
Alkali sacaton	SPAI	15-30	15-40	15-40	---	40-70	---
Inland saltgrass	DISPS2	5-10	5-10	5-10	---	T-15	---
Alkali muhly	MUAS	---	10-20	10-20	---	---	---
Alkali bluegrass	POJU	---	5-15	5-15	---	---	---
Alkali cordgrass	SPGR	---	5-10	5-10	---	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5
Indian ricegrass	ORHY	---	---	---	---	---	2-5
Arrowgrass	TRIGL	---	1-3	1-3	---	---	---
Thelypody	THELY	---	---	---	---	---	2-4
Other perennial forbs	PPFF	---	---	---	2-8	2-8	---
Black greasewood	SAVE4	5-15	T-2	T-2	2-10	2-5	20-30
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	T-2	T-2	2-5	---	---
Silver buffaloberry	SHAR	---	T-2	T-2	---	---	---
Willow	SALIX	---	T-2	T-2	---	---	---
Woods rose	ROWO	---	T-2	T-2	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	5-15
Iodinebush	ALOC2	---	---	---	---	10-20	---
Saltbush	ATRIP	---	---	---	---	5-10	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	5-10
Spiny hopsage	GRSP	---	---	---	---	---	5-15
Range site symbol		024X007N	024X009N	024X009N	024X006N	024X010N	024X02
Potential production (lb/acre):							
Favorable years		1,900	1,500	1,500	1,500	450	800
Normal years		1,400	1,000	1,000	1,100	300	600
Unfavorable years		800	700	700	600	150	350

700--Orovada-Rasille-Wholan 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			Inclusion number--			
		Orovada	Rasille	Wholan	1	2	3	4
Indian ricegrass	ORHY	20-30	20-30	10-20	5-15	---	20-30	---
Needleandthread	STCO4	10-20	10-20	---	1-3	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	2-10	5-15	---	5-10	---
Sudberg bluegrass	POSE	2-5	2-5	---	2-5	---	2-6	---
Basin wildrye	ELCI2	---	---	---	---	50-60	---	30-50
Western wheatgrass	AGSM	---	---	---	---	5-15	---	2-5
Nevada bluegrass	PONE3	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-8	2-8	2-5	2-5
Woming big sagebrush	ARTRW*	15-20	15-20	---	---	---	15-20	---
Waterfat	EULA5	---	---	60-70	2-5	---	---	---
Bl sagebrush	ARSP5	---	---	2-5	20-30	---	---	---
Sadscale	ATCO	---	---	---	30-40	---	---	---
Siny hopsage	GRSP	---	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-20	---	---
Robber rabbitbrush	CHNA2	---	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	---	2-5	---	5-15	5-10

Page site symbol	028B010N	028B010N	024X004N	024X002N	024X006N	028B010N	028B003N
Ptential production (lb/acre):							
avorable years	800	800	500	700	1,500	800	2,600
ormal years	600	600	350	450	1,100	600	1,250
nfavorable years	400	400	200	300	600	400	800

701--Orovada fine sandy loam, 2 to 4 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Orovada	1	2	3
Indian ricegrass	ORHY	20-30	5-15	5-15	10-20
Needleandthread	STCO4	10-20	1-3	1-3	20-30
Bottlebrush squirreltail	SIHY	5-10	5-15	5-15	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Thickspike wheatgrass	AGDA	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	2-5
Perennial forbs	PPFF	2-5	2-8	2-8	10-20
Wyoming big sagebrush	ARTRW*	15-20	---	---	---
Shadscale	ATCO	---	30-40	30-40	---
Bud sagebrush	ARSP5	---	20-30	20-30	---
Spiny hopsage	GRSP	---	2-5	2-5	T-5
Winterfat	EULA5	---	2-5	2-5	---
Big sagebrush	ARTR2	---	---	---	10-20
Other shrubs	SSSS	5-15	2-5	2-5	2-10

Range site symbol	028B010N	024X002N	024X002N	024X017N
Potential production (lb/acre):				
Favorable years	800	700	700	900
Normal years	600	450	450	700
Unfavorable years	400	300	300	500

702--Orovada-Creemon association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Orovada	Creemon	1	2	3
Indian ricegrass	ORHY	20-30	---	---	5-15	5-15
Needleandthread	STCO4	10-20	---	---	5-10	1-3
Bottlebrush squirreltail	SIHY	5-10	5-10	---	2-5	5-15
Andberg bluegrass	POSE	2-5	---	---	---	2-5
Basin wildrye	ELCI2	---	---	50-60	---	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Band dropseed	SPCR	---	---	---	2-5	---
Other perennial grasses	PPGG	---	T-10	---	5-10	---
Perennial forbs	PPFF	2-5	2-8	2-8	5-15	2-8
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---
Wadscale	ATCO	---	30-50	---	---	30-40
Black greasewood	SAVE4	---	15-30	2-10	---	---
Wood sagebrush	ARSP5	---	5-15	---	2-5	20-30
Deepweed	SUAED	---	2-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	15-20	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Fourwing saltbush	ATCA2	---	---	---	10-20	---
Interfat	EULA5	---	---	---	10-15	2-5
Nevada ephedra	EPNE	---	---	---	2-5	---
Piny hopsage	GRSP	---	---	---	---	2-5
Other shrubs	SSSS	5-15	---	---	10-15	2-5

Range site symbol	028B010N	024X003N	024X006N	028B014N	024X002N
Potential production (lb/acre):					
Favorable years	800	600	1,500	450	700
Normal years	600	450	1,100	300	450
Unfavorable years	400	300	600	125	300

703--Orovada fine sandy loam, 0 to 2 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Orovada	1	2	3
Indian ricegrass	ORHY	20-30	15-25	2-5	---
Needleandthread	STCO4	10-20	---	2-5	---
Bottlebrush squirreltail	SIHY	5-10	2-5	2-5	---
Sandberg bluegrass	POSE	2-5	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	---
Basin wildrye	ELCI2	---	---	10-20	50-60
Western wheatgrass	AGSM	---	---	---	5-15
Other perennial grasses	PPGG	---	---	5-10	---
Scarlet globemallow	SPCO	---	2-5	---	---
Other perennial forbs	PPFF	2-5	---	5-10	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-25	---	---
Spiny hopsage	GRSP	---	20-30	---	---
Bud sagebrush	ARSP5	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	10-15	15-20
Greene rabbitbrush	CHGR6	---	---	2-5	---
Nevada ephedra	EPNE	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	2-5
Other shrubs	SSSS	5-15	5-10	5-10	---

Range site symbol	028B010N	028B052N	028B009N	024X006N
Potential production (lb/acre):				
Favorable years	800	600	700	1,500
Normal years	600	400	400	1,100
Unfavorable years	400	300	300	600

704--Orovada-McConnel 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		Inclusion number--		
		Orovada	McConnel	1	2	3
Indian ricegrass	ORHY	20-30	---	10-20	20-30	---
Needleandthread	STCO4	10-20	---	---	10-20	---
Littlebrush squirreltail	SIHY	5-10	---	2-10	5-10	---
Sandberg bluegrass	POSE	2-5	---	---	2-5	---
Turber needlegrass	STTH2	---	20-50	---	---	---
Buebunch wheatgrass	AGSP	---	5-10	---	---	---
Eschin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Elsamroot	BALSA	---	2-4	---	---	---
Topertip hawksbeard	CRAC2	---	2-4	---	---	---
Other perennial forbs	PPFF	2-5	---	2-8	2-5	2-5
Woming big sagebrush	ARTRW*	15-20	15-20	---	15-20	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---
Siny hopsage	GRSP	---	2-5	---	---	---
Winterfat	EULA5	---	---	60-70	---	---
Red sagebrush	ARSP5	---	---	2-5	---	---
Eschin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	2-10	---	5-15	5-10

Range site symbol	028B010N	024X005N	024X004N	028B010N	028B003N
Potential production (lb/acre):					
Favorable years	800	800	500	800	2,600
Normal years	600	600	350	600	1,250
Unfavorable years	400	400	200	400	800

705--Orovada-Valmy 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		Inclusion number--		
		Orovada	Valmy	1	2	3
Indian ricegrass	ORHY	20-30	2-5	---	20-30	20-30
Needleandthread	STCO4	10-20	---	---	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	2-5	---	5-10	5-10
Sandberg bluegrass	POSE	2-5	---	---	2-5	2-5
Basin wildrye	ELCI2	---	5-20	50-60	---	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Thelypody	THELY	---	2-4	---	---	---
Other perennial forbs	PPFF	2-5	---	2-8	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	5-10	---	15-20	15-20
Black greasewood	SAVE4	---	20-30	2-10	---	---
Basin big sagebrush	ARTRT*	---	5-15	15-20	---	---
Spiny hopsage	GRSP	---	5-15	---	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Other shrubs	SSSS	5-15	---	---	5-15	5-15

Range site symbol	028B010N	024X022N	024X006N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years	800	800	1,500	800	800
Normal years	600	600	1,100	600	600
Unfavorable years	400	350	600	400	400

751--Poorcal-Lopwash association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Poorcal	Lopwash	1	2	3
Indian ricegrass	ORHY	20-30	5-15	---	20-30	15-25
Nedleandthread	STCO4	10-20	5-10	---	10-20	---
Littlebrush squirreltail	SIHY	5-10	2-5	5-10	5-10	2-5
Sandberg bluegrass	POSE	2-5	---	---	2-5	---
Other perennial grasses	PPGG	---	5-10	T-10	---	5-10
Perennial forbs	PPFF	2-5	5-10	2-8	2-5	5-10
Woming big sagebrush	ARTRW*	15-20	---	---	15-20	---
Sadscale	ATCO	---	30-40	30-50	---	---
Red sagebrush	ARSP5	---	5-10	5-15	---	---
Winterfat	EULA5	---	2-5	---	---	30-45
Fourwing saltbush	ATCA2	---	2-5	---	---	---
Black greasewood	SAVE4	---	---	15-30	---	---
Sepweed	SUAED	---	---	2-15	---	---
Other shrubs	SSSS	5-15	5-15	---	5-15	5-15

Range site symbol	028B010N	028B017N	024X003N	028B010N	028B013N
Potential production (lb/acre):					
favorable years	800	700	600	800	800
normal years	600	500	450	600	550
unfavorable years	400	250	300	400	300

811--Ravenswood-Itca-Walti association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is high 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			Inclusion number--		
		Ravenswood	Itca	Walti	1	2	3
Idaho fescue	FEID	X	X	25-50	---	---	10-2
Bluebunch wheatgrass	AGSP	X	X	15-30	---	15-20	---
Bluegrass	POA++	X	X	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-10	---	15-20	---
Spike fescue	LEKI2	---	---	2-10	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	5-1
Sandberg bluegrass	POSE	---	---	---	---	5-8	2-5
Pine bluegrass	POSC	---	---	---	---	5-8	2-5
Cusick bluegrass	POCU3	---	---	---	---	5-8	2-5
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-1
Other perennial grasses	PPGG	X	X	---	---	---	---
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---
Balsamroot	BALSA	---	---	2-5	---	2-5	---
Eriogonum	ERIOG	---	---	---	---	1-3	---
Phlox	PHLOX	---	---	---	---	1-3	2-5
Goldenweed	HAPLO2	---	---	---	---	---	2-5
Other perennial forbs	PPFF	X	X	---	---	---	---
Big sagebrush	ARTR2	X	X	---	---	---	---
Low sagebrush	ARAR8	---	---	10-20	---	20-30	5-1
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-1
Mountain big sagebrush	ARVA2	---	---	---	---	---	1-5
Other shrubs	SSSS	X	X	---	---	---	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---

Range site symbol	---	---	024X027N	None	024X018N	024X016N
Woodland site symbol	025X061N	025X061N	---	None	---	---
Potential production (lb/acre):						
Favorable years	500	500	1,200	---	700	350
Normal years	375	375	800	---	500	250
Unfavorable years	250	250	600	---	300	150

812--Ravenswood-Shagnasty-Walti 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			Inclusion number--			
		Ravenswood	Shagnasty	Walti	1	2	3	4
Yaho fescue	FEID	X	X	25-50	---	---	---	---
Euebunch wheatgrass	AGSP	X	X	15-30	---	10-20	---	---
Euegrass	POA++	X	X	---	---	---	---	---
Turber needlegrass	STTH2	---	---	2-10	---	5-10	---	---
Sike fescue	LEKI2	---	---	2-10	---	---	---	---
Esin wildrye	ELCI2	---	---	---	30-50	2-5	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nvada bluegrass	PONE3	---	---	---	5-10	---	---	---
Fne bluegrass	POSC	---	---	---	---	2-5	---	---
Cher perennial grasses	PPGG	X	X	---	5-15	10-20	---	---
Ipertip hawksbeard	CRAC2	X	X	---	---	---	---	---
Arandleaf balsamroot	BASA3	X	X	---	---	---	---	---
Elsamroot	BALSA	---	---	2-5	---	---	---	---
Cher perennial forbs	PPFF	X	X	---	5-10	5-12	---	---
Eg sagebrush	ARTR2	X	X	---	---	---	---	---
Lw sagebrush	ARAR8	---	---	10-20	---	---	---	---
Duglas rabbitbrush	CHVI8	---	---	2-5	---	---	---	---
Esin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Robber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Muntain big sagebrush	ARVA2	---	---	---	---	15-25	---	---
Atelope bitterbrush	PUTR2	---	---	---	---	5-10	---	---
Uah serviceberry	AMUT	---	---	---	---	2-10	---	---
Cher shrubs	SSSS	X	X	---	5-10	5-15	---	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---	---

Enge site symbol	---	---	024X027N	028B024N	028B030N	None	None
Woodland site symbol	025X061N	025X061N	---	---	---	None	None
Potential production (lb/acre):							
avorable years	500	500	1,200	2,800	1,000	---	---
ormal years	375	375	800	1,700	850	---	---
nfavorable years	250	250	600	1,000	550	---	---

850--Relley silt loam, 0 to 2 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name	Inclusion number--			
		Relley	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-10	5-10
Indian ricegrass	ORHY	5-15	5-15	---	---	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	---
Needleandthread	STCO4	1-3	1-3	---	---	---
Other perennial grasses	PPGG	---	---	T-10	T-10	T-10
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	2-8
Shadscale	ATCO	30-40	30-40	30-50	30-50	30-50
Bud sagebrush	ARSP5	20-30	20-30	5-15	5-15	5-15
Spiny hopsage	GRSP	2-5	2-5	---	---	---
Winterfat	EULA5	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	15-30	15-30	15-30
Seepweed	SUAED	---	---	2-15	2-15	2-15
Other shrubs	SSSS	2-5	2-5	---	---	---

Range site symbol	024X002N	024X002N	024X003N	024X003N	024X003N
Potential production (lb/acre):					
Favorable years	700	700	600	600	600
Normal years	450	450	450	450	450
Unfavorable years	300	300	300	300	300

854--Relley silt loam, frequently flooded, 0 to 2 percent slopes

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Relley	1	2	3
Indian ricegrass	ORHY	10-30	---	5-15	5-15
Bottlebrush squirreltail	SIHY	5-10	---	5-15	5-15
Alkali sacaton	SPAI	T-5	---	---	---
Basin wildrye	ELCI2	---	50-60	---	---
Western wheatgrass	AGSM	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	2-5	2-5
Needleandthread	STCO4	---	---	1-3	1-3
Perennial forbs	PPFF	T-5	2-8	2-8	2-8
Sickle saltbush	ATFA	50-65	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	---	---
Black greasewood	SAVE4	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Shadscale	ATCO	---	---	30-40	30-40
Bud sagebrush	ARSP5	---	---	20-30	20-30
Spiny hopsage	GRSP	---	---	2-5	2-5
Winterfat	EULA5	---	---	2-5	2-5
Other shrubs	SSSS	---	---	2-5	2-5

Range site symbol	024X012N	024X006N	024X002N	024X002N
Potential production (lb/acre):				
Favorable years	700	1,500	700	700
Normal years	400	1,100	450	450
Unfavorable years	200	600	300	300

910--Rutab 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	Inclusion number--	
			Rutab	1
Indian ricegrass	ORHY	20-30	---	20-30
Needleandthread	STC04	10-20	---	10-20
Bottlebrush squirreltail	SIHY	5-10	---	5-10
Sandberg bluegrass	POSE	2-5	---	2-5
Basin wildrye	ELCI2	---	30-50	---
Nevada bluegrass	PONE3	---	2-5	---
Western wheatgrass	AGSM	---	2-5	---
Other perennial grasses	PPGG	---	15-25	---
Perennial forbs	PPFF	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	15-20
Basin big sagebrush	ARTRT*	---	5-10	---
Other shrubs	SSSS	5-15	5-10	5-15

Range site symbol	028B010N	028B003N	028B010N
Potential production (lb/acre):			
Favorable years	800	2,600	800
Normal years	600	1,250	600
Unfavorable years	400	800	400

931--Shagnasty-Roca-Rock outcrop association

An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Shagnasty	Roca	Rock outcrop	1	2	3
daho fescue	FEID	X	---	---	---	10-15	---
bluebunch wheatgrass	AGSP	X	40-60	---	5-15	5-10	---
bluegrass	POA++	X	2-10	---	---	---	---
churber needlegrass	STTH2	---	5-10	---	2-5	---	---
basin wildrye	ELCI2	---	2-5	---	---	---	30-50
pine bluegrass	POSC	---	---	---	5-10	5-10	---
indian ricegrass	ORHY	---	---	---	2-5	---	---
western wheatgrass	AGSM	---	---	---	---	---	5-10
nevada bluegrass	PONE3	---	---	---	---	---	5-10
other perennial grasses	PPGG	X	---	---	10-15	10-15	5-15
capertip hawksbeard	CRAC2	X	2-5	---	---	---	---
arrowleaf balsamroot	BASA3	X	2-5	---	---	---	---
other perennial forbs	PPFF	X	---	---	10-15	5-10	5-10
big sagebrush	ARTR2	X	---	---	---	---	---
wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---
mountain big sagebrush	ARVA2	---	T-5	---	---	---	---
low sagebrush	ARAR8	---	---	---	25-30	5-15	---
black sagebrush	ARARN	---	---	---	---	5-15	---
basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
other shrubs	SSSS	X	---	---	10-20	5-10	5-10
singleleaf pinyon	PIMO	X	---	---	---	---	---

range site symbol	---	024X028N	None	028B037N	028B038N	028B024N
woodland site symbol	025X061N	---	None	---	---	---
Potential production (lb/acre):						
Favorable years	500	1,000	---	700	800	2,800
Normal years	375	700	---	500	600	1,700
Unfavorable years	250	500	---	300	400	1,000

932--Shagnasty-Softscrabble association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Shagnasty	Softscrabble	1	2	3	4
Idaho fescue	FEID	X	20-40	25-50	---	---	---
Bluebunch wheatgrass	AGSP	X	20-30	15-30	15-25	---	---
Bluegrass	POA++	X	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	---	30-50	---
Thurber needlegrass	STTH2	---	2-10	2-10	15-25	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---
Western wheatgrass	AGSM	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	X	---	---	10-20	5-15	2-10
Tapertip hawksbeard	CRAC2	X	1-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	X	1-5	---	2-5	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	X	---	---	2-10	5-10	10-20
Big sagebrush	ARTR2	X	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	5-10	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	2-5
Other shrubs	SSSS	X	---	---	2-10	5-10	2-5
Singleleaf pinyon	PIMO	X	---	---	---	---	---

Range site symbol	---	024X021N	024X027N	024X035N	028B024N	025X005N
Woodland site symbol	025X061N	---	---	---	---	---
Potential production (lb/acre):						
Favorable years	500	1,400	1,200	500	2,800	2,000
Normal years	375	1,000	800	400	1,700	1,700
Unfavorable years	250	700	600	250	1,000	1,000

942--ShIPLEY silt loam, occasionally flooded, 0 to 2 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		ShIPLEY	1	2
Indian ricegrass	ORHY	15-25	2-5	20-30
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10
Basin wildrye	ELCI2	---	10-20	---
Needleandthread	STCO4	---	2-5	10-20
Sandberg bluegrass	POSE	---	---	2-5
Other perennial grasses	PPGG	5-10	5-10	---
Perennial forbs	PPFF	5-10	5-10	2-5
Winterfat	EULA5	30-45	---	---
Basin big sagebrush	ARTRT*	---	10-15	---
Greene rabbitbrush	CHGR6	---	2-5	---
Nevada ephedra	EPNE	---	2-5	---
Fourwing saltbush	ATCA2	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-20
Other shrubs	SSSS	5-15	5-10	5-15

Range site symbol	028B013N	028B009N	028B010N
Potential production (lb/acre):			
Favorable years	800	700	800
Normal years	550	400	600
Unfavorable years	300	300	400

950--Silverado 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	Inclusion number--		
		Silverado	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	2-5
Needleandthread	STC04	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	5-20
Thelypody	THELY	---	---	---	2-4
Other perennial forbs	PPFF	2-5	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	5-10
Black greasewood	SAVE4	---	---	---	20-30
Basin big sagebrush	ARTRT*	---	---	---	5-15
Spiny hopsage	GRSP	---	---	---	5-15
Other shrubs	SSSS	5-15	5-15	5-15	---

Range site symbol	028B010N	028B010N	028B010N	024X022N
Potential production (lb/acre):				
Favorable years	800	800	800	800
Normal years	600	600	600	600
Unfavorable years	400	400	400	350

990--Sonoma-Wendane 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		Inclusion number--		
		Sonoma	Wendane	1	2	3
asin wildrye	ELCI2	50-60	40-60	50-60	5-20	---
estern wheatgrass	AGSM	5-15	---	---	---	---
lkali sacaton	SPAI	---	15-30	---	---	---
nland saltgrass	DISPS2	---	5-10	---	---	5-10
evada bluegrass	PONE3	---	---	5-15	---	5-10
at muhly	MURI	---	---	2-10	---	2-10
edge	CAREX	---	---	1-5	---	---
ottlebrush squirreltail	SIHY	---	---	---	2-5	---
ndian ricegrass	ORHY	---	---	---	2-5	---
ildrye	ELYMU	---	---	---	---	30-60
ther perennial grasses	PPGG	---	---	15-20	---	5-15
helypody	THELY	---	---	---	2-4	---
ierra clover	TRWO	---	---	---	---	2-5
ther perennial forbs	PPFF	2-8	---	5-10	---	5-10
asin big sagebrush	ARTRT*	15-20	---	10-15	5-15	2-5
lack greasewood	SAVE4	2-10	5-15	---	20-30	---
ubber rabbitbrush	CHNA2	2-5	1-2	---	---	---
lkali rabbitbrush	CHAL9	---	1-2	---	---	---
yoming big sagebrush	ARTRW*	---	---	---	5-10	---
piny hopsage	GRSP	---	---	---	5-15	---
illow	SALIX	---	---	---	---	5-10
ilver sagebrush	ARCA13	---	---	---	---	2-5
ther shrubs	SSSS	---	---	2-5	---	2-8

range site symbol	024X006N	024X007N	025X003N	024X022N	025X001N
otential production (lb/acre):					
Favorable years	1,500	1,900	2,500	800	3,000
Normal years	1,100	1,400	1,900	600	2,500
Unfavorable years	600	800	1,200	350	1,800

998--Sonoma-Paranat 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			Inclusion number--			
		Sonoma, frequently flooded	Paranat	Sonoma, occasionally flooded	1	2	3	
Wildrye	ELYMU	30-60	30-60	---	---	---	---	
Nevada bluegrass	PONE3	5-10	5-10	---	---	2-5	---	
Inland saltgrass	DISPS2	5-10	5-10	---	5-10	---	5-10	
Mat muhly	MURI	2-10	2-10	---	---	---	---	
Basin wildrye	ELCI2	---	---	50-60	40-60	30-50	40-60	2 40
Western wheatgrass	AGSM	---	---	5-15	---	2-5	---	
Alkali sacaton	SPAI	---	---	---	15-30	---	15-30	
Other perennial grasses	PPGG	5-15	5-15	---	---	15-25	---	
Sierra clover	TRWO	2-5	2-5	---	---	---	---	
Other perennial forbs	PPFF	5-10	5-10	2-8	---	2-5	---	
Willow	SALIX	5-10	5-10	---	---	---	---	
Basin big sagebrush	ARTRT*	2-5	2-5	15-20	---	5-10	---	10
Silver sagebrush	ARCA13	2-5	2-5	---	---	---	---	
Black greasewood	SAVE4	---	---	2-10	5-15	---	5-15	15
Rubber rabbitbrush	CHNA2	---	---	2-5	1-2	---	1-2	
Alkali rabbitbrush	CHAL9	---	---	---	1-2	---	1-2	
Torrey quailbush	ATTO	---	---	---	---	---	---	300
Other shrubs	SSSS	2-8	2-8	---	---	5-10	---	

Range site symbol	025X001N	025X001N	024X006N	024X007N	028B003N	024X007N	024X007N	024X007N
Potential production (lb/acre):								
Favorable years	3,000	3,000	1,500	1,900	2,600	1,900	1,900	1,900
Normal years	2,500	2,500	1,100	1,400	1,250	1,400	1,400	1,400
Unfavorable years	1,800	1,800	600	800	800	800	800	800

999-Sonoma-Wendane-Paranat association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Sonoma	Wendane	Paranat	1	2	3
Bsin wildrye	ELCI2	50-60	40-60	---	---	30-50	5-15
Western wheatgrass	AGSM	5-15	---	---	---	2-5	---
Alkali sacaton	SPAI	---	15-30	---	---	---	---
Blind saltgrass	DISPS2	---	5-10	5-10	5-10	---	5-10
Wildrye	ELYMU	---	---	30-60	30-60	---	---
Nevada bluegrass	PONE3	---	---	5-10	5-10	2-5	---
Mat muhly	MURI	---	---	2-10	2-10	---	---
Other perennial grasses	PPGG	---	---	5-15	5-15	15-25	---
Serra clover	TRWO	---	---	2-5	2-5	---	---
Other perennial forbs	PPFF	2-8	---	5-10	5-10	2-5	T-5
Bsin big sagebrush	ARTRT*	15-20	---	2-5	2-5	5-10	---
Black greasewood	SAVE4	2-10	5-15	---	---	---	60-75
Robber rabbitbrush	CHNA2	2-5	1-2	---	---	---	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---	---
Willow	SALIX	---	---	5-10	5-10	---	---
Silver sagebrush	ARCA13	---	---	2-5	2-5	---	---
Other shrubs	SSSS	---	---	2-8	2-8	5-10	---

Page site symbol	024X006N	024X007N	025X001N	025X001N	028B003N	024X011N
Potential production (lb/acre):						
Favorable years	1,500	1,900	3,000	3,000	2,600	500
Normal years	1,100	1,400	2,500	2,500	1,250	350
Unfavorable years	600	800	1,800	1,800	800	200

1011--Stampede-Handy-Caniwe 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			Inclusion number--	
		Stampede	Handy	Caniwe	1	2
Bluebunch wheatgrass	AGSP	20-30	5-10	5-10	---	---
Thurber needlegrass	STTH2	15-25	20-30	20-30	---	---
Nevada bluegrass	PONE3	2-10	---	---	---	2-5
Indian ricegrass	ORHY	---	5-10	5-10	20-30	---
Pine bluegrass	POSC	---	2-5	2-5	---	---
Needleandthread	STCO4	---	2-5	2-5	10-20	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	10-15	5-10	5-10	---	15-25
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---
Other perennial forbs	PPFF	2-5	5-10	5-10	2-5	2-5
Big sagebrush	ARTR2	10-15	---	---	---	---
Antelope bitterbrush	PUTR2	0-10	1-10	1-10	---	---
Wyoming big sagebrush	ARTRW*	---	10-15	10-15	15-20	---
Rabbitbrush	CHRS9	---	2-5	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-10	---	---	5-15	5-10

Range site symbol	025X014N	028B007N	028B007N	028B010N	028B003N
Potential production (lb/acre):					
Favorable years	1,000	1,000	1,000	800	2,600
Normal years	800	750	750	600	1,250
Unfavorable years	600	600	600	400	800

1041--Tenabo-Orovada-Bufferan 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			Inclusion number--		
		Tenabo	Orovada	Bufferan	1	2	3
cholla	SIHY	5-15	5-10	5-10	5-15	5-15	2-5
Indian ricegrass	ORHY	5-15	20-30	20-30	5-15	5-15	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	---
Needleandthread	STCO4	1-3	10-20	10-20	1-3	1-3	---
Basin wildrye	ELCI2	---	---	---	---	---	5-20
Helipody	THELY	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	2-5	2-5	2-8	2-8	---
Shadscale	ATCO	30-40	---	---	30-40	30-40	---
Shrub sagebrush	ARSP5	20-30	---	---	20-30	20-30	---
Pinyon sage	GRSP	2-5	---	---	2-5	2-5	5-15
Interfat	EULA5	2-5	---	---	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---	5-10
Black greasewood	SAVE4	---	---	---	---	---	20-30
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-15
Other shrubs	SSSS	2-5	5-15	5-15	2-5	2-5	---
Range site symbol		024X002N	028B010N	028B010N	024X002N	024X002N	024X022N
Potential production (lb/acre):							
Favorable years		700	800	800	700	700	800
Normal years		450	600	600	450	450	600
Unfavorable years		300	400	400	300	300	350

1042--Tenabo-Ricert-Desatoya 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			Inclusion number--		
		Tenabo	Ricert	Desatoya	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	---	2-10	---
Indian ricegrass	ORHY	5-15	5-15	10-15	---	5-15	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	2-10	---
Needleandthread	STCO4	1-3	1-3	---	---	---	---
Thurber needlegrass	SPTH2	---	---	10-15	20-50	10-20	20-50
Bluegrass	POA++	---	---	2-10	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---	5-10
Other perennial grasses	PPGG	---	---	5-20	---	---	---
Globemallow	SPHAE	---	---	2-5	---	1-2	---
Balsamroot	BALSA	---	---	---	2-4	---	2-4
Tapertip hawksbeard	CRAC2	---	---	---	2-4	1-2	2-4
Phlox	PHLOX	---	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	---	---	---	---
Shadscale	ATCO	30-40	30-40	---	---	---	---
Bud sagebrush	ARSP5	20-30	20-30	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	25-35	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	30-35	15-20
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	2-5
Other shrubs	SSSS	2-5	2-5	5-35	2-10	---	2-10

Range site symbol	024X002N	024X002N	024X030N	024X005N	024X020N	024X005N
Potential production (lb/acre):						
Favorable years	700	700	500	800	700	800
Normal years	450	450	350	600	450	600
Unfavorable years	300	300	250	400	300	400

1092--Tulase-Bubus-McConnel association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tulase	Bubus	McConnel	1	2	3
Turber needlegrass	STTH2	20-50	---	20-50	---	20-50	20-50
Biebunch wheatgrass	AGSP	5-10	---	5-10	---	5-10	5-10
Bottlebrush squirreltail	SIHY	---	5-15	---	5-10	---	---
Illian ricegrass	ORHY	---	5-15	---	---	---	---
Sadberg bluegrass	POSE	---	2-5	---	---	---	---
Needleandthread	STCO4	---	1-3	---	---	---	---
Other perennial grasses	PPGG	---	---	---	T-10	---	---
Blsamroot	BALSA	2-4	---	2-4	---	2-4	2-4
Thertip hawksbeard	CRAC2	2-4	---	2-4	---	2-4	2-4
Other perennial forbs	PPFF	---	2-8	---	2-8	---	---
Woming big sagebrush	ARTRW*	15-20	---	15-20	---	15-20	15-20
Dwny rabbitbrush	CHVIP	2-5	---	2-5	---	2-5	2-5
Siny hopsage	GRSP	2-5	2-5	2-5	---	2-5	2-5
Sadscale	ATCO	---	30-40	---	30-50	---	---
Bl sagebrush	ARSP5	---	20-30	---	5-15	---	---
Waterfat	EULA5	---	2-5	---	---	---	---
Back greasewood	SAVE4	---	---	---	15-30	---	---
Sepweed	SUAED	---	---	---	2-15	---	---
Other shrubs	SSSS	2-10	2-5	2-10	---	2-10	2-10

Edge site symbol	024X005N	024X002N	024X005N	024X003N	024X005N	024X005N
Ptential production (lb/acre):						
avorable years	800	700	800	600	800	800
ormal years	600	450	600	450	600	600
nfavorable years	400	300	400	300	400	400

1131--Fortank gravelly loam, 4 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	Inclusion number--		
		Fortank	1	2	3
Indian ricegrass	ORHY	20-30	15-25	20-30	20-30
Needleandthread	STC04	10-20	5-10	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	---	5-10	5-10
Sandberg bluegrass	POSE	2-5	---	2-5	2-5
Basin wildrye	ELCI2	---	2-5	---	---
Bluebunch wheatgrass	AGSP	---	2-5	---	---
Perennial forbs	PPFF	2-5	5-10	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	15-20
Black sagebrush	ARARN	---	20-30	---	---
Winterfat	EULA5	---	5-10	---	---
Bud sagebrush	ARSP5	---	2-5	---	---
Small rabbitbrush	CHVIS	---	2-5	---	---
Other shrubs	SSSS	5-15	---	5-15	5-15

Range site symbol	028B010N	028B011N	028B010N	028B010N
Potential production (lb/acre):				
Favorable years	800	950	800	800
Normal years	600	700	600	600
Unfavorable years	400	400	400	400

1140--Wendane silt loam, frequently flooded

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Wendane	1	2	3
Basin wildrye	ELCI2	40-60	---	5-15	50-60
Alkali sacaton	SPAI	15-30	---	---	---
Inland saltgrass	DISPS2	5-10	---	5-10	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---
Western wheatgrass	AGSM	---	---	---	5-15
Other perennial grasses	PPGG	---	T-10	---	---
Perennial forbs	PPFF	---	2-8	T-5	2-8
Black greasewood	SAVE4	5-15	15-30	60-75	2-10
Alkali rabbitbrush	CHAL9	1-2	---	---	---
Rubber rabbitbrush	CHNA2	1-2	---	---	2-5
Shadscale	ATCO	---	30-50	---	---
Bud sagebrush	ARSP5	---	5-15	---	---
Seepweed	SUAED	---	2-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20

Range site symbol	024X007N	024X003N	024X011N	024X006N
Potential production (lb/acre):				
Favorable years	1,900	600	500	1,500
Normal years	1,400	450	350	1,100
Unfavorable years	800	300	200	600

1141--Wendane-Umberland association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wendane, strongly sodic	Wendane, frequently flooded	Umberland	1	2	3
Basin wildrye	ELCI2	15-25	40-60	T-5	50-60	5-15	---
Alkali sacaton	SPAI	5-10	15-30	40-70	---	---	---
Inland saltgrass	DISPS2	2-5	5-10	T-15	---	5-10	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---
Other perennial grasses	PPGG	2-5	---	---	---	---	---
Perennial forbs	PPFF	2-5	---	2-8	2-8	T-5	---
Silver buffaloberry	SHAR	10-20	---	---	---	---	---
Black greasewood	SAVE4	5-15	5-15	2-5	2-10	60-75	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---	---
Rubber rabbitbrush	CHNA2	---	1-2	---	2-5	---	---
Iodinebush	ALOC2	---	---	10-20	---	---	---
Saltbush	ATRIP	---	---	5-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	15-20	---	---
Other shrubs	SSSS	5-15	---	---	---	---	---

Range site symbol	028B057N	024X007N	024X010N	024X006N	024X011N	None
Potential production (lb/acre):						
Favorable years	1,500	1,900	450	1,500	500	---
Normal years	1,000	1,400	300	1,100	350	---
Unfavorable years	600	800	150	600	200	---

1142--Wendane-Gund association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Wendane	Gund	Gund, drained	1	2
Basin wildrye	ELCI2	40-60	50-60	15-20	5-15	T-5
Alkali sacaton	SPAI	15-30	---	---	---	40-70
Inland saltgrass	DISPS2	5-10	---	2-10	5-10	T-15
Western wheatgrass	AGSM	---	5-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-10	---	---
Perennial forbs	PPFF	---	2-8	2-8	T-5	2-8
Black greasewood	SAVE4	5-15	2-10	40-60	60-75	2-5
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	---	---	---
Iodinebush	ALOC2	---	---	---	---	10-20
Saltbush	ATRIP	---	---	---	---	5-10

Range site symbol	024X007N	024X006N	024X008N	024X011N	024X010N
Potential production (lb/acre):					
Favorable years	1,900	1,500	800	500	450
Normal years	1,400	1,100	600	350	300
Unfavorable years	800	600	400	200	150

1143--Wendane silt loam, occasionally flooded

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Wendane	1	2	3
Basin wildrye	ELCI2	5-15	40-60	40-60	40-60
Inland saltgrass	DISPS2	5-10	5-10	5-10	5-10
Alkali sacaton	SPAI	---	15-30	15-30	15-30
Perennial forbs	PPFF	T-5	---	---	---
Black greasewood	SAVE4	60-75	5-15	5-15	5-15
Alkali rabbitbrush	CHAL9	---	1-2	1-2	1-2
Rubber rabbitbrush	CHNA2	---	1-2	1-2	1-2
Range site symbol		024X011N	024X007N	024X007N	024X007N
Potential production (lb/acre):					
Favorable years		500	1,900	1,900	1,900
Normal years		350	1,400	1,400	1,400
Unfavorable years		200	800	800	800

1145--Wendane-Playas association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wendane	Playas	1	2	3
basin wildrye	ELCI2	5-15	---	T-5	40-60	---
inland saltgrass	DISPS2	5-10	---	T-15	5-10	---
alkali sacaton	SPAI	---	---	40-70	15-30	---
idaho fescue	FEID	---	---	---	---	10-20
leubber ricegrass	STWE	---	---	---	---	5-10
bottlebrush squirreltail	SIHY	---	---	---	---	5-10
musick bluegrass	POCU3	---	---	---	---	2-5
randberg bluegrass	POSE	---	---	---	---	2-5
pine bluegrass	POSC	---	---	---	---	2-5
goldenweed	HAPLO2	---	---	---	---	2-5
phlox	PHLOX	---	---	---	---	2-5
other perennial forbs	PPFF	T-5	---	2-8	---	---
black greasewood	SAVE4	60-75	---	2-5	5-15	---
godinebush	ALOC2	---	---	10-20	---	---
altbush	ATRIP	---	---	5-10	---	---
alkali rabbitbrush	CHAL9	---	---	---	1-2	---
rubber rabbitbrush	CHNA2	---	---	---	1-2	---
low sagebrush	ARAR8	---	---	---	---	5-15
black sagebrush	ARARN	---	---	---	---	5-15
mountain big sagebrush	ARVA2	---	---	---	---	1-5

range site symbol	024X011N	None	024X010N	024X007N	024X016N
potential production (lb/acre):					
Favorable years	500	---	450	1,900	350
Normal years	350	---	300	1,400	250
Unfavorable years	200	---	150	800	150

1146--Wendane-Sonoma-Valmy association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wendane	Sonoma	Valmy	1	2	3
Basin wildrye	ELCI2	40-60	50-60	5-20	---	20-40	---
Alkali sacaton	SPAI	15-30	---	---	---	---	---
Inland saltgrass	DISPS2	5-10	---	---	5-10	---	---
Western wheatgrass	AGSM	---	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	5-10
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Wildrye	ELYMU	---	---	---	30-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	---	5-15	---	T-10
Thelypody	THELY	---	---	2-4	---	---	---
Sierra clover	TRWO	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-8	---	5-10	2-8	2-8
Black greasewood	SAVE4	5-15	2-10	20-30	---	5-15	15-30
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---	---
Rubber rabbitbrush	CHNA2	1-2	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	5-15	2-5	2-10	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	---	---
Spiny hopsage	GRSP	---	---	5-15	---	---	---
Willow	SALIX	---	---	---	5-10	---	---
Silver sagebrush	ARCA13	---	---	---	2-5	---	---
Torrey quailbush	ATTO	---	---	---	---	30-50	---
Shadscale	ATCO	---	---	---	---	---	30-50
Bud sagebrush	ARSP5	---	---	---	---	---	5-15
Seepweed	SUAED	---	---	---	---	---	2-15
Other shrubs	SSSS	---	---	---	2-8	---	---

Range site symbol	024X007N	024X006N	024X022N	025X001N	024X015N	024X00
Potential production (lb/acre):						
Favorable years	1,900	1,500	800	3,000	1,500	60
Normal years	1,400	1,100	600	2,500	1,200	45
Unfavorable years	800	600	350	1,800	800	30

1148--Wendane-Bubus association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wendane	Bubus	1	2	3
Alsin wildrye	ELCI2	40-60	---	50-60	---	---
Alkali sacaton	SPAI	15-30	---	---	---	---
Alkali saltgrass	DISPS2	5-10	---	---	---	---
Littlebrush squirreltail	SIHY	---	5-10	---	5-10	5-15
Western wheatgrass	AGSM	---	---	5-15	---	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Sandberg bluegrass	POSE	---	---	---	---	2-5
Redleandthread	STCO4	---	---	---	---	1-3
Other perennial grasses	PPGG	---	T-10	---	T-10	---
Perennial forbs	PPFF	---	2-8	2-8	2-8	2-8
Black greasewood	SAVE4	5-15	15-30	2-10	15-30	---
Alkali rabbitbrush	CHAL9	1-2	---	---	---	---
Shrub rabbitbrush	CHNA2	1-2	---	2-5	---	---
Sadscale	ATCO	---	30-50	---	30-50	30-40
Red sagebrush	ARSP5	---	5-15	---	5-15	20-30
Peppeweed	SUAED	---	2-15	---	2-15	---
Alsin big sagebrush	ARTRT*	---	---	15-20	---	---
Shiny hopsage	GRSP	---	---	---	---	2-5
Interfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	2-5

Large site symbol	024X007N	024X003N	024X006N	024X003N	024X002N
Potential production (lb/acre):					
Favorable years	1,900	600	1,500	600	700
Normal years	1,400	450	1,100	450	450
Unfavorable years	800	300	600	300	300

1169--Whirlo-Broyles 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		Inclusion number--	
		Whirlo	Broyles	1	2
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	2-10
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10
Needleandthread	STCO4	1-3	1-3	10-20	---
Thurber needlegrass	STH2	---	---	---	10-20
Tapertip hawksbeard	CRAC2	---	---	---	1-2
Globemallow	SPHAE	---	---	---	1-2
Phlox	PHLOX	---	---	---	1-2
Other perennial forbs	PPFF	2-8	2-8	2-5	---
Shadscale	ATCO	30-40	30-40	---	---
Bud sagebrush	ARSP5	20-30	20-30	---	---
Spiny hopsage	GRSP	2-5	2-5	---	5-15
Winterfat	EULA5	2-5	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	30-35
Other shrubs	SSSS	2-5	2-5	5-15	---

Range site symbol	024X002N	024X002N	028B010N	024X020N
Potential production (lb/acre):				
Favorable years	700	700	800	700
Normal years	450	450	600	450
Unfavorable years	300	300	400	300

1173--Wholan silt loam, alkaline

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Wholan	1	2
Indian ricegrass	ORHY	10-30	5-15	20-30
Bottlebrush squirreltail	SIHY	5-10	5-15	5-10
Alkali sacaton	SPAI	T-5	---	---
Sandberg bluegrass	POSE	---	2-5	2-5
Needleandthread	STCO4	---	1-3	10-20
Perennial forbs	PPFF	T-5	2-8	2-5
Sickle saltbush	ATFA	50-65	---	---
Shadscale	ATCO	---	30-40	---
Bud sagebrush	ARSP5	---	20-30	---
Spiny hopsage	GRSP	---	2-5	---
Winterfat	EULA5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-20
Other shrubs	SSSS	---	2-5	5-15

Range site symbol	024X012N	024X002N	028B010N
Potential production (lb/acre):			
Favorable years	700	700	800
Normal years	400	450	600
Unfavorable years	200	300	400

1177--Wholan-Rasille association, alkaline

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wholan	Rasille	1	2	3
Indian ricegrass	ORHY	10-30	---	---	5-15	5-15
Bottlebrush squirreltail	SIHY	5-10	---	---	2-10	5-15
Alkali sacaton	SPAI	T-5	---	---	---	---
Thurber needlegrass	STTH2	---	20-50	---	10-20	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Basin wildrye	ELCI2	---	---	50-60	---	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	---	2-10	2-5
Needleandthread	STCO4	---	---	---	---	1-3
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	T-5	---	2-8	---	2-8
Sickle saltbush	ATFA	50-65	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	30-35	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---
Spiny hopsage	GRSP	---	2-5	---	5-15	2-5
Basin big sagebrush	ARTRT*	---	---	15-20	---	---
Black greasewood	SAVE4	---	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Shadscale	ATCO	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	20-30
Winterfat	EULA5	---	---	---	---	2-5
Other shrubs	SSSS	---	2-10	---	---	2-5

Range site symbol	024X012N	024X005N	024X006N	024X020N	024X002N
Potential production (lb/acre):					
Favorable years	700	800	1,500	700	700
Normal years	400	600	1,100	450	450
Unfavorable years	200	400	600	300	300

1178--Wholan-Rasille association, nonalkaline

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Wholan	Rasille	1	2	3
Indian ricegrass	ORHY	10-20	20-30	10-30	5-15	20-30
Littlebrush squirreltail	SIHY	2-10	5-10	5-10	5-15	5-10
Medleandthread	STCO4	---	10-20	---	1-3	10-20
Sandberg bluegrass	POSE	---	2-5	---	2-5	2-5
Wali sacaton	SPAI	---	---	T-5	---	---
Perennial forbs	PPFF	2-8	2-5	T-5	2-8	2-5
Winterfat	EULA5	60-70	---	---	2-5	---
Red sagebrush	ARSP5	2-5	---	---	20-30	---
Woming big sagebrush	ARTRW*	---	15-20	---	---	15-20
Suckle saltbush	ATFA	---	---	50-65	---	---
Sadscale	ATCO	---	---	---	30-40	---
Siny hopsage	GRSP	---	---	---	2-5	---
Other shrubs	SSSS	---	5-15	---	2-5	5-15

Inge site symbol	024X004N	028B010N	024X012N	024X002N	028B010N
Potential production (lb/acre):					
avorable years	500	800	700	700	800
ormal years	350	600	400	450	600
nfavorable years	200	400	200	300	400

1281--Ricert-Whirlo-Pineval 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			Inclusion number--		
		Ricert	Whirlo	Pineval	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15	2-10	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	2-5
Needleandthread	STCO4	1-3	1-3	10-20	1-3	---	1-3
Webber ricegrass	STWE	---	---	---	---	2-10	---
Thurber needlegrass	STTH2	---	---	---	---	2-5	---
Desert needlegrass	STSP3	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	2-5	---
Eriogonum	ERIOG	---	---	---	---	1-2	---
Hawksbeard	CREPI	---	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-5	2-8	---	2-8
Shadscale	ATCO	30-40	30-40	---	30-40	10-25	30-40
Bud sagebrush	ARSP5	20-30	20-30	---	20-30	2-5	20-30
Spiny hopsage	GRSP	2-5	2-5	---	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	---	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	10-25	---
Downy rabbitbrush	CHVIP	---	---	---	---	2-5	---
Other shrubs	SSSS	2-5	2-5	5-15	2-5	---	2-5

Range site symbol	024X002N	024X002N	028B010N	024X002N	024X026N	024X002N
Potential production (lb/acre):						
Favorable years	700	700	800	700	400	700
Normal years	450	450	600	450	300	450
Unfavorable years	300	300	400	300	200	300

1282--Ricert-Broyles 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		Inclusion number--		
		Ricert	Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5
Needleandthread	STCO4	1-3	1-3	1-3	---	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---
Wapertip hawksbeard	CRAC2	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	1-2	---
Phlox	PHLOX	---	---	---	1-2	---
Other perennial forbs	PPFF	2-8	2-8	2-8	---	2-8
Chadscale	ATCO	30-40	30-40	30-40	---	30-40
Red sagebrush	ARSP5	20-30	20-30	20-30	---	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	30-35	---
Other shrubs	SSSS	2-5	2-5	2-5	---	2-5

Range site symbol	024X002N	024X002N	024X002N	024X020N	024X002N
Potential production (lb/acre):					
Favorable years	700	700	700	700	700
Normal years	450	450	450	450	450
Unfavorable years	300	300	300	300	300

1284--Ricert-Zineb-Pineval 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			Inclusion number--		
		Ricert	Zineb	Pineval	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-10	2-5	2-5	5-10
Indian ricegrass	ORHY	5-15	20-30	20-30	5-15	2-5	20-30
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---	2-5
Needleandthread	STCO4	1-3	10-20	10-20	5-10	---	10-20
Basin wildrye	ELCI2	---	---	---	---	5-20	---
Other perennial grasses	PPGG	---	---	---	5-10	---	---
Thelypody	THELY	---	---	---	---	2-4	---
Other perennial forbs	PPFF	2-8	2-5	2-5	5-10	---	2-5
Shadscale	ATCO	30-40	---	---	30-40	---	---
Bud sagebrush	ARSP5	20-30	---	---	5-10	---	---
Spiny hopsage	GRSP	2-5	---	---	---	5-15	---
Winterfat	EULA5	2-5	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	5-10	15-20
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Black greasewood	SAVE4	---	---	---	---	20-30	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-15	---
Other shrubs	SSSS	2-5	5-15	5-15	5-15	---	5-15

Range site symbol	024X002N	028B010N	028B010N	028B017N	024X022N	028B010
Potential production (lb/acre):						
Favorable years	700	800	800	700	800	800
Normal years	450	600	600	500	600	600
Unfavorable years	300	400	400	250	350	400

1285--Ricert-Bubus-Broyles association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Ricert	Bubus	Broyles	1	2
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	5-10	2-5
Indian ricegrass	ORHY	5-15	---	5-15	20-30	2-5
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---
Needleandthread	STCO4	1-3	---	1-3	10-20	---
Basin wildrye	ELCI2	---	---	---	---	5-20
Other perennial grasses	PPGG	---	T-10	---	---	---
Thelypody	THELY	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	2-8	2-8	2-5	---
Shadscale	ATCO	30-40	30-50	30-40	---	---
Bud sagebrush	ARSP5	20-30	5-15	20-30	---	---
Spiny hopsage	GRSP	2-5	---	2-5	---	5-15
Winterfat	EULA5	2-5	---	2-5	---	---
Black greasewood	SAVE4	---	15-30	---	---	20-30
Seepweed	SUAED	---	2-15	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	5-10
Basin big sagebrush	ARTRT*	---	---	---	---	5-15
Other shrubs	SSSS	2-5	---	2-5	5-15	---

Range site symbol	024X002N	024X003N	024X002N	028B010N	024X022N
Potential production (lb/acre):					
Favorable years	700	600	700	800	800
Normal years	450	450	450	600	600
Unfavorable years	300	300	300	400	350

1286--Ricert-Tenabo-Broyles association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant communi

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Ricert	Tenabo	Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	5-10	5-10	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	20-30	20-30	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	2-5
Needleandthread	STC04	1-3	1-3	1-3	10-20	10-20	1-3
Perennial forbs	PPFF	2-8	2-8	2-8	2-5	2-5	2-8
Shadscale	ATCO	30-40	30-40	30-40	---	---	30-40
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	---	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	---	---	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	15-20	---
Other shrubs	SSSS	2-5	2-5	2-5	5-15	5-15	2-5
Range site symbol		024X002N	024X002N	024X002N	028B010N	028B010N	024X002N
Potential production (lb/acre):							
Favorable years		700	700	700	800	800	700
Normal years		450	450	450	600	600	450
Unfavorable years		300	300	300	400	400	300

1287--Ricert-Orovada-Broyles association

bsence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Ricert	Orovada	Broyles	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	---	5-10	5-15
Indian ricegrass	ORHY	5-15	20-30	5-15	10-15	20-30	5-15
Sadberg bluegrass	POSE	2-5	2-5	2-5	---	2-5	2-5
Needleandthread	STCO4	1-3	10-20	1-3	---	10-20	1-3
Turber needlegrass	STTH2	---	---	---	10-15	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	---	5-20	---	---
Gobemallow	SPHAE	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-8	2-5	2-8	---	2-5	2-8
Sandscale	ATCO	30-40	---	30-40	---	---	30-40
Big sagebrush	ARSP5	20-30	---	20-30	---	---	20-30
Siny hopsage	GRSP	2-5	---	2-5	---	---	2-5
Waterfat	EULA5	2-5	---	2-5	---	---	2-5
Woming big sagebrush	ARTRW*	---	15-20	---	---	15-20	---
Black sagebrush	ARARN	---	---	---	25-35	---	---
Other shrubs	SSSS	2-5	5-15	2-5	5-35	5-15	2-5

Ridge site symbol	024X002N	028B010N	024X002N	024X030N	028B010N	024X002N
Potential production (lb/acre):						
Favorable years	700	800	700	500	800	700
Normal years	450	600	450	350	600	450
Unfavorable years	300	400	300	250	400	300

1288--Ricert-Orovada-Tenabo 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			Inclusion number--		
		Ricert	Orovada	Tenabo	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-10	5-15	2-10	5-15	5-15
Indian ricegrass	ORHY	5-15	20-30	5-15	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	2-5	2-5
Needleandthread	STCO4	1-3	10-20	1-3	---	1-3	1-3
Thurber needlegrass	STTH2	---	---	---	10-20	---	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---	---
Globemallow	SPHAE	---	---	---	1-2	---	---
Phlox	PHLOX	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	2-5	2-8	---	2-8	2-8
Shadscale	ATCO	30-40	---	30-40	---	30-40	30-40
Bud sagebrush	ARSP5	20-30	---	20-30	---	20-30	20-30
Spiny hopsage	GRSP	2-5	---	2-5	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	2-5	---	2-5	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	---	30-35	---	---
Other shrubs	SSSS	2-5	5-15	2-5	---	2-5	2-5

Range site symbol	024X002N	028B010N	024X002N	024X020N	024X002N	024X002N
Potential production (lb/acre):						
Favorable years	700	800	700	700	700	700
Normal years	450	600	450	450	450	450
Unfavorable years	300	400	300	300	300	300

1289--Ricert-Blackhawk-Orovada association

The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Ricert	Blackhawk	Orovada	1	2	3	4
bottlebrush squirreltail	SIHY	5-15	5-15	5-10	5-15	5-10	5-10	---
Indian ricegrass	ORHY	5-15	5-15	20-30	5-15	20-30	---	---
Andberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	---	---
Needleandthread	STCO4	1-3	1-3	10-20	1-3	10-20	---	---
Basin wildrye	ELCI2	---	---	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	---	---	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	2-5	2-8	2-5	2-8	2-8
Madscale	ATCO	30-40	30-40	---	30-40	---	30-50	---
Red sagebrush	ARSP5	20-30	20-30	---	20-30	---	5-15	---
Pinny hopsage	GRSP	2-5	2-5	---	2-5	---	---	---
Interfat	EULA5	2-5	2-5	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-20	---	---
Black greasewood	SAVE4	---	---	---	---	---	15-30	2-10
Deepweed	SUAED	---	---	---	---	---	2-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	15-20
Rubber rabbitbrush	CHNA2	---	---	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	5-15	2-5	5-15	---	---

Range site symbol	024X002N	024X002N	028B010N	024X002N	028B010N	024X003N	024X006N
Potential production (lb/acre):							
Favorable years	700	700	800	700	800	600	1,500
Normal years	450	450	600	450	600	450	1,100
Unfavorable years	300	300	400	300	400	300	600

1371--Chad-Gando-Softscrabble 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			Inclusion number--			
		Chad	Gando	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	10-15	10-20	5-15	---	10-15	---
Basin wildrye	ELCI2	5-10	---	2-5	---	---	---	---
Mountain brome	BRCA5	2-15	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	2-5	5-10	2-5	---	2-5	---
Bottlebrush squirreltail	SIHY	2-5	---	---	2-5	---	---	---
Idaho fescue	FEID	1-10	2-5	---	---	---	2-5	---
Indian ricegrass	ORHY	---	5-10	---	2-5	---	5-10	---
Pine bluegrass	POSC	---	---	2-5	5-10	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-10
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	5-10	10-20	10-15	---	5-10	2-10
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	5-10	5-12	10-15	---	5-10	10-20
Mountain big sagebrush	ARVA2	5-15	---	15-25	---	---	---	---
Low sagebrush	ARAR8	---	10-15	---	25-30	---	10-15	---
Black sagebrush	ARARN	---	10-15	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	5-10	---	---	---	---
Utah serviceberry	AMUT	---	---	2-10	---	---	---	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	5-10	5-15	10-20	---	5-10	2-5

Range site symbol	024X029N	028B034N	028B030N	028B037N	None	028B034N	025X005N
Potential production (lb/acre):							
Favorable years	1,500	600	1,100	700	---	600	2,000
Normal years	1,100	400	850	500	---	400	1,700
Unfavorable years	800	250	550	300	---	250	1,000

1450--Atlow-Stingdorn 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			Inclusion number--		
		Atlow, steep	Atlow, strongly sloping	Stingdorn	1	2	3
Indian ricegrass	ORHY	10-15	10-15	5-15	---	10-15	5-15
Thurber needlegrass	STTH2	10-15	10-15	---	20-50	10-15	10-20
Bluegrass	POA++	2-10	2-10	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	5-15	---	---	2-10
Sandberg bluegrass	POSE	---	---	2-5	---	---	2-10
Needleandthread	STC04	---	---	1-3	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---	---
Other perennial grasses	PPGG	5-20	5-20	---	---	5-20	---
Globemallow	SPHAE	2-5	2-5	---	---	2-5	1-2
Balsamroot	BALSA	---	---	---	2-4	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-4	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	2-8	---	---	---
Black sagebrush	ARARN	25-35	25-35	---	---	25-35	---
Shadscale	ATCO	---	---	30-40	---	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---	---
Spiny hopsage	GRSP	---	---	2-5	2-5	---	5-15
Winterfat	EULA5	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	30-35
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	---
Other shrubs	SSSS	5-35	5-35	2-5	2-10	5-35	---

Range site symbol	024X030N	024X030N	024X002N	024X005N	024X030N	024X020N
Potential production (lb/acre):						
Favorable years	500	500	700	800	500	700
Normal years	350	350	450	600	350	450
Unfavorable years	250	250	300	400	250	300

1670--Wieland-Allor 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		Inclusion number--		
		Wieland	Allor	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	20-50	---	10-20
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	2-10
Sandberg bluegrass	POSE	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	15-20	---
Balsamroot	BALSA	2-4	2-4	2-4	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	5-10	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	30-35
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	2-10	2-10	2-10	2-5	---

Range site symbol	024X005N	024X005N	024X005N	025X003N	024X020
Potential production (lb/acre):					
Favorable years	800	800	800	2,500	700
Normal years	600	600	600	1,900	450
Unfavorable years	400	400	400	1,200	300

1680--Zineb 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	Inclusion number--	
		Zineb	1	2
Thurber needlegrass	STTH2	20-50	---	20-50
Bluebunch wheatgrass	AGSP	5-10	---	5-10
Bottlebrush squirreltail	SIHY	---	5-15	---
Indian ricegrass	ORHY	---	5-15	---
Sandberg bluegrass	POSE	---	2-5	---
Needleandthread	STC04	---	1-3	---
Balsamroot	BALSA	2-4	---	2-4
Tapertip hawksbeard	CRAC2	2-4	---	2-4
Other perennial forbs	PPFF	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20
Downy rabbitbrush	CHVIP	2-5	---	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5
Shadscale	ATCO	---	30-40	---
Bud sagebrush	ARSP5	---	20-30	---
Winterfat	EULA5	---	2-5	---
Other shrubs	SSSS	2-10	2-5	2-10

Range site symbol	024X005N	024X002N	024X005N
Potential production (lb/acre):			
Favorable years	800	700	800
Normal years	600	450	600
Unfavorable years	400	300	400

1681--Zineb-Chiara-Wieland 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			Inclusion number--	
		Zineb	Chiara	Wieland	1	2
Thurber needlegrass	STTH2	20-50	20-50	20-50	---	10-20
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Indian ricegrass	ORHY	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	2-10
Sandberg bluegrass	POSE	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	15-20	---
Balsamroot	BALSA	2-4	2-4	2-4	---	---
Tapertip hawkbeard	CRAC2	2-4	2-4	2-4	---	1-2
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	5-10	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	30-35
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	2-10	2-10	2-10	2-5	---

Range site symbol	024X005N	024X005N	024X005N	025X003N	024X020N
Potential production (lb/acre):					
Favorable years	800	800	800	2,500	700
Normal years	600	600	600	1,900	450
Unfavorable years	400	400	400	1,200	300

1682--Zineb-Orovada association

Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Zineb	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	---	20-30	20-30
Needleandthread	STCO4	10-20	10-20	---	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	---	5-10	5-10
Andberg bluegrass	POSE	2-5	2-5	---	2-5	2-5
Basin wildrye	ELCI2	---	---	30-50	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	2-5	---	---
Other perennial grasses	PPGG	---	---	15-25	---	---
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Yoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	15-20
Basin big sagebrush	ARTRT*	---	---	5-10	---	---
Other shrubs	SSSS	5-15	5-15	5-10	5-15	5-15

Range site symbol	028B010N	028B010N	028B003N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years	800	800	2,600	800	800
Normal years	600	600	1,250	600	600
Unfavorable years	400	400	800	400	400

2003--Unius-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Unius	Orovada	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	2-5	5-15
Needleandthread	STCO4	5-10	10-20	10-20	2-5	5-10
Basin wildrye	ELCI2	2-5	---	---	10-20	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	2-5	2-5
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Other perennial grasses	PPGG	---	---	---	5-10	5-10
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	5-10
Black sagebrush	ARARN	20-30	---	---	---	---
Winterfat	EULA5	5-10	---	---	---	2-5
Bud sagebrush	ARSP5	2-5	---	---	---	5-10
Small rabbitbrush	CHVIS	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	2-5
Shadscale	ATCO	---	---	---	---	30-40
Other shrubs	SSSS	---	5-15	5-15	5-10	5-15

Range site symbol	028B011N	028B010N	028B010N	028B009N	028B017N
Potential production (lb/acre):					
Favorable years	950	800	800	700	700
Normal years	700	600	600	400	500
Unfavorable years	400	400	400	300	250

2010--Glyphs-Silverado 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		Inclusion number--		
		Glyphs	Silverado	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	2-5
Needleandthread	STCO4	10-20	10-20	10-20	10-20	2-5
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	2-5
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	10-20
Other perennial grasses	PPGG	---	---	---	---	5-10
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	0-15
Greene rabbitbrush	CHGR6	---	---	---	---	2-5
Nevada ephedra	EPNE	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B009N
Potential production (lb/acre):					
Favorable years	800	800	800	800	700
Normal years	600	600	600	600	400
Unfavorable years	400	400	400	400	300

2011--Glyphs-Muni 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		Inclusion number--			
		Glyphs	Muni	1	2	3	4
Indian ricegrass	ORHY	20-30	20-30	20-30	---	15-25	---
Needleandthread	STC04	10-20	10-20	10-20	---	5-10	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	2-5	2-5
Nevada bluegrass	PONE3	---	---	---	2-5	---	20-30
Western wheatgrass	AGSM	---	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	---	---	---	---	2-5	---
Baltic rush	JUBA	---	---	---	---	---	10-15
Sedge	CAREX	---	---	---	---	---	5-15
Other perennial grasses	PPGG	---	---	---	15-25	---	10-20
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Black sagebrush	ARARN	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	5-10	---
Bud sagebrush	ARSP5	---	---	---	---	2-5	---
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	---	---

Range site symbol	028B010N	028B010N	028B010N	028B003N	028B011N	028B001N
Potential production (lb/acre):						
Favorable years	800	800	800	2,600	950	4,000
Normal years	600	600	600	1,250	700	2,000
Unfavorable years	400	400	400	800	400	1,200

2012--Glyphs-Muni-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Glyphs	Muni	Orovada	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	10-30	---
Needleandthread	STCO4	10-20	10-20	10-20	---	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	10-20	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	5-15	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	10-25	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	5-15	---
Purple sage	SADOC2	---	---	---	T-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	2-4	5-10

Range site symbol	028B010N	028B010N	028B010N	025X025N	028B003N
Potential production (lb/acre):					
Favorable years	800	800	800	200	2,600
Normal years	600	600	600	150	1,250
Unfavorable years	400	400	400	100	800

2015--Glyphs-Enko association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Glyphs, gently sloping	Glyphs, moderately steep	Enko	1	2	3
Indian ricegrass	ORHY	20-30	20-30	10-20	20-30	20-30	5-15
Needleandthread	STC04	10-20	10-20	20-30	10-20	10-20	5-15
Bottlebrush squirreltail	SIHY	5-10	5-10	2-5	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-5	---
Thickspike wheatgrass	AGDA	---	---	2-10	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	5-10
Sand dropseed	SPCR	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	2-5	---	---	10-15
Perennial forbs	PPFF	2-5	2-5	10-20	2-5	2-5	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	15-20	15-20	5-15
Big sagebrush	ARTR2	---	---	10-20	---	---	---
Spiny hopsage	GRSP	---	---	T-5	---	---	5-10
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	2-10	5-15	5-15	---

Range site symbol	028B010N	028B010N	024X017N	028B010N	028B010N	028B005
Potential production (lb/acre):						
Favorable years	800	800	900	800	800	800
Normal years	600	600	700	600	600	600
Unfavorable years	400	400	500	400	400	400

2021--Rotinom-Wholan association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Rotinom	Wholan	Wholan, alkaline	1	2	3
Indian ricegrass	ORHY	5-15	15-25	10-30	---	2-5	20-30
Needleandthread	STCO4	5-10	---	---	---	2-5	10-20
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	---	2-5	5-10
Alkali sacaton	SPAI	---	---	T-5	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	10-20	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	5-10	---	15-25	5-10	---
Perennial forbs	PPFF	5-10	5-10	T-5	2-5	5-10	2-5
Shadscale	ATCO	30-40	---	---	---	---	---
Bud sagebrush	ARSP5	5-10	---	---	---	---	---
Winterfat	EULA5	2-5	30-45	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	2-5	---
Sickle saltbush	ATFA	---	---	50-65	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	15-20
Other shrubs	SSSS	5-15	5-15	---	5-10	5-10	5-15

Range site symbol	028B017N	028B013N	024X012N	028B003N	028B009N	028B010N
Potential production (lb/acre):						
Favorable years	700	800	700	2,600	700	800
Normal years	500	550	400	1,250	400	600
Unfavorable years	250	300	200	800	300	400

2022--Rotinom-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Rotinom	Orovada	1	2	3
Indian ricegrass	ORHY	5-15	20-30	20-30	2-5	20-30
Needleandthread	STC04	5-10	10-20	10-20	2-5	10-20
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	2-5	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	10-20	---
Other perennial grasses	PPGG	5-10	---	---	5-10	---
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	2-5
Shadscale	ATCO	30-40	---	---	---	---
Bud sagebrush	ARSP5	5-10	---	---	---	---
Winterfat	EULA5	2-5	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	15-20
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15

Range site symbol	028B017N	028B010N	028B010N	028B009N	028B010N
Potential production (lb/acre):					
Favorable years	700	800	800	700	800
Normal years	500	600	600	400	600
Unfavorable years	250	400	400	300	400

2031--Muni-Orovada-Unius 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			Inclusion number--		
		Muni	Orovada	Unius	1	2	3
Indian ricegrass	ORHY	20-30	20-30	15-25	15-25	15-30	5-15
Needleandthread	STCO4	10-20	10-20	5-10	---	---	5-15
Stottlebrush squirreltail	SIHY	5-10	5-10	---	2-5	---	---
Wandberg bluegrass	POSE	2-5	2-5	---	---	---	---
Asian wildrye	ELCI2	---	---	2-5	---	---	5-10
Bluebunch wheatgrass	AGSP	---	---	2-5	---	---	---
Curber needlegrass	STTH2	---	---	---	---	5-10	---
Wind dropseed	SPCR	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	5-10	5-15	10-15
Yarrow	SPHAE	---	---	---	---	2-4	---
Other perennial forbs	PPFF	2-5	2-5	5-10	5-10	---	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	15-30	5-15
Black sagebrush	ARARN	---	---	20-30	---	---	---
Interfat	EULA5	---	---	5-10	30-45	---	2-5
Wood sagebrush	ARSP5	---	---	2-5	---	---	---
Small rabbitbrush	CHVIS	---	---	2-5	---	---	---
Pinon hopsage	GRSP	---	---	---	---	2-5	5-10
Wadscale	ATCO	---	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	---	5-15	2-5	---

Range site symbol	028B010N	028B010N	028B011N	028B013N	024X045N	028B005N
Potential production (lb/acre):						
Favorable years	800	800	950	800	350	800
Normal years	600	600	700	550	200	600
Unfavorable years	400	400	400	300	100	400

2060--Oxcorel-Beoska-Whirlo association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Oxcorel	Beoska	Whirlo	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	5-15	2-10	5-10	---
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-10	---	---
Needleandthread	STCO4	1-3	1-3	1-3	---	---	---
Thurber needlegrass	STTH2	---	---	---	10-20	---	20-50
Bluebunch wheatgrass	AGSP	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	T-10	---
Tapertip hawksbeard	CRAC2	---	---	---	1-2	---	2-4
Globemallow	SPHAE	---	---	---	1-2	---	---
Phlox	PHLOX	---	---	---	1-2	---	---
Balsamroot	BALSA	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	2-8	2-8	---	2-8	---
Shadscale	ATCO	30-40	30-40	30-40	---	30-50	---
Bud sagebrush	ARSP5	20-30	20-30	20-30	---	5-15	---
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	---	2-5
Winterfat	EULA5	2-5	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	30-35	---	15-20
Black greasewood	SAVE4	---	---	---	---	15-30	---
Seepweed	SUAED	---	---	---	---	2-15	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	2-5	---	---	2-10

Range site symbol	024X002N	024X002N	024X002N	024X020N	024X003N	024X005
Potential production (lb/acre):						
Favorable years	700	700	700	700	600	800
Normal years	450	450	450	450	450	600
Unfavorable years	300	300	300	300	300	400

2061--Oxcorel-Zaidy-Grassval 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			Inclusion number--		
		Oxcorel	Zaidy	Grassval	1	2	3
Indian ricegrass	ORHY	5-15	15-25	15-25	20-30	15-25	20-30
Needleandthread	STCO4	5-10	5-10	5-10	10-20	---	10-20
Bottlebrush squirreltail	SIHY	2-5	---	---	5-10	2-5	5-10
Basin wildrye	ELCI2	---	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	2-5	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	2-5
Thurber needlegrass	STTH2	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	---	---	---	---	---
Scarlet globemallow	SPCO	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-10	5-10	5-10	2-5	---	2-5
Shadscale	ATCO	30-40	---	---	---	---	---
Bud sagebrush	ARSP5	5-10	2-5	2-5	---	5-10	---
Winterfat	EULA5	2-5	5-10	5-10	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Black sagebrush	ARARN	---	20-30	20-30	---	---	---
Small rabbitbrush	CHVIS	---	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	15-25	15-20
Spiny hopsage	GRSP	---	---	---	---	20-30	---
Other shrubs	SSSS	5-15	---	---	5-15	5-10	5-15

Range site symbol	028B017N	028B011N	028B011N	028B010N	028B052N	028B010N
Potential production (lb/acre):						
Favorable years	700	950	950	800	600	800
Normal years	500	700	700	600	400	600
Unfavorable years	250	400	400	400	300	400

2063--Oxcorel-Pineval 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			Inclusion number--			
		Oxcorel	Pineval, moderately steep	Pineval, strongly sloping	1	2	3	4
Bottlebrush squirreltail	SIHY	5-15	5-10	5-10	---	2-10	---	---
Indian ricegrass	ORHY	5-15	20-30	20-30	---	5-15	15-30	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-10	---	---
Needleandthread	STCO4	1-3	10-20	10-20	---	---	---	---
Thurber needlegrass	STTH2	---	---	---	20-50	10-20	5-10	20-50
Bluebunch wheatgrass	AGSP	---	---	---	5-10	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	---	5-15	---
Balsamroot	BALSA	---	---	---	2-4	---	---	2-4
Tapertip hawksbeard	CRAC2	---	---	---	2-4	1-2	---	2-4
Globemallow	SPHAE	---	---	---	---	1-2	2-4	---
Phlox	PHLOX	---	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	2-5	2-5	---	---	---	---
Shadscale	ATCO	30-40	---	---	---	---	2-5	---
Bud sagebrush	ARSP5	20-30	---	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	2-5	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-20	30-35	15-30	15-20
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	---	2-5
Other shrubs	SSSS	2-5	5-15	5-15	2-10	---	2-5	2-10

Range site symbol	024X002N	028B010N	028B010N	024X005N	024X020N	024X045N	024X005N
Potential production (lb/acre):							
Favorable years	700	800	800	800	700	350	800
Normal years	450	600	600	600	450	200	600
Unfavorable years	300	400	400	400	300	100	400

2069--Oxcorel-Wieland-Spasprey 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			Inclusion number--		
		Oxcorel	Wieland	Spasprey	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	---	2-10	5-15	5-15
Indian ricegrass	ORHY	5-15	---	---	5-15	5-15	5-15
Sandberg bluegrass	POSE	2-5	---	---	2-10	2-5	2-5
Needleandthread	STCO4	1-3	---	---	---	1-3	1-3
Churber needlegrass	STTH2	---	20-50	20-50	10-20	---	---
Bluebunch wheatgrass	AGSP	---	5-10	5-10	---	---	---
Balsamroot	BALSA	---	2-4	2-4	---	---	---
Capertip hawksbeard	CRAC2	---	2-4	2-4	1-2	---	---
Globemallow	SPHAE	---	---	---	1-2	---	---
Phlox	PHLOX	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-8	---	---	---	2-8	2-8
Shadscale	ATCO	30-40	---	---	---	30-40	30-40
Bud sagebrush	ARSP5	20-30	---	---	---	20-30	20-30
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5	2-5
Winterfat	EULA5	2-5	---	---	---	2-5	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	30-35	---	---
Downy rabbitbrush	CHVIP	---	2-5	2-5	---	---	---
Other shrubs	SSSS	2-5	2-10	2-10	---	2-5	2-5

Range site symbol	024X002N	024X005N	024X005N	024X020N	024X002N	024X002N
Potential production (lb/acre):						
Favorable years	700	800	800	700	700	700
Normal years	450	600	600	450	450	450
Unfavorable years	300	400	400	300	300	300

2081--Fenster-Jesse Camp association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Fenster	Jesse Camp	1	2	3
Indian ricegrass	ORHY	5-15	2-5	20-30	---	---
Needleandthread	STCO4	5-10	2-5	10-20	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	5-10	---
Basin wildrye	ELCI2	---	10-20	---	---	5-15
Sandberg bluegrass	POSE	---	---	2-5	---	---
Alkali sacaton	SPAI	---	---	---	---	20-30
Inland saltgrass	DISPS2	---	---	---	---	5-10
Other perennial grasses	PPGG	5-10	5-10	---	T-10	10-20
Perennial forbs	PPFF	5-10	5-10	2-5	2-8	5-10
Shadscale	ATCO	30-40	---	---	30-50	---
Bud sagebrush	ARSP5	5-10	---	---	5-15	---
Winterfat	EULA5	2-5	---	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	2-5
Basin big sagebrush	ARTRT*	---	10-15	---	---	2-5
Greene rabbitbrush	CHGR6	---	2-5	---	---	---
Nevada ephedra	EPNE	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	---
Black greasewood	SAVE4	---	---	---	15-30	5-10
Seepweed	SUAED	---	---	---	2-15	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-10	5-15	---	2-5

Range site symbol	028B017N	028B009N	028B010N	024X003N	028B004N
Potential production (lb/acre):					
Favorable years	700	700	800	600	2,000
Normal years	500	400	600	450	1,000
Unfavorable years	250	300	400	300	500

2088--Punchbowl-Jung-Teguro 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			Inclusion number--			
		Punchbowl	Jung	Teguro	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	---	10-15	5-15	---	---
Needleandthread	STCO4	5-15	5-15	---	---	1-3	---	---
Pine bluegrass	POSC	2-5	2-5	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	1-3	1-3	X	---	---	---	---
Basin wildrye	ELCI2	---	---	X	---	---	---	---
Thurber needlegrass	STH2	---	---	X	10-15	---	---	---
Nevada bluegrass	PONE3	---	---	X	---	---	---	---
Idaho fescue	FEID	---	---	X	---	---	10-20	---
Bluegrass	POA++	---	---	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-15	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	2-5	---
Webber ricegrass	STWE	---	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	---	5-20	---	---	---
Tapertip hawksbeard	CRAC2	---	---	X	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---	---
Globemallow	SPHAE	---	---	---	2-5	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-15	5-15	---	---	2-8	---	---
Black sagebrush	ARARN	20-25	20-25	---	25-35	---	5-15	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	---	---	20-30	---	---
Big sagebrush	ARTR2	---	---	X	---	---	---	---
Snowberry	SYMPH	---	---	X	---	---	---	---
Currant	RIBES	---	---	X	---	---	---	---
Shadscale	ATCO	---	---	---	---	30-40	---	---
Spiny hopsage	GRSP	---	---	---	---	2-5	---	---
Winterfat	EULA5	---	---	---	---	2-5	---	---
Low sagebrush	ARAR8	---	---	---	---	---	5-15	---
Mountain big sagebrush	ARVA2	---	---	---	---	---	1-5	---
Other shrubs	SSSS	10-20	10-20	---	5-35	2-5	---	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---	---
Utah juniper	JUOS	---	---	X	---	---	---	---

Range site symbol	028B016N	028B016N	---	024X030N	024X002N	024X016N	None
Woodland site symbol	---	---	025X062N	---	---	---	None
Potential production (lb/acre):							
Favorable years	500	500	500	500	700	350	---
Normal years	250	250	350	350	450	250	---
Unfavorable years	150	150	200	250	300	150	---

2089--Punchbowl-Jung-Locane 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			Inclusion number--		
		Punchbowl	Jung	Locane	1	2	3
Indian ricegrass	ORHY	5-15	5-15	20-30	---	20-30	5-15
Needleandthread	STCO4	5-15	5-15	10-20	---	10-20	5-10
Pine bluegrass	POSC	2-5	2-5	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	5-10	2-5
Sandberg bluegrass	POSE	---	---	2-5	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	---	---	---	5-10
Perennial forbs	PPFF	5-15	5-15	2-5	---	2-5	5-10
Black sagebrush	ARARN	20-25	20-25	---	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---	2-5
Bud sagebrush	ARSP5	2-5	2-5	---	---	---	5-10
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-20	---
Shadscale	ATCO	---	---	---	---	---	30-40
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	10-20	10-20	5-15	---	5-15	5-15
Range site symbol		028B016N	028B016N	028B010N	None	028B010N	028B017N
Potential production (lb/acre):							
Favorable years		500	500	800	---	800	700
Normal years		250	250	600	---	600	500
Unfavorable years		150	150	400	---	400	250

2090--Punchbowl gravelly loam, 4 to 15 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Punchbowl	1	2	3
Indian ricegrass	ORHY	5-15	---	5-10	---
Needleandthread	STCO4	5-15	---	---	---
Pine bluegrass	POSC	2-5	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	10-20	2-5	---
Thurber needlegrass	STTH2	---	5-10	5-15	---
Basin wildrye	ELCI2	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---
Other perennial grasses	PPGG	5-10	10-20	---	---
Perennial forbs	PPFF	5-15	5-12	5-10	---
Black sagebrush	ARARN	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---
Mountain big sagebrush	ARVA2	---	15-25	---	---
Antelope bitterbrush	PUTR2	---	5-10	---	---
Utah serviceberry	AMUT	---	2-10	---	---
Low sagebrush	ARAR8	---	---	25-30	---
Other shrubs	SSSS	10-20	5-15	10-15	---

Range site symbol	028B016N	028B030N	028B045N	None
Potential production (lb/acre):				
Favorable years	500	1,100	800	---
Normal years	250	850	600	---
Unfavorable years	150	550	400	---

2091--Punchbowl-Teguro-Sumine 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			Inclusion number--		
		Punchbowl	Teguro	Sumine	1	2	3
Indian ricegrass	ORHY	10-15	---	---	---	---	---
Thurber needlegrass	STTH2	10-15	X	2-5	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	X	20-50	---	5-10	---
Basin wildrye	ELCI2	---	X	5-10	---	---	30-50
Nevada bluegrass	PONE3	---	X	---	---	---	2-5
Idaho fescue	FEID	---	X	1-10	---	30-60	---
Mountain brome	BRCA5	---	---	2-15	---	2-5	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-20	---	---	---	---	15-25
Globemallow	SPHAE	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	X	2-5	---	1-3	---
Arrowleaf balsamroot	BASA3	---	X	2-5	---	---	---
Lupine	LUPIN	---	---	---	---	1-2	---
Other perennial forbs	PPFF	---	---	---	---	---	2-5
Black sagebrush	ARARN	25-35	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	---
Snowberry	SYMPH	---	X	---	---	2-5	---
Currant	RIBES	---	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	5-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Other shrubs	SSSS	5-35	---	---	---	---	5-10
Singleleaf pinyon	PIMO	---	X	---	---	---	---
Utah juniper	JUOS	---	X	---	---	---	---

Range site symbol	024X030N	---	024X029N	None	024X023N	028B003
Woodland site symbol	---	025X062N	---	None	---	---
Potential production (lb/acre):						
Favorable years	500	500	1,500	---	1,500	2,600
Normal years	350	350	1,100	---	1,200	1,250
Unfavorable years	250	200	800	---	900	800

2092--Punchbowl-Belate-Reluctan 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			Inclusion number--			
		Punchbowl	Belate	Reluctan	1	2	3	4
Indian ricegrass	ORHY	5-15	---	---	---	5-15	---	---
Needleandthread	STC04	5-15	---	---	---	5-15	---	---
Ne bluegrass	POSC	2-5	---	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	15-30	20-30	---	1-3	---	---
Ohio fescue	FEID	---	25-50	20-40	---	---	---	---
Curber needlegrass	STTH2	---	2-10	2-10	---	---	---	---
Spike fescue	LEKI2	---	2-10	---	---	---	---	---
Alsin wildrye	ELCI2	---	---	2-15	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	---	---	---	5-10	15-25	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Portip hawksbeard	CRAC2	---	---	1-5	---	---	---	---
Rowleaf balsamroot	BASA3	---	---	1-5	---	---	---	---
Other perennial forbs	PPFF	5-15	---	---	---	5-15	2-5	---
Black sagebrush	ARARN	20-25	---	---	---	20-25	---	---
Curwing saltbush	ATCA2	2-5	---	---	---	2-5	---	---
Red sagebrush	ARSP5	2-5	---	---	---	2-5	---	---
Low sagebrush	ARAR8	---	10-20	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---	---
Alsin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Other shrubs	SSSS	10-20	---	---	---	10-20	5-10	---

Range site symbol	028B016N	024X027N	024X021N	None	028B016N	028B003N	None
Potential production (lb/acre):							
Favorable years	500	1,200	1,400	---	500	2,600	---
Normal years	250	800	1,000	---	250	1,250	---
Unfavorable years	150	600	700	---	150	800	---

2093--Punchbowl-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		Inclusion number--		
		Punchbowl	Rock outcrop	1	2	3
Indian ricegrass	ORHY	5-15	---	---	5-15	20-30
Needleandthread	STCO4	5-15	---	---	5-15	10-20
Pine bluegrass	POSC	2-5	---	---	2-5	---
Bluebunch wheatgrass	AGSP	1-3	---	X	1-3	---
Basin wildrye	ELCI2	---	---	X	---	---
Thurber needlegrass	STTH2	---	---	X	---	---
Nevada bluegrass	PONE3	---	---	X	---	---
Idaho fescue	FEID	---	---	X	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10
Sandberg bluegrass	POSE	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	---	---	5-10	---
Tapertip hawksbeard	CRAC2	---	---	X	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---
Other perennial forbs	PPFF	5-15	---	---	5-15	2-5
Black sagebrush	ARARN	20-25	---	---	20-25	---
Fourwing saltbush	ATCA2	2-5	---	---	2-5	---
Bud sagebrush	ARSP5	2-5	---	---	2-5	---
Big sagebrush	ARTR2	---	---	X	---	---
Snowberry	SYMPH	---	---	X	---	---
Currant	RIBES	---	---	X	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20
Other shrubs	SSSS	10-20	---	---	10-20	5-15
Singleleaf pinyon	PIMO	---	---	X	---	---
Utah juniper	JUOS	---	---	X	---	---
Range site symbol		028B016N	None	---	028B016N	028B010N
Woodland site symbol		---	None	025X062N	---	---
Potential production (lb/acre):						
Favorable years		500	---	500	500	800
Normal years		250	---	350	250	600
Unfavorable years		150	---	200	150	400

2094--Punchbowl-Simpark-Akerue 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			Inclusion number--		
		Punchbowl	Simpark	Akerue	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	20-30	---	5-15
Needleandthread	STCO4	5-15	5-15	5-15	10-20	---	1-3
Pine bluegrass	POSC	2-5	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	1-3	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	5-15
Sandberg bluegrass	POSE	---	---	---	2-5	---	2-5
Other perennial grasses	PPGG	5-10	5-10	5-10	---	---	---
Perennial forbs	PPFF	5-15	5-15	5-15	2-5	---	2-8
Black sagebrush	ARARN	20-25	20-25	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	2-5	---	---	20-30
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	---
Shadscale	ATCO	---	---	---	---	---	30-40
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	10-20	10-20	10-20	5-15	---	2-5

Range site symbol	028B016N	028B016N	028B016N	028B010N	None	024X002N
Potential production (lb/acre):						
Favorable years	500	500	500	800	---	700
Normal years	250	250	250	600	---	450
Unfavorable years	150	150	150	400	---	300

2095--Punchbowl-Robson-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			Inclusion number--		
		Punchbowl	Robson	Rock outcrop	1	2	3
Indian ricegrass	ORHY	5-15	5-10	---	---	5-10	2-5
Needleandthread	STCO4	5-15	---	---	---	2-5	---
Pine bluegrass	POSC	2-5	---	---	---	2-5	5-10
Bluebunch wheatgrass	AGSP	1-3	2-5	---	---	5-10	5-15
Thurber needlegrass	STTH2	---	5-15	---	---	20-30	2-5
Sandberg bluegrass	POSE	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	2-5
Basin wildrye	ELCI2	---	---	---	30-50	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---
Western wheatgrass	AGSM	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-10	---	---	15-25	5-10	10-15
Perennial forbs	PPFF	5-15	5-10	---	2-5	5-10	10-15
Black sagebrush	ARARN	20-25	---	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	25-30	---	---	---	25-30
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-15	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10	---
Other shrubs	SSSS	10-20	10-15	---	5-10	---	10-20
Range site symbol		028B016N	028B045N	None	028B003N	028B007N	028B037N
Potential production (lb/acre):							
Favorable years		500	800	---	2,600	1,000	700
Normal years		250	600	---	1,250	750	500
Unfavorable years		150	400	---	800	600	300

2096--Punchbowl-Locane-Nobuck 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			Inclusion number--		
		Punchbowl	Locane	Nobuck	1	2	3
Indian ricegrass	ORHY	5-15	---	5-15	5-15	5-10	---
Needleandthread	STCO4	5-15	---	5-15	5-15	2-5	---
Pine bluegrass	POSC	2-5	---	2-5	2-5	2-5	---
Bluebunch wheatgrass	AGSP	1-3	5-10	1-3	1-3	5-10	---
Thurber needlegrass	STTH2	---	20-50	---	---	20-30	---
Other perennial grasses	PPGG	5-10	---	5-10	5-10	5-10	---
Balsamroot	BALSA	---	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---	---
Other perennial forbs	PPFF	5-15	---	5-15	5-15	5-10	---
Black sagebrush	ARARN	20-25	---	20-25	20-25	---	---
Fourwing saltbush	ATCA2	2-5	---	2-5	2-5	---	---
Bud sagebrush	ARSP5	2-5	---	2-5	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	10-15	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10	---
Other shrubs	SSSS	10-20	2-10	10-20	10-20	---	---

Range site symbol	028B016N	024X005N	028B016N	028B016N	028B007N	None
Potential production (lb/acre):						
Favorable years	500	800	500	500	1,000	---
Normal years	250	600	250	250	750	---
Unfavorable years	150	400	150	150	600	---

2097--Punchbowl-Itca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is high 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		Inclusion number--		
		Punchbowl	Itca	1	2	3
Indian ricegrass	ORHY	5-15	---	---	X	5-10
Needleandthread	STCO4	5-15	---	---	---	2-5
Pine bluegrass	POSC	2-5	---	---	---	2-5
Bluebunch wheatgrass	AGSP	1-3	X	---	X	5-10
Idaho fescue	FEID	---	X	---	---	---
Bluegrass	POA++	---	X	---	X	---
Thurber needlegrass	STTH2	---	---	---	X	20-30
Other perennial grasses	PPGG	5-10	X	---	X	5-10
Tapertip hawksbeard	CRAC2	---	X	---	X	---
Arrowleaf balsamroot	BASA3	---	X	---	X	---
Other perennial forbs	PPFF	5-15	X	---	X	5-10
Black sagebrush	ARARN	20-25	---	---	X	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	X	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-15
Rabbitbrush	CHRY9	---	---	---	---	2-5
Antelope bitterbrush	PUTR2	---	---	---	---	1-10
Other shrubs	SSSS	10-20	X	---	X	---
Singleleaf pinyon	PIMO	---	X	---	X	---
Utah juniper	JUOS	---	---	---	X	---
Range site symbol		028B016N	---	None	---	028B007N
Woodland site symbol		---	025X061N	None	025X063N	---
Potential production (lb/acre):						
Favorable years		500	500	---	400	1,000
Normal years		250	375	---	275	750
Unfavorable years		150	250	---	150	600

2099--Punchbowl-Roca-Rock outcrop association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Punchbowl	Roca	Rock outcrop	1	2	3
Indian ricegrass	ORHY	5-15	---	---	5-15	---	---
Seedleandthread	STCO4	5-15	---	---	5-15	---	---
Line bluegrass	POSC	2-5	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	1-3	40-60	---	1-3	20-30	20-30
Hubber needlegrass	STTH2	---	5-10	---	---	15-25	2-10
Bluegrass	POA++	---	2-10	---	---	---	---
Asian wildrye	ELCI2	---	2-5	---	---	---	2-15
Evada bluegrass	PONE3	---	---	---	---	2-10	---
Daho fescue	FEID	---	---	---	---	---	20-40
Other perennial grasses	PPGG	5-10	---	---	5-10	10-15	---
Apertip hawksbeard	CRAC2	---	2-5	---	---	2-5	1-5
Arrowleaf balsamroot	BASA3	---	2-5	---	---	2-5	1-5
Other perennial forbs	PPFF	5-15	---	---	5-15	2-5	---
Lack sagebrush	ARARN	20-25	---	---	20-25	---	---
Fourwing saltbush	ATCA2	2-5	---	---	2-5	---	---
Wood sagebrush	ARSP5	2-5	---	---	2-5	---	---
Yoming big sagebrush	ARTRW*	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	T-5	---	---	---	5-15
Big sagebrush	ARTR2	---	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	---	---	0-10	---
Other shrubs	SSSS	10-20	---	---	10-20	5-10	---

Range site symbol	028B016N	024X028N	None	028B016N	025X014N	024X021N
Potential production (lb/acre):						
Favorable years	500	1,000	---	500	1,000	1,400
Normal years	250	700	---	250	800	1,000
Unfavorable years	150	500	---	150	600	700

2100--Grassval-Grina-Unsel Variant association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Grassval	Grina	Unsel Variant	1	2	3	4
Indian ricegrass	ORHY	10-15	X	5-15	5-15	5-15	10-15	10-30
Thurber needlegrass	STTH2	10-15	X	---	---	10-20	10-15	---
Bluegrass	POA++	2-10	X	---	---	---	2-10	---
Bluebunch wheatgrass	AGSP	---	X	---	---	---	---	---
Basin wildrye	ELCI2	---	X	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-15	5-15	2-10	---	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-5	2-10	---	---
Needleandthread	STCO4	---	---	1-3	1-3	---	---	---
Other perennial grasses	PPGG	5-20	---	---	---	---	5-20	10-20
Globemallow	SPHAE	2-5	---	---	---	1-2	2-5	---
Tapertip hawksbeard	CRAC2	---	X	---	---	1-2	---	---
Arrowleaf balsamroot	BASA3	---	X	---	---	---	---	---
Phlox	PHLOX	---	---	---	---	1-2	---	---
Other perennial forbs	PPFF	---	---	2-8	2-8	---	---	5-15
Black sagebrush	ARARN	25-35	---	---	---	---	25-35	5-15
Big sagebrush	ARTR2	---	X	---	---	---	---	---
Douglas rabbitbrush	CHVI8	---	X	---	---	---	---	---
Shadscale	ATCO	---	---	30-40	30-40	---	---	---
Bud sagebrush	ARSP5	---	---	20-30	20-30	---	---	---
Spiny hopsage	GRSP	---	---	2-5	2-5	5-15	---	1-5
Winterfat	EULA5	---	---	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	30-35	---	10-25
Downy rabbitbrush	CHVIP	---	---	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	---	---	---	1-5
Purple sage	SADOC2	---	---	---	---	---	---	T-5
Other shrubs	SSSS	5-35	---	2-5	2-5	---	5-35	2-4
Utah juniper	JUOS	---	X	---	---	---	---	---

Range site symbol	024X030N	---	024X002N	024X002N	024X020N	024X030N	025X02
Woodland site symbol	---	025X059N	---	---	---	---	---
Potential production (lb/acre):							
Favorable years	500	500	700	700	700	500	200
Normal years	350	350	450	450	450	350	150
Unfavorable years	250	200	300	300	300	250	100

2101--Grassval-Oxcorel association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Grassval	Oxcorel, eroded	Oxcorel	1	2	3
Indian ricegrass	ORHY	15-25	15-30	5-15	20-30	2-5	15-30
Needleandthread	STCO4	5-10	---	5-10	10-20	---	---
Basin wildrye	ELCI2	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	---	---	5-10
Bottlebrush squirreltail	SIHY	---	---	2-5	5-10	2-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	1-3	---
Desert needlegrass	STSP3	---	---	---	---	2-10	---
Other perennial grasses	PPGG	---	5-15	5-10	---	---	5-15
Globemallow	SPHAE	---	2-4	---	---	---	2-4
Other perennial forbs	PPFF	5-10	---	5-10	2-5	2-8	---
Black sagebrush	ARARN	20-30	---	---	---	---	---
Winterfat	EULA5	5-10	---	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	---	5-10	---	15-30	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-30	---	15-20	---	15-30
Spiny hopsage	GRSP	---	2-5	---	---	---	2-5
Shadscale	ATCO	---	2-5	30-40	---	30-50	2-5
Fourwing saltbush	ATCA2	---	---	2-5	---	---	---
Other shrubs	SSSS	---	2-5	5-15	5-15	---	2-5

Range site symbol	028B011N	024X045N	028B017N	028B010N	024X025N	024X045N
Potential production (lb/acre):						
Favorable years	950	350	700	800	250	350
Normal years	700	200	500	600	150	200
Unfavorable years	400	100	250	400	75	100

2102--Grassval-Wieland 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		Inclusion number--	
		Grassval	Wieland	1	2
Indian ricegrass	ORHY	15-25	20-30	2-10	5-15
Needleandthread	STCO4	5-10	10-20	---	5-10
Basin wildrye	ELCI2	2-5	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-10	2-5
Sandberg bluegrass	POSE	---	2-5	2-5	---
Webber ricegrass	STWE	---	---	2-10	---
Thurber needlegrass	STTH2	---	---	2-5	---
Desert needlegrass	STSP3	---	---	2-5	---
Pine bluegrass	POSC	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	5-10
Eriogonum	ERIOG	---	---	1-2	---
Hawksbeard	CREPI	---	---	1-2	---
Other perennial forbs	PPFF	5-10	2-5	---	5-10
Black sagebrush	ARARN	20-30	---	---	---
Winterfat	EULA5	5-10	---	---	2-5
Bud sagebrush	ARSP5	2-5	---	2-5	5-10
Small rabbitbrush	CHVIS	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	10-25	---
Shadscale	ATCO	---	---	10-25	30-40
Spiny hopsage	GRSP	---	---	5-15	---
Downy rabbitbrush	CHVIP	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5
Other shrubs	SSSS	---	5-15	---	5-15

Range site symbol	028B011N	028B010N	024X026N	028B017N
Potential production (lb/acre):				
Favorable years	950	800	400	700
Normal years	700	600	300	500
Unfavorable years	400	400	200	250

2104--Grassval-Punchbowl 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		Inclusion number--			
		Grassval	Punchbowl	1	2	3	4
Indian ricegrass	ORHY	15-25	5-15	15-30	---	---	20-30
Needleandthread	STCO4	5-10	5-15	---	---	---	10-20
Basin wildrye	ELCI2	2-5	---	---	---	30-50	---
Bluebunch wheatgrass	AGSP	2-5	1-3	---	---	---	---
Pine bluegrass	POSC	---	2-5	---	---	---	---
Thurber needlegrass	STTH2	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	5-10	5-15	---	15-25	---
Globemallow	SPHAE	---	---	2-4	---	---	---
Other perennial forbs	PPFF	5-10	5-15	---	---	2-5	2-5
Black sagebrush	ARARN	20-30	20-25	---	---	---	---
Winterfat	EULA5	5-10	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	---	---	---	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-30	---	---	15-20
Spiny hopsage	GRSP	---	---	2-5	---	---	---
Shadscale	ATCO	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Other shrubs	SSSS	---	10-20	2-5	---	5-10	5-15

Range site symbol	028B011N	028B016N	024X045N	None	028B003N	028B010N
Potential production (lb/acre):						
Favorable years	950	500	350	---	2,600	800
Normal years	700	250	200	---	1,250	600
Unfavorable years	400	150	100	---	800	400

2105--Grassval-Glyphs-Muni 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			Inclusion number--		
		Grassval	Glyphs	Muni	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	20-30	15-25	---
Needleandthread	STCO4	5-10	10-20	10-20	10-20	5-10	---
Basin wildrye	ELCI2	2-5	---	---	---	2-5	30-50
Bluebunch wheatgrass	AGSP	2-5	---	---	---	2-5	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	5-10	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	2-5	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	15-25
Perennial forbs	PPFF	5-10	2-5	2-5	2-5	5-10	2-5
Black sagebrush	ARARN	20-30	---	---	---	20-30	---
Winterfat	EULA5	5-10	---	---	---	5-10	---
Bud sagebrush	ARSP5	2-5	---	---	---	2-5	---
Small rabbitbrush	CHVIS	2-5	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Other shrubs	SSSS	---	5-15	5-15	5-15	---	5-10

Range site symbol	028B011N	028B010N	028B010N	028B010N	028B011N	028B003
Potential production (lb/acre):						
Favorable years	950	800	800	800	950	2,600
Normal years	700	600	600	600	700	1,250
Unfavorable years	400	400	400	400	400	800

2110--Isolde-Davey association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Isolde	Davey	1	2	3
Indian ricegrass	ORHY	10-20	10-20	20-30	5-15	20-30
Needleandthread	STCO4	10-15	20-30	10-20	1-3	10-20
Thickspike wheatgrass	AGDA	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	5-10	5-15	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-5	2-5
Other perennial grasses	PPGG	---	2-5	---	---	---
Perennial forbs	PPFF	2-5	10-20	2-5	2-8	2-5
Hairy horsebrush	TECO2	30-40	---	---	---	---
Fourwing saltbush	ATCA2	10-20	---	---	---	---
Nevada dalea	PSPO	5-10	---	---	---	---
Littleleaf horsebrush	TEGL	5-10	---	---	---	---
Big sagebrush	ARTR2	---	10-20	---	---	---
Spiny hopsage	GRSP	---	T-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-20
Shadscale	ATCO	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	2-5	---
Other shrubs	SSSS	---	2-10	5-15	2-5	5-15

Range site symbol	027X023N	024X017N	028B010N	024X002N	028B010N
Potential production (lb/acre):					
Favorable years	300	900	800	700	800
Normal years	200	700	600	450	600
Unfavorable years	100	500	400	300	400

2540--Buffaran-Wieland association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Buffaran	Wieland	1	2
Thurber needlegrass	STTH2	20-50	20-50	20-50	20-50
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	5-10
Balsamroot	BALSA	2-4	2-4	2-4	2-4
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	2-4
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	2-5
Spiny hopsage	GRSP	2-5	2-5	2-5	2-5
Other shrubs	SSSS	2-10	2-10	2-10	2-10
Range site symbol		024X005N	024X005N	024X005N	024X005N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

2541--Buffaran-Zoesta 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		Inclusion number--		
		Buffaran	Zoesta	1	2	3
Thurber needlegrass	STTH2	20-50	15-20	15-25	---	15-25
Bluebunch wheatgrass	AGSP	5-10	15-20	15-25	---	20-30
Webber ricegrass	STWE	---	5-10	---	---	---
Sandberg bluegrass	POSE	---	5-8	---	---	---
Pine bluegrass	POSC	---	5-8	---	---	---
Cusick bluegrass	POCU3	---	5-8	---	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	5-15	2-10
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Other perennial grasses	PPGG	---	---	10-20	15-20	10-15
Balsamroot	BALSA	2-4	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	2-5	---	2-5
Eriogonum	ERIOG	---	1-3	---	---	---
Phlox	PHLOX	---	1-3	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	2-5
Other perennial forbs	PPFF	---	---	2-10	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	---	5-10	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---
Low sagebrush	ARAR8	---	20-30	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Big sagebrush	ARTR2	---	---	---	---	10-15
Antelope bitterbrush	PUTR2	---	---	---	---	0-10
Other shrubs	SSSS	2-10	---	2-10	2-5	5-10

Range site symbol	024X005N	024X018N	024X035N	025X003N	025X014N
Potential production (lb/acre):					
Favorable years	800	700	500	250	1,000
Normal years	600	500	400	190	800
Unfavorable years	400	300	250	120	600

2542--Buffaran-Chiara association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Buffaran, gravelly	Buffaran, very gravelly	Chiara	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years	800	800	800	800	800
Normal years	600	600	600	600	600
Unfavorable years	400	400	400	400	400

2543--Buffaran-Spasprey-Allor 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			Inclusion number--		
		Buffaran	Spasprey	Allor	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	5-15	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	5-10	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	2-5	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---	2-5
Other perennial grasses	PPGG	---	---	---	---	5-10	---
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---	15-20
Shadscale	ATCO	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B017N	028B010N
Potential production (lb/acre):						
Favorable years	800	800	800	800	700	800
Normal years	600	600	600	600	500	600
Unfavorable years	400	400	400	400	250	400

2545--Buffaran-Pineval 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		Inclusion number--		
		Buffaran	Pineval	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B003N
Potential production (lb/acre):					
Favorable years	800	800	800	800	2,600
Normal years	600	600	600	600	1,250
Unfavorable years	400	400	400	400	800

2546--Buffaran-Spasprey-Locane 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			Inclusion number--	
		Buffaran	Spasprey	Locane	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B003N
Potential production (lb/acre):					
Favorable years	800	800	800	800	2,600
Normal years	600	600	600	600	1,250
Unfavorable years	400	400	400	400	800

2547--Buffaran-Desatoya 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		Inclusion number--		
		Buffaran	Desatoya	1	2	3
Pine bluegrass	POSC	5-15	---	5-15	5-15	---
Indian ricegrass	ORHY	5-15	---	5-15	5-15	---
Bottlebrush squirreltail	SIHY	5-10	---	5-10	5-10	---
Bluegrass	POA++	---	10-40	---	---	10-40
Thurber needlegrass	STTH2	---	2-10	---	---	2-10
Other perennial grasses	PPGG	5-10	5-10	5-10	5-10	5-10
Perennial forbs	PPFF	5-10	5-10	5-10	5-10	5-10
Wyoming big sagebrush	ARTRW*	10-20	---	10-20	10-20	---
Spiny hopsage	GRSP	10-20	---	10-20	10-20	---
Nevada ephedra	EPNE	5-10	---	5-10	5-10	---
Black sagebrush	ARARN	---	20-30	---	---	20-30
Shadscale	ATCO	---	5-10	---	---	5-10
Other shrubs	SSSS	---	5-10	---	---	5-10

Range site symbol	027X008N	027X032N	027X008N	027X008N	027X032N
Potential production (lb/acre):					
Favorable years	700	600	700	700	600
Normal years	500	400	500	500	400
Unfavorable years	300	200	300	300	200

2548--Buffaran-Tenabo-Pineval 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			Inclusion number--		
		Buffaran	Tenabo	Pineval	1	2	3
Indian ricegrass	ORHY	20-30	5-15	20-30	10-15	20-30	10-15
Needleandthread	STCO4	10-20	1-3	10-20	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-15	5-10	---	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5	---
Thurber needlegrass	STTH2	---	---	---	10-15	---	10-15
Bluegrass	POA++	---	---	---	2-10	---	2-10
Other perennial grasses	PPGG	---	---	---	5-20	---	5-20
Globemallow	SPHAE	---	---	---	2-5	---	2-5
Other perennial forbs	PPFF	2-5	2-8	2-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	---	15-20	---
Shadscale	ATCO	---	30-40	---	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Winterfat	EULA5	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	25-35	---	25-35
Other shrubs	SSSS	5-15	2-5	5-15	5-35	5-15	5-35

Range site symbol	028B010N	024X002N	028B010N	024X030N	028B010N	024X030N
Potential production (lb/acre):						
Favorable years	800	700	800	500	800	500
Normal years	600	450	600	350	600	350
Unfavorable years	400	300	400	250	400	250

2554--Laped-Hooplite-Osoll 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			Inclusion number--	
		Laped	Hooplite	Osoll	1	2
Bottlebrush squirreltail	SIHY	5-15	---	5-15	---	5-15
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15
Sandberg bluegrass	POSE	2-5	---	2-5	---	2-5
Needleandthread	STC04	1-3	5-15	1-3	---	1-3
Pine bluegrass	POSC	---	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	1-3	---	---	---
Other perennial grasses	PPGG	---	5-10	---	---	---
Perennial forbs	PPFF	2-8	5-15	2-8	---	2-8
Shadscale	ATCO	30-40	---	30-40	---	30-40
Bud sagebrush	ARSP5	20-30	2-5	20-30	---	20-30
Spiny hopsage	GRSP	2-5	---	2-5	---	2-5
Winterfat	EULA5	2-5	---	2-5	---	2-5
Black sagebrush	ARARN	---	20-25	---	---	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---
Other shrubs	SSSS	2-5	10-20	2-5	---	2-5

Range site symbol	024X002N	028B016N	024X002N	None	024X002N
Potential production (lb/acre):					
Favorable years	700	500	700	---	700
Normal years	450	250	450	---	450
Unfavorable years	300	150	300	---	300

2555--Laped-Colbar 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		Inclusion number--		
		Laped	Colbar	1	2	3
Bottlebrush squirreltail	SIHY	5-15	---	5-15	2-10	---
Indian ricegrass	ORHY	5-15	---	5-15	2-10	15-30
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---
Needleandthread	STC04	1-3	---	1-3	---	---
Thurber needlegrass	STTH2	---	20-50	---	2-5	5-10
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---
Webber ricegrass	STWE	---	---	---	2-10	---
Desert needlegrass	STSP3	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	---	5-15
Balsamroot	BALSA	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---
Eriogonum	ERIOG	---	---	---	1-2	---
Hawksbeard	CREPI	---	---	---	1-2	---
Globemallow	SPHAE	---	---	---	---	2-4
Other perennial forbs	PPFF	2-8	---	2-8	---	---
Shadscale	ATCO	30-40	---	30-40	10-25	2-5
Bud sagebrush	ARSP5	20-30	---	20-30	2-5	---
Spiny hopsage	GRSP	2-5	2-5	2-5	5-15	2-5
Winterfat	EULA5	2-5	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	10-25	15-30
Downy rabbitbrush	CHVIP	---	2-5	---	2-5	---
Other shrubs	SSSS	2-5	2-10	2-5	---	2-5

Range site symbol	024X002N	024X005N	024X002N	024X026N	024X045N
Potential production (lb/acre):					
Favorable years	700	800	700	400	350
Normal years	450	600	450	300	200
Unfavorable years	300	400	300	200	100

2570--Colbar-Atlow-Burrita 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			Inclusion number--			
		Colbar	Atlow	Burrita	1	2	3	4
Thurber needlegrass	STTH2	20-50	10-15	20-50	20-50	---	---	X
Bluebunch wheatgrass	AGSP	5-10	---	5-10	5-10	---	---	X
Indian ricegrass	ORHY	---	10-15	---	---	---	5-15	---
Bluegrass	POA++	---	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-15	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5	---
Needleandthread	STCO4	---	---	---	---	---	1-3	---
Basin wildrye	ELCI2	---	---	---	---	---	---	X
Nevada bluegrass	PONE3	---	---	---	---	---	---	X
Idaho fescue	FEID	---	---	---	---	---	---	X
Other perennial grasses	PPGG	---	5-20	---	---	---	---	---
Balsamroot	BALSA	2-4	---	2-4	2-4	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	2-4	2-4	---	---	X
Globemallow	SPHAE	---	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	---	---	X
Other perennial forbs	PPFF	---	---	---	---	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	15-20	15-20	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	2-5	2-5	---	---	---
Spiny hopsage	GRSP	2-5	---	2-5	2-5	---	2-5	---
Black sagebrush	ARARN	---	25-35	---	---	---	---	---
Shadscale	ATCO	---	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	---	---	X
Snowberry	SYMPH	---	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	---	X
Other shrubs	SSSS	2-10	5-35	2-10	2-10	---	2-5	---
Singleleaf pinyon	PIMO	---	---	---	---	---	---	X
Utah juniper	JUOS	---	---	---	---	---	---	X
Range site symbol		024X005N	024X030N	024X005N	024X005N	None	024X002N	---
Woodland site symbol		---	---	---	---	None	---	025X06
Potential production (lb/acre):								
Favorable years		800	500	800	800	---	700	500
Normal years		600	350	600	600	---	450	350
Unfavorable years		400	250	400	400	---	300	200

2603--Grina-Genaw 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		Inclusion number--		
		Grina	Genaw	1	2	3
Bluebunch wheatgrass	AGSP	X	---	---	---	15-25
Thurber needlegrass	STTH2	X	---	---	---	15-25
Indian ricegrass	ORHY	X	20-30	20-30	---	---
Bluegrass	POA++	X	---	---	---	---
Basin wildrye	ELCI2	X	---	---	30-50	---
Needleandthread	STCO4	---	10-20	10-20	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	15-25	10-20
Tapertip hawksbeard	CRAC2	X	---	---	---	2-5
Arrowleaf balsamroot	BASA3	X	---	---	---	2-5
Other perennial forbs	PPFF	---	2-5	2-5	2-5	2-10
Big sagebrush	ARTR2	X	---	---	---	---
Douglas rabbitbrush	CHVI8	X	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	5-10
Basin big sagebrush	ARTRT*	---	---	---	5-10	---
Mountain big sagebrush	ARVA2	---	---	---	---	5-10
Other shrubs	SSSS	---	5-15	5-15	5-10	2-10
Utah juniper	JUOS	X	---	---	---	---
Range site symbol		---	028B010N	028B010N	028B003N	024X035N
Woodland site symbol		025X059N	---	---	---	---
Potential production (lb/acre):						
Favorable years		500	800	800	2,600	500
Normal years		350	600	600	1,250	400
Unfavorable years		200	400	400	800	250

2640--Rasille-Kelk association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Rasille	Kelk	1	2	3
Indian ricegrass	ORHY	20-30	---	---	5-15	---
Needleandthread	STCO4	10-20	---	---	1-3	---
Bottlebrush squirreltail	SIHY	5-10	---	5-10	5-15	---
Sandberg bluegrass	POSE	2-5	---	---	2-5	---
Basin wildrye	ELCI2	---	50-60	---	---	40-60
Western wheatgrass	AGSM	---	5-15	---	---	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Inland saltgrass	DISPS2	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	T-10	---	---
Perennial forbs	PPFF	2-5	2-8	2-8	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	---	---	---
Black greasewood	SAVE4	---	2-10	15-30	---	5-15
Rubber rabbitbrush	CHNA2	---	2-5	---	---	1-2
Shadscale	ATCO	---	---	30-50	30-40	---
Bud sagebrush	ARSP5	---	---	5-15	20-30	---
Seepweed	SUAED	---	---	2-15	---	---
Spiny hopsage	GRSP	---	---	---	2-5	---
Winterfat	EULA5	---	---	---	2-5	---
Alkali rabbitbrush	CHAL9	---	---	---	---	1-2
Other shrubs	SSSS	5-15	---	---	2-5	---

Range site symbol	028B010N	024X006N	024X003N	024X002N	024X007N
Potential production (lb/acre):					
Favorable years	800	1,500	600	700	1,900
Normal years	600	1,100	450	450	1,400
Unfavorable years	400	600	300	300	800

2672--Zoesta Variant-Jung-Trunk 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			Inclusion number--		
		Zoesta Variant	Jung	Trunk	1	2	3
Indian ricegrass	ORHY	10-15	10-15	---	---	15-30	---
Thurber needlegrass	STTH2	10-15	10-15	20-50	X	5-10	---
Bluegrass	POA++	2-10	2-10	---	---	---	---
Bluebunch wheatgrass	AGSP	---	---	5-10	X	---	---
Basin wildrye	ELCI2	---	---	---	X	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---
Idaho fescue	FEID	---	---	---	X	---	---
Other perennial grasses	PPGG	5-20	5-20	---	---	5-15	---
Globemallow	SPHAE	2-5	2-5	---	---	2-4	---
Balsamroot	BALSA	---	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-4	X	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---
Black sagebrush	ARARN	25-35	25-35	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	15-30	---
Downy rabbitbrush	CHVIP	---	---	2-5	---	---	---
Spiny hopsage	GRSP	---	---	2-5	---	2-5	---
Big sagebrush	ARTR2	---	---	---	X	---	---
Snowberry	SYMPH	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Shadscale	ATCO	---	---	---	---	2-5	---
Other shrubs	SSSS	5-35	5-35	2-10	---	2-5	---
Singleleaf pinyon	PIMO	---	---	---	X	---	---
Utah juniper	JUOS	---	---	---	X	---	---

Range site symbol	024X030N	024X030N	024X005N	---	024X045N	None
Woodland site symbol	---	---	---	025X062N	---	None
Potential production (lb/acre):						
Favorable years	500	500	800	500	350	---
Normal years	350	350	600	350	200	---
Unfavorable years	250	250	400	200	100	---

2681--Tessfive-Puett-Grina association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tessfive	Puett	Grina	1	2	3
Indian ricegrass	ORHY	10-15	10-30	X	20-30	5-15	5-15
Thurber needlegrass	STTH2	10-15	---	X	---	---	10-20
Bluegrass	POA++	2-10	---	X	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	5-15	2-10
Bluebunch wheatgrass	AGSP	---	---	X	---	---	---
Basin wildrye	ELCI2	---	---	X	---	---	---
Needleandthread	STCO4	---	---	---	10-20	1-3	---
Sandberg bluegrass	POSE	---	---	---	2-5	2-5	2-10
Other perennial grasses	PPGG	5-20	10-20	---	---	---	---
Globemallow	SPHAE	2-5	---	---	---	---	1-2
Tapertip hawksbeard	CRAC2	---	---	X	---	---	1-2
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	---	5-15	---	2-5	2-8	---
Black sagebrush	ARARN	25-35	5-15	---	---	---	---
Downy rabbitbrush	CHVIP	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	1-5	---	---	2-5	5-15
Antelope bitterbrush	PUTR2	---	1-5	---	---	---	---
Purple sage	SADOC2	---	T-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	15-20	---	30-35
Big sagebrush	ARTR2	---	---	X	---	---	---
Douglas rabbitbrush	CHVI8	---	---	X	---	---	---
Shadscale	ATCO	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	2-5	---
Other shrubs	SSSS	5-35	2-4	---	5-15	2-5	---
Utah juniper	JUOS	---	---	X	---	---	---

Range site symbol	024X030N	025X025N	---	028B010N	024X002N	024X020N
Woodland site symbol	---	---	025X059N	---	---	---
Potential production (lb/acre):						
Favorable years	500	200	500	800	700	700
Normal years	350	150	350	600	450	450
Unfavorable years	250	100	200	400	300	300

2683--Tessfive-Genaw-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tessfive	Genaw	Orovada	1	2	3
Indian ricegrass	ORHY	10-15	20-30	20-30	15-25	10-30	5-15
Thurber needlegrass	STTH2	10-15	---	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Needleandthread	STCO4	---	10-20	10-20	5-10	---	5-10
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	5-10	2-5
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-20	---	---	---	10-20	5-10
Globemallow	SPHAE	2-5	---	---	---	---	---
Other perennial forbs	PPFF	---	2-5	2-5	5-10	5-15	5-10
Black sagebrush	ARARN	25-35	---	---	20-30	5-15	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	10-25	---
Winterfat	EULA5	---	---	---	5-10	---	2-5
Bud sagebrush	ARSP5	---	---	---	2-5	---	5-10
Small rabbitbrush	CHVIS	---	---	---	2-5	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-5	---
Purple sage	SADOC2	---	---	---	---	T-5	---
Shadscale	ATCO	---	---	---	---	---	30-40
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Other shrubs	SSSS	5-35	5-15	5-15	---	2-4	5-15

Range site symbol	024X030N	028B010N	028B010N	028B011N	025X025N	028B017N
Potential production (lb/acre):						
Favorable years	500	800	800	950	200	700
Normal years	350	600	600	700	150	500
Unfavorable years	250	400	400	400	100	250

2684--Tessfive-Perlor-Orovada association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tessfive	Perlor	Orovada	1	2	3
Indian ricegrass	ORHY	10-15	5-15	20-30	10-30	20-30	20-30
Thurber needlegrass	STTH2	10-15	---	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-15	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-5	2-5
Needleandthread	STCO4	---	1-3	10-20	---	10-20	10-20
Other perennial grasses	PPGG	5-20	---	---	10-20	---	---
Globemallow	SPHAE	2-5	---	---	---	---	---
Other perennial forbs	PPFF	---	2-8	2-5	5-15	2-5	2-5
Black sagebrush	ARARN	25-35	---	---	5-15	---	---
Shadscale	ATCO	---	30-40	---	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	1-5	---	---
Winterfat	EULA5	---	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	10-25	15-20	15-20
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---	---
Purple sage	SADOC2	---	---	---	T-5	---	---
Other shrubs	SSSS	5-35	2-5	5-15	2-4	5-15	5-15

Range site symbol	024X030N	024X002N	028B010N	025X025N	028B010N	028B010N
Potential production (lb/acre):						
Favorable years	500	700	800	200	800	800
Normal years	350	450	600	150	600	600
Unfavorable years	250	300	400	100	400	400

2690--Itca Variant-Reluctan-Handy 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			Inclusion number--		
		Itca Variant	Reluctan	Handy	1	2	3
Bluebunch wheatgrass	AGSP	X	20-30	20-30	X	15-20	20-30
Basin wildrye	ELCI2	X	2-15	---	X	---	2-15
Churber needlegrass	STTH2	X	2-10	15-25	X	15-20	2-10
Nevada bluegrass	PONE3	X	---	2-10	X	---	---
Idaho fescue	FEID	X	20-40	---	X	---	20-40
Other perennial grasses	PPGG	---	---	10-15	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---
Pine bluegrass	POSC	---	---	---	---	5-8	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---
Tapertip hawksbeard	CRAC2	X	1-5	2-5	X	---	1-5
Arrowleaf balsamroot	BASA3	X	1-5	2-5	X	---	1-5
Balsamroot	BALSA	---	---	---	---	2-5	---
Eriogonum	ERIOG	---	---	---	---	1-3	---
Phlox	PHLOX	---	---	---	---	1-3	---
Other perennial forbs	PPFF	---	---	2-5	---	---	---
Big sagebrush	ARTR2	X	---	10-15	X	---	---
Snowberry	SYMPH	X	---	---	X	---	---
Currant	RIBES	X	---	---	X	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	---	---	5-15
Antelope bitterbrush	PUTR2	---	---	0-10	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---
Other shrubs	SSSS	---	---	5-10	---	---	---
Singleleaf pinyon	PIMO	X	---	---	X	---	---
Utah juniper	JUOS	X	---	---	X	---	---

Range site symbol	---	024X021N	025X014N	---	024X018N	024X021N
Woodland site symbol	025X062N	---	---	025X062N	---	---
Potential production (lb/acre):						
Favorable years	500	1,400	1,000	500	700	1,400
Normal years	350	1,000	800	350	500	1,000
Unfavorable years	200	700	600	200	300	700

2730--Pula-Spike-Bufferan 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			Inclusion number--		
		Pula	Spike	Bufferan	1	2	3
Indian ricegrass	ORHY	20-30	15-30	20-30	10-15	---	5-15
Needleandthread	STCO4	10-20	---	10-20	---	---	5-15
Bottlebrush squirreltail	SIHY	5-10	---	5-10	---	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	---	---	---
Thurber needlegrass	STTH2	---	5-10	---	10-15	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5
Bluebunch wheatgrass	AGSP	---	---	---	---	---	1-3
Other perennial grasses	PPGG	---	5-15	---	5-20	15-25	5-10
Globemallow	SPHAE	---	2-4	---	2-5	---	---
Other perennial forbs	PPFF	2-5	---	2-5	---	2-5	5-15
Wyoming big sagebrush	ARTRW*	15-20	15-30	15-20	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Shadscale	ATCO	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	25-35	---	20-25
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Bud sagebrush	ARSP5	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	2-5	5-15	5-35	5-10	10-20

Range site symbol	028B010N	024X045N	028B010N	024X030N	028B003N	028B016N
Potential production (lb/acre):						
Favorable years	800	350	800	500	2,600	500
Normal years	600	200	600	350	1,250	250
Unfavorable years	400	100	400	250	800	150

2731--Pula-Spike 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		Inclusion number--			
		Pula	Spike	1	2	3	4
Indian ricegrass	ORHY	20-30	15-30	5-15	15-30	20-30	5-15
Needleandthread	STC04	10-20	---	1-3	---	10-20	---
Bottlebrush squirreltail	SIHY	5-10	---	5-15	---	5-10	2-10
Sandberg bluegrass	POSE	2-5	---	2-5	---	2-5	2-10
Thurber needlegrass	STTH2	---	5-10	---	5-10	---	10-20
Other perennial grasses	PPGG	---	5-15	---	5-15	---	---
Globemallow	SPHAE	---	2-4	---	2-4	---	1-2
Tapertip hawksbeard	CRAC2	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	2-5	---	2-8	---	2-5	---
Wyoming big sagebrush	ARTRW*	15-20	15-30	---	15-30	15-20	30-35
Spiny hopsage	GRSP	---	2-5	2-5	2-5	---	5-15
Shadscale	ATCO	---	2-5	30-40	2-5	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---	---
Winterfat	EULA5	---	---	2-5	---	---	---
Other shrubs	SSSS	5-15	2-5	2-5	2-5	5-15	---

Range site symbol	028B010N	024X045N	024X002N	024X045N	028B010N	024X020N
Potential production (lb/acre):						
Favorable years	800	350	700	350	800	700
Normal years	600	200	450	200	600	450
Unfavorable years	400	100	300	100	400	300

2740--Spike-Desatoya Variant-Grassval 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			Inclusion number--	
		Spike	Desatoya Variant	Grassval	1	2
Indian ricegrass	ORHY	15-30	10-15	10-15	20-30	5-15
Thurber needlegrass	STTH2	5-10	10-15	10-15	---	10-20
Bluegrass	POA++	---	2-10	2-10	---	---
Needleandthread	STCO4	---	---	---	10-20	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	2-10
Sandberg bluegrass	POSE	---	---	---	2-5	2-10
Other perennial grasses	PPGG	5-15	5-20	5-20	---	---
Globemallow	SPHAE	2-4	2-5	2-5	---	1-2
Tapertip hawksbeard	CRAC2	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	2-5	---
Wyoming big sagebrush	ARTRW*	15-30	---	---	15-20	30-35
Spiny hopsage	GRSP	2-5	---	---	---	5-15
Shadscale	ATCO	2-5	---	---	---	---
Black sagebrush	ARARN	---	25-35	25-35	---	---
Other shrubs	SSSS	2-5	5-35	5-35	5-15	---

Range site symbol	024X045N	024X030N	024X030N	028B010N	024X020N
Potential production (lb/acre):					
Favorable years	350	500	500	800	700
Normal years	200	350	350	600	450
Unfavorable years	100	250	250	400	300

2771--Kram-Hopeka-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			Inclusion number--		
		Kram	Hopeka	Rock outcrop	1	2	3
Bluebunch wheatgrass	AGSP	X	X	---	20-30	---	---
Indian ricegrass	ORHY	X	X	---	---	10-15	---
Thurber needlegrass	STTH2	X	X	---	2-10	10-15	---
Bluegrass	POA++	X	X	---	---	2-10	---
Idaho fescue	FEID	---	---	---	20-40	---	---
Basin wildrye	ELCI2	---	---	---	2-15	---	50-60
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	X	X	---	---	5-20	15-20
Tapertip hawksbeard	CRAC2	X	X	---	1-5	---	---
Arrowleaf balsamroot	BASA3	X	X	---	1-5	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	X	---	---	---	5-10
Black sagebrush	ARARN	X	X	---	---	25-35	---
Downy rabbitbrush	CHVIP	X	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	---	5-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	X	X	---	---	5-35	2-5
Utah juniper	JUOS	X	X	---	---	---	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Range site symbol		---	---	None	024X021N	024X030N	025X003N
Woodland site symbol		025X063N	025Z063N	None	---	---	---
Potential production (lb/acre):							
Favorable years		400	400	---	1,400	500	2,500
Normal years		275	275	---	1,000	350	1,900
Unfavorable years		150	150	---	700	250	1,200

2780--Desatoya-Tenabo-Pineval 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			Inclusion number--		
		Desatoya	Tenabo	Pineval	1	2	3
Bluegrass	POA++	10-40	---	---	---	---	---
Thurber needlegrass	STTH2	2-10	---	---	---	---	---
Indian ricegrass	ORHY	---	5-15	20-30	20-30	15-25	20-30
Needleandthread	STCO4	---	5-10	10-20	10-20	5-10	10-20
Bottlebrush squirreltail	SIHY	---	2-5	5-10	5-10	---	5-10
Sandberg bluegrass	POSE	---	---	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	---	---	---	---
Perennial forbs	PPFF	5-10	5-10	2-5	2-5	5-10	2-5
Black sagebrush	ARARN	20-30	---	---	---	20-30	---
Shadscale	ATCO	5-10	30-40	---	---	---	---
Bud sagebrush	ARSP5	---	5-10	---	---	2-5	---
Winterfat	EULA5	---	2-5	---	---	5-10	---
Fourwing saltbush	ATCA2	---	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	15-20	---	15-20
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Other shrubs	SSSS	5-10	5-15	5-15	5-15	---	5-15

Range site symbol	027X032N	028B017N	028B010N	028B010N	028B011N	028B010N
Potential production (lb/acre):						
Favorable years	600	700	800	800	950	800
Normal years	400	500	600	600	700	600
Unfavorable years	200	250	400	400	400	400

2781--Desatoya-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Desatoya	Orovada	1	2	3
Bluegrass	POA++	10-40	---	---	---	10-40
Thurber needlegrass	STTH2	2-10	---	---	---	2-10
Indian ricegrass	ORHY	---	20-30	20-30	5-15	---
Needleandthread	STCO4	---	10-20	10-20	5-10	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	2-5	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Other perennial grasses	PPGG	5-10	---	---	5-10	5-10
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	5-10
Black sagebrush	ARARN	20-30	---	---	---	20-30
Shadscale	ATCO	5-10	---	---	30-40	5-10
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---
Bud sagebrush	ARSP5	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-10	5-15	5-15	5-15	5-10

Range site symbol	027X032N	28B010N	028B010N	028B017N	027X032N
Potential production (lb/acre):					
Favorable years	600	800	800	700	600
Normal years	400	600	600	500	400
Unfavorable years	200	400	400	250	200

2782--Desatoya-Pineval-Grassval 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			Inclusion number--		
		Desatoya	Pineval	Grassval	1	2	3
Indian ricegrass	ORHY	10-15	20-30	15-25	10-15	20-30	20-30
Thurber needlegrass	STTH2	10-15	---	---	10-15	---	---
Bluegrass	POA++	2-10	---	---	2-10	---	---
Needleandthread	STCO4	---	10-20	5-10	---	10-20	10-20
Bottlebrush squirreltail	SIHY	---	5-10	---	---	5-10	5-10
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	2-5
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	---	2-5	---	---	---
Other perennial grasses	PPGG	5-20	---	---	5-20	---	---
Globemallow	SPHAE	2-5	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-5	5-10	---	2-5	2-5
Black sagebrush	ARARN	25-35	---	20-30	25-35	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	15-20	15-20
Winterfat	EULA5	---	---	5-10	---	---	---
Bud sagebrush	ARSP5	---	---	2-5	---	---	---
Small rabbitbrush	CHVIS	---	---	2-5	---	---	---
Other shrubs	SSSS	5-35	5-15	---	5-35	5-15	5-15

Range site symbol	024X030N	028B010N	028B011N	024X030N	028B010N	028B010N
Potential production (lb/acre):						
Favorable years	500	800	950	500	800	800
Normal years	350	600	700	350	600	600
Unfavorable years	250	400	400	250	400	400

2783--Desatoya-Spike 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			Inclusion number--		
		Desatoya, steep	Spike	Desatoya, strongly sloping	1	2	3
Indian ricegrass	ORHY	10-15	15-30	10-15	20-30	---	20-30
Thurber needlegrass	STTH2	10-15	5-10	10-15	---	---	---
Bluegrass	POA++	2-10	---	2-10	---	---	---
Needleandthread	STCO4	---	---	---	10-20	---	10-20
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	5-10
Sandberg bluegrass	POSE	---	---	---	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-20	5-15	5-20	---	15-25	---
Globemallow	SPHAE	2-5	2-4	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	2-5	2-5	2-5
Black sagebrush	ARARN	25-35	---	25-35	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-30	---	15-20	---	15-20
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Shadscale	ATCO	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Other shrubs	SSSS	5-35	2-5	5-35	5-15	5-10	5-15

Range site symbol	024X030N	024X045N	024X030N	028B010N	028B003N	028B010N
Potential production (lb/acre):						
Favorable years	500	350	500	800	2,600	800
Normal years	350	200	350	600	1,250	600
Unfavorable years	250	100	250	400	800	400

2791--Old Camp-Colbar-Rock outcrop association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Old Camp	Colbar	Rock outcrop	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	---	5-10	---	10-20
Bluebunch wheatgrass	AGSP	5-10	5-10	---	40-60	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Basin wildrye	ELCI2	---	---	---	2-5	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-15	2-10
Indian ricegrass	ORHY	---	---	---	---	5-15	5-15
Sandberg bluegrass	POSE	---	---	---	---	2-5	2-10
Needleandthread	STCO4	---	---	---	---	1-3	---
Balsamroot	BALSA	2-4	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	---	2-5	---	1-2
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Globemallow	SPHAE	---	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	---	1-2
Other perennial forbs	PPFF	---	---	---	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	5-10	---	30-35
Downy rabbitbrush	CHVIP	2-5	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	5-15
Mountain big sagebrush	ARVA2	---	---	---	T-5	---	---
Shadscale	ATCO	---	---	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	2-5	---
Other shrubs	SSSS	2-10	2-10	---	---	2-5	---

Range site symbol	024X005N	024X005N	None	024X028N	024X002N	024X020N
Potential production (lb/acre):						
Favorable years	800	800	---	1,000	700	700
Normal years	600	600	---	700	450	450
Unfavorable years	400	400	---	500	300	300

2792--Old Camp-Allor-Puett associaton

[The letter "T" means trace. 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			Inclusion number--		
		Old Camp	Allor	Puett	1	2	3
Pine bluegrass	POSC	20-30	5-15	---	---	5-15	---
Thurber needlegrass	STTH2	5-10	---	---	X	---	2-10
Indian ricegrass	ORHY	---	5-15	10-30	---	5-15	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	5-10	---
Bluebunch wheatgrass	AGSP	---	---	---	X	---	---
Basin wildrye	ELCI2	---	---	---	X	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---
Idaho fescue	FEID	---	---	---	X	---	---
Bluegrass	POA++	---	---	---	---	---	10-40
Other perennial grasses	PPGG	5-15	5-10	10-20	---	5-10	5-10
Tapertip hawksbeard	CRAC2	---	---	---	X	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---
Other perennial forbs	PPFF	5-10	5-10	5-15	---	5-10	5-10
Wyoming big sagebrush	ARTRW*	10-20	10-20	10-25	---	10-20	---
Spiny hopsage	GRSP	5-15	10-20	1-5	---	10-20	---
Nevada ephedra	EPNE	5-10	5-10	---	---	5-10	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	20-30
Purple sage	SADOC2	---	---	T-5	---	---	---
Big sagebrush	ARTR2	---	---	---	X	---	---
Snowberry	SYMPH	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Shadscale	ATCO	---	---	---	---	---	5-10
Other shrubs	SSSS	5-10	---	2-4	---	---	5-10
Singleleaf pinyon	PIMO	---	---	---	X	---	---
Utah juniper	JUOS	---	---	---	X	---	---

Range site symbol	027X007N	027X008N	025X025N	---	027X008N	027X032N
Woodland site symbol	---	---	---	025X062N	---	---
Potential production (lb/acre):						
Favorable years	600	700	200	500	700	600
Normal years	450	500	150	350	500	400
Unfavorable years	300	300	100	200	300	200

2793--Old Camp-Laped 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		Inclusion number--		
		Old Camp	Laped	1	2	3
Thurber needlegrass	STTH2	20-50	---	2-5	20-50	10-20
Bluebunch wheatgrass	AGSP	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	5-15	2-10	---	2-10
Indian ricegrass	ORHY	---	5-15	2-10	---	5-15
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-10
Needleandthread	STCO4	---	1-3	---	---	---
Webber ricegrass	STWE	---	---	2-10	---	---
Desert needlegrass	STSP3	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	2-5	---	---
Balsamroot	BALSA	2-4	---	---	2-4	---
Tapertip hawksbeard	CRAC2	2-4	---	---	2-4	1-2
Eriogonum	ERIOG	---	---	1-2	---	---
Hawksbeard	CREPI	---	---	1-2	---	---
Globemallow	SPHAE	---	---	---	---	1-2
Phlox	PHLOX	---	---	---	---	1-2
Other perennial forbs	PPFF	---	2-8	---	---	---
Wyoming big sagebrush	ARTRW*	15-20	---	10-25	15-20	30-35
Downy rabbitbrush	CHVIP	2-5	---	2-5	2-5	---
Spiny hopsage	GRSP	2-5	2-5	5-15	2-5	5-15
Shadscale	ATCO	---	30-40	10-25	---	---
Bud sagebrush	ARSP5	---	20-30	2-5	---	---
Winterfat	EULA5	---	2-5	---	---	---
Other shrubs	SSSS	2-10	2-5	---	2-10	---

Range site symbol	024X005N	024X002N	024X026N	024X005N	024X020N
Potential production (lb/acre):					
Favorable years	800	700	400	800	700
Normal years	600	450	300	600	450
Unfavorable years	400	300	200	400	300

2797--Old Camp-Colbar 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			Inclusion number--		
		Old Camp, steep	Colbar	Old Camp, strongly sloping	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	20-50	15-25	10-15	---
Bluebunch wheatgrass	AGSP	5-10	5-10	5-10	20-30	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	---	10-15	5-20	---
Indian ricegrass	ORHY	---	---	---	---	10-15	5-15
Bluegrass	POA++	---	---	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-15
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Needleandthread	STCO4	---	---	---	---	---	1-3
Balsamroot	BALSA	2-4	2-4	2-4	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	2-4	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	---	---	2-5	---	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	---	---
Downy rabbitbrush	CHVIP	2-5	2-5	2-5	---	---	---
Spiny hopsage	GRSP	2-5	2-5	2-5	---	---	2-5
Big sagebrush	ARTR2	---	---	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	---	---	0-10	---	---
Black sagebrush	ARARN	---	---	---	---	25-35	---
Shadscale	ATCO	---	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	---	20-30
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	2-10	2-10	5-10	5-35	2-5

Range site symbol	024X005N	024X005N	024X005N	025X014N	024X030N	024X002N
Potential production (lb/acre):						
Favorable years	800	800	800	1,000	500	700
Normal years	600	600	600	800	350	450
Unfavorable years	400	400	400	600	250	300

2798--Old Camp-Atlow-Osoll 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			Inclusion number--			
		Old Camp	Atlow	Osoll	1	2	3	4
Thurber needlegrass	STTH2	20-50	10-15	---	10-15	5-10	5-15	---
Bluebunch wheatgrass	AGSP	5-10	---	---	---	---	5-15	---
Indian ricegrass	ORHY	---	10-15	5-15	10-15	15-30	---	---
Bluegrass	POA++	---	2-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-15	---	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---	---
Needleandthread	STCO4	---	---	1-3	---	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	30-50	---
Other perennial grasses	PPGG	---	5-20	---	5-20	5-15	5-10	---
Balsamroot	BALSA	2-4	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	---	---	---	---	---
Globemallow	SPHAE	---	2-5	---	2-5	2-4	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	---	2-8	---	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	15-30	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	2-5	---	2-5	2-4	---
Black sagebrush	ARARN	---	25-35	---	25-35	---	---	---
Shadscale	ATCO	---	---	30-40	---	2-5	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	---	---	---
Winterfat	EULA5	---	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Other shrubs	SSSS	2-10	5-35	2-5	5-35	2-5	---	---

Range site symbol	024X005N	024X030N	024X002N	024X030N	024X045N	025X013N	None
Potential production (lb/acre):							
Favorable years	800	500	700	500	350	1,000	---
Normal years	600	350	450	350	200	800	---
Unfavorable years	400	250	300	250	100	500	---

3001--Barrier-Kobeh 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		Inclusion number--		
		Barrier	Kobeh	1	2	3
Indian ricegrass	ORHY	15-25	20-30	15-25	15-25	5-15
Needleandthread	STCO4	5-10	10-20	5-10	5-10	5-10
Basin wildrye	ELCI2	2-5	---	2-5	2-5	---
Bluebunch wheatgrass	AGSP	2-5	---	2-5	2-5	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	2-5
Sandberg bluegrass	POSE	---	2-5	---	---	---
Other perennial grasses	PPGG	---	---	---	---	5-10
Perennial forbs	PPFF	5-10	2-5	5-10	5-10	5-10
Black sagebrush	ARARN	20-30	---	20-30	20-30	---
Winterfat	EULA5	5-10	---	5-10	5-10	2-5
Bud sagebrush	ARSP5	2-5	---	2-5	2-5	5-10
Small rabbitbrush	CHVIS	2-5	---	2-5	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	---
Shadscale	ATCO	---	---	---	---	30-40
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	---	5-15	---	---	5-15

Range site symbol	028B011N	028B010N	028B011N	028B011N	028B017N
Potential production (lb/acre):					
Favorable years	950	800	950	950	700
Normal years	700	600	700	700	500
Unfavorable years	400	400	400	400	250

3011--Defler-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Defler	Orovada	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	2-5	15-25
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	2-5	2-5
Needleandthread	STCO4	---	10-20	10-20	2-5	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	10-20	---
Other perennial grasses	PPGG	5-10	---	---	5-10	5-10
Perennial forbs	PPFF	5-10	2-5	2-5	5-10	5-10
Winterfat	EULA5	30-45	---	---	---	30-45
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Greene rabbitbrush	CHGR6	---	---	---	2-5	---
Nevada ephedra	EPNE	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15

Range site symbol	028B013N	028B010N	028B010N	028B009N	028B013N
Potential production (lb/acre):					
Favorable years	800	800	800	700	800
Normal years	550	600	600	400	550
Unfavorable years	300	400	400	300	300

3050--Novacan cobbly loam, 2 to 8 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Novacan	1	2	3
Indian ricegrass	ORHY	15-25	20-30	15-25	5-15
Needleandthread	STCO4	5-10	10-20	5-10	5-10
Basin wildrye	ELCI2	2-5	---	2-5	---
Bluebunch wheatgrass	AGSP	2-5	---	2-5	---
Bottlebrush squirreltail	SIHY	---	5-10	---	2-5
Sandberg bluegrass	POSE	---	2-5	---	---
Other perennial grasses	PPGG	---	---	---	5-10
Perennial forbs	PPFF	5-10	2-5	5-10	5-10
Black sagebrush	ARARN	20-30	---	20-30	---
Winterfat	EULA5	5-10	---	5-10	2-5
Bud sagebrush	ARSP5	2-5	---	2-5	5-10
Small rabbitbrush	CHVIS	2-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---
Shadscale	ATCO	---	---	---	30-40
Fourwing saltbush	ATCA2	---	---	---	2-5
Other shrubs	SSSS	---	5-15	---	5-15

Range site symbol	028B011N	028B010N	028B011N	028B017N
Potential production (lb/acre):				
Favorable years	950	800	950	700
Normal years	700	600	700	500
Unfavorable years	400	400	400	250

3071--Allor-Wieland 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		Inclusion number--		
		Allor	Wieland	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	---	20-30
Needleandthread	STCO4	10-20	10-20	10-20	---	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	---	15-25	---
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---	15-20
Basin big sagebrush	ARTRT*	---	---	---	5-10	---
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15

Range site symbol	028B010N	028B010N	028B010N	028B003N	028B010N
Potential production (lb/acre):					
Favorable years	800	800	800	2,600	800
Normal years	600	600	600	1,250	600
Unfavorable years	400	400	400	800	400

3072--Allor-Orovada association, moderately sloping

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Allor	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	---	10-20
Thurber needlegrass	STTH2	---	---	---	---	5-10
Basin wildrye	ELCI2	---	---	---	---	2-5
Pine bluegrass	POSC	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	10-20
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-12
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Mountain big sagebrush	ARVA2	---	---	---	---	15-25
Antelope bitterbrush	PUTR2	---	---	---	---	5-10
Utah serviceberry	AMUT	---	---	---	---	2-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N	028B030N
Potential production (lb/acre):						
Favorable years		800	800	800	800	1,100
Normal years		600	600	600	600	850
Unfavorable years		400	400	400	400	550

3073--Allor-Kelk 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		Inclusion number--	
		Allor	Kelk	1	2
Indian ricegrass	ORHY	20-30	20-30	20-30	---
Needleandthread	STCO4	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-10

Range site symbol	028B010N	028B010N	028B010N	028B003N
Potential production (lb/acre):				
Favorable years	800	800	800	2,600
Normal years	600	600	600	1,250
Unfavorable years	400	400	400	800

3074--Allor-Orovada association, nearly level

Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Allor	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	5-15	2-5	10-20
Needleandthread	STCO4	10-20	10-20	1-3	---	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-15	2-5	2-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	5-20	---
Thelypody	THELY	---	---	---	2-4	---
Other perennial forbs	PPFF	2-5	2-5	2-8	---	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	5-10	---
Shadscale	ATCO	---	---	30-40	---	---
Bud sagebrush	ARSP5	---	---	20-30	---	2-5
Spiny hopsage	GRSP	---	---	2-5	5-15	---
Winterfat	EULA5	---	---	2-5	---	60-70
Black greasewood	SAVE4	---	---	---	20-30	---
Basin big sagebrush	ARTRT*	---	---	---	5-15	---
Other shrubs	SSSS	5-15	5-15	2-5	---	---

Range site symbol	028B010N	028B010N	024X002N	024X022N	024X004N
Potential production (lb/acre):					
Favorable years	800	800	700	800	500
Normal years	600	600	450	600	350
Unfavorable years	400	400	300	350	200

3080--Zaidy-Ricert 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		Inclusion number--			
		Zaidy	Ricert	1	2	3	4
Indian ricegrass	ORHY	15-25	5-15	5-15	20-30	5-15	20-30
Needleandthread	STCO4	5-10	1-3	5-15	10-20	5-15	10-20
Basin wildrye	ELCI2	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	1-3	---	1-3	---
Bottlebrush squirreltail	SIHY	---	5-15	---	5-10	---	5-10
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	2-5
Pine bluegrass	POSC	---	---	2-5	---	2-5	---
Other perennial grasses	PPGG	---	---	5-10	---	5-10	---
Perennial forbs	PPFF	5-10	2-8	5-15	2-5	5-15	2-5
Black sagebrush	ARARN	20-30	---	20-25	---	20-25	---
Winterfat	EULA5	5-10	2-5	---	---	---	---
Bud sagebrush	ARSP5	2-5	20-30	2-5	---	2-5	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---	---
Shadscale	ATCO	---	30-40	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Fourwing saltbush	ATCA2	---	---	2-5	---	2-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	15-20
Other shrubs	SSSS	---	2-5	10-20	5-15	10-20	5-15

Range site symbol	028B011N	024X002N	028B016N	028B010N	028B016N	028B010N
Potential production (lb/acre):						
Favorable years	950	700	500	800	500	800
Normal years	700	450	250	600	250	600
Unfavorable years	400	300	150	400	150	400

3081--Zaidy-Allor 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		Inclusion number--		
		Zaidy	Allor	1	2	3
Indian ricegrass	ORHY	15-25	20-30	20-30	15-30	20-30
Needleandthread	STCO4	5-10	10-20	10-20	---	10-20
Basin wildrye	ELCI2	2-5	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	5-10
Sandberg bluegrass	POSE	---	2-5	2-5	---	2-5
Phurber needlegrass	STTH2	---	---	---	5-10	---
Other perennial grasses	PPGG	---	---	---	5-15	---
Globemallow	SPHAE	---	---	---	2-4	---
Other perennial forbs	PPFF	5-10	2-5	2-5	---	2-5
Black sagebrush	ARARN	20-30	---	---	---	---
Winterfat	EULA5	5-10	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---
Small rabbitbrush	CHVIS	2-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	15-20	15-30	15-20
Spiny hopsage	GRSP	---	---	---	2-5	---
Shadscale	ATCO	---	---	---	2-5	---
Other shrubs	SSSS	---	5-15	5-15	2-5	5-15

Range site symbol	028B011N	028B010N	028B010N	024X045N	028B010N
Potential production (lb/acre):					
Favorable years	950	800	800	350	800
Normal years	700	600	600	200	600
Unfavorable years	400	400	400	100	400

3091--Packer-Newlands 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			Inclusion number--		
		Packer	Packer, cobbly	Newlands	1	2	3
Idaho fescue	FEID	10-20	10-20	10-15	25-50	10-20	---
Webber ricegrass	STWE	5-10	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	5-10	5-10	---	---	5-10	---
Cusick bluegrass	POCU3	2-5	2-5	---	---	2-5	---
Sandberg bluegrass	POSE	2-5	2-5	---	---	2-5	---
Pine bluegrass	POSC	2-5	2-5	---	---	2-5	---
Mountain brome	BRCA5	---	---	15-20	---	---	---
Letterman needlegrass	STLE4	---	---	5-10	---	---	---
Spike fescue	LEKI2	---	---	5-10	2-10	---	---
Bluebunch wheatgrass	AGSP	---	---	---	15-30	---	---
Thurber needlegrass	STTH2	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	---	5-15	---	---	---
Goldenweed	HAPLO2	2-5	2-5	---	---	2-5	---
Phlox	PHLOX	2-5	2-5	---	---	2-5	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	---	5-10	---	---	---
Low sagebrush	ARAR8	5-15	5-15	---	10-20	5-15	---
Black sagebrush	ARARN	5-15	5-15	---	---	5-15	---
Mountain big sagebrush	ARVA2	1-5	1-5	10-20	---	1-5	---
Utah serviceberry	AMUT	---	---	5-10	---	---	---
Snowberry	SYMPH	---	---	5-10	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---

Range site symbol	024X016N	024X016N	028B029N	024X027N	024X016N	None
Potential production (lb/acre):						
Favorable years	350	350	1,500	1,200	350	---
Normal years	250	250	900	800	250	---
Unfavorable years	150	150	650	600	150	---

3092--Packer-Hapgood-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			Inclusion number--		
		Packer	Hapgood	Rock outcrop	1	2	3
Idaho fescue	FEID	10-20	5-15	---	10-20	---	5-15
Webber ricegrass	STWE	5-10	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	5-10	---	---
Cusick bluegrass	POCU3	2-5	---	---	2-5	---	2-5
Sandberg bluegrass	POSE	2-5	---	---	2-5	---	---
Pine bluegrass	POSC	2-5	---	---	2-5	---	---
Mountain brome	BRCAS	---	10-15	---	---	---	5-10
Slender wheatgrass	AGTR	---	20-30	---	---	2-5	2-5
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---	5-15
Spike fescue	LEKI2	---	2-15	---	---	---	---
Bulbous oniongrass	MEBU	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	2-5
Letterman needlegrass	STLE4	---	---	---	---	60-70	2-5
Columbia needlegrass	STNE3	---	---	---	---	2-5	---
Basin wildrye	ELCI2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	2-5	---
Goldenweed	HAPLO2	2-5	---	---	2-5	---	---
Phlox	PHLOX	2-5	---	---	2-5	---	---
Geranium	GERAN	---	2-5	---	---	---	---
Groundsel	SENEC	---	2-5	---	---	---	---
Lupine	LUPIN	---	2-5	---	---	---	---
Tailcup lupine	LUCA	---	---	---	---	20-40	---
Other perennial forbs	PPFF	---	---	---	---	---	5-15
Low sagebrush	ARAR8	5-15	---	---	5-15	---	---
Black sagebrush	ARARN	5-15	---	---	5-15	---	---
Mountain big sagebrush	ARVA2	1-5	5-10	---	1-5	---	5-10
Serviceberry	AMELA	---	5-10	---	---	---	5-10
Snowberry	SYMPH	---	2-10	---	---	---	2-10
Oceanspray	HOLOD	---	---	---	---	---	5-10
Threetip sagebrush	ARTR4	---	---	---	---	---	2-10
Currant	RIBES	---	---	---	---	---	2-5

Range site symbol	024X016N	024X032N	None	024X016N	025X028N	024X034N
Potential production (lb/acre):						
Favorable years	350	2,200	---	350	1,000	1,600
Normal years	250	1,700	---	250	800	1,300
Unfavorable years	150	1,200	---	150	500	800

3093--Packer-Layview-Hapgood 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			Inclusion number--			
		Packer	Layview	Hapgood	1	2	3	4
Idaho fescue	FEID	10-20	10-20	30-60	---	---	X	---
Webber ricegrass	STWE	5-10	5-10	---	---	---	---	5-10
Bottlebrush squirreltail	SIHY	5-10	5-10	---	---	---	---	---
Cusick bluegrass	POCU3	2-5	2-5	5-10	---	---	---	5-8
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---	5-8
Pine bluegrass	POSC	2-5	2-5	---	---	---	---	5-8
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	X	15-20
Mountain brome	BRCA5	---	---	2-5	---	---	---	---
Sedge	CAREX	---	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	---	30-50	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Bluegrass	POA++	---	---	---	---	---	X	---
Thurber needlegrass	STTH2	---	---	---	---	---	---	15-20
Other perennial grasses	PPGG	---	---	---	5-15	---	X	---
Goldenweed	HAPLO2	2-5	2-5	---	---	---	---	---
Phlox	PHLOX	2-5	2-5	---	---	---	---	1-3
Tapertip hawksbeard	CRAC2	---	---	1-3	---	---	X	---
Lupine	LUPIN	---	---	1-2	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	---	X	---
Balsamroot	BALSA	---	---	---	---	---	---	2-5
Eriogonum	ERIOG	---	---	---	---	---	---	1-3
Other perennial forbs	PPFF	---	---	---	5-10	---	X	---
Low sagebrush	ARAR8	5-15	5-15	---	---	---	---	20-30
Black sagebrush	ARARN	5-15	5-15	---	---	---	---	---
Mountain big sagebrush	ARVA2	1-5	1-5	5-15	---	---	---	---
Snowberry	SYMPH	---	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	X	---
Other shrubs	SSSS	---	---	---	5-10	---	X	---
Singleleaf pinyon	PIMO	---	---	---	---	---	X	---

Range site symbol	024X016N	024X016N	024X023N	028B024N	None	---	024X018N
Woodland site symbol	---	---	---	---	None	025X061N	---
Potential production (lb/acre):							
Favorable years	350	350	1,500	2,800	---	500	700
Normal years	250	250	1,200	1,700	---	375	500
Unfavorable years	150	150	900	1,000	---	250	300

3094--Packer-Hapgood-Torro 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			Inclusion number--			
		Packer	Hapgood	Torro	1	2	3	4
Idaho fescue	FEID	10-20	5-15	1-10	10-15	10-20	---	---
Webber ricegrass	STWE	5-10	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	5-10	---	2-5	---	5-10	---	---
Cusick bluegrass	POCU3	2-5	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	2-5	---	---
Pine bluegrass	POSC	2-5	---	---	---	2-5	---	---
Mountain brome	BRCA5	---	10-15	2-15	5-20	---	---	---
Slender wheatgrass	AGTR	---	20-30	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	5-10	20-50	---	---	---	---
Spike fescue	LEKI2	---	2-15	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-5	---	---	---	---
Letterman needlegrass	STLE4	---	---	---	5-10	---	---	---
Other perennial grasses	PPGG	---	---	---	5-15	---	---	---
Goldenweed	HAPLO2	2-5	---	---	---	2-5	---	---
Phlox	PHLOX	2-5	---	---	---	2-5	---	---
Geranium	GERAN	---	2-5	---	---	---	---	---
Groundsel	SENEC	---	2-5	---	---	---	---	---
Lupine	LUPIN	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	5-10	---	---	---
Low sagebrush	ARAR8	5-15	---	---	---	5-15	---	---
Black sagebrush	ARARN	5-15	---	---	---	5-15	---	---
Mountain big sagebrush	ARVA2	1-5	5-10	5-15	10-20	1-5	---	---
Serviceberry	AMELA	---	5-10	---	---	---	---	---
Snowberry	SYMPH	---	2-10	---	5-10	---	---	---
Utah serviceberry	AMUT	---	---	---	5-10	---	---	---

Range site symbol	024X016N	024X032N	024X029N	028B029N	024X016N	None	None
Potential production (lb/acre):							
Favorable years	350	2,200	1,500	1,500	350	---	---
Normal years	250	1,700	1,100	900	250	---	---
Unfavorable years	150	1,200	800	650	150	---	---

3101--Hackwood-Newlands-Hapgood 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			Inclusion number--		
		Hackwood	Newlands	Hapgood	1	2	3
Mountain brome	BRCA5	X	15-20	10-15	---	---	---
Idaho fescue	FEID	X	10-15	5-15	---	10-20	---
Letterman needlegrass	STLE4	---	5-10	---	60-70	---	---
Spike fescue	LEKI2	---	5-10	2-15	---	---	---
Slender wheatgrass	AGTR	X	---	20-30	2-5	---	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	X	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	---
Columbia needlegrass	STNE3	---	---	---	2-5	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	2-5	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	2-5	---
Other perennial grasses	PPGG	X	5-15	---	2-5	---	---
Geranium	GERAN	X	---	2-5	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---
Lupine	LUPIN	X	---	2-5	---	---	---
Tailcup lupine	LUCA	---	---	---	20-40	---	---
Goldenweed	HAPLO2	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	10-20	5-10	---	1-5	---
Utah serviceberry	AMUT	---	5-10	---	---	---	---
Snowberry	SYMPH	X	5-10	2-10	---	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---
Low sagebrush	ARAR8	---	---	---	---	5-15	---
Black sagebrush	ARARN	---	---	---	---	5-15	---
Big sagebrush	ARTRT2	X	---	---	---	---	---
Currant	RIBES	X	---	---	---	---	---
Quaking aspen	POTR5	X	---	---	---	---	---

Range site symbol	---	028B029N	024X032N	025X028N	024X016N	None
Woodland site symbol	025X065N	---	---	---	---	None
Potential production (lb/acre):						
Favorable years	800	1,500	2,200	1,000	350	---
Normal years	600	900	1,700	800	250	---
Unfavorable years	400	650	1,200	500	150	---

3111--Ninemile-Zoesta-Itca 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			Inclusion number--		
		Ninemile	Zoesta	Itca	1	2	3
Bluebunch wheatgrass	AGSP	5-15	2-5	X	---	---	1-3
Pine bluegrass	POSC	5-10	---	---	---	---	2-5
Thurber needlegrass	STTH2	2-5	5-15	---	---	---	---
Indian ricegrass	ORHY	2-5	5-10	---	---	---	5-15
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	5-10	---	---	---	---
Idaho fescue	FEID	---	---	X	---	---	---
Bluegrass	POA++	---	---	X	---	---	---
Basin wildrye	ELCI2	---	---	---	---	30-50	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	2-5	---
Needleandthread	STCO4	---	---	---	---	---	5-15
Other perennial grasses	PPGG	10-15	---	X	---	15-25	5-10
Tapertip hawksbeard	CRAC2	---	---	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Other perennial forbs	PPFF	10-15	5-10	X	---	2-5	5-15
Low sagebrush	ARAR8	25-30	25-30	---	---	---	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Black sagebrush	ARARN	---	---	---	---	---	20-25
Fourwing saltbush	ATCA2	---	---	---	---	---	2-5
Bud sagebrush	ARSP5	---	---	---	---	---	2-5
Other shrubs	SSSS	10-20	10-15	X	---	5-10	10-20
Singleleaf pinyon	PIMO	---	---	X	---	---	---

Range site symbol	028B037N	028B045N	---	None	028B003N	028B016N
Woodland site symbol	---	---	025X061N	None	---	---
Potential production (lb/acre):						
Favorable years	700	800	500	---	2,600	500
Normal years	500	600	375	---	1,250	250
Unfavorable years	300	400	250	---	800	150

3120--Walti-Softscrabble-Chad 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			Inclusion number--		
		Walti	Softscrabble	Chad	1	2	3
Bluebunch wheatgrass	AGSP	5-15	20-30	20-50	5-10	---	---
Pine bluegrass	POSC	5-10	---	---	5-10	---	---
Thurber needlegrass	STTH2	2-5	2-10	2-5	---	---	---
Indian ricegrass	ORHY	2-5	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---
Idaho fescue	FEID	---	20-40	1-10	10-15	---	---
Basin wildrye	ELCI2	---	2-15	5-10	---	---	---
Mountain brome	BRCA5	---	---	2-15	---	---	---
Other perennial grasses	PPGG	10-15	---	---	10-15	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	1-5	2-5	---	---	---
Other perennial forbs	PFFF	10-15	---	---	5-10	---	---
Low sagebrush	ARAR8	25-30	---	---	5-15	---	---
Mountain big sagebrush	ARVA2	---	5-15	5-15	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Other shrubs	SSSS	10-20	---	---	5-10	---	---

Range site symbol	028B037N	024X021N	024X029N	028B038N	None	None
Potential production (lb/acre):						
Favorable years	700	1,400	1,500	800	---	---
Normal years	500	1,000	1,100	600	---	---
Unfavorable years	300	700	800	400	---	---

3121--Walti-Softscrabble-Bucan association

Letter "T" means trace. 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			Inclusion number--			
		Walti	Softscrabble	Bucan	1	2	3	4
ah fescue	FEID	25-50	20-40	---	---	---	X	---
neinch wheatgrass	AGSP	15-30	20-30	40-60	---	---	---	---
er needlegrass	STTH2	2-10	2-10	5-10	---	---	---	---
lk fescue	LEKI2	2-10	---	---	---	---	---	---
si wildrye	ELCI2	---	2-15	2-5	30-50	---	---	---
uegrass	POA++	---	---	2-10	---	---	---	---
stcn wheatgrass	AGSM	---	---	---	5-10	---	---	---
wa bluegrass	PONE3	---	---	---	5-10	---	---	5-10
ftd hairgrass	DECA5	---	---	---	---	---	---	30-60
pie timothy	PHAL2	---	---	---	---	---	---	5-10
dc	CAREX	---	---	---	---	---	---	5-10
adw barley	HOBR2	---	---	---	---	---	---	2-5
the perennial grasses	PPGG	---	---	---	5-15	---	X	2-10
lsnroot	BALSA	2-5	---	---	---	---	---	---
petip hawksbeard	CRAC2	---	1-5	2-5	---	---	---	---
rleaf balsamroot	BASA3	---	1-5	2-5	---	---	---	---
lea clover	TRWO	---	---	---	---	---	---	2-5
ncefoil	POTEN	---	---	---	---	---	---	2-5
the perennial forbs	PPFF	---	---	---	5-10	---	X	10-20
ow sagebrush	ARAR8	10-20	---	---	---	---	---	---
ucas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
urain big sagebrush	ARVA2	---	5-15	T-5	---	---	---	---
rong big sagebrush	ARTRW*	---	---	5-10	---	---	---	---
as big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
blr rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
lw	SALIX	---	---	---	---	---	---	2-5
the shrubs	SSSS	---	---	---	5-10	---	X	2-5
ang aspen	POTR5	---	---	---	---	---	X	---

ane site symbol	024X027N	024X021N	024X028N	028B024N	None	---	025X065N	025X005N
oand site symbol	---	---	---	---	None	---	---	---
otential production (lb/acre):								
Favorable years	1,200	1,400	1,000	2,800	---	800	---	2,000
Normal years	800	1,000	700	1,700	---	600	---	1,700
Unfavorable years	600	700	500	1,000	---	400	---	1,000

3122--Walti-Sumine-Softscrabble 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			Inclusion number--			
		Walti	Sumine	Softscrabble	1	2	3	4
Idaho fescue	FEID	25-50	1-10	20-40	10-20	---	---	---
Bluebunch wheatgrass	AGSP	15-30	20-50	20-30	---	---	---	---
Thurber needlegrass	STTH2	2-10	2-5	2-10	---	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Basin wildrye	ELCI2	---	5-10	2-15	---	---	30-50	---
Mountain brome	BRCA5	---	2-15	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	5-10	---	---	---
Webber ricegrass	STWE	---	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	---	---	---	---	5-15	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	1-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	5-10	---
Low sagebrush	ARAR8	10-20	---	---	5-15	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	5-15	1-5	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	---	---	---	---	5-10	---

Range site symbol	024X027N	024X029N	024X021N	024X016N	None	028B024N	None
Potential production (lb/acre):							
Favorable years	1,200	1,500	1,400	350	---	2,800	---
Normal years	800	1,100	1,000	250	---	1,700	---
Unfavorable years	600	800	700	150	---	1,000	---

3123--Walti-Softscrabble-Itca 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			Inclusion number--		
		Walti	Softscrabble	Itca	1	2	3
Idaho fescue	FEID	25-50	20-40	X	---	1-10	10-20
Bluebunch wheatgrass	AGSP	15-30	20-30	X	---	20-50	---
Thurber needlegrass	STTH2	2-10	2-10	---	---	2-5	---
Spike fescue	LEKI2	2-10	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	5-10	5-10	---
Bluegrass	POA++	---	---	X	---	---	---
Slender wheatgrass	AGTR	---	---	---	1-10	---	---
Nodding brome	BRAN	---	---	---	1-10	---	---
Slender hairgrass	DEEL	---	---	---	2-5	---	---
Mountain brome	BRCA5	---	---	---	---	2-15	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	5-10
Webber ricegrass	STWE	---	---	---	---	---	5-10
Cusick bluegrass	POCU3	---	---	---	---	---	2-5
Sandberg bluegrass	POSE	---	---	---	---	---	2-5
Pine bluegrass	POSC	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	X	5-10	---	---
Balsamroot	BALSA	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	X	---	2-5	---
Arrowleaf balsamroot	BASA3	---	1-5	X	---	2-5	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5
Phlox	PHLOX	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	X	10-20	---	---
Low sagebrush	ARAR8	10-20	---	---	---	---	5-15
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	---	5-15	1-5
Big sagebrush	ARTR2	---	---	X	---	---	---
Woods rose	ROWO	---	---	---	5-10	---	---
Common chokecherry	PRVI	---	---	---	5-10	---	---
Snowberry	SYMPH	---	---	---	2-5	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15
Other shrubs	SSSS	---	---	X	5-10	---	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---

Range site symbol	024X027N	024X021N	---	028B025N	024X029N	024X016N
Woodland site symbol	---	---	025X061N	---	---	---
Potential production (lb/acre):						
Favorable years	1,200	1,400	500	1,700	1,500	350
Normal years	800	1,000	375	1,300	1,100	250
Unfavorable years	600	700	250	900	800	150

3125--Walti-Softscrabble-Robson 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			Inclusion number--			
		Walti	Softscrabble	Robson	1	2	3	4
Bluebunch wheatgrass	AGSP	5-15	20-30	2-5	---	5-10	---	---
Pine bluegrass	POSC	5-10	---	---	---	5-10	---	---
Thurber needlegrass	STTH2	2-5	2-10	5-15	---	---	---	---
Indian ricegrass	ORHY	2-5	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Idaho fescue	FEID	---	20-40	---	---	10-15	---	---
Basin wildrye	ELCI2	---	2-15	---	30-50	---	---	---
Sandberg bluegrass	POSE	---	---	5-10	---	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Other perennial grasses	PPGG	10-15	---	---	5-15	10-15	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	1-5	---	---	---	---	---
Other perennial forbs	PPFF	10-15	---	5-10	5-10	5-10	---	---
Low sagebrush	ARAR8	25-30	---	25-30	---	5-15	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Black sagebrush	ARARN	---	---	---	---	5-15	---	---
Other shrubs	SSSS	10-20	---	10-15	5-10	5-10	---	---

Range site symbol	028B037N	024X021N	028B045N	028B024N	028B038N	None	None
Potential production (lb/acre):							
Favorable years	700	1,400	800	2,800	800	---	---
Normal years	500	1,000	600	1,700	600	---	---
Unfavorable years	300	700	400	1,000	400	---	---

3130--Itca-Clan Alpine-Reluctan 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			Inclusion number--		
		Itca	Clan Alpine	Reluctan	1	2	3
Idaho fescue	FEID	X	X	20-40	---	---	---
Bluebunch wheatgrass	AGSP	X	X	20-30	15-20	---	10-20
Bluegrass	POA++	X	X	---	---	---	2-10
Basin wildrye	ELCI2	---	---	2-15	---	30-50	---
Thurber needlegrass	STTH2	---	---	2-10	15-20	---	5-15
Webber ricegrass	STWE	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	5-8	---	---
Pine bluegrass	POSC	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	5-8	---	---
Western wheatgrass	AGSM	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	---
Indian ricegrass	ORHY	---	---	---	---	---	2-10
Other perennial grasses	PPGG	X	X	---	---	5-15	---
Tapertip hawksbeard	CRAC2	X	X	1-5	---	---	2-5
Arrowleaf balsamroot	BASA3	X	X	1-5	---	---	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	1-3	---	---
Other perennial forbs	PPFF	X	X	---	---	5-10	5-15
Big sagebrush	ARTR2	X	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---
Low sagebrush	ARAR8	---	---	---	20-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Black sagebrush	ARARN	---	---	---	---	---	15-30
Other shrubs	SSSS	X	X	---	---	5-10	---
Singleleaf pinyon	PIMO	X	X	---	---	---	---

Range site symbol	---	---	024X021N	024X018N	028B024N	024X031N
Woodland site symbol	025X061N	025X061N	---	---	---	---
Potential production (lb/acre):						
Favorable years	500	500	1,400	700	2,800	700
Normal years	375	375	1,000	500	1,700	500
Unfavorable years	250	250	700	300	1,000	300

3131--Itca-Ninemile-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			Inclusion number--		
		Itca	Ninemile	Rock outcrop	1	2	3
Idaho fescue	FEID	X	---	---	---	---	---
Bluebunch wheatgrass	AGSP	X	5-15	---	15-20	10-15	---
Bluegrass	POA++	X	---	---	---	---	---
Pine bluegrass	POSC	---	5-10	---	5-8	---	---
Thurber needlegrass	STTH2	---	2-5	---	15-20	5-10	---
Indian ricegrass	ORHY	---	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---
Webber ricegrass	STWE	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	5-8	---	---
Basin wildrye	ELCI2	---	---	---	---	5-10	30-50
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Nevada bluegrass	PONE3	---	---	---	---	---	5-10
Other perennial grasses	PPGG	X	10-15	---	---	10-15	5-15
Tapertip hawksbeard	CRAC2	X	---	---	---	---	---
Arrowleaf balsamroot	BASA3	X	---	---	---	---	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	1-3	---	---
Other perennial forbs	PPFF	X	10-15	---	---	5-15	5-10
Big sagebrush	ARTR2	X	---	---	---	---	---
Low sagebrush	ARAR8	---	25-30	---	20-30	---	---
Mountain big sagebrush	ARVA2	---	---	---	---	15-25	---
Utah serviceberry	AMUT	---	---	---	---	3-10	---
Antelope bitterbrush	PUTR2	---	---	---	---	2-8	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	X	10-20	---	---	15-20	5-10
Singleleaf pinyon	PIMO	X	---	---	---	---	---
Range site symbol		---	028B037N	None	024X018N	028B027N	028B024N
Woodland site symbol		025X061N	---	None	---	---	---
Potential production (lb/acre):							
Favorable years		500	700	---	700	900	2,800
Normal years		375	500	---	500	600	1,700
Unfavorable years		250	300	---	300	300	1,000

3132--Itca-Softscrabble-Cleavage association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Itca	Softscrabble	Cleavage	1	2	3
Idaho fescue	FEID	X	20-40	10-20	X	25-50	---
Bluebunch wheatgrass	AGSP	X	20-30	---	X	15-30	---
Bluegrass	POA++	X	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	X	---	---
Thurber needlegrass	STTH2	---	2-10	---	X	2-10	---
Webber ricegrass	STWE	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---
Spike fescue	LEKI2	---	---	---	---	2-10	---
Other perennial grasses	PPGG	X	---	---	---	---	---
Tapertip hawksbeard	CRAC2	X	1-5	---	X	---	---
Arrowleaf balsamroot	BASA3	X	1-5	---	X	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	---	---	---	---	---
Big sagebrush	ARTR2	X	---	---	X	---	---
Mountain big sagebrush	ARVA2	---	5-15	1-5	---	---	---
Low sagebrush	ARAR8	---	---	5-15	---	10-20	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Snowberry	SYMPH	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Other shrubs	SSSS	X	---	---	---	---	---
Singleleaf pinyon	PIMO	X	---	---	X	---	---
Utah juniper	JUOS	---	---	---	X	---	---

Range site symbol	---	024X021N	024X016N	---	024X027N	None
Woodland site symbol	025X061N	---	---	025X062N	---	None
Potential production (lb/acre):						
Favorable years	500	1,400	350	500	1,200	---
Normal years	375	1,000	250	350	800	---
Unfavorable years	250	700	150	200	600	---

3134--Itca-Clanalpine-Torro 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			Inclusion number--			
		Itca	Clanalpine	Torro	1	2	3	4
Idaho fescue	FEID	X	X	1-10	20-40	---	25-50	---
Bluebunch wheatgrass	AGSP	X	X	20-50	20-30	---	15-30	---
Bluegrass	POA++	---	X	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	2-15	---	---	5-10
Mountain brome	BRCA5	---	---	2-15	---	---	---	---
Thurber needlegrass	STTH2	---	---	2-5	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Spike fescue	LEKI2	---	---	---	---	---	2-10	---
Slender wheatgrass	AGTR	---	---	---	---	---	---	1-10
Nodding brome	BRAN	---	---	---	---	---	---	1-10
Slender hairgrass	DEEL	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	X	X	---	---	---	---	5-10
Tapertip hawksbeard	CRAC2	X	X	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	X	X	2-5	1-5	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	X	---	---	---	---	10-20
Big sagebrush	ARTR2	X	X	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	5-15	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-20	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	2-5	---
Woods rose	ROWO	---	---	---	---	---	---	5-10
Common chokecherry	PRVI	---	---	---	---	---	---	5-10
Snowberry	SYMPH	---	---	---	---	---	---	2-5
Other shrubs	SSSS	X	X	---	---	---	---	5-10
Singleleaf pinyon	PIMO	X	X	---	---	---	---	---
Range site symbol		---	---	024X029N	024X021N	None	024X027N	028B025N
Woodland site symbol		025X061N	025X061N	---	---	None	---	---
Potential production (lb/acre):								
Favorable years		500	500	1,500	1,400	---	1,200	1,700
Normal years		375	375	1,100	1,000	---	800	1,300
Unfavorable years		250	250	800	700	---	600	900

3135--Itca-Clan Alpine-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			Inclusion number--		
		Itca	Clan Alpine	Rock outcrop	1	2	3
Idaho fescue	FEID	X	X	---	10-20	---	---
Bluebunch wheatgrass	AGSP	X	X	---	---	1-3	---
Bluegrass	POA++	X	X	---	---	---	10-30
Webber ricegrass	STWE	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	---	2-5	2-5	---
Indian ricegrass	ORHY	---	---	---	---	5-15	---
Needleandthread	STCO4	---	---	---	---	5-15	---
Thurber needlegrass	STTH2	---	---	---	---	---	10-20
Other perennial grasses	PPGG	X	X	---	---	5-10	2-10
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	2-5	---	---
Other perennial forbs	PPFF	X	X	---	---	5-15	5-10
Big sagebrush	ARTR2	X	X	---	---	---	15-25
Low sagebrush	ARAR8	---	---	---	5-15	---	---
Black sagebrush	ARARN	---	---	---	5-15	20-25	---
Mountain big sagebrush	ARVA2	---	---	---	1-5	---	---
Fourwing saltbush	ATCA2	---	---	---	---	2-5	---
Bud sagebrush	ARSP5	---	---	---	---	2-5	---
Other shrubs	SSSS	X	X	---	---	10-20	5-15
Singleleaf pinyon	PIMO	X	X	---	---	---	---

Range site symbol	---	---	None	024X016N	028B016N	027X054N
Woodland site symbol	025X061N	025X061N	None	---	---	---
Potential production (lb/acre):						
Favorable years	500	500	---	350	500	1,000
Normal years	375	375	---	250	250	800
Unfavorable years	250	250	---	150	150	600

3136--Itca-Roca-Reluctan association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Itca	Roca	Reluctan	1	2	3
Idaho fescue	FEID	X	---	20-40	---	---	---
Bluebunch wheatgrass	AGSP	X	40-60	20-30	---	---	---
Bluegrass	POA++	X	2-10	---	---	---	---
Thurber needlegrass	STTH2	---	5-10	2-10	---	---	---
Basin wildrye	ELCI2	---	2-5	2-15	50-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Indian ricegrass	ORHY	---	---	---	---	20-30	---
Needleandthread	STCO4	---	---	---	---	10-20	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	2-5	---
Other perennial grasses	PPGG	X	---	---	15-20	---	---
Tapertip hawksbeard	CRAC2	X	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	X	2-5	1-5	---	---	---
Other perennial forbs	PPFF	X	---	---	5-10	2-5	---
Big sagebrush	ARTR2	X	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	15-20	---
Mountain big sagebrush	ARVA2	---	T-5	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	X	---	---	2-5	5-15	---
Singleleaf pinyon	PIMO	X	---	---	---	---	---
Range site symbol	---	---	024X028N	024X021N	025X003N	028B010N	None
Woodland site symbol	025X061N	---	---	---	---	---	None
Potential production (lb/acre):							
Favorable years	500	1,000	1,400	2,500	800	---	
Normal years	375	700	1,000	1,900	600	---	
Unfavorable years	250	500	700	1,200	400	---	

3137--Itca-Reluctan-Walti 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			Inclusion number--			
		Itca	Reluctan	Walti	1	2	3	4
Idaho fescue	FEID	X	20-40	25-50	1-10	---	10-20	---
Bluebunch wheatgrass	AGSP	X	20-30	15-30	20-50	---	---	---
Bluegrass	POA++	X	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	---	5-10	---	---	50-60
Thurber needlegrass	STTH2	---	2-10	2-10	2-5	---	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---	---
Mountain brome	BRCA5	---	---	---	2-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	5-10	---
Webber ricegrass	STWE	---	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	X	---	---	---	---	---	15-20
Tapertip hawksbeard	CRAC2	X	1-5	---	2-5	---	---	---
Arrowleaf balsamroot	BASA3	X	1-5	---	2-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	X	---	---	---	---	---	5-10
Big sagebrush	ARTR2	X	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	5-15	---	1-5	---
Low sagebrush	ARAR8	---	---	10-20	---	---	5-15	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	X	---	---	---	---	---	2-5
Singleleaf pinyon	PIMO	X	---	---	---	---	---	---

Range site symbol	---	024X021N	024X027N	024X029N	None	024X016N	025X003N
Woodland site symbol	025X061N	---	---	---	None	---	---
Potential production (lb/acre):							
Favorable years	500	1,400	1,200	1,500	---	350	2,500
Normal years	375	1,000	800	1,100	---	250	1,900
Unfavorable years	250	700	600	800	---	150	1,200

3140--Sodhouse-Tenabo-Desatoya Variant 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			Inclusion number--		
		Sodhouse	Tenabo	Desatoya Variant	1	2	3
Bottlebrush squirreltail	SIHY	5-15	5-15	---	5-10	5-15	---
Indian ricegrass	ORHY	5-15	5-15	10-15	20-30	5-15	10-15
Sandberg bluegrass	POSE	2-5	2-5	---	2-5	2-5	---
Needleandthread	STC04	1-3	1-3	---	10-20	1-3	---
Thurber needlegrass	STTH2	---	---	10-15	---	---	10-15
Bluegrass	POA++	---	---	2-10	---	---	2-10
Other perennial grasses	PPGG	---	---	5-20	---	---	5-20
Globemallow	SPHAE	---	---	2-5	---	---	2-5
Other perennial forbs	PPFF	2-8	2-8	---	2-5	2-8	---
Shadscale	ATC0	30-40	30-40	---	---	30-40	---
Bud sagebrush	ARSP5	20-30	20-30	---	---	20-30	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	---
Winterfat	EULA5	2-5	2-5	---	---	2-5	---
Black sagebrush	ARARN	---	---	25-35	---	---	25-35
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	---
Other shrubs	SSSS	2-5	2-5	5-35	5-15	2-5	5-35

Range site symbol	024X002N	024X002N	024X030N	028B010N	024X002N	024X030N
Potential production (lb/acre):						
Favorable years	700	700	500	800	700	500
Normal years	450	450	350	600	450	350
Unfavorable years	300	300	250	400	300	250

3151--Robson-Ninemile-Ravenswood association

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			Inclusion number--			
		Robson	Ninemile	Ravenswood	1	2	3	4
amber needlegrass	STTH2	5-15	2-5	---	---	5-10	---	---
lan ricegrass	ORHY	5-10	2-5	---	---	---	---	---
berg bluegrass	POSE	5-10	---	---	---	---	---	---
bunch wheatgrass	AGSP	2-5	5-15	X	---	10-15	---	---
clebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
e bluegrass	POSC	---	5-10	---	---	---	---	---
o fescue	FEID	---	---	X	---	---	---	---
egrass	POA++	---	---	X	---	---	---	---
in wildrye	ELCI2	---	---	---	---	5-10	30-50	---
ada bluegrass	PONE3	---	---	---	---	---	2-5	---
tern wheatgrass	AGSM	---	---	---	---	---	2-5	---
er perennial grasses	PPGG	---	10-15	X	---	10-15	15-25	---
ertip hawksbeard	CRAC2	---	---	X	---	---	---	---
owleaf balsamroot	BASA3	---	---	X	---	---	---	---
er perennial forbs	PPFF	5-10	10-15	X	---	5-15	2-5	---
sagebrush	ARAR8	25-30	25-30	---	---	---	---	---
sagebrush	ARTR2	---	---	X	---	---	---	---
ntain big sagebrush	ARVA2	---	---	---	---	15-25	---	---
h serviceberry	AMUT	---	---	---	---	3-10	---	---
elope bitterbrush	PUTR2	---	---	---	---	2-8	---	---
in big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
er shrubs	SSSS	10-15	10-20	X	---	15-20	5-10	---
ngleleaf pinyon	PIMO	---	---	X	---	---	---	---

ge site symbol	028B045N	028B037N	---	None	028B027N	028B003N	None
ndland site symbol	---	---	025X061N	None	---	---	None
ential production (lb/acre):							
avorable years	800	700	500	---	900	2,600	---
ormal years	600	500	375	---	600	2,250	---
nfavorable years	400	300	250	---	300	800	---

3153--Robson-Locane-Softscrabble 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			Inclusion number--		
		Robson	Locane	Softscrabble	1	2	3
Bluebunch wheatgrass	AGSP	15-20	5-10	20-30	---	---	---
Thurber needlegrass	STTH2	15-20	20-50	2-10	---	---	---
Webber ricegrass	STWE	5-10	---	---	---	---	---
Sandberg bluegrass	POSE	5-8	---	---	---	---	---
Pine bluegrass	POSC	5-8	---	---	---	---	---
Cusick bluegrass	POCU3	5-8	---	---	---	---	---
Idaho fescue	FEID	---	---	20-40	---	---	---
Basin wildrye	ELCI2	---	---	2-15	30-50	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---
Other perennial grasses	PPGG	---	---	---	5-15	---	---
Balsamroot	BALSA	2-5	2-4	---	---	---	---
Eriogonum	ERIOG	1-3	---	---	---	---	---
Phlox	PHLOX	1-3	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	1-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	---	---	---
Other perennial forbs	PPFF	---	---	---	5-10	---	---
Low sagebrush	ARAR8	20-30	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	---	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Other shrubs	SSSS	---	2-10	---	5-10	---	---
Range site symbol		024X018N	024X005N	024X021N	028B024N	None	None
Potential production (lb/acre):							
Favorable years		700	800	1,400	2,800	---	---
Normal years		500	600	1,000	1,700	---	---
Unfavorable years		300	400	700	1,000	---	---

3154--Robson-Locane-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			Inclusion number--		
		Robson	Locane	Rock outcrop	1	2	3
Bluebunch wheatgrass	AGSP	15-20	5-10	---	---	15-30	X
Thurber needlegrass	STTH2	15-20	20-50	---	---	2-10	---
Webber ricegrass	STWE	5-10	---	---	---	---	---
Sandberg bluegrass	POSE	5-8	---	---	---	---	---
Pine bluegrass	POSC	5-8	---	---	---	---	---
Cusick bluegrass	POCU3	5-8	---	---	---	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Idaho fescue	FEID	---	---	---	---	25-50	X
Spike fescue	LEKI2	---	---	---	---	2-10	---
Bluegrass	POA++	---	---	---	---	---	X
Other perennial grasses	PPGG	---	---	---	15-20	---	X
Balsamroot	BALSA	2-5	2-4	---	---	2-5	---
Eriogonum	ERIOG	1-3	---	---	---	---	---
Phlox	PHLOX	1-3	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	---	X
Arrowleaf balsamroot	BASA3	---	---	---	---	---	X
Other perennial forbs	PPFF	---	---	---	5-10	---	X
Low sagebrush	ARAR8	20-30	---	---	---	10-20	---
Wyoming big sagebrush	ARTRW*	---	15-20	---	---	---	---
Downy rabbitbrush	CHVIP	---	2-5	---	---	---	---
Spiny hopsage	GRSP	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	---	X
Other shrubs	SSSS	---	2-10	---	2-5	---	X
Singleleaf pinyon	PIMO	---	---	---	---	---	X
Range site symbol		024X018N	024X005N	None	025X003N	024X027N	---
Woodland site symbol		---	---	None	---	---	025X061N
Potential production (lb/acre):							
Favorable years		700	800	---	2,500	1,200	500
Normal years		500	600	---	1,900	800	375
Unfavorable years		300	400	---	1,200	600	250

3155--Robson-Itca-Softscrabble association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Robson	Itca	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	15-20	X	20-30	20-30	---	---	X
Thurber needlegrass	STTH2	15-20	---	2-10	15-25	---	---	X
Webber ricegrass	STWE	5-10	---	---	---	---	---	---
Sandberg bluegrass	POSE	5-8	---	---	---	---	---	---
Pine bluegrass	POSC	5-8	---	---	---	---	---	---
Cusick bluegrass	POCU3	5-8	---	---	---	---	---	---
Idaho fescue	FEID	---	X	20-40	---	---	---	X
Bluegrass	POA++	---	X	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-15	---	---	30-50	X
Nevada bluegrass	PONE3	---	---	---	2-10	---	5-10	X
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	X	---	10-15	---	5-15	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Eriogonum	ERIOG	1-3	---	---	---	---	---	---
Phlox	PHLOX	1-3	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	X	1-5	2-5	---	---	X
Arrowleaf balsamroot	BASA3	---	X	1-5	2-5	---	---	X
Other perennial forbs	PPFF	---	X	---	2-5	---	5-10	---
Low sagebrush	ARAR8	20-30	---	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	10-15	---	---	X
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	0-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Snowberry	SYMPH	---	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	---	X
Other shrubs	SSSS	---	X	---	5-10	---	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---	X
Utah juniper	JUOS	---	---	---	---	---	---	X

Range site symbol	024X018N	---	024X021N	025X014N	None	028B024N	---
Woodland site symbol	---	025X061N	---	---	None	---	025X062N

Potential production (lb/acre):							
Favorable years	700	500	1,400	1,000	---	2,800	500
Normal years	500	375	1,000	800	---	1,700	350
Unfavorable years	300	250	700	600	---	1,000	200

3170--Teguro-Rubble land-Punchbowl 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			Inclusion number--		
		Teguro	Rubble land	Punchbowl	1	2	3
Bluebunch wheatgrass	AGSP	X	---	---	---	X	---
Basin wildrye	ELCI2	X	---	---	---	X	---
Thurber needlegrass	STTH2	X	---	10-15	10-15	X	---
Nevada bluegrass	PONE3	X	---	---	---	X	---
Idaho fescue	FEID	X	---	---	---	X	---
Indian ricegrass	ORHY	---	---	10-15	10-15	---	---
Bluegrass	POA++	---	---	2-10	2-10	---	---
Other perennial grasses	PPGG	---	---	5-20	5-20	---	---
Tapertip hawksbeard	CRAC2	X	---	---	---	X	---
Arrowleaf balsamroot	BASA3	X	---	---	---	X	---
Globemallow	SPHAE	---	---	2-5	2-5	---	---
Big sagebrush	ARTR2	X	---	---	---	X	---
Snowberry	SYMPH	X	---	---	---	X	---
Currant	RIBES	X	---	---	---	X	---
Black sagebrush	ARARN	---	---	25-35	25-35	---	---
Other shrubs	SSSS	---	---	5-35	5-35	---	---
Singleleaf pinyon	PIMO	X	---	---	---	X	---
Utah juniper	JUOS	X	---	---	---	X	---

Range site symbol	---	None	024X030N	024X030N	---	None
Woodland site symbol	025X062N	None	---	---	025X062N	None
Potential production (lb/acre):						
Favorable years	500	---	500	500	500	---
Normal years	350	---	350	350	350	---
Unfavorable years	200	---	250	250	200	---

3181--Newlands-Packer-Hapgood association, moderately steep

[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			Inclusion number--		
		Newlands	Packer	Hapgood	1	2	3
Mountain brome	BRCA5	15-20	---	10-15	---	---	---
Idaho fescue	FEID	10-15	10-20	5-15	10-20	---	X
Letterman needlegrass	STLE4	5-10	---	---	---	---	---
Spike fescue	LEKI2	5-10	---	2-15	---	---	---
Webber ricegrass	STWE	---	5-10	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-10	---	---
Cusick bluegrass	POCU3	---	2-5	---	2-5	---	---
Sandberg bluegrass	POSE	---	2-5	---	2-5	---	---
Pine bluegrass	POSC	---	2-5	---	2-5	---	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	X
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	X
Nevada bluegrass	PONE3	---	---	2-5	---	---	---
Mountain brome	BRCA5	---	---	---	---	---	X
Other perennial grasses	PPGG	5-15	---	---	---	---	X
Goldenweed	HAPLO2	---	2-5	---	2-5	---	---
Phlox	PHLOX	---	2-5	---	2-5	---	---
Geranium	GERAN	---	---	2-5	---	---	X
Groundsel	SENEC	---	---	2-5	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	X
Horsemint	AGUR	---	---	---	---	---	X
Columbine	AQUIL	---	---	---	---	---	X
Meadowrue	THALI2	---	---	---	---	---	X
Sweet cicely	OSMOR	---	---	---	---	---	X
Other perennial forbs	PPFF	5-10	---	---	---	---	X
Mountain big sagebrush	ARVA2	10-20	1-5	5-10	1-5	---	---
Utah serviceberry	AMUT	5-10	---	---	---	---	---
Snowberry	SYMPH	5-10	---	2-10	---	---	X
Low sagebrush	ARAR8	---	5-15	---	5-15	---	---
Black sagebrush	ARARN	---	5-15	---	5-15	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	X
Other shrubs	SSSS	---	---	---	---	---	X
Quaking aspen	POTR5	---	---	---	---	---	X

Range site symbol	028B029N	024X016N	024X032N	024X016N	None	---
Woodland site symbol	---	---	---	---	None	025X065N
Potential production (lb/acre):						
Favorable years	1,500	350	2,200	350	---	800
Normal years	900	250	1,700	250	---	600
Unfavorable years	650	150	1,200	150	---	400

3182--Newlands-Packer-Hapgood association, strongly sloping

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Newlands	Packer	Hapgood	1	2	3
Mountain brome	BRCA5	15-20	---	10-15	---	---	---
Idaho fescue	FEID	10-15	10-20	5-15	---	10-20	---
Letterman needlegrass	STLE4	5-10	---	---	---	---	---
Spike fescue	LEKI2	5-10	---	2-15	---	---	---
Webber ricegrass	STWE	---	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	5-10	---
Cusick bluegrass	POCU3	---	2-5	---	---	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---
Pine bluegrass	POSC	---	2-5	---	---	2-5	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	---	---	---	---	2-10
Goldenweed	HAPLO2	---	2-5	---	---	2-5	---
Phlox	PHLOX	---	2-5	---	---	2-5	---
Geranium	GERAN	---	---	2-5	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	---	---	---	---	10-20
Mountain big sagebrush	ARVA2	10-20	1-5	5-10	---	1-5	---
Utah serviceberry	AMUT	5-10	---	---	---	---	---
Snowberry	SYMPH	5-10	---	2-10	---	---	---
Low sagebrush	ARAR8	---	5-15	---	---	5-15	---
Black sagebrush	ARARN	---	5-15	---	---	5-15	---
Serviceberry	AMELA	---	---	5-10	---	---	---
Willow	SALIX	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	2-5

Range site symbol	028B029N	024X016N	024X032N	None	024X016N	025X005N
Potential production (lb/acre):						
Favorable years	1,500	350	2,200	---	350	2,000
Normal years	900	250	1,700	---	250	1,700
Unfavorable years	650	150	1,200	---	150	1,000

3190--Softscrabble-Clanalpine-Walti 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			Inclusion number--			
		Softscrabble	Clanalpine	Walti	1	2	3	4
Idaho fescue	FEID	20-40	X	25-50	X	---	10-20	---
Bluebunch wheatgrass	AGSP	20-30	X	15-30	X	---	---	---
Basin wildrye	ELCI2	2-15	---	---	X	20-40	---	---
Thurber needlegrass	STTH2	2-10	---	2-10	X	---	---	---
Bluegrass	POA++	---	X	---	---	---	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	X	---	---	---
Webber ricegrass	STWE	---	---	---	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Sandberg bluegrass	POSE	---	---	---	---	---	2-5	---
Pine bluegrass	POSC	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	---	X	---	---	---	---	---
Tapertip hawksbeard	CRAC2	1-5	X	---	X	---	---	---
Arrowleaf balsamroot	BASA3	1-5	X	---	X	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	X	---	---	2-8	---	---
Mountain big sagebrush	ARVA2	5-15	---	---	---	---	1-5	---
Big sagebrush	ARTR2	---	X	---	X	---	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	5-15	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---	---
Snowberry	SYMPH	---	---	---	X	---	---	---
Currant	RIBES	---	---	---	X	---	---	---
Torrey quailbush	ATTO	---	---	---	---	30-50	---	---
Black greasewood	SAVE4	---	---	---	---	5-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	2-10	---	---
Black sagebrush	ARARN	---	---	---	---	---	5-15	---
Other shrubs	SSSS	---	X	---	---	---	---	---
Singleleaf pinyon	PIMO	---	X	---	X	---	---	---
Utah juniper	JUOS	---	---	---	X	---	---	---

Range site symbol	024X021N	---	024X027N	---	024X015N	024X016N	None
Woodland site symbol	---	025X061N	---	025X027N	---	---	None
Potential production (lb/acre):							
Favorable years	1,400	500	1,200	500	1,500	350	---
Normal years	1,000	375	800	350	1,200	250	---
Unfavorable years	700	250	600	200	800	150	---

3192--Softscrabble-Walti-Cleavage association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Softscrabble	Walti	Cleavage	1	2	3	4
Idaho fescue	FEID	20-40	25-50	10-20	X	1-10	---	---
Bluebunch wheatgrass	AGSP	20-30	15-30	---	X	20-50	---	---
Basin wildrye	ELCI2	2-15	---	---	---	5-10	---	---
Thurber needlegrass	STTH2	2-10	2-10	---	---	2-5	---	---
Spike fescue	LEKI2	---	2-10	---	---	---	---	---
Webber ricegrass	STWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	2-5	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---	---
Bluegrass	POA++	---	---	---	X	---	---	---
Mountain brome	BRCA5	---	---	---	---	2-15	---	---
Other perennial grasses	PPGG	---	---	---	X	---	---	---
Tapertip hawksbeard	CRAC2	1-5	---	---	X	2-5	---	---
Arrowleaf balsamroot	BASA3	1-5	---	---	X	2-5	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	X	---	---	---
Mountain big sagebrush	ARVA2	5-15	---	1-5	---	5-15	---	---
Low sagebrush	ARAR8	---	10-20	5-15	---	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Big sagebrush	ARTR2	---	---	---	X	---	---	---
Other shrubs	SSSS	---	---	---	X	---	---	---
Singleleaf pinyon	PIMO	---	---	---	X	---	---	---

Range site symbol	024X021N	024X027N	024X016N	---	024X029N	None	None
Woodland site symbol	---	---	---	025X061N	---	None	None
Potential production (lb/acre):							
Favorable years	1,400	1,200	350	500	1,500	---	---
Normal years	1,000	800	250	375	1,100	---	---
Unfavorable years	700	600	150	250	800	---	---

3200--Dewar gravelly loam, 2 to 8 percent slopes

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Dewar	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site symbol		028B010N	028B010N	028B010N	028B010N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

3210--Typic Argixerolls-Torripsammentic Haploxerolls-Glean 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			Inclusion number--		
		Typic Argixerolls	Torripsammentic Haploxerolls	Glean	1	2	3
Idaho fescue	FEID	20-40	X	30-60	20-40	---	---
Bluebunch wheatgrass	AGSP	20-30	X	5-10	20-30	20-30	---
Basin wildrye	ELCI2	2-15	---	---	2-15	---	---
Thurber needlegrass	STTH2	2-10	---	---	2-10	15-25	---
Bluegrass	POA++	---	X	---	---	---	---
Cusick bluegrass	POCU3	---	---	5-10	---	---	---
Mountain brome	BRCA5	---	---	2-5	---	---	---
Sedge	CAREX	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-10	---
Other perennial grasses	PPGG	---	X	---	---	10-15	---
Tapertip hawksbeard	CRAC2	1-5	X	1-3	1-5	2-5	---
Arrowleaf balsamroot	BASA3	1-5	X	---	1-5	2-5	---
Lupine	LUPIN	---	---	1-2	---	---	---
Other perennial forbs	PPFF	---	X	---	---	2-5	---
Mountain big sagebrush	ARVA2	5-15	---	5-15	5-15	---	---
Big sagebrush	ARTR2	---	X	---	---	10-15	---
Snowberry	SYMPH	---	---	2-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	0-10	---
Other shrubs	SSSS	---	X	---	---	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---
Range site symbol		024X021N	---	024X023N	024X021N	025X014N	None
Woodland site symbol		---	025X061N	---	---	---	None
Potential production (lb/acre):							
Favorable years		1,400	500	1,500	1,400	1,000	---
Normal years		1,000	375	1,200	1,000	800	---
Unfavorable years		700	250	900	700	600	---

3231--Stingdorn-Hooplite 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			Inclusion number--		
		Stingdorn, moderately steep	Stingdorn, moderately sloping	Hooplite	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	5-15	---
Needleandthread	STCO4	5-10	5-10	5-15	---	5-15	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	1-3	---	1-3	---
Galleta	HIJA	---	---	---	5-20	---	---
Needlegrass	STIPA	---	---	---	5-10	---	---
Other perennial grasses	PPGG	5-10	5-10	5-10	5-10	5-10	---
Perennial forbs	PPFF	5-10	5-10	5-15	5-10	5-15	---
Shadscale	ATCO	30-40	30-40	---	15-25	---	---
Bud sagebrush	ARSP5	5-10	5-10	2-5	---	2-5	---
Winterfat	EULA5	2-5	2-5	---	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	2-5	---	2-5	---
Black sagebrush	ARARN	---	---	20-25	---	20-25	---
Bailey greasewood	SAVEB	---	---	---	5-15	---	---
Nevada ephedra	EPNE	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	10-20	10-20	10-20	---

Range site symbol	028B017N	028B017N	028B016N	029X022N	028B016N	None
Potential production (lb/acre):						
Favorable years	700	700	500	300	500	---
Normal years	500	500	250	200	250	---
Unfavorable years	250	250	150	100	150	---

3251--Caphor-Tenabo-Spasprey 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			Inclusion number--	
		Caphor	Tenabo	Spasprey	1	2
Indian ricegrass	ORHY	5-15	5-15	20-30	20-30	15-25
Needleandthread	STCO4	5-10	5-10	10-20	10-20	---
Bottlebrush squirreltail	SIHY	2-5	2-5	5-10	5-10	2-5
Sandberg bluegrass	POSE	---	---	2-5	2-5	---
Thurber needlegrass	STTH2	---	---	---	---	5-10
Other perennial grasses	PPGG	5-10	5-10	---	---	---
Scarlet globemallow	SPCO	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	5-10	2-5	2-5	---
Shadscale	ATCO	30-40	30-40	---	---	---
Bud sagebrush	ARSP5	5-10	5-10	---	---	5-10
Winterfat	EULA5	2-5	2-5	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	15-20	15-25
Spiny hopsage	GRSP	---	---	---	---	20-30
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10

Range site symbol	028B017N	028B017N	028B010N	028B010N	028B052N
Potential production (lb/acre):					
Favorable years	700	700	800	800	600
Normal years	500	500	600	600	400
Unfavorable years	250	250	400	400	300

3252--Caphor-Batan-Unsel association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Caphor	Batan	Unsel	1	2
Bottlebrush squirreltail	SIHY	5-10	5-10	2-5	5-10	---
Galleta	HIJA	---	---	10-25	---	---
Indian ricegrass	ORHY	---	---	5-10	---	---
Desert needlegrass	STSP3	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	50-60
Western wheatgrass	AGSM	---	---	---	---	5-15
Other perennial grasses	PPGG	T-10	T-10	---	T-10	---
Perennial forbs	PPFF	2-8	2-8	4-10	2-8	2-8
Shadscale	ATCO	30-50	30-50	10-25	30-50	---
Black greasewood	SAVE4	15-30	15-30	---	15-30	2-10
Bud sagebrush	ARSP5	5-15	5-15	5-10	5-15	---
Seepweed	SUAED	2-15	2-15	---	2-15	---
Bailey greasewood	SAVEB	---	---	5-15	---	---
Winterfat	EULA5	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-20
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5

Range site symbol	024X003N	024X003N	029X017N	024X003N	024X006N
Potential production (lb/acre):					
Favorable years	600	600	350	600	1,500
Normal years	450	450	250	450	1,100
Unfavorable years	300	300	100	300	600

3253--Caphor association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Caphor	Caphor, moderately saline	1	2
Indian ricegrass	ORHY	5-15	---	20-30	5-15
Needleandthread	STCO4	5-10	---	10-20	---
Bottlebrush squirreltail	SIHY	2-5	5-10	5-10	2-10
Sandberg bluegrass	POSE	---	---	2-5	2-5
Other perennial grasses	PPGG	5-10	T-10	---	---
Globemallow	SPHAE	---	---	---	1-4
Phlox	PHLOX	---	---	---	1-4
Other perennial forbs	PPFF	5-10	2-8	2-5	---
Shadscale	ATCO	30-40	30-50	---	2-5
Bud sagebrush	ARSP5	5-10	5-15	---	20-30
Winterfat	EULA5	2-5	---	---	20-40
Fourwing saltbush	ATCA2	2-5	---	---	---
Black greasewood	SAVE4	---	15-30	---	---
Seepweed	SUAED	---	2-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---
Other shrubs	SSSS	5-15	---	5-15	---

Range site symbol	028B017N	024X003N	028B010N	024X014N
Potential production (lb/acre):				
Favorable years	700	600	800	400
Normal years	500	450	600	300
Unfavorable years	250	300	400	200

3270--Koyen fine sandy loam, 2 to 4 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions	
		Soil name	Inclusion number--
		Koyen	1
Galleta	HIJA	10-25	---
Indian ricegrass	ORHY	5-10	5-10
Bottlebrush squirreltail	SIHY	2-5	---
Desert needlegrass	STSP3	2-5	---
Other perennial grasses	PPGG	---	5-10
Perennial forbs	PPFF	4-10	2-6
Shadscale	ATCO	10-25	---
Bailey greasewood	SAVEB	5-15	2-10
Bud sagebrush	ARSP5	5-10	---
Winterfat	EULA5	5-10	---
Rubber rabbitbrush	CHNA2	---	10-25
Fourwing saltbush	ATCA2	---	5-15
Burrobrush	HYMEN3	---	5-10
Littleleaf horsebrush	TEGL	---	5-10
Other shrubs	SSSS	---	10-20

Range site symbol

029X017N

029X041N

Potential production (lb/acre):

Favorable years

350

500

Normal years

250

300

Unfavorable years

100

100

3310--Spasprey-Allor 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		Inclusion number--		
		Spasprey	Allor	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	5-15	10-20
Needleandthread	STCO4	10-20	10-20	10-20	---	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	2-10
Sandberg bluegrass	POSE	2-5	2-5	2-5	---	---
Pine bluegrass	POSC	---	---	---	5-15	---
Other perennial grasses	PPGG	---	---	---	5-10	---
Perennial forbs	PPFF	2-5	2-5	2-5	5-10	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	10-20	---
Spiny hopsage	GRSP	---	---	---	10-20	---
Nevada ephedra	EPNE	---	---	---	5-10	---
Winterfat	EULA5	---	---	---	---	60-70
Bud sagebrush	ARSP5	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	---	---

Range site symbol	028B010N	028B010N	028B010N	027X008N	024X004N
Potential production (lb/acre):					
Favorable years	800	800	800	700	500
Normal years	600	600	600	500	350
Unfavorable years	400	400	400	300	200

3312--Spasprey-Bufferan-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Spasprey	Bufferan	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	15-25	15-30
Needleandthread	STCO4	10-20	10-20	10-20	10-20	5-10	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	---	---	---	2-5	---
Thurber needlegrass	STTH2	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	---	5-15
Globemallow	SPHAE	---	---	---	---	---	2-4
Other perennial forbs	PPFF	2-5	2-5	2-5	2-5	5-10	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---	15-30
Black sagebrush	ARARN	---	---	---	---	20-30	---
Winterfat	EULA5	---	---	---	---	5-10	---
Bud sagebrush	ARSP5	---	---	---	---	2-5	---
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Shadscale	ATCO	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	---	2-5

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B011N	024X045N
Potential production (lb/acre):						
Favorable years	800	800	800	800	950	350
Normal years	600	600	600	600	700	200
Unfavorable years	400	400	400	400	400	100

3314--Spasprey-Allor-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Spasprey	Allor	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	20-30	5-15
Needleandthread	STCO4	10-20	10-20	10-20	10-20	10-20	1-3
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	5-10	5-15
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	15-20	---
Shadscale	ATCO	---	---	---	---	---	30-40
Bud sagebrush	ARSP5	---	---	---	---	---	20-30
Spiny hopsage	GRSP	---	---	---	---	---	2-5
Winterfat	EULA5	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	2-5

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B010N	024X002N
Potential production (lb/acre):						
Favorable years	800	800	800	800	800	700
Normal years	600	600	600	600	600	450
Unfavorable years	400	400	400	400	400	300

3341--Halacan-Hatur-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			Inclusion number--	
		Halacan	Hatur	Rock outcrop	1	2
Idaho fescue	FEID	10-20	10-15	---	30-60	---
Webber ricegrass	STWE	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	5-10	---
Sandberg bluegrass	POSE	2-5	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---
Mountain brome	BRCA5	---	15-20	---	---	---
Letterman needlegrass	STLE4	---	5-10	---	---	---
Spike fescue	LEKI2	---	5-10	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	2-10	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Western wheatgrass	AGSM	---	---	---	---	5-10
Nevada bluegrass	PONE3	---	---	---	---	5-10
Other perennial grasses	PPGG	---	5-15	---	---	5-15
Goldenweed	HAPLO2	2-5	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-10	---	---	5-10
Low sagebrush	ARAR8	5-15	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	10-20	---
Mountain big sagebrush	ARVA2	1-5	10-20	---	---	---
Utah serviceberry	AMUT	---	5-10	---	---	---
Snowberry	SYMPH	---	5-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-10

Range site symbol	024X016N	028B029N	None	24X042N	028B024N
Potential production (lb/acre):					
Favorable years	350	1,500	---	1,000	2,800
Normal years	250	900	---	800	1,700
Unfavorable years	150	650	---	500	1,000

3342--Halacan-Hapgood-Granzan 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			Inclusion number--			
		Halacan	Hapgood	Granzan	1	2	3	4
Idaho fescue	FEID	10-20	5-15	---	30-60	---	---	---
Webber ricegrass	STWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	5-10	---	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---	---
Mountain brome	BRCAS	---	10-15	---	---	---	---	---
Slender wheatgrass	AGTR	---	20-30	---	---	---	2-5	---
Bluebunch wheatgrass	AGSP	---	5-10	10-15	2-10	---	---	---
Spike fescue	LEKI2	---	2-15	---	---	---	---	---
Bulbous oniongrass	MEBU	---	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	---	---	---	---
Letterman needlegrass	STLE4	---	---	---	---	---	60-70	---
Columbia needlegrass	STNE3	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	---	---	10-15	---	---	2-5	---
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Geranium	GERAN	---	2-5	---	---	---	---	---
Groundsel	SENEC	---	2-5	---	---	---	---	---
Lupine	LUPIN	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---	---
Tailcup lupine	LUCA	---	---	---	---	---	20-40	---
Other perennial forbs	PPFF	---	---	5-15	---	---	---	---
Low sagebrush	ARAR8	5-15	---	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	10-20	---	---	---
Mountain big sagebrush	ARVA2	1-5	5-10	15-25	---	---	---	---
Serviceberry	AMELA	---	5-10	---	---	---	---	---
Snowberry	SYMPH	---	2-10	---	---	---	---	---
Thurber needlegrass	STTH2	---	---	5-10	---	---	---	---
Utah serviceberry	AMUT	---	---	3-10	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	2-8	---	---	---	---
Other shrubs	SSSS	---	---	15-20	---	---	---	---

Range site symbol	024X016N	024X032N	028B027N	024X042N	None	025X028N	None
Potential production (lb/acre):							
Favorable years	350	2,200	900	1,000	---	1,000	---
Normal years	250	1,700	600	800	---	800	---
Unfavorable years	150	1,200	300	500	---	500	---

3411--Zoesta-Robson-Softscrabble 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			Inclusion number--			
		Zoesta	Robson	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	15-20	15-20	20-30	---	15-30	---	---
Thurber needlegrass	STTH2	15-20	15-20	2-10	---	2-10	---	---
Webber ricegrass	STWE	5-10	5-10	---	---	---	---	5-10
Sandberg bluegrass	POSE	5-8	5-8	---	---	---	---	2-5
Pine bluegrass	POSC	5-8	5-8	---	---	---	---	2-5
Cusick bluegrass	POCU3	5-8	5-8	---	---	---	---	2-5
Idaho fescue	FEID	---	---	20-40	---	25-50	---	10-20
Basin wildrye	ELCI2	---	---	2-15	30-50	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	---	---	---
Spike fescue	LEKI2	---	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	5-15	---	---	---
Balsamroot	BALSA	2-5	2-5	---	---	2-5	---	---
Eriogonum	ERIOG	1-3	1-3	---	---	---	---	---
Phlox	Phlox	1-3	1-3	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	---	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	5-10	---	---	---
Low sagebrush	ARAR8	20-30	20-30	---	---	10-20	---	5-15
Mountain big sagebrush	ARVA2	---	---	5-15	---	---	---	1-5
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---	---
Black sagebrush	ARARN	---	---	---	---	---	---	5-15
Other shrubs	SSSS	---	---	---	5-10	---	---	---

Range site symbol	024X018N	024X018N	024X021N	028B024N	024X027N	None	024X016M
Potential production (lb/acre):							
Favorable years	700	700	1,400	2,800	1,200	---	350
Normal years	500	500	1,000	1,700	800	---	250
Unfavorable years	300	300	700	1,000	600	---	150

3415--Zoesta-Handy 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		Inclusion number--		
		Zoesta	Handy	1	2	3
Bluebunch wheatgrass	AGSP	15-20	20-30	20-30	---	15-20
Thurber needlegrass	STTH2	15-20	15-25	15-25	---	15-20
Webber ricegrass	STWE	5-10	---	---	---	5-10
Sandberg bluegrass	POSE	5-8	---	---	---	5-8
Pine bluegrass	POSC	5-8	---	---	---	5-8
Cusick bluegrass	POCU3	5-8	---	---	---	5-8
Nevada bluegrass	PONE3	---	2-10	2-10	5-15	---
Basin wildrye	ELCI2	---	---	---	50-60	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Balsamroot	BALSA	2-5	---	---	---	2-5
Other perennial grasses	PPGG	---	10-15	10-15	15-20	---
Eriogonum	ERIOG	1-3	---	---	---	1-3
Phlox	PHOLX	1-3	---	---	---	1-3
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	2-5	---	---
Other perennial forbs	PPFF	---	2-5	2-5	5-10	---
Low sagebrush	ARAR8	20-30	---	---	---	20-30
Big sagebrush	ARTR2	---	10-15	10-15	---	---
Antelope bitterbrush	PUTR2	---	0-10	0-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	---	5-10	5-10	2-5	---

Range site symbol	024X018N	025X014N	025X014N	025X003N	024X018N
Potential production (lb/acre):					
Favorable years	700	1,000	1,000	2,500	700
Normal years	500	800	800	1,900	500
Unfavorable years	300	600	600	1,200	300

3417--Zoesta-Roca-Softscrabble association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Zoesta	Roca	Softscrabble	1	2	3
Bluebunch wheatgrass	AGSP	15-20	40-60	20-30	---	20-30	15-20
Thurber needlegrass	STTH2	15-20	5-10	2-10	---	15-25	15-20
Webber ricegrass	STWE	5-10	---	---	---	---	5-10
Sandberg bluegrass	POSE	5-8	---	---	---	---	5-8
Pine bluegrass	POSC	5-8	---	---	---	---	5-8
Cusick bluegrass	POCU3	5-8	---	---	---	---	5-8
Bluegrass	POA++	---	2-10	---	---	---	---
Basin wildrye	ELCI2	---	2-5	2-15	30-50	---	---
Idaho fescue	FEID	---	---	20-40	---	---	---
Western wheatgrass	AGSM	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	5-10	2-10	---
Other perennial grasses	PPGG	---	---	---	5-15	10-15	---
Balsamroot	BALSA	2-5	---	---	---	---	2-5
Eriogonum	ERIOG	1-3	---	---	---	---	1-3
Phlox	PHLOX	1-3	---	---	---	---	1-3
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	1-5	---	2-5	---
Other perennial forbs	PPFF	---	---	---	5-10	2-5	---
Low sagebrush	ARAR8	20-30	---	---	---	---	20-30
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---
Mountain big sagebrush	ARVA2	---	T-5	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---
Big sagebrush	ARTR2	---	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	---	---	0-10	---
Other shrubs	SSSS	---	---	---	5-10	5-10	---

Range site symbol	024X018N	024X028N	024X021N	028B024N	025X014N	024X018N
Potential production (lb/acre):						
Favorable years	700	1,000	1,400	2,800	1,000	700
Normal years	500	700	1,000	1,700	800	500
Unfavorable years	300	500	700	1,000	600	300

3421--Belate-Softscrabble-Torro 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			Inclusion number--			
		Belate	Softscrabble	Torro	1	2	3	4
Idaho fescue	FEID	25-50	20-40	1-10	10-20	---	---	---
Bluebunch wheatgrass	AGSP	15-30	20-30	20-50	---	---	---	---
Thurber needlegrass	STTH2	2-10	2-10	2-5	---	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-15	5-10	---	30-50	---	---
Mountain brome	BRCA5	---	---	2-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	5-10	---	---	---
Webber ricegrass	STWE	---	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---	---
Western wheatgrass	AGSM	---	---	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	5-15	---	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	1-5	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	---	5-10	---	10-20
Low sagebrush	ARAR8	10-20	---	---	5-15	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	5-15	1-5	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10	---	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	5-10	---	2-5

Range site symbol	024X027N	024X021N	024X029N	024X016N	028B024N	None	025X005N
Potential production (lb/acre):							
Favorable years	1,200	1,400	1,500	350	2,800	---	2,000
Normal years	800	1,000	1,100	250	1,700	---	1,700
Unfavorable years	600	700	800	150	1,000	---	1,000

3422--Belate-Robson-Torro 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			Inclusion number--			
		Belate	Robson	Torro	1	2	3	4
Idaho fescue	FEID	25-50	---	1-10	20-40	---	---	---
Bluebunch wheatgrass	AGSP	15-30	15-20	20-50	20-30	---	---	---
Thurber needlegrass	STTH2	2-10	15-20	2-5	2-10	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Webber ricegrass	STWE	---	5-10	---	---	---	---	---
Sandberg bluegrass	POSE	---	5-8	---	---	---	---	---
Pine bluegrass	POSC	---	5-8	---	---	---	---	---
Cusick bluegrass	POCU3	---	5-8	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	2-15	---	30-50	---
Mountain brome	BRCA5	---	---	2-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	5-15	2-10
Balsamroot	BALSA	2-5	2-5	---	---	---	---	---
Eriogonum	ERIOG	---	1-3	---	---	---	---	---
Phlox	PHLOX	---	1-3	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	1-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	---	---	5-10	10-20
Low sagebrush	ARAR8	10-20	20-30	---	---	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	---	5-15	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	5-10	2-5

Range site symbol	024X027N	024X018N	024X029N	024X021N	None	028B024N	025X005N
Potential production (lb/acre):							
Favorable years	1,200	700	1,500	1,400	---	2,800	2,000
Normal years	800	500	1,100	1,000	---	1,700	1,700
Unfavorable years	600	300	800	700	---	1,000	1,000

3423--Belate-Cleavage-Softscrabble 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			Inclusion number--			
		Belate	Cleavage	Softscrabble	1	2	3	4
Idaho fescue	FEID	25-50	10-20	20-40	1-10	---	---	---
Bluebunch wheatgrass	AGSP	15-30	---	20-30	20-50	---	---	---
Thurber needlegrass	STTH2	2-10	---	2-10	2-5	---	---	---
Spike fescue	LEKI2	2-10	---	---	---	---	---	---
Webber ricegrass	STWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	2-5	---	---	---	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	---	---	---
Pine bluegrass	POSC	---	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-15	5-10	---	30-50	---
Mountain brome	BRCA5	---	---	---	2-15	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	---	5-15	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	1-5	2-5	---	---	---
Perennial forbs	PPFF	---	---	---	---	---	5-10	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	---	---	---	---	---	10-20
Low sagebrush	ARAR8	10-20	5-15	---	---	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	1-5	5-15	5-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	5-10	2-5

Range site symbol	024X027N	024X016N	024X021N	024X029N	None	028B024N	025X005N
Potential production (lb/acre):							
Favorable years	1,200	350	1,400	1,500	---	2,800	2,000
Normal years	800	250	1,000	1,100	---	1,700	1,700
Unfavorable years	600	150	700	800	---	1,000	1,000

3450--Reluctan-Robson-Cleavage association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Reluctan	Robson	Cleavage	1	2	3	4
Idaho fescue	FEID	20-40	---	10-20	---	---	---	---
Bluebunch wheatgrass	AGSP	20-30	15-20	---	---	---	---	10-20
Basin wildrye	ELCI2	2-15	---	---	---	---	30-50	---
Thurber needlegrass	STTH2	2-10	15-20	---	---	---	---	5-15
Webber ricegrass	STWE	---	5-10	5-10	---	---	---	---
Sandberg bluegrass	POSE	---	5-8	2-5	---	---	---	---
Pine bluegrass	POSC	---	5-8	2-5	---	---	---	---
Cusick bluegrass	POCU3	---	5-8	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Indian ricegrass	ORHY	---	---	---	---	---	---	2-10
Bluegrass	POA++	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	---	---	---	5-15	---
Tapertip hawksbeard	CRAC2	1-5	---	---	---	---	---	2-5
Arrowleaf balsamroot	BASA3	1-5	---	---	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Eriogonum	ERIOG	---	1-3	---	---	---	---	---
Phlox	PHLOX	---	1-3	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	5-10	5-15
Mountain big sagebrush	ARVA2	5-15	---	1-5	---	---	---	---
Low sagebrush	ARAR8	---	20-30	5-15	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	15-30
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	---	---	---	---	5-10	---

Range site symbol	024X021N	024X018N	024X016N	None	None	028B024N	024X031N
Potential production (lb/acre):							
Favorable years	1,400	700	350	---	---	2,800	700
Normal years	1,000	500	250	---	---	1,700	500
Unfavorable years	700	300	150	---	---	1,000	300

3453--Reluctan-Locane-Itca 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			Inclusion number--			
		Reluctan	Locane	Itca	1	2	3	4
Idaho fescue	FEID	20-40	---	X	20-40	---	---	---
Bluebunch wheatgrass	AGSP	20-30	15-25	X	20-30	15-20	---	---
Basin wildrye	ELCI2	2-15	---	---	2-15	---	30-50	---
Thurber needlegrass	STTH2	2-10	15-25	---	2-10	15-20	---	---
Bluegrass	POA++	---	---	X	---	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---	---
Pine bluegrass	POSC	---	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	10-20	X	---	---	5-15	---
Tapertip hawksbeard	CRAC2	1-5	2-5	X	1-5	---	---	---
Arrowleaf balsamroot	BASA3	1-5	2-5	X	1-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	---	1-3	---	---
Other perennial forbs	PPFF	---	2-10	X	---	---	5-10	---
Mountain big sagebrush	ARVA2	5-15	5-10	---	5-15	---	---	---
Wyoming big sagebrush	ARTRW*	---	5-10	---	---	---	---	---
Big sagebrush	ARTR2	---	---	X	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	2-10	X	---	---	5-10	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---	---

Range site symbol	024X021N	024X035N	---	024X021N	024X018N	028B024N	None
Woodland site symbol	---	---	025X061N	---	---	---	---
Potential production (lb/acre):							
Favorable years	1,400	500	500	1,400	700	2,800	---
Normal years	1,000	400	375	1,000	500	1,700	---
Unfavorable years	700	250	250	700	300	1,000	---

3455--Reluctan-Roca-Colbar association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Reluctan	Roca	Colbar	1	2	3
Idaho fescue	FEID	20-40	---	---	---	20-40	---
Bluebunch wheatgrass	AGSP	20-30	40-60	5-10	---	20-30	2-10
Basin wildrye	ELCI2	2-15	2-5	---	---	2-15	---
Thurber needlegrass	STTH2	2-10	5-10	20-50	---	2-10	10-20
Bluegrass	POA++	---	2-10	---	---	---	---
Indian ricegrass	ORHY	---	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-10
Tapertip hawksbeard	CRAC2	1-5	2-5	2-4	---	1-5	---
Arrowleaf balsamroot	BASA3	1-5	2-5	---	---	1-5	---
Balsamroot	BALSA	---	---	2-4	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	2-8
Mountain big sagebrush	ARVA2	5-15	T-5	---	---	5-15	---
Wyoming big sagebrush	ARTRW*	---	5-10	15-20	---	---	15-25
Downy rabbitbrush	CHVIP	---	---	2-5	---	---	2-5
Spiny hopsage	GRSP	---	---	2-5	---	---	2-10
Ephedra	EPHED	---	---	---	---	---	2-10
Other shrubs	SSSS	---	---	2-10	---	---	---

Range site symbol	024X021N	024X028N	024X005N	None	024X021N	024X047N
Potential production (lb/acre):						
Favorable years	1,400	1,000	800	---	1,400	400
Normal years	1,000	700	600	---	1,000	300
Unfavorable years	700	500	400	---	700	150

3457--Reluctan-Clanalpine-Roca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Reluctan	Clanalpine	Roca	1	2	3
Idaho fescue	FEID	20-40	X	---	---	---	---
Bluebunch wheatgrass	AGSP	20-30	X	40-60	10-20	---	20-30
Basin wildrye	ELCI2	2-15	---	2-5	---	---	---
Thurber needlegrass	STTH2	2-10	---	5-10	5-15	---	15-25
Bluegrass	POA++	---	X	2-10	2-10	---	---
Indian ricegrass	ORHY	---	---	---	2-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	2-10
Other perennial grasses	PPGG	---	X	---	---	---	10-15
Tapertip hawksbeard	CRAC2	1-5	X	2-5	2-5	---	2-5
Arrowleaf balsamroot	BASA3	1-5	X	2-5	---	---	2-5
Other perennial forbs	PPFF	---	X	---	5-15	---	2-5
Mountain big sagebrush	ARVA2	5-15	---	T-5	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	10-15
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	---	---
Black sagebrush	ARARN	---	---	---	15-30	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	---	0-10
Other shrubs	SSSS	---	X	---	---	---	5-10
Singleleaf pinyon	PIMO	---	X	---	---	---	---

Range site symbol	024X021N	---	024X028N	024X031N	None	025X014N
Woodland site symbol	---	025X061N	---	---	None	---
Potential production (lb/acre):						
Favorable years	1,400	500	1,000	700	---	1,000
Normal years	1,000	375	700	500	---	800
Unfavorable years	700	250	500	300	---	600

3461--Torro-Rubble land-Cleavage association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Torro	Rubble land	Cleavage	1	2	3
Bluebunch wheatgrass	AGSP	20-50	---	---	20-30	---	5-15
Basin wildrye	ELCI2	5-10	---	---	2-15	---	2-5
Mountain brome	BRCA5	2-15	---	---	---	---	5-10
Thurber needlegrass	STTH2	2-5	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	5-10	---	---	---
Idaho fescue	FEID	1-10	---	10-20	20-40	---	5-15
Webber ricegrass	STWE	---	---	5-10	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	2-5
Sandberg bluegrass	POSE	---	---	2-5	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	---	---
Slender wheatgrass	AGTR	---	---	---	---	---	2-5
Letterman needlegrass	STLE4	---	---	---	---	---	2-5
Nevada bluegrass	PONE3	---	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	2-5	---	---	1-5	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	1-5	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	5-15
Mountain big sagebrush	ARVA2	5-15	---	1-5	5-15	---	5-10
Low sagebrush	ARAR8	---	---	5-15	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Serviceberry	AMELA	---	---	---	---	---	5-10
Oceanspray	HOLOD	---	---	---	---	---	5-10
Snowberry	SYMPH	---	---	---	---	---	2-10
Threetip sagebrush	ARTR4	---	---	---	---	---	2-10
Currant	RIBES	---	---	---	---	---	2-5

Range site symbol	024X029N	None	024X016N	024X021N	None	024X034N
Potential production (lb/acre):						
Favorable years	1,500	---	350	1,400	---	1,600
Normal years	1,100	---	250	1,000	---	1,300
Unfavorable years	800	---	150	700	---	800

3462--Torro-Reluctan-Cleavage association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Torro	Reluctan	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	20-30	---	---	20-30	20-50	---
Basin wildrye	ELCI2	5-10	2-15	---	---	2-15	5-10	50-60
Mountain brome	BRCA5	2-15	---	---	---	---	2-15	---
Thurber needlegrass	STTH2	2-5	2-10	---	---	2-10	2-5	---
Bottlebrush squirreltail	SIHY	2-5	---	5-10	---	---	2-5	---
Idaho fescue	FEID	1-10	20-40	10-20	---	20-40	1-10	---
Webber ricegrass	STWE	---	---	5-10	---	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Sandberg bluegrass	POSE	---	---	2-5	---	---	---	---
Fine bluegrass	POSC	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	---	---	---	---	---	---	15-20
Tapertip hawksbeard	CRAC2	2-5	1-5	---	---	1-5	2-5	---
Arrowleaf balsamroot	BASA3	2-5	1-5	---	---	1-5	2-5	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	---	---	---	---	---	---	5-10
Mountain big sagebrush	ARVA2	5-15	5-15	1-5	---	5-15	5-15	---
Low sagebrush	ARAR8	---	---	5-15	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	---	---	---	---	---	---	2-5

Range site symbol	024X029N	024X021N	024X016N	None	024X021N	024X029N	025X003N
Potential production (lb/acre):							
Favorable years	1,500	1,400	350	---	1,400	1,500	2,500
Normal years	1,100	1,000	250	---	1,000	1,100	1,900
Unfavorable years	800	700	150	---	700	800	1,200

3463--Torro-Clanalpine-Itca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Torro	Clanalpine	Itca	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	X	X	---	40-60	---	---
Basin wildrye	ELCI2	5-10	---	---	---	2-5	---	---
Mountain brome	BRCA5	2-15	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	5-10	---	---	---
Idaho fescue	FEID	1-10	X	X	---	---	---	---
Bluegrass	POA++	---	X	X	---	2-10	---	---
Indian ricegrass	ORHY	---	---	---	20-30	---	---	---
Needleandthread	STCO4	---	---	---	10-20	---	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---	---
Other perennial grasses	PPGG	---	X	X	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	X	X	---	2-5	---	---
Arrowleaf balsamroot	BASA3	2-5	X	X	---	2-5	---	---
Other perennial forbs	PPFF	---	X	X	2-5	---	---	---
Mountain big sagebrush	ARVA2	5-15	---	---	---	T-5	---	---
Big sagebrush	ARTR2	---	X	X	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	5-10	---	---
Other shrubs	SSSS	---	X	X	5-15	---	---	---
Singleleaf pinyon	PIMO	---	X	X	---	---	---	---

Range site symbol	024X029N	---	---	028B010N	024X028N	None	None
Woodland site symbol	---	025X061N	025X061N	---	---	None	None
Potential production (lb/acre):							
Favorable years	1,500	500	500	800	1,000	---	---
Normal years	1,100	375	375	600	700	---	---
Unfavorable years	800	250	250	400	500	---	---

3464--Torro-Itca-Softscrabble association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Torro	Itca	Softscrabble	1	2	3	4
Bluebunch wheatgrass	AGSP	20-50	X	20-30	---	15-20	---	---
Basin wildrye	ELCI2	5-10	---	2-15	---	---	30-50	---
Mountain brome	BRCA5	2-15	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	---	2-10	---	15-20	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Idaho fescue	FEID	1-10	X	20-40	---	---	---	---
Bluegrass	POA++	---	X	---	---	---	---	---
Webber ricegrass	STWE	---	---	---	---	5-10	---	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---	---
Pine bluegrass	POSC	---	---	---	---	5-8	---	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	X	---	---	---	5-15	---
Tapertip hawksbeard	CRAC2	2-5	X	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	X	1-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	---	1-3	---	---
Phlox	PHLOX	---	---	---	---	1-3	---	---
Other perennial forbs	PPFF	---	X	---	---	---	5-10	---
Mountain big sagebrush	ARVA2	5-15	---	5-15	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	---	X	---	---	---	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---	---

Range site symbol	024X029N	---	024X021N	None	024X018N	028B024N	None
Woodland site symbol	---	025X061N	---	None	---	---	None
Potential production (lb/acre):							
Favorable years	1,500	500	1,400	---	700	2,800	---
Normal years	1,100	375	1,000	---	500	1,700	---
Unfavorable years	800	250	700	---	300	1,000	---

3465--Torro-Clanalpine-Softscrabble association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Torro	Clanalpine	Softscrabble	1	2	3
Bluebunch wheatgrass	AGSP	20-50	X	2-5	---	X	5-15
Basin wildrye	ELCI2	5-10	---	---	---	---	---
Mountain brome	BRCA5	2-15	---	---	---	---	---
Thurber needlegrass	STTH2	2-5	---	---	---	---	2-5
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	2-5
Idaho fescue	FEID	1-10	X	50-65	---	X	---
Bluegrass	POA++	---	X	---	---	X	---
Pine bluegrass	POSC	---	---	10-15	---	---	5-10
Cusick bluegrass	POCU3	---	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	---	---	---	2-5
Other perennial grasses	PPGG	---	X	5-10	---	X	10-15
Tapertip hawksbeard	CRAC2	2-5	X	---	---	X	---
Arrowleaf balsamroot	BASA3	2-5	X	---	---	X	---
Other perennial forbs	PPFF	---	X	5-10	---	X	10-15
Mountain big sagebrush	ARVA2	5-15	---	5-10	---	---	---
Big sagebrush	ARTR2	---	X	---	---	X	---
Low sagebrush	ARAR8	---	---	---	---	---	25-30
Other shrubs	SSSS	---	X	2-5	---	X	10-20
Singleleaf pinyon	PIMO	---	X	---	---	X	---
Range site symbol		024X029N	---	028B049N	None	---	028B037N
Woodland site symbol		---	025X061N	---	None	025X061N	---
Potential production (lb/acre):							
Favorable years		1,500	500	1,200	---	500	700
Normal years		1,100	375	1,000	---	375	500
Unfavorable years		800	250	800	---	250	300

3562--Locane-Coztur-Punchbowl 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			Inclusion number--		
		Locane	Coztur	Punchbowl	1	2	3
Thurber needlegrass	STTH2	20-50	15-25	---	15-25	15-20	---
Bluebunch wheatgrass	AGSP	5-10	20-30	1-3	20-30	15-20	---
Nevada bluegrass	PONE3	---	2-10	---	2-10	---	---
Indian ricegrass	ORHY	---	---	5-15	---	---	---
Needleandthread	STCO4	---	---	5-15	---	---	---
Pine bluegrass	POSC	---	---	2-5	---	5-8	---
Webber ricegrass	STWE	---	---	---	---	5-10	---
Sandberg bluegrass	POSE	---	---	---	---	5-8	---
Cusick bluegrass	POCU3	---	---	---	---	5-8	---
Other perennial grasses	PPGG	---	10-15	5-10	10-15	---	---
Balsamroot	BALSA	2-4	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	2-4	2-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	2-5	---	---
Eriogonum	ERIOG	---	---	---	---	1-3	---
Phlox	PHLOX	---	---	---	---	1-3	---
Other perennial forbs	PPFF	---	2-5	5-15	2-5	---	---
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	0-10	---	0-10	---	---
Black sagebrush	ARARN	---	---	20-25	---	---	---
Fourwing saltbush	ATCA2	---	---	2-5	---	---	---
Bud sagebrush	ARSP5	---	---	2-5	---	---	---
Low sagebrush	ARAR8	---	---	---	---	20-30	---
Other shrubs	SSSS	2-10	5-10	10-20	5-10	---	---

Range site symbol	024X005N	025X014N	028B016N	025X014N	024X018N	None
Potential production (lb/acre):						
Favorable years	800	1,000	500	1,000	700	---
Normal years	600	800	250	800	500	---
Unfavorable years	400	600	150	600	300	---

3563--Locane-Muni 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			Inclusion number--		
		Locane	Muni	Locane, eroded	1	2	3
Thurber needlegrass	STTH2	20-50	---	X	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	X	1-3	---	---
Indian ricegrass	ORHY	---	20-30	---	5-15	2-10	---
Needleandthread	STCO4	---	10-20	---	5-15	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---
Basin wildrye	ELCI2	---	---	X	---	10-20	---
Nevada bluegrass	PONE3	---	---	X	---	---	---
Idaho fescue	FEID	---	---	X	---	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---
Other perennial grasses	PPGG	---	---	---	5-10	---	---
Balsamroot	BALSA	2-4	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	---	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Other perennial forbs	PPFF	---	2-5	---	5-15	---	---
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	15-30	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Snowberry	SYMPH	---	---	X	---	---	---
Currant	RIBES	---	---	X	---	---	---
Black sagebrush	ARARN	---	---	---	20-25	---	---
Fourwing saltbush	ATCA2	---	---	---	2-5	---	---
Bud sagebrush	ARSP5	---	---	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-25	---
Black greasewood	SAVE4	---	---	---	---	2-10	---
Anderson peachbrush	PRAN2	---	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Other shrubs	SSSS	2-10	5-15	---	10-20	---	---
Singleleaf pinyon	PIMO	---	---	X	---	---	---
Utah juniper	JUOS	---	---	X	---	---	---

Range site symbol	024X005N	028B010N	---	028B016N	024X041N	None
Woodland site symbol	---	---	025X062N	---	---	None
Potential production (lb/acre):						
Favorable years	800	800	500	500	1,000	---
Normal years	600	600	350	250	800	---
Unfavorable years	400	400	200	150	600	---

3625--Minat-Coztur-Belate 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			Inclusion number--		
		Minat	Coztur	Belate	1	2	3
Thurber needlegrass	STTH2	20-50	15-25	2-10	15-25	---	---
Bluebunch wheatgrass	AGSP	5-10	20-30	15-30	20-30	---	---
Nevada bluegrass	PONE3	---	2-10	---	2-10	---	5-10
Idaho fescue	FEID	---	---	25-50	---	---	---
Spike fescue	LEKI2	---	---	2-10	---	---	---
Basin wildrye	ELCI2	---	---	---	---	---	30-50
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	10-15	---	10-15	---	5-15
Balsamroot	BALSA	2-4	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	2-5	---	---
Other perennial forbs	PPFF	---	2-5	---	2-5	---	5-10
Wyoming big sagebrush	ARTRW*	15-20	---	---	---	---	---
Downy rabbitbrush	CHVIP	2-5	---	---	---	---	---
Spiny hopsage	GRSP	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	0-10	---	0-10	---	---
Low sagebrush	ARAR8	---	---	10-20	---	---	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	5-10	---	5-10	---	5-10

Range site symbol	024X005N	025X014N	024X027N	025X014N	None	028B024N
Potential production (lb/acre):						
Favorable years	800	1,000	1,200	1,000	---	2,800
Normal years	600	800	800	800	---	1,700
Unfavorable years	400	600	600	600	---	1,000

3690--Izod-Koynik-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			Inclusion number--	
		Izod	Koynik	Rock outcrop	1	2
Indian ricegrass	ORHY	10-15	2-5	---	---	5-15
Thurber needlegrass	STTH2	10-15	---	---	20-50	---
Bluegrass	POA++	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-10	---	---	---
Desert needlegrass	STSP3	---	2-10	---	---	---
Sandberg bluegrass	POSE	---	1-3	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	5-10	1-3
Needleandthread	STCO4	---	---	---	---	5-15
Pine bluegrass	POSC	---	---	---	---	2-5
Other perennial grasses	PPGG	5-20	---	---	---	5-10
Globemallow	SPHAE	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	---	2-4	---
Other perennial forbs	PPFF	---	2-8	---	---	5-15
Black sagebrush	ARARN	25-35	---	---	---	20-25
Shadscale	ATCO	---	30-50	---	---	---
Bud sagebrush	ARSP5	---	15-30	---	---	2-5
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	2-5	---
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	5-35	---	---	2-10	10-20

Range site symbol	024X030N	024X025N	None	024X005N	028B016N
Potential production (lb/acre):					
Favorable years	500	250	---	800	500
Normal years	350	150	---	600	250
Unfavorable years	250	75	---	400	150

3740--Kelk silt loam, saline

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Kelk	1	2	3
Basin wildrye	ELCI2	5-20	50-60	---	20-40
Bottlebrush squirreltail	SIHY	2-5	---	5-15	---
Indian ricegrass	ORHY	2-5	---	5-15	---
Western wheatgrass	AGSM	---	5-15	---	---
Sandberg bluegrass	POSE	---	---	2-5	---
Needleandthread	STCO4	---	---	1-3	---
Thelypody	THELY	2-4	---	---	---
Other perennial forbs	PPFF	---	2-8	2-8	2-8
Black greasewood	SAVE4	20-30	2-10	---	5-15
Basin big sagebrush	ARTRT*	5-15	15-20	---	2-10
Wyoming big sagebrush	ARTRW*	5-10	---	---	---
Spiny hopsage	GRSP	5-15	---	2-5	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Shadscale	ATCO	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	20-30	---
Winterfat	EULA5	---	---	2-5	---
Torrey quailbush	ATTO	---	---	---	30-50
Other shrubs	SSSS	---	---	2-5	---

Range site symbol	024X022N	024X006N	024X002N	024X015N
Potential production (lb/acre):				
Favorable years	800	1,500	700	1,500
Normal years	600	1,100	450	1,200
Unfavorable years	350	600	300	800

3741--Kelk-Settlemeier association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Kelk	Settlemeier	1	2	3
Basin wildrye	ELCI2	50-60	30-50	20-40	---	---
Western wheatgrass	AGSM	5-15	2-5	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Slender hairgrass	DEEL	---	---	---	---	10-20
Streambank wheatgrass	AGRI	---	---	---	---	2-5
Thickspike wheatgrass	AGDA	---	---	---	---	2-5
Rush	JUNCU	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	5-10
Other perennial grasses	PPGG	---	15-25	---	T-10	---
Perennial forbs	PPFF	2-8	2-5	2-8	2-8	5-10
Basin big sagebrush	ARTRT*	15-20	5-10	2-10	---	---
Black greasewood	SAVE4	2-10	---	5-15	15-30	---
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---
Torrey quailbush	ATTO	---	---	30-50	---	---
Shadscale	ATCO	---	---	---	30-50	---
Bud sagebrush	ARSP5	---	---	---	5-15	---
Seepweed	SUAED	---	---	---	2-15	---
Woods rose	ROWO	---	---	---	---	5-10
Currant	RIBES	---	---	---	---	5-10
Common chokecherry	PRVI	---	---	---	---	2-5
Skunkbush sumac	RHTR	---	---	---	---	2-5
Utah serviceberry	AMUT	---	---	---	---	2-5
Other shrubs	SSSS	---	5-10	---	---	5-10

Range site symbol	024X006N	028B003N	024X015N	024X003N	028B033N
Potential production (lb/acre):					
Favorable years	1,500	2,600	1,500	600	1,600
Normal years	1,100	1,250	1,200	450	1,200
Unfavorable years	600	800	800	300	800

3742--Kelk-Ocala association

[The letter "T" means trace. Absence of an entry means that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Kelk	Ocala	1	2	3
Basin wildrye	ELCI2	50-60	40-60	---	5-15	30-50
Western wheatgrass	AGSM	5-15	---	---	---	2-5
Alkali sacaton	SPAI	---	15-30	---	---	---
Inland saltgrass	DISPS2	---	5-10	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	T-10	---	15-25
Perennial forbs	PPFF	2-8	---	2-8	T-5	2-5
Basin big sagebrush	ARTRT*	15-20	---	---	---	5-10
Black greasewood	SAVE4	2-10	5-15	15-30	60-75	---
Rubber rabbitbrush	CHNA2	2-5	1-2	---	---	---
Alkali rabbitbrush	CHAL9	---	1-2	---	---	---
Shadscale	ATCO	---	---	30-50	---	---
Bud sagebrush	ARSP5	---	---	5-15	---	---
Seepweed	SUAED	---	---	2-15	---	---
Other shrubs	SSSS	---	---	---	---	5-10

Range site symbol	024X006N	024X007N	024X003N	024X011N	028B003N
Potential production (lb/acre):					
Favorable years	1,500	1,900	600	500	2,600
Normal years	1,100	1,400	450	350	1,250
Unfavorable years	600	800	300	200	800

3840--Jung-Newpass 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			Inclusion number--		
		Jung, moderately steep	Newpass	Jung, strongly sloping	1	2	3
Bluegrass	POA++	10-40	---	10-40	---	---	---
Thurber needlegrass	STTH2	2-10	---	2-10	---	---	---
Pine bluegrass	POSC	---	5-15	---	---	5-15	---
Indian ricegrass	ORHY	---	5-15	---	5-15	5-15	---
Bottlebrush squirreltail	SIHY	---	5-10	---	5-15	5-10	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Needleandthread	STCO4	---	---	---	1-3	---	---
Other perennial grasses	PPGG	5-10	5-10	5-10	---	5-10	---
Perennial forbs	PPFF	5-10	5-10	5-10	2-8	5-10	---
Black sagebrush	ARARN	20-30	---	20-30	---	---	---
Shadscale	ATCO	5-10	---	5-10	30-40	---	---
Wyoming big sagebrush	ARTRW*	---	10-20	---	---	10-20	---
Spiny hopsage	GRSP	---	10-20	---	2-5	10-20	---
Nevada ephedra	EPNE	---	5-10	---	---	5-10	---
Bud sagebrush	ARSP5	---	---	---	20-30	---	---
Winterfat	EULA5	---	---	---	2-5	---	---
Other shrubs	SSSS	5-10	---	5-10	2-5	---	---

Range site symbol	027X032N	027X008N	027X032N	024X002N	027X008N	None
Potential production (lb/acre):						
Favorable years	600	700	600	700	700	---
Normal years	400	500	400	450	500	---
Unfavorable years	200	300	200	300	300	---

3841--Jung-Itca-Roca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Jung	Itca	Roca	1	2	3
Indian ricegrass	ORHY	5-15	---	---	---	---	---
Needleandthread	STCO4	5-15	---	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	20-30	---
Bluebunch wheatgrass	AGSP	---	X	40-60	20-30	---	---
Bluegrass	POA++	---	X	2-10	---	---	---
Idaho fescue	FEID	---	X	---	---	---	---
Thurber needlegrass	STTH2	---	---	5-10	15-25	5-10	---
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---
Other perennial grasses	PPGG	---	X	---	10-15	5-15	---
Tapertip hawksbeard	CRAC2	---	X	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	X	2-5	2-5	---	---
Other perennial forbs	PPFF	5-15	X	---	2-5	5-10	---
Black sagebrush	ARARN	20-25	---	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	10-15	---	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	10-20	---
Mountain big sagebrush	ARVA2	---	---	T-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	0-10	---	---
Spiny hopsage	GRSP	---	---	---	---	5-15	---
Nevada ephedra	EPNE	---	---	---	---	5-10	---
Other shrubs	SSSS	10-20	X	---	5-10	5-10	---
Singleleaf pinyon	PIMO	---	X	---	---	---	---

Range site symbol	028B016N	---	024X028N	025X014N	027X007N	None
Woodland site symbol	---	025X061N	---	---	---	None
Potential production (lb/acre):						
Favorable years	500	500	1,000	1,000	600	---
Normal years	250	375	700	800	450	---
Unfavorable years	150	250	500	600	300	---

3842--Jung-Hooplite 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		Inclusion number--		
		Jung	Hooplite	1	2	3
Indian ricegrass	ORHY	5-15	5-15	5-15	---	5-15
Needleandthread	STC04	5-15	5-15	1-3	---	1-3
Pine bluegrass	POSC	2-5	2-5	---	---	---
Bluebunch wheatgrass	AGSP	1-3	1-3	---	---	---
Bottlebrush squirreltail	SIHY	---	---	5-15	---	5-15
Sandberg bluegrass	POSE	---	---	2-5	---	2-5
Other perennial grasses	PPGG	5-10	5-10	---	---	---
Perennial forbs	PPFF	5-15	5-15	2-8	---	2-8
Black sagebrush	ARARN	20-25	20-25	---	---	---
Fourwing saltbush	ATCA2	2-5	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	2-5	20-30	---	20-30
Shadscale	ATCO	---	---	30-40	---	30-40
Spiny hopsage	GRSP	---	---	2-5	---	2-5
Winterfat	EULA5	---	---	2-5	---	2-5
Other shrubs	SSSS	10-20	10-20	2-5	---	2-5

Range site symbol	028B016N	028B016N	024X002N	None	024X002N
Potential production (lb/acre):					
Favorable years	500	500	700	---	700
Normal years	250	250	450	---	450
Unfavorable years	150	150	300	---	300

3843--Jung-Newpass-Teguro 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			Inclusion number--		
		Jung	Newpass	Teguro	1	2	3
Bluegrass	POA++	10-40	---	---	X	---	X
Thurber needlegrass	STTH2	2-10	---	X	---	---	---
Pine bluegrass	POSC	---	5-15	---	---	---	---
Indian ricegrass	ORHY	---	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---
Bluebunch wheatgrass	AGSP	---	---	X	X	---	X
Basin wildrye	ELCI2	---	---	X	---	---	---
Nevada bluegrass	PONE3	---	---	X	---	---	---
Idaho fescue	FEID	---	---	X	X	---	X
Other perennial grasses	PPGG	5-10	5-10	---	X	---	X
Tapertip hawksbeard	CRAC2	---	---	X	X	---	X
Arrowleaf balsamroot	BASA3	---	---	X	X	---	X
Other perennial forbs	PPFF	5-10	5-10	---	X	---	X
Black sagebrush	ARARN	20-30	---	---	---	---	---
Shadscale	ATCO	5-10	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-20	---	---	---	---
Spiny hopsage	GRSP	---	10-20	---	---	---	---
Nevada ephedra	EPNE	---	5-10	---	---	---	---
Big sagebrush	ARTR2	---	---	X	X	---	X
Snowberry	SYMPH	---	---	X	---	---	---
Currant	RIBES	---	---	X	---	---	---
Other shrubs	SSSS	5-10	---	---	X	---	X
Singleleaf pinyon	PIMO	---	---	X	X	---	X
Utah juniper	JUOS	---	---	X	---	---	---

Range site symbol	027X032N	027X008N	---	---	None	---
Woodland site symbol	---	---	025X062N	025X061N	None	025X061N
Potential production (lb/acre):						
Favorable years	600	700	500	500	---	500
Normal years	400	500	350	375	---	375
Unfavorable years	200	300	200	250	---	250

3845--Jung-Stingdorn-Atlow 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			Inclusion number--			
		Jung	Stingdorn	Atlow	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	10-15	---	5-15	---	---
Needleandthread	STC04	5-15	1-3	---	---	1-3	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	5-15	---	---	5-15	---	---
Sandberg bluegrass	POSE	---	2-5	---	---	2-5	---	---
Thurber needlegrass	STTH2	---	---	10-15	20-50	---	---	---
Bluegrass	POA++	---	---	2-10	---	---	---	---
Other perennial grasses	PPGG	5-10	---	5-20	---	---	---	---
Globemallow	SPHAE	---	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	2-4	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-4	---	---	---
Other perennial forbs	PPFF	5-15	2-8	---	---	2-8	---	---
Black sagebrush	ARARN	20-25	---	25-35	---	---	---	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	20-30	---	---	20-30	---	---
Shadscale	ATCO	---	30-40	---	---	30-40	---	---
Spiny hopsage	GRSP	---	2-5	---	2-5	2-5	---	---
Winterfat	EULA5	---	2-5	---	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	15-20	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	2-5	---	---	---
Other shrubs	SSSS	10-20	2-5	5-35	2-10	2-5	---	---

Range site symbol	028B016N	024X002N	024X030N	024X005N	024X002N	None	None
Potential production (lb/acre):							
Favorable years	500	700	500	800	700	---	---
Normal years	250	450	350	600	450	---	---
Unfavorable years	150	300	250	400	300	---	---

3846--Jung-Atlow-McVegas 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			Inclusion number--		
		Jung	Atlow	McVegas	1	2	3
Indian ricegrass	ORHY	5-15	10-15	5-15	---	---	---
Needleandthread	STCO4	5-15	---	5-10	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	---	---	---	5-10	---
Thurber needlegrass	STTH2	---	10-15	---	---	20-50	2-10
Bluegrass	POA++	---	2-10	---	---	---	10-40
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Other perennial grasses	PPGG	5-10	5-20	5-10	---	---	5-10
Globemallow	SPHAE	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-4	---
Other perennial forbs	PPFF	5-15	---	5-10	---	---	5-10
Black sagebrush	ARARN	20-25	25-35	---	---	---	20-30
Fourwing saltbush	ATCA2	2-5	---	2-5	---	---	---
Bud sagebrush	ARSP5	2-5	---	5-10	---	---	---
Shadscale	ATCO	---	---	30-40	---	---	5-10
Winterfat	EULA5	---	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	---	---	2-5	---
Spiny hopsage	GRSP	---	---	---	---	2-5	---
Other shrubs	SSSS	10-20	5-35	5-15	---	2-10	5-10

Range site symbol	028B016N	024X030N	028B017N	None	024X005N	027X032N
Potential production (lb/acre):						
Favorable years	500	500	700	---	800	600
Normal years	250	350	500	---	600	400
Unfavorable years	150	250	250	---	400	200

3847--Jung-Old Camp-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			Inclusion number--		
		Jung	Old Camp	Clanalpine	1	2	3
Bluegrass	POA++	10-40	---	X	---	---	10-30
Thurber needlegrass	STTH2	2-10	5-10	---	---	---	---
Pine bluegrass	POSC	---	20-30	---	---	5-15	---
Idaho fescue	FEID	---	---	X	---	---	---
Bluebunch wheatgrass	AGSP	---	---	X	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	5-15	X	---	5-15	5-15
Tapertip hawksbeard	CRAC2	---	---	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Other perennial forbs	PPFF	5-10	5-10	X	---	5-10	2-5
Black sagebrush	ARARN	20-30	---	---	---	---	---
Shadscale	ATCO	5-10	---	---	---	---	20-30
Wyoming big sagebrush	ARTRW*	---	10-20	---	---	10-20	---
Spiny hopsage	GRSP	---	5-15	---	---	---	---
Nevada ephedra	EPNE	---	5-10	---	---	10-15	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Bud sagebrush	ARSP5	---	---	---	---	---	10-20
Other shrubs	SSSS	5-10	5-10	X	---	5-15	5-10
Singleleaf pinyon	PIMO	---	---	X	---	---	---

Range site symbol	027X032N	027X007N	---	None	027X011N	027X028N
Woodland site symbol	---	---	025X061N		---	---
Potential production (lb/acre):						
Favorable years	600	600	500	---	600	700
Normal years	400	450	375	---	400	500
Unfavorable years	200	300	250	---	200	300

3848--Jung-McVegas-Enko 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			Inclusion number--			
		Jung	McVegas	Enko	1	2	3	4
Indian ricegrass	ORHY	10-15	5-15	20-30	5-15	10-15	20-30	---
Thurber needlegrass	STTH2	10-15	---	---	---	10-15	---	---
Bluegrass	POA++	2-10	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	5-15	5-10	5-15	---	5-10	---
Sandberg bluegrass	POSE	---	2-5	2-5	2-5	---	2-5	---
Needleandthread	STCO4	---	1-3	10-20	1-3	---	10-20	---
Other perennial grasses	PPGG	5-20	---	---	---	5-20	---	---
Globemallow	SPHAE	2-5	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	2-8	2-5	2-8	---	2-5	---
Black sagebrush	ARARN	25-35	---	---	---	25-35	---	---
Shadscale	ATCO	---	30-40	---	30-40	---	---	---
Bud sagebrush	ARSP5	---	20-30	---	20-30	---	---	---
Spiny hopsage	GRSP	---	2-5	---	2-5	---	---	---
Winterfat	EULA5	---	2-5	---	2-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---	---	15-20	---
Other shrubs	SSSS	5-35	2-5	5-15	2-5	5-35	5-15	---

Range site symbol	024X030N	024X002N	028B010N	024X002N	024X030N	028B010N	None
Potential production (lb/acre):							
Favorable years	500	700	800	700	500	800	---
Normal years	350	450	600	450	350	600	---
Unfavorable years	250	300	400	300	250	400	---

3851--Decram-Hapgood association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Decram moderately steep	Decram, steep	Hapgood	1	2	3	4
Idaho fescue	FEID	10-20	25-50	5-15	1-10	---	---	---
Webber ricegrass	STWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	---	---	---	---
Sandberg bluegrass	POSE	2-5	---	---	---	---	---	---
Pine bluegrass	POSC	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	15-30	5-10	20-50	---	---	40-60
Thurber needlegrass	STTH2	---	2-10	---	2-5	---	---	5-10
Spike fescue	LEKI2	---	2-10	2-15	---	---	---	---
Mountain brome	BRCA5	---	---	10-15	2-15	---	---	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	---	5-10	---	---	2-5
Bluegrass	POA++	---	---	---	---	---	---	2-10
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Geranium	GERAN	---	---	2-5	---	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---	2-5
Low sagebrush	ARAR8	5-15	10-20	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	1-5	---	5-10	5-15	---	---	T-5
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---	---
Snowberry	SYMPH	---	---	2-10	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	---	5-10
Range site symbol		024X016N	024X027N	024X032N	024X029N	None	None	024X028N
Potential production (lb/acre):								
Favorable years		350	1,200	2,200	1,500	---	---	1,000
Normal years		250	800	1,700	1,100	---	---	700
Unfavorable years		150	600	1,200	800	---	---	500

3852--Decram-Hapgood-Chad 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			Inclusion number--			
		Decram	Hapgood	Chad	1	2	3	4
Idaho fescue	FEID	10-15	10-15	---	5-10	---	---	---
Bluebunch wheatgrass	AGSP	5-10	---	10-15	---	---	---	---
Pine bluegrass	POSC	5-10	---	---	---	---	---	---
Mountain brome	BRCA5	---	15-20	---	2-5	---	---	---
Letterman needlegrass	STLE4	---	5-10	---	---	---	---	---
Spike fescue	LEKI2	---	5-10	---	---	---	---	---
Basin wildrye	ELCI2	---	---	5-10	---	---	30-50	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-10	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Thurber needlegrass	STTH2	---	---	5-10	---	---	---	---
Other perennial grasses	PPGG	10-15	5-15	10-15	5-15	---	5-15	2-10
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	5-10	5-15	5-15	---	5-10	10-20
Low sagebrush	ARAR8	5-15	---	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	---	---	---	---
Mountain big sagebrush	ARVA2	---	10-20	15-25	---	---	---	---
Utah serviceberry	AMUT	---	5-10	3-10	2-5	---	---	---
Snowberry	SYMPH	---	5-10	---	5-10	---	---	---
Antelope bitterbrush	PUTR2	---	---	2-8	---	---	---	---
Common chokecherry	PRVI	---	---	---	20-30	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Willow	SALIX	---	---	---	---	---	---	2-5
Other shrubs	SSSS	5-10	---	15-20	5-15	---	5-10	2-5

Range site symbol	028B038N	028B029N	028B027N	028B026N	None	028B024N	025X005N
Potential production (lb/acre):							
Favorable years	800	1,500	900	1,400	---	2,800	2,000
Normal years	600	900	600	1,000	---	1,700	1,700
Unfavorable years	400	650	300	700	---	1,000	1,000

3861--Duco-Itca-Roca association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Duco	Itca	Roca	1	2	3
Idaho fescue	FEID	X	X	---	---	---	---
Bluebunch wheatgrass	AGSP	X	X	40-60	---	10-20	---
Bluegrass	POA++	---	X	2-10	---	---	---
Thurber needlegrass	STTH2	X	---	5-10	---	5-10	---
Basin wildrye	ELCI2	X	---	2-5	---	2-5	30-50
Pine bluegrass	POSC	---	---	---	---	2-5	---
Western wheatgrass	AGSM	---	---	---	---	---	5-10
Nevada bluegrass	PONE3	X	---	---	---	---	5-10
Other perennial grasses	PPGG	---	X	---	---	10-20	5-15
Tapertip hawksbeard	CRAC2	X	X	2-5	---	---	---
Arrowleaf balsamroot	BASA3	X	X	2-5	---	---	---
Other perennial forbs	PPFF	---	X	---	---	5-12	5-10
Big sagebrush	ARTR2	X	X	---	---	---	---
Snowberry	SYMPH	X	---	---	---	---	---
Currant	RIBES	X	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	5-10	---	---	---
Mountain big sagebrush	ARVA2	---	---	T-5	---	15-25	---
Antelope bitterbrush	PUTR2	---	---	---	---	5-10	---
Utah serviceberry	AMUT	---	---	---	---	2-10	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	---	X	---	---	5-15	5-10
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Utah juniper	JUOS	X	---	---	---	---	---
Range site symbol		---	---	024X028N	None	028B030N	028B024N
Woodland site symbol		025X062N	025X061N	---	None	---	---
Potential production (lb/acre):							
Favorable years		500	500	1,000	---	1,100	2,800
Normal years		350	375	700	---	850	1,700
Unfavorable years		200	250	500	---	550	1,000

3863--Duco-Clanalpine-Jung 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			Inclusion number--		
		Duco	Clanalpine	Jung	1	2	3
Bluebunch wheatgrass	AGSP	X	X	---	---	---	---
Basin wildrye	ELCI2	X	---	---	---	---	---
Thurber needlegrass	STTH2	X	---	2-10	---	---	5-10
Nevada bluegrass	PONE3	X	---	---	---	---	---
Idaho fescue	FEID	X	X	---	---	---	---
Bluegrass	POA++	---	X	10-40	---	---	---
Pine bluegrass	POSC	---	---	---	---	5-15	20-30
Indian ricegrass	ORHY	---	---	---	---	5-15	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	X	5-10	---	5-10	5-15
Tapertip hawksbeard	CRAC2	X	X	---	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---	---
Other perennial forbs	PPFF	---	X	5-10	---	5-10	5-10
Big sagebrush	ARTR2	X	X	---	---	---	---
Snowberry	SYMPH	X	---	---	---	---	---
Currant	RIBES	X	---	---	---	---	---
Black sagebrush	ARARN	---	---	20-30	---	---	---
Shadscale	ATCO	---	---	5-10	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-20	10-20
Spiny hopsage	GRSP	---	---	---	---	10-20	5-15
Nevada ephedra	EPNE	---	---	---	---	5-10	5-10
Other shrubs	SSSS	---	X	5-10	---	---	5-10
Singleleaf pinyon	PIMO	X	X	---	---	---	---
Utah juniper	JUOS	X	---	---	---	---	---

Range site symbol	---	---	027X032N	None	027X008N	027X007N
Woodland site symbol	025X062N	025X061N	---	None	---	---
Potential production (lb/acre):						
Favorable years	500	500	600	---	700	600
Normal years	350	375	400	---	500	450
Unfavorable years	200	250	200	---	300	300

3881--Layview-Packer-Hapgood 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			Inclusion number--			
		Layview	Packer	Hapgood	1	2	3	4
Idaho fescue	FEID	10-20	---	5-15	10-20	30-60	---	---
Webber ricegrass	STWE	5-10	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	5-10	2-5	---	5-10	---	---	---
Cusick bluegrass	POCU3	2-5	---	---	2-5	5-10	---	---
Sandberg bluegrass	POSE	2-5	---	---	2-5	---	---	---
Pine bluegrass	POSC	2-5	5-10	---	2-5	---	---	---
Bluebunch wheatgrass	AGSP	---	5-15	5-10	---	2-10	---	---
Thurber needlegrass	STTH2	---	2-5	---	---	---	---	---
Indian ricegrass	ORHY	---	2-5	---	---	---	---	---
Mountain brome	BRCA5	---	---	10-15	---	---	---	---
Slender wheatgrass	AGTR	---	---	20-30	---	---	---	---
Spike fescue	LEKI2	---	---	2-15	---	---	---	---
Bulbous oniongrass	MEBU	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	---	---
Other perennial grasses	PPGG	---	10-15	---	---	---	---	---
Goldenweed	HAPLO2	2-5	---	---	2-5	---	---	---
Phlox	PHLOX	2-5	---	---	2-5	---	---	---
Geranium	GERAN	---	---	2-5	---	---	---	---
Groundsel	SENEC	---	---	2-5	---	---	---	---
Lupine	LUPIN	---	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	---	10-15	---	---	---	---	---
Low sagebrush	ARAR8	5-15	25-30	---	5-15	---	---	---
Black sagebrush	ARARN	5-15	---	---	5-15	10-20	---	---
Mountain big sagebrush	ARVA2	1-5	---	5-10	1-5	---	---	---
Serviceberry	AMELA	---	---	5-10	---	---	---	---
Snowberry	SYMPH	---	---	2-10	---	---	---	---
Other shrubs	SSSS	---	10-20	---	---	---	---	---

Range site symbol	024X016N	028B037N	024X032N	024X016N	024X042N	None	None
Potential production (lb/acre):							
Favorable years	350	700	2,200	350	1,000	---	---
Normal years	250	500	1,700	250	800	---	---
Unfavorable years	150	300	1,200	150	500	---	---

3891--Labshaft-Hapgood-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			Inclusion number--		
		Labshaft	Hapgood	Rock outcrop	1	2	3
Idaho fescue	FEID	5-15	5-15	---	10-20	5-15	---
Bluebunch wheatgrass	AGSP	5-10	5-10	---	---	5-10	---
Columbia needlegrass	STCO3	5-10	---	---	---	---	---
Western needlegrass	STOC2	5-10	---	---	---	---	---
Mountain brome	BRCA5	---	10-15	---	---	10-15	---
Slender wheatgrass	AGTR	---	20-30	---	---	20-30	---
Spike fescue	LEKI2	---	2-15	---	---	2-15	---
Bulbous oniongrass	MEBU	---	2-5	---	---	2-5	---
Nevada bluegrass	PONE3	---	2-5	---	---	2-5	---
Webber ricegrass	STWE	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---
Sandberg bluegrass	POSE	---	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-10	---	---	---	---	---
Geranium	GERAN	---	2-5	---	---	2-5	---
Groundsel	SENEC	---	2-5	---	---	2-5	---
Lupine	LUPIN	---	2-5	---	---	2-5	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	2-5	---	---
Other perennial forbs	PPFF	10-15	---	---	---	---	---
Mountain big sagebrush	ARVA2	5-10	5-10	---	1-5	5-10	---
Snowberry	SYMPH	1-5	2-10	---	---	2-10	---
Curlleaf mountainmahogany	CELE3	5-10	---	---	---	---	---
Serviceberry	AMELA	---	5-10	---	---	5-10	---
Low sagebrush	ARAR8	---	---	---	5-15	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Other shrubs	SSSS	5-10	---	---	---	---	---

Range site symbol	028B043N	024X032N	None	024X016N	024X032N	None
Potential production (lb/acre):						
Favorable years	1,000	2,200	---	350	2,200	---
Normal years	800	1,700	---	250	1,700	---
Unfavorable years	600	1,200	---	150	1,200	---

3950--Hooplite-Jung-Izod association

[An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hooplite	Jung	Izod	1	2	3	4
Indian ricegrass	ORHY	10-15	10-15	10-15	X	---	10-30	---
Thurber needlegrass	STTH2	10-15	10-15	10-15	X	20-50	---	---
Bluegrass	POA++	2-10	2-10	2-10	X	---	---	---
Bluebunch wheatgrass	AGSP	---	---	---	X	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-20	5-20	5-20	X	---	10-20	---
Globemallow	SPHAE	2-5	2-5	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	X	2-4	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---	---
Balsamroot	BALSA	---	---	---	---	2-4	---	---
Other perennial forbs	PPFF	---	---	---	X	---	5-15	---
Black sagebrush	ARARN	25-35	25-35	25-35	X	---	5-15	---
Downy rabbitbrush	CHVIP	---	---	---	X	2-5	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	15-20	10-25	---
Spiny hopsage	GRSP	---	---	---	---	2-5	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	---	1-5	---
Purple sage	SADOC2	---	---	---	---	---	T-5	---
Other shrubs	SSSS	5-35	5-35	5-35	X	2-10	2-4	---
Utah juniper	JUOS	---	---	---	X	---	---	---
Singleleaf pinyon	PIMO	---	---	---	X	---	---	---
Range site symbol		024X030N	024X030N	024X030N	---	024X005N	025X025N	None
Woodland site symbol		---	---	---	025X063N	---	---	None
Potential production (lb/acre):								
Favorable years		500	500	500	400	800	200	---
Normal years		350	350	350	275	600	150	---
Unfavorable years		250	250	250	150	400	100	---

3951--Hooplite-Old Camp-Puett association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hooplite	Old Camp	Puett	1	2	3
Bluegrass	POA++	10-40	---	---	10-40	---	---
Thurber needlegrass	STTH2	2-10	20-50	---	2-10	---	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	---	---
Indian ricegrass	ORHY	---	---	10-30	---	5-15	10-30
Bottlebrush squirreltail	SIHY	---	---	5-10	---	5-10	5-10
Pine bluegrass	POSC	---	---	---	---	5-15	---
Other perennial grasses	PPGG	5-10	---	10-20	5-10	5-10	10-20
Balsamroot	BALSA	---	2-4	---	---	---	---
Tapertip hawkbeard	CRAC2	---	2-4	---	---	---	---
Other perennial forbs	PPFF	5-10	---	5-15	5-10	5-10	5-15
Black sagebrush	ARARN	20-30	---	5-15	20-30	---	5-15
Shadscale	ATCO	5-10	---	---	5-10	---	---
Wyoming big sagebrush	ARTRW*	---	15-20	10-25	---	10-20	10-25
Downy rabbitbrush	CHVIP	---	2-5	1-5	---	---	1-5
Spiny hopsage	GRSP	---	2-5	1-5	---	10-20	1-5
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	1-5
Purple sage	SADOC2	---	---	T-5	---	---	T-5
Nevada ephedra	EPNE	---	---	---	---	5-10	---
Other shrubs	SSSS	5-10	2-10	2-4	5-10	---	2-4

Range site symbol	027X032N	024X005N	025X025N	027X032N	027X008N	025X025N
Potential production (lb/acre):						
Favorable years	600	800	200	600	700	200
Normal years	400	600	150	400	500	150
Unfavorable years	200	400	100	200	300	100

3952--Hooplite-Stingdorn 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		Inclusion number--			
		Hooplite	Stingdorn	1	2	3	4
Indian ricegrass	ORHY	5-15	5-15	5-15	---	15-25	---
Needleandthread	STCO4	5-15	1-3	1-3	---	5-10	---
Pine bluegrass	POSC	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	1-3	---	---	---	2-5	---
Bottlebrush squirreltail	SIHY	---	5-15	5-15	---	---	---
Sandberg bluegrass	POSE	---	2-5	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	---	---	---	---	---
Perennial forbs	PPFF	5-15	2-8	2-8	---	5-10	---
Black sagebrush	ARARN	20-25	---	---	---	20-30	---
Fourwing saltbush	ATCA2	2-5	---	---	---	---	---
Bud sagebrush	ARSP5	2-5	20-30	20-30	---	2-5	---
Shadscale	ATCO	---	30-40	30-40	---	---	---
Spiny hopsage	GRSP	---	2-5	2-5	---	---	---
Winterfat	EULA5	---	2-5	2-5	---	5-10	---
Small rabbitbrush	CHVIS	---	---	---	---	2-5	---
Other shrubs	SSSS	10-20	2-5	2-5	---	---	---

Range site symbol	028B016N	024X002N	024X002N	None	028B011N	None
Potential production (lb/acre):						
Favorable years	500	700	700	---	950	---
Normal years	250	450	450	---	700	---
Unfavorable years	150	300	300	---	400	---

3960--Pineval gravelly loam, 2 to 4 percent slopes

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Pineval	1	2	3
Indian ricegrass	ORHY	20-30	2-5	5-15	2-5
Needleandthread	STCO4	10-20	---	1-3	---
Bottlebrush squirreltail	SIHY	5-10	2-5	5-15	2-5
Sandberg bluegrass	POSE	2-5	---	2-5	---
Basin wildrye	ELCI2	---	5-20	---	5-20
Thelypody	THELY	---	2-4	---	2-4
Other perennial forbs	PPFF	2-5	---	2-8	---
Wyoming big sagebrush	ARTRW*	15-20	5-10	---	5-10
Black greasewood	SAVE4	---	20-30	---	20-30
Basin big sagebrush	ARTRT*	---	5-15	---	5-15
Spiny hopsage	GRSP	---	5-15	2-5	5-15
Shadscale	ATCO	---	---	30-40	---
Bud sagebrush	ARSP5	---	---	20-30	---
Winterfat	EULA5	---	---	2-5	---
Other shrubs	SSSS	5-15	---	2-5	---

Range site symbol	028B01CN	024X022N	024X002N	024X022N
Potential production (lb/acre):				
Favorable years	800	800	700	800
Normal years	600	600	450	600
Unfavorable years	400	350	300	350

3961--Pineval-Orovada-Beoska 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			Inclusion number--		
		Pineval	Orovada	Beoska	1	2	3
Indian ricegrass	ORHY	20-30	---	5-15	2-10	---	---
Needleandthread	STCO4	10-20	---	1-3	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	5-15	2-10	---	---
Sandberg bluegrass	POSE	2-5	---	2-5	2-5	---	---
Thurber needlegrass	STTH2	---	20-50	---	2-5	20-50	---
Bluebunch wheatgrass	AGSP	---	5-10	---	---	5-10	---
Webber ricegrass	STWE	---	---	---	2-10	---	---
Desert needlegrass	STSP3	---	---	---	2-5	---	---
Pine bluegrass	POSC	---	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	---	---	50-60
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	---	---	---	---	---	15-20
Balsamroot	BALSA	---	2-4	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	2-4	---	---	2-4	---
Eriogonum	ERIOG	---	---	---	1-2	---	---
Hawksbeard	CREPI	---	---	---	1-2	---	---
Other perennial forbs	PPFF	2-5	---	2-8	---	---	5-10
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	10-25	15-20	---
Downy rabbitbrush	CHVIP	---	2-5	---	2-5	2-5	---
Spiny hopsage	GRSP	---	2-5	2-5	5-15	2-5	---
Shadscale	ATCO	---	---	30-40	10-25	---	---
Bud sagebrush	ARSP5	---	---	20-30	2-5	---	---
Winterfat	EULA5	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	2-10	2-5	---	2-10	2-5

Range site symbol	028B010N	024X005N	024X002N	024X026N	024X005N	025X003N
Potential production (lb/acre):						
Favorable years	800	800	700	400	800	2,500
Normal years	600	600	450	300	600	1,900
Unfavorable years	400	400	300	200	400	1,200

3964--Pineval-Orovada association

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Pineval	Orovada	1	2	3
Indian ricegrass	ORHY	20-30	20-30	20-30	20-30	---
Needleandthread	STC04	10-20	10-20	10-20	10-20	---
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	5-10	---
Sandberg bluegrass	POSE	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	30-50
Nevada bluegrass	PONE3	---	---	---	---	2-5
Western wheatgrass	AGSM	---	---	---	---	2-5
Other perennial grasses	PPGG	---	---	---	---	15-25
Perennial forbs	PPFF	2-5	2-5	2-5	2-5	2-5
Wyoming big sagebrush	ARTRW*	15-20	15-20	15-20	15-20	---
Basin big sagebrush	ARTRT*	---	---	---	---	5-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10

Range site symbol	028B010N	028B010N	028B010N	028B010N	028B003N
Potential production (lb/acre):					
Favorable years	800	800	800	800	2,600
Normal years	600	600	600	600	1,250
Unfavorable years	400	400	400	400	800

3990--Settlemyer fine sandy loam, drained, 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	Inclusion number--		
		Settlemyer	1	2	3
Basin wildrye	ELCI2	30-50	50-60	---	---
Nevada bluegrass	PONE3	2-5	---	---	5-10
Western wheatgrass	AGSM	2-5	5-15	---	---
Thurber needlegrass	STTH2	---	---	20-50	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---
Wildrye	ELYMU	---	---	---	30-60
Inland saltgrass	DISPS2	---	---	---	5-10
Mat muhly	MURI	---	---	---	2-10
Other perennial grasses	PPGG	15-25	---	---	5-15
Balsamroot	BALSA	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	2-4	---
Sierra clover	TRWO	---	---	---	2-5
Other perennial forbs	PPFF	2-5	2-8	---	5-10
Basin big sagebrush	ARTRT*	5-10	15-20	---	2-5
Black greasewood	SAVE4	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	2-5	---
Spiny hopsage	GRSP	---	---	2-5	---
Willow	SALIX	---	---	---	5-10
Silver sagebrush	ARCA13	---	---	---	2-5
Other shrubs	SSSS	5-10	---	2-10	2-8

Range site symbol	028B003N	024X006N	024X005N	025X001N
Potential production (lb/acre):				
Favorable years	2,600	1,500	800	3,000
Normal years	1,250	1,100	600	2,500
Unfavorable years	800	600	400	1,800

3991--Settlemeier-Pineval 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		Inclusion number--		
		Settlemeier	Pineval	1	2	3
Basin wildrye	ELCI2	30-50	---	5-20	---	5-15
Nevada bluegrass	PONE3	2-5	---	---	---	---
Western wheatgrass	AGSM	2-5	---	---	---	---
Indian ricegrass	ORHY	---	20-30	2-5	15-25	---
Needleandthread	STCO4	---	10-20	---	---	---
Bottlebrush squirreltail	SIHY	---	5-10	2-5	2-5	---
Sandberg bluegrass	POSE	---	2-5	---	---	---
Thurber needlegrass	STTH2	---	---	---	5-10	---
Alkali sacaton	SPAI	---	---	---	---	20-30
Inland saltgrass	DISPS2	---	---	---	---	5-10
Other perennial grasses	PPGG	15-25	---	---	---	10-20
Thelypody	THELY	---	---	2-4	---	---
Scarlet globemallow	SPCO	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	2-5	---	---	5-10
Basin big sagebrush	ARTRT*	5-10	---	5-15	---	2-5
Wyoming big sagebrush	ARTRW*	---	15-20	5-10	15-25	---
Black greasewood	SAVE4	---	---	20-30	---	5-10
Spiny hopsage	GRSP	---	---	5-15	20-30	---
Bud sagebrush	ARSP5	---	---	---	5-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Fourwing saltbush	ATCA2	---	---	---	---	2-5
Other shrubs	SSSS	5-10	5-15	---	5-10	2-5

Range site symbol	028B003N	028B010N	024X022N	028B052N	028B004N
Potential production (lb/acre):					
Favorable years	2,600	800	800	600	2,000
Normal years	1,250	600	600	400	1,000
Unfavorable years	800	400	350	300	500

3992--Settlemeier complex

[Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Settlemeier, drained	Settlemeier, frequently flooded	1	2
Basin wildrye	ELCI2	50-60	---	---	50-60
Nevada bluegrass	PONE3	5-15	5-10	---	---
Mat muhly	MURI	2-10	2-10	---	---
Sedge	CAREX	1-5	---	---	---
Wildrye	ELYMU	---	30-60	---	---
Inland saltgrass	DISPS2	---	5-10	---	---
Thurber needlegrass	STTH2	---	---	20-50	---
Bluebunch wheatgrass	AGSP	---	---	5-10	---
Western wheatgrass	AGSM	---	---	---	5-15
Other perennial grasses	PPGG	15-20	5-15	---	---
Sierra clover	TRWO	---	2-5	---	---
Balsamroot	BALSA	---	---	2-4	---
Tapertip hawksbeard	CRAC2	---	---	2-4	---
Other perennial forbs	PPFF	5-10	5-10	---	2-8
Basin big sagebrush	ARTRT*	10-15	2-5	---	15-20
Willow	SALIX	---	5-10	---	---
Silver sagebrush	ARCA13	---	2-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	15-20	---
Downy rabbitbrush	CHVIP	---	---	2-5	---
Spiny hopsage	GRSP	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	2-5
Other shrubs	SSSS	2-5	2-8	2-10	---

Range site symbol	025X003N	025X001N	024X005N	024X006N
Potential production (lb/acre):				
Favorable years	2,500	3,000	800	1,500
Normal years	1,900	2,500	600	1,100
Unfavorable years	1,200	1,800	400	600

4041--Hymas-Xine-Attella 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			Inclusion number--			
		Hymas	Xine	Attella	1	2	3	4
Bluebunch wheatgrass	AGSP	X	20-30	X	20-50	10-20	---	---
Basin wildrye	ELCI2	X	2-15	X	5-10	---	---	30-50
Thurber needlegrass	STTH2	X	2-10	X	2-5	5-15	---	---
Nevada bluegrass	PONE3	X	---	X	---	---	---	5-10
Idaho fescue	FEID	X	20-40	X	1-10	---	---	---
Mountain brome	BRCA5	---	---	---	2-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	---	---	2-10	---	---
Bluegrass	POA++	---	---	---	---	2-10	---	---
Western wheatgrass	AGSM	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	---	---	---	---	---	---	5-15
Tapertip hawksbeard	CRAC2	X	1-5	X	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	X	1-5	X	2-5	---	---	---
Other perennial forbs	PPFF	---	---	---	---	5-15	---	5-10
Big sagebrush	ARTR2	X	---	X	---	---	---	---
Snowberry	SYMPH	X	---	X	---	---	---	---
Currant	RIBES	X	---	X	---	---	---	---
Mountain big sagebrush	ARVA2	---	5-15	---	5-15	---	---	---
Black sagebrush	ARARN	---	---	---	---	15-30	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	5-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	---	2-5
Other shrubs	SSSS	---	---	---	---	---	---	5-10
Singleleaf pinyon	PIMO	X	---	X	---	---	---	---
Utah juniper	JUOS	X	---	X	---	---	---	---

Range site symbol	---	024X021N	---	024X029N	024X031N	None	028B024N
Woodland site symbol	025X062N	---	025X062N	---	---	None	---
Potential production (lb/acre):							
Favorable years	500	1,400	500	1,500	700	---	2,800
Normal years	350	1,000	350	1,100	500	---	1,700
Unfavorable years	200	700	200	800	300	---	1,000

4070--Genaw-Wieland-Grina 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			Inclusion number--		
		Genaw	Wieland	Grina	1	2	3
Thurber needlegrass	STTH2	20-50	20-50	X	---	5-10	---
Bluebunch wheatgrass	AGSP	5-10	5-10	X	---	---	---
Indian ricegrass	ORHY	---	---	X	---	15-30	---
Bluegrass	POA++	---	---	X	---	---	---
Basin wildrye	ELCI2	---	---	X	50-60	---	50-60
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Other perennial grasses	PPGG	---	---	---	15-20	5-15	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Balsamroot	BALSA	2-4	2-4	---	---	---	---
Tapertip hawksbeard	CRAC2	2-4	2-4	X	---	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---	---
Globemallow	SPHAE	---	---	---	---	2-4	---
Other perennial forbs	PPFF	---	---	---	5-10	---	2-8
Wyoming big sagebrush	ARTRW*	15-20	15-20	---	---	15-30	---
Downy rabbitbrush	CHVIP	2-5	2-5	---	---	---	---
Spiny hopsage	GRSP	2-5	2-5	---	---	2-5	---
Big sagebrush	ARTR2	---	---	X	---	---	---
Douglas rabbitbrush	CHVI8	---	---	X	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	15-20
Shadscale	ATCO	---	---	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	2-10	---	2-5	2-5	---
Utah juniper	JUOS	---	---	X	---	---	---

Range site symbol	024X005N	024X005N	---	025X003N	024X045N	024X006N
Woodland site symbol	---	---	025X059N	---	---	---
Potential production (lb/acre):						
Favorable years	800	800	500	2,500	350	1,500
Normal years	600	600	350	1,900	200	1,100
Unfavorable years	400	400	200	1,200	100	600

4072--Genaw-Orovada-Puett association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Genaw	Orovada	Puett	1	2	3
Indian ricegrass	ORHY	20-30	20-30	10-30	15-30	10-15	10-20
Needleandthread	STCO4	10-20	10-20	---	---	---	20-30
Bottlebrush squirreltail	SIHY	5-10	5-10	5-10	---	---	2-5
Sandberg bluegrass	POSE	2-5	2-5	---	---	---	---
Thurber needlegrass	STTH2	---	---	---	5-10	10-15	---
Bluegrass	POA++	---	---	---	---	2-10	---
Thickspike wheatgrass	AGDA	---	---	---	---	---	2-10
Other perennial grasses	PPGG	---	---	10-20	5-15	5-20	2-5
Globemallow	SPHAE	---	---	---	2-4	2-5	---
Other perennial forbs	PPFF	2-5	2-5	5-15	---	---	10-20
Wyoming big sagebrush	ARTRW*	15-20	15-20	10-25	15-30	---	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	1-5	2-5	---	T-5
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	25-35	---
Purple sage	SADOC2	---	---	T-5	---	---	---
Shadscale	ATCO	---	---	---	2-5	---	---
Big sagebrush	ARTR2	---	---	---	---	---	10-20
Other shrubs	SSSS	5-15	5-15	2-4	2-5	5-35	2-10

Range site symbol	028B010N	028B010N	025X025N	024X045N	024X030N	024X017N
Potential production (lb/acre):						
Favorable years	800	800	200	350	500	900
Normal years	600	600	150	200	350	700
Unfavorable years	400	400	100	100	250	500

4073--Genaw-Broyles-Perlor association

[The letter "T" means trace. Absence of an entry indicates that the named plant is not a key species in the potential native plant community]

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Genaw	Broyles	Perlor	1	2	3
Thurber needlegrass	STTH2	10-20	---	---	10-20	5-10	---
Indian ricegrass	ORHY	5-15	5-15	5-15	5-15	15-30	---
Bottlebrush squirreltail	SIHY	2-10	5-15	5-15	2-10	---	5-10
Sandberg bluegrass	POSE	2-10	2-5	2-5	2-10	---	---
Needleandthread	STCO4	---	1-3	1-3	---	---	---
Other perennial grasses	PPGG	---	---	---	---	5-15	T-10
Tapertip hawksbeard	CRAC2	1-2	---	---	1-2	---	---
Globemallow	SPHAE	1-2	---	---	1-2	2-4	---
Phlox	PHLOX	1-2	---	---	1-2	---	---
Other perennial forbs	PPFF	---	2-8	2-8	---	---	2-8
Wyoming big sagebrush	ARTRW*	30-35	---	---	30-35	15-30	---
Spiny hopsage	GRSP	5-15	2-5	2-5	5-15	2-5	---
Shadscale	ATCO	---	30-40	30-40	---	2-5	30-50
Bud sagebrush	ARSP5	---	20-30	20-30	---	---	5-15
Winterfat	EULA5	---	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	---	---	---	15-30
Seepweed	SUAED	---	---	---	---	---	2-15
Other shrubs	SSSS	---	2-5	2-5	---	2-5	---

Range site symbol	024X020N	024X002N	024X002N	024X020N	024X045N	024X003N
Potential production (lb/acre):						
Favorable years	700	700	700	700	350	600
Normal years	450	450	450	450	200	450
Unfavorable years	300	300	300	300	100	300

4140--Welch loam, drained, 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]

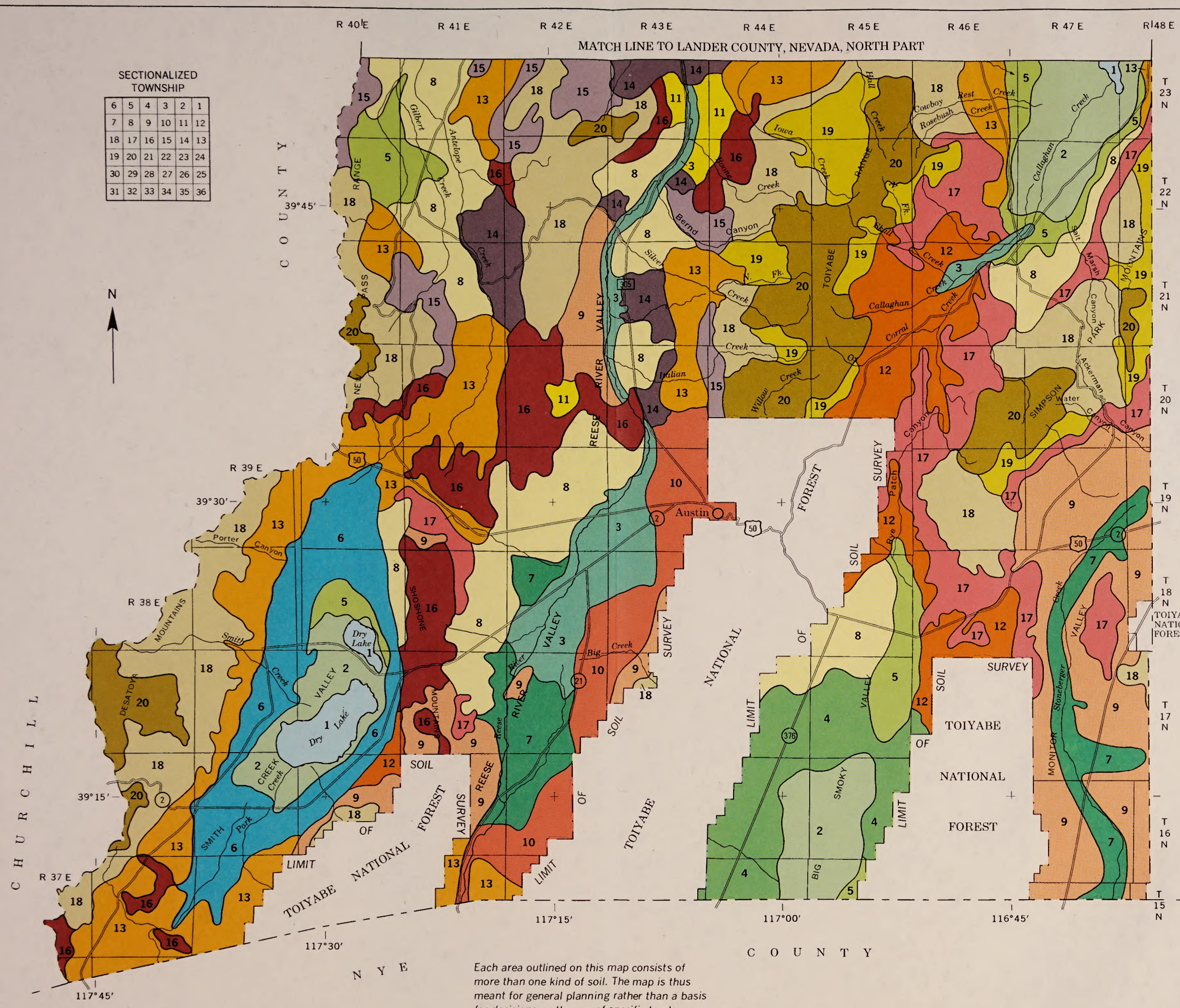
Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Welch	1	2
Basin wildrye	ELCI2	50-60	5-10	---
Nevada bluegrass	PONE3	5-15	---	5-10
Mat muhly	MURI	2-10	---	---
Sedge	CAREX	1-5	---	5-10
Slender wheatgrass	AGTR	---	1-10	---
Nodding brome	BRAN	---	1-10	---
Slender hairgrass	DEEL	---	2-5	---
Tufted hairgrass	DECA5	---	---	30-60
Alpine timothy	PHAL2	---	---	5-10
Meadow barley	HOBR2	---	---	2-5
Other perennial grasses	PPGG	15-20	5-10	2-10
Sierra clover	TRWO	---	---	2-5
Cinquefoil	POTEN	---	---	2-5
Other perennial forbs	PPFF	5-10	10-20	10-20
Basin big sagebrush	ARTRT*	10-15	---	---
Woods rose	ROWO	---	5-10	---
Common chokecherry	PRVI	---	5-10	---
Snowberry	SYMPH	---	2-5	---
Willow	SALIX	---	---	2-5
Other shrubs	SSSS	2-5	5-10	2-5

Range site symbol	025X003N	028B025N	025X005N
Potential production (lb/acre):			
Favorable years	2,500	1,700	2,000
Normal years	1,900	1,300	1,700
Unfavorable years	1,200	900	1,000

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

MATCH LINE TO LANDER COUNTY, NEVADA, NORTH PART

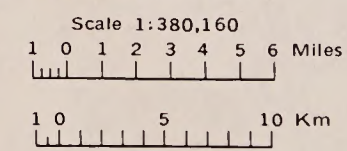


Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

LEGEND

- 1 PLAYAS
- 2 WENDANE-GUND-BATAN: Nearly level, very deep, somewhat poorly drained and moderately well drained soils; on alluvial flats and lake plain remnants
- 3 SONOMA-WENDANE-PARANAT: Nearly level, very deep, poorly drained and somewhat poorly drained soils; on axial-stream flood plains and alluvial flats
- 4 LAXAL-WARDENOT: Nearly level and gently sloping, very deep, somewhat excessively drained and excessively drained soils; on fan skirts and inset fans
- 5 BROYLES-CREEMON-WHOLAN: Nearly level and gently sloping, very deep, well drained soils; on fan skirts and alluvial plains
- 6 McCONNEL-RASILLE-WHOLAN: Nearly level to moderately sloping, very deep, somewhat excessively drained and well drained soils; on beach plains and fan skirts
- 7 RUTAB-OROVADA-WHOLAN: Nearly level, very deep, well drained soils; on fan skirts
- 8 AREAS DOMINATED BY SOILS ON PIEDMONT SLOPES AND ADJACENT FAN SKIRTS
- 8 RICERT-OROVADA-TENABO: Gently sloping and moderately sloping, shallow and very deep, well drained soils; on fan piedmont remnants, fan skirts, and inset fans of lower piedmont slopes
- 9 MUNI-GLYPHS-OROVADA: Nearly level to moderately sloping, shallow and very deep, well drained soils; on fan piedmont remnants and fan skirts
- 10 GLYPHS-OROVADA-ZINEB: Gently sloping and moderately sloping, very deep, well drained soils; on fan piedmont remnants, fan skirts, and fan aprons
- 11 SPIKE-PULA-DESATOYA: Strongly sloping to steep, very deep, well drained soils; on fan piedmont remnants and partial ballenas
- 12 GRASSVAL-OCOREL-ALLOR: Gently sloping to strongly sloping, shallow and very deep, well drained soils; on fan piedmont remnants
- 13 BUFFARAN-ALLOR-CHIARA: Gently sloping to strongly sloping, shallow and very deep, well drained soils; on fan piedmont remnants and ballenas
- 14 AREAS DOMINATED BY SOILS ON FOOTHILLS AND LOW MOUNTAINS
- 14 TESSFIVE-PUETT-GENAW: Gently sloping to moderately steep, shallow, well drained soils; on foothills and rock pediments
- 15 OLD CAMP-COLBAR-NEWPASS: Strongly sloping to steep, shallow and moderately deep, well drained soils; on foothills
- 16 JUNG-NEWPASS: Strongly sloping and moderately steep, shallow and moderately deep, well drained soils; on foothills
- 17 AKERUE-SIMPARK-PUNCHBOWL: Gently sloping to moderately steep, shallow, well drained soils; on low mountains
- 18 AREAS DOMINATED BY SOILS ON MOUNTAINS
- 18 ITCA-RELUCTAN-TORRO: Moderately steep and steep, shallow, moderately deep, and very deep, well drained soils; on mountains
- 19 WALTI-SOFTSCRABBLE-ZOESTA: Strongly sloping and moderately steep, moderately deep and very deep, well drained soils; on high mountains
- 20 PACKER-HAPGOOD-SUMINE: Moderately steep to very steep, moderately deep and very deep, well drained soils; on high mountains

Compiled 1990
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 U.S. DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 UNIVERSITY OF NEVADA
 AGRICULTURAL EXPERIMENT STATION
GENERAL SOIL MAP
LANDER COUNTY, NEVADA
SOUTH PART



SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

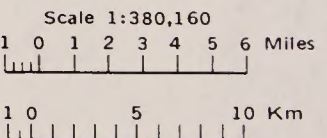
Inset, sheet 13

Inset, sheet 14

MATCH LINE TO LANDER COUNTY, NEVADA, NORTH PART



INDEX TO MAP SHEETS
LANDER COUNTY, NEVADA
SOUTH PART



SOIL LEGEND

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
120	Akerue-Simpark-Robson association	675	Filiran-Buttaran-Orovada association	2093	Punchbowl-Rock outcrop association	3153	Robson-Locane-Softscrabble association
121	Akerue-Simpark-Punchbowl association	680	Skullwak-Umberland-Wendane association	2094	Punchbowl-Simpark-Akerue association	3154	Robson-Locane-Rock outcrop association
141	Unsel-Wardenot-Belated association	683	Ocala-Sonoma-Paranat association	2095	Punchbowl-Robson-Rock outcrop association	3155	Robson-Itca-Softscrabble association
142	Unsel-Caphor-Chedehap association	700	Orovada-Rasille-Wholan association	2096	Punchbowl-Locane-Nobuck association	3170	Teguro-Rubble land-Punchbowl association
150	Chedehap-Enko-Ricert association	701	Orovada fine sandy loam, 2 to 4 percent slopes*	2097	Punchbowl-Itca association	3181	Newlands-Packer-Haggood association, moderately steep
160	Batan association	702	Orovada-Creemon association	2099	Punchbowl-Roca-Rock outcrop association	3182	Newlands-Packer-Haggood association, strongly sloping
161	Batan silt loam*	703	Orovada fine sandy loam, 0 to 2 percent slopes*	2100	Grassval-Grina-Unsel Variant association	3190	Softscrabble-Clanpine-Walti association
162	Batan-Keik association	704	Orovada-McConnel association	2101	Grassval-Oxcorel association	3192	Softscrabble-Walti-Cleavage association
168	Batan-Bubus-Ocala association	705	Orovada-Valmy association	2102	Grassval-Wieland association	3200	Dewar gravelly loam, 2 to 8 percent slopes
169	Batan-Ocala association	740	Playas	2104	Grassval-Punchbowl association	3210	Typic Argixerolis-Torripsammitic Haploxerolls-Glean association
170	Beoska-Orovada association	751	Poorcal-Lopwash association	2105	Grassval-Glyphs-Muni association	3231	Stingdorn, steep-Stingdorn-Hooplite association
171	Beoska silt loam, 2 to 8 percent slopes*	811	Ravenswood-Itca-Walti association	2110	Isolde-Davey association	3251	Caphor-Tenabo-Spasprey association
172	Beoska-Tenabo complex*	812	Ravenswood-Shagnasty-Walti association	2540	Buttaran-Wieland association	3252	Caphor-Batan-Unsel association
173	Beoska-Allor association	850	Relley silt loam, 0 to 2 percent slopes*	2541	Buttaran-Zoesta association	3253	Caphor-Caphor, moderately saline association
174	Beoska-Chiara association	854	Relley silt loam, frequently flooded, 0 to 2 percent slopes*	2542	Buttaran-Chiara association	3270	Koyen fine sandy loam, 2 to 4 percent slopes
175	Beoska-Whirlo-Misad association	910	Rutab loam, 0 to 2 percent slopes*	2543	Buttaran-Spasprey-Allor association	3310	Spasprey-Allor association
177	Beoska-Dewar-Orovada association	931	Shagnasty-Roca-Rock outcrop association	2545	Buttaran-Pineval association	3312	Spasprey-Buttaran-Orovada association
180	Needle Peak-Batan-Yobe association	932	Shagnasty-Softscrabble association	2546	Buttaran-Spasprey-Locane association	3314	Spasprey-Allor-Orovada association
190	Wardenot-Sundown association	942	Shingley silt loam, occasionally flooded, 0 to 2 percent slopes*	2547	Buttaran-Desatoya association	3341	Halacan-Hatur-Rock outcrop association
191	Wardenot-Laxal association	950	Silverado sandy loam, 0 to 2 percent slopes*	2548	Buttaran-Tenabo-Pineval association	3342	Halacan-Haggood-Granzan association
200	Izo-Misad association	990	Sonoma-Wendane association	2554	Laped-Hooplite-Osol association	3411	Zoesta-Robson-Softscrabble association
201	Izo-Bubus association	998	Sonoma-Paranat association	2555	Laped-Colbar association	3415	Zoesta-Handy association
210	Laxal association	999	Sonoma-Wendane-Paranat association	2570	Colbar-Atlow-Burrita association	3417	Zoesta-Roca-Softscrabble association
211	Laxal gravelly fine sandy loam, occasionally flooded, 0 to 2 percent slopes*	1011	Stampede-Handy-Caniwe association	2603	Grina-Genaw association	3421	Belate-Softscrabble-Torro association
212	Laxal-Tomel association	1041	Tenabo-Orovada-Buttaran association	2640	Rasille-Keik association	3422	Belate-Robson-Torro association
220	Blackhawk very fine sandy loam, 2 to 8 percent slopes*	1042	Tenabo-Ricert-Desatoya association	2672	Zoesta Variant-Jung-Trunk association	3423	Belate-Cleavage-Softscrabble association
221	Blackhawk-Tenabo-Desatoya Variant association	1092	Tulase-Bubus-McConnel association	2681	Tessfive-Puett-Grina association	3450	Reluctan-Robson-Cleavage association
231	Broyles very fine sandy loam, 2 to 4 percent slopes*	1131	Fortank gravelly loam, 4 to 8 percent slopes	2683	Tessfive-Genaw-Orovada association	3453	Reluctan-Locane-Itca association
235	Broyles-Creemon association	1140	Wendane silt loam, frequently flooded*	2684	Tessfive-Perlor-Orovada association	3455	Reluctan-Roca-Colbar association
236	Broyles association	1141	Wendane-Umberland association	2690	Itca Variant-Reluctan-Handy association	3457	Reluctan-Clanpine-Roca association
237	Broyles-Beoska-Orovada association	1142	Wendane-Gund association	2730	Pula-Spike-Buffaran association	3461	Torro-Rubble land-Cleavage association
239	Broyles-Tessfive-Perlor association	1143	Wendane silt loam, occasionally flooded*	2731	Pula-Spike association	3462	Torro-Reluctan-Cleavage association
249	Bubus association	1145	Wendane-Playas association	2740	Spike-Desatoya Variant-Grassval association	3463	Torro-Clanpine-Itca association
260	Umberland-Wendane association	1146	Wendane-Sonoma-Valmy association	2771	Kram-Hopeka-Rock outcrop association	3464	Torro-Itca-Softscrabble association
261	Umberland-Wendane-Ocala association	1148	Wendane-Bubus association	2780	Desatoya-Tenabo-Pineval association	3465	Torro-Clanpine-Softscrabble association
262	Umberland silt loam, frequently flooded, 0 to 2 percent slopes*	1169	Whirlo-Broyles association	2781	Desatoya-Orovada association	3562	Locane-Coztur-Punchbowl association
270	Tomel-Laxal association	1173	Wholan silt loam, alkaline*	2782	Desatoya-Pineval-Grassval association	3563	Locane-Muni-Locane, eroded association
280	Chiara-Filiran association	1177	Wholan-Rasille association, alkaline	2783	Desatoya-Pineval-Grassval association	3625	Mnat-Coztur-Belate association
284	Chiara-Dewar association	1178	Wholan-Rasille association, nonalkaline	2791	Old Camp-Colbar Rock outcrop association	3690	Izod-Koyink-Rock outcrop association
290	Creemon silt loam, 0 to 2 percent slopes*	1281	Ricert-Whirlo-Pineval association	2792	Old Camp-Allor-Puett association	3740	Keik silt loam, saline
291	Creemon-Wholan association	1282	Ricert-Broyles association	2793	Old Camp-Laped association	3741	Keik-Softmeyer association
295	Creemon-Cren association	1284	Ricert-Zineb-Pineval association	2797	Old Camp, steep-Colbar-Old Camp association	3742	Keik-Ocala association
296	Creemon-Hessing association	1285	Ricert-Bubus-Broyles association	2798	Old Camp-Atlow-Osol association	3840	Jung-Newpass association
297	Creemon-Rasille-Tulase association	1286	Ricert-Tenabo-Broyles association	3001	Barrier-Kobeh association	3841	Jung-Itca-Roca association
298	Creemon-Misad association	1287	Ricert-Orovada-Broyles association	3011	Defler-Orovada association	3842	Jung-Hooplite association
301	Cren-Ocala-Playas association	1288	Ricert-Orovada-Tenabo association	3050	Novacan cobbly loam, 2 to 8 percent slopes	3843	Jung-Newpass-Teguro association
310	Yobe-Kawich-Playas association	1289	Ricert-Blackhawk-Orovada association	3071	Allor-Wieland association	3845	Jung-Stingdorn-Atlow association
320	Newpass-Jung association	1371	Chad-Gando-Softscrabble association	3072	Allor-Orovada association, moderately sloping	3846	Jung-Atlow-McVegas association
321	Newpass-Old Camp association	1450	Atlow-Stingdorn association	3073	Allor-Keik association	3847	Jung-Old Camp-Clanpine association
360	Eastwell-Blackhawk-Pineval association	1600	Dumps and pits	3074	Allor-Orovada association, nearly level	3848	Jung-McVegas-Enko association
404	Glean-Gando association	1670	Wieland-Allor association	3080	Zaidy-Ricert association	3851	Decram-Haggood association
441	Gund-Umberland association	1680	Zineb gravelly loam, 2 to 8 percent slopes	3081	Zaidy-Allor association	3852	Decram-Haggood-Chad association
442	Gund-Bubus-Wendane association	1681	Zineb-Chiara-Wieland association	3091	Packer-Packer, cobbly-Newlands association	3861	Duco-Itca-Roca association
443	Gund-Batan association	1682	Zineb-Orovada association	3092	Packer-Haggood-Rock outcrop association	3863	Duco-Clanpine-Jung association
444	Gund association	2003	Unius-Orovada association	3093	Packer-Layview-Haggood association	3881	Layview-Packer-Haggood association
461	Haggood-Packer-Layview association	2010	Glyphs-Silverado association	3094	Packer-Haggood-Torro association	3891	Labshaft-Haggood-Rock outcrop association
463	Haggood-Packer-Rubble land association	2011	Glyphs-Muni association	3101	Hackwood-Newlands-Haggood association	3950	Hooplite-Jung-Izod association
465	Haggood-Halacan-Hatur association	2012	Glyphs-Muni-Orovada association	3111	Ninemile-Zoesta-Itca association	3951	Hooplite-Old Camp-Puett association
491	Enko-Orovada association, gently sloping	2015	Glyphs-Enko association	3120	Walti-Softscrabble-Chad association	3952	Hooplite-Stingdorn association
492	Enko-Glyphs association	2021	Rotinom-Wholan association	3121	Walti-Softscrabble-Bucan association	3960	Pineval gravelly loam, 2 to 4 percent slopes*
493	Enko-Orovada association, nearly level	2022	Rotinom-Orovada association	3122	Walti-Sumine-Softscrabble association	3961	Pineval-Orovada-Beoska association
512	Hessing-Relley association	2031	Muni-Orovada-Unius association	3123	Walti-Softscrabble-Itca association	3964	Pineval-Orovada association
560	Jesse Camp silt loam	2060	Oxcorel-Beoska-Whirlo association	3125	Walti-Softscrabble-Robson association	3990	Settlemyer fine sandy loam, drained, 0 to 2 percent slopes*
621	Loncan-Gando-Glean association	2061	Oxcorel-Zaidy-Grassval association	3130	Itca-Clanpine-Reluctan association	3991	Settlemyer-Pineval association
632	McConnel-Orovada-Misad association	2063	Oxcorel-Pineval association	3131	Itca-Ninemile-Rock outcrop association	3992	Settlemyer complex*
633	McConnel-Rasille-Wholan association	2069	Oxcorel-Wieland-Spasprey association	3132	Itca-Softscrabble-Cleavage association	4041	Hymas-Xine-Attella association
635	McConnel-Rasille association	2081	Fenster-Jesse Camp association	3134	Itca-Clanpine-Torro association	4070	Genaw-Wieland-Grina association
636	McConnel-Defler-Rasille association	2088	Punchbowl-Jung-Teguro association	3135	Itca-Clanpine-Rock outcrop association	4072	Genaw-Orovada-Puett association
637	McConnel-Orovada association	2089	Punchbowl-Jung-Locane association	3136	Itca-Roca-Reluctan association	4073	Genaw-Broyles-Perlor association
638	McConnel-Wholan association	2090	Punchbowl gravelly loam, 4 to 15 percent slopes	3137	Itca-Reluctan-Walti association	4140	Welch loam, drained, 2 to 8 percent slopes
670	Filiran-Pineval-Kingingham association	2091	Punchbowl-Teguro-Sumine association	3140	Sodhouse-Tenabo-Desatoya Variant association		
674	Filiran-Buttaran association	2092	Punchbowl-Belate-Reluctan association	3151	Robson-Ninemile-Belate-Reluctan association		

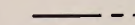
*Narrowly defined map units. Other map units are broadly defined.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

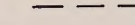
National, state or province



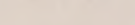
County or parish



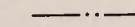
Minor civil division



Reservation (national forest or park, state forest or park, and large airport)



Land grant



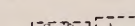
Limit of soil survey (label)



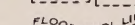
Field sheet matchline and neatline



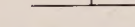
AD HOC BOUNDARY (label)



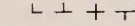
Small airport, airfield, park, oilfield, cemetery, or flood pool



STATE COORDINATE TICK

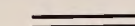


LAND DIVISION CORNER (sections and land grants)



ROADS

Divided (median shown if scale permits)



Other roads

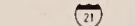


Trail

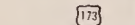


ROAD EMBLEM & DESIGNATIONS

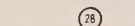
Interstate



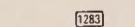
Federal



State



County, farm or ranch

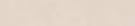


RAILROAD

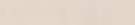
POWER TRANSMISSION LINE (normally not shown)



PIPE LINE (normally not shown)

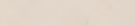


FENCE (normally not shown)



LEVEES

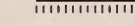
Without road



With road

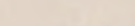


With railroad

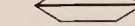


DAMS

Large (to scale)

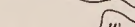


Medium or Small

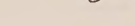


PITS

Gravel pit



Mine or quarry



MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)



Church



School



Indian mound (label)



Located object (label)



Tank (label)



Wells, oil or gas



Windmill



Kitchen midden



Small airport, airfield, park, oilfield, cemetery, or flood pool



STATE COORDINATE TICK



LAND DIVISION CORNER (sections and land grants)



ROADS

Divided (median shown if scale permits)



Other roads



Trail



ROAD EMBLEM & DESIGNATIONS

Intermittent



Drainage end



Canals or ditches



Double-line (label)



Drainage and/or irrigation



LAKES, POND5 AND RESERVOIRS

Perennial (normally not shown)



Intermittent (normally not shown)



