United States
Department of
Agriculture

Soil
Conservation
Service

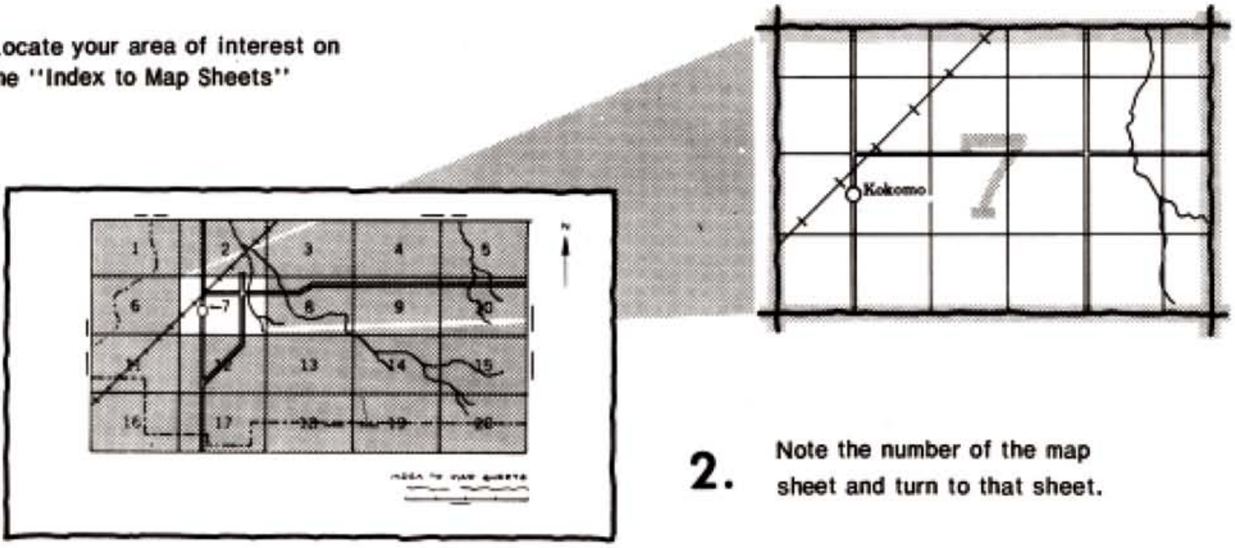
In cooperation with
United States Department
of the Interior, Bureau of
Land Management, and
Utah Agricultural
Experiment Station

Soil Survey of Carbon Area, Utah

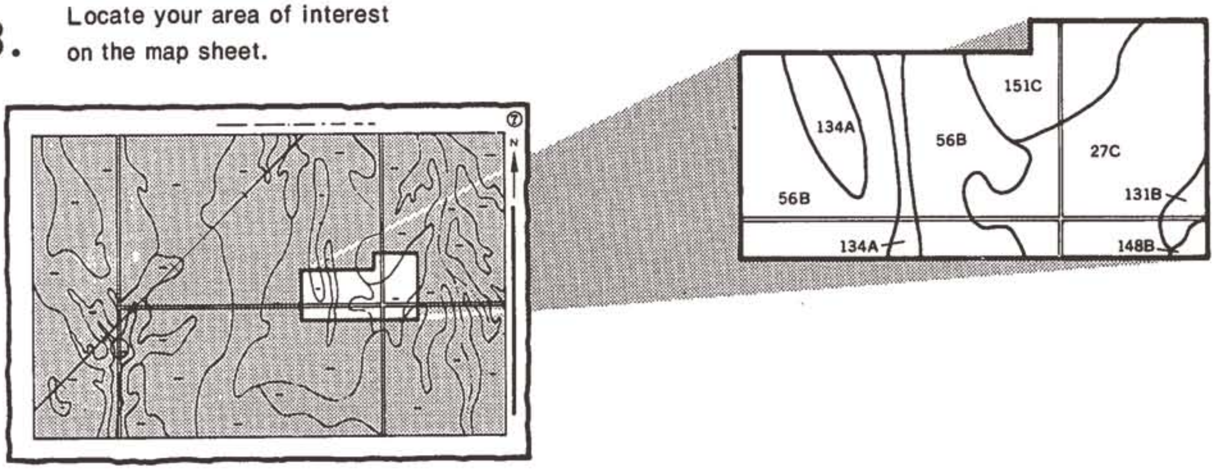
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

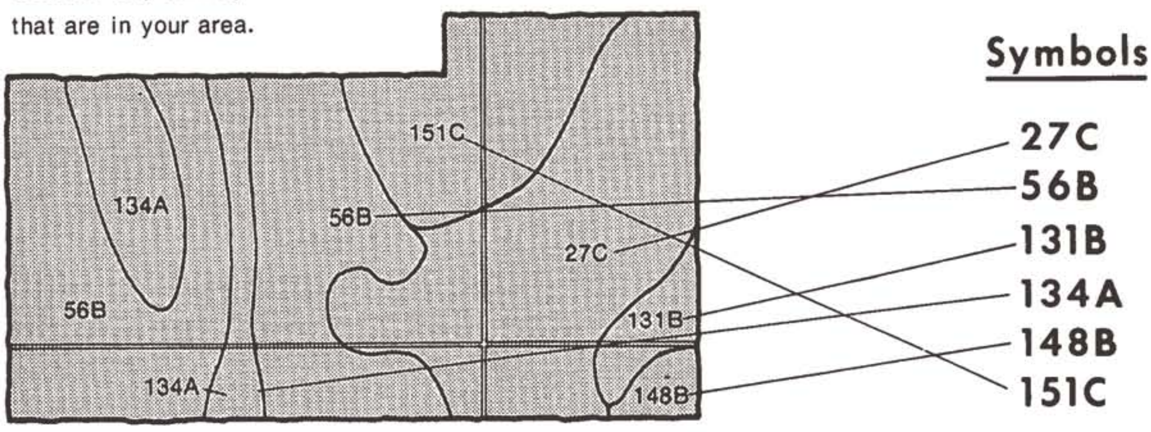
2. Note the number of the map sheet and turn to that sheet.



3. Locate your area of interest on the map sheet.

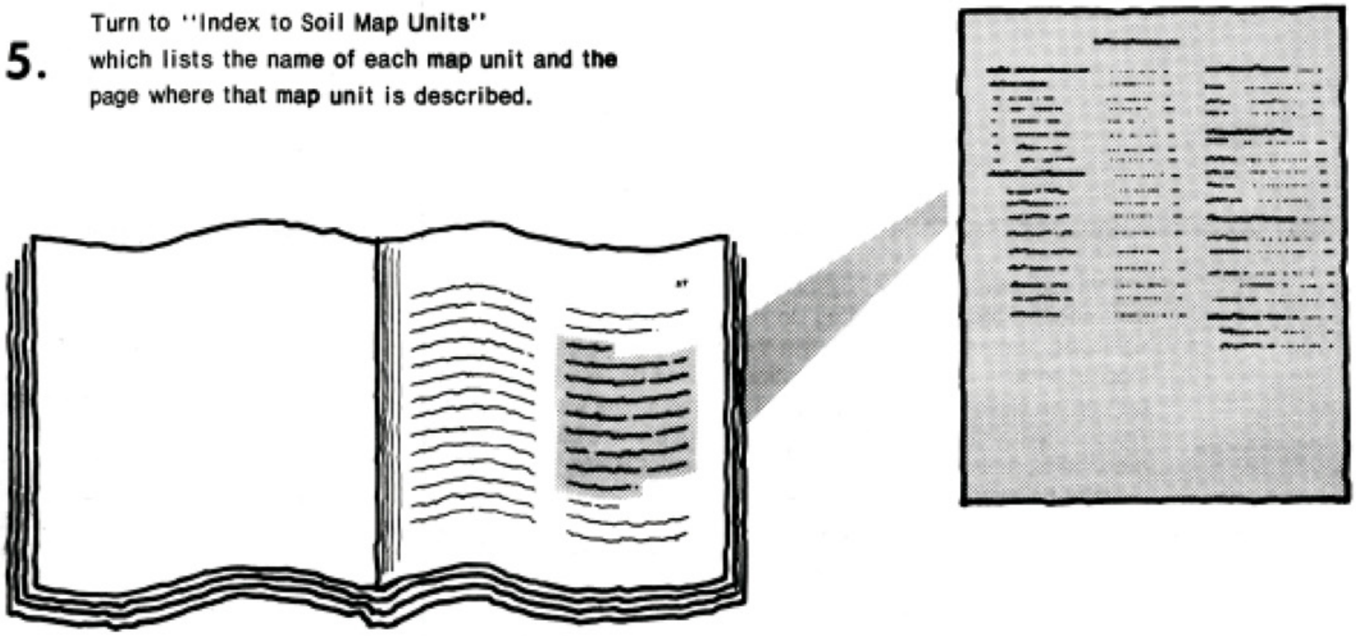


4. List the map unit symbols that are in your area.

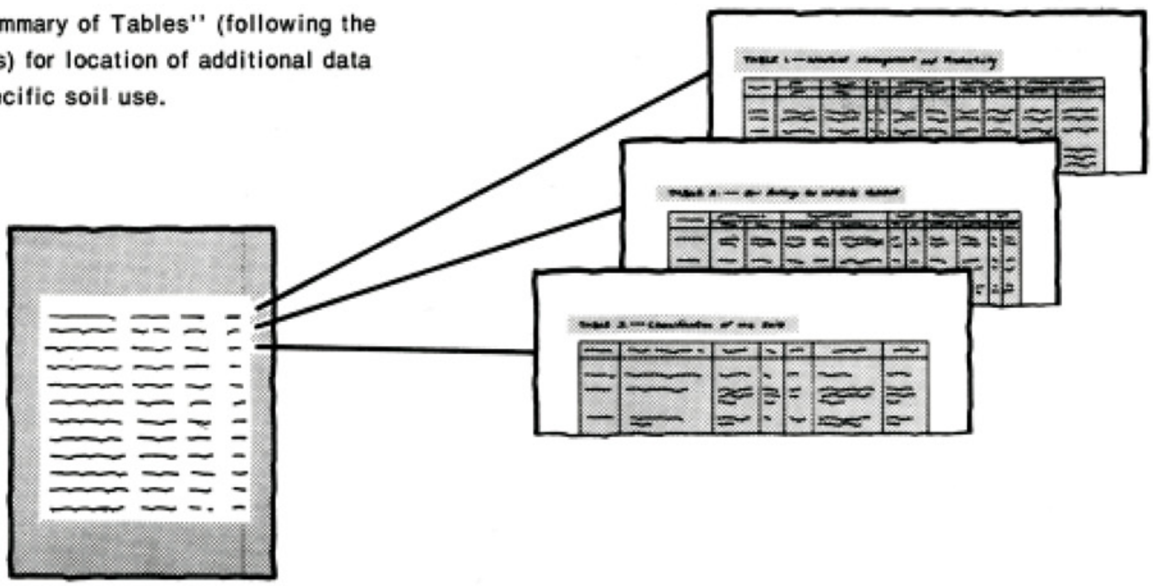


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1980. Soil names and descriptions were approved in 1982. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1981. This survey was made cooperatively by the Soil Conservation Service, the Bureau of Land Management, and the Utah Agricultural Experiment Station. It is part of the technical assistance furnished to the Price River Watershed and San Rafael Soil Conservation Districts.

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

Cover: Area of general soil map unit 15. In foreground, Beje soils under sagebrush and Senchert soils under aspen and fir. In background, Uinta family soils under spruce on ridges and steeper slopes and Senchert soils under aspen.

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Issued June 1988

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Summary of Tables

Foreword

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

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

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

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

Francis T. Holt

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State Conservationist
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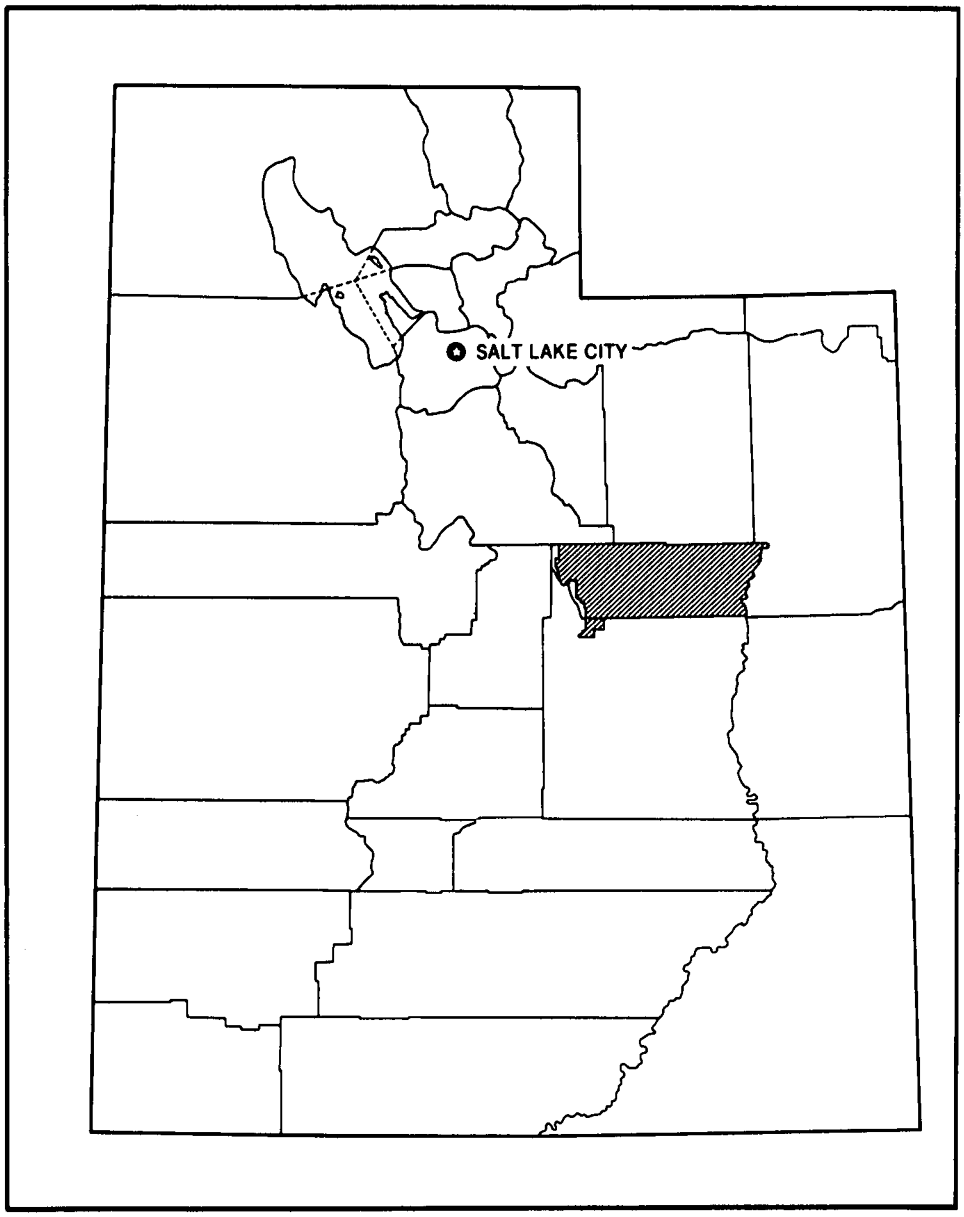

Location of Carbon Area in Utah.

Soil Survey of Carbon Area, Utah

By Earl H. Jensen and James W. Borchert, Soil Conservation Service

Fieldwork by Earl H. Jensen, James W. Borchert, Laurel H. Stott,
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United States Department of Agriculture,
Soil Conservation Service
In cooperation with
United States Department of the Interior,
Bureau of Land Management, and
Utah Agricultural Experiment Station

CARBON AREA is in the east-central part of Utah. It is in the Canyonlands and Uinta Basin sections of the Colorado Plateaus physiographic province. The survey area includes most of Carbon County and a small area in Emery County. The national forest land along the western edge of Carbon County, near Scofield, is not included. Most of the survey area consists of rangeland that surrounds cultivated areas. The total acreage of the survey area is 900,000 acres, or about 1,406 square miles. Elevation ranges from about 4,700 feet at Desolation Canyon to 10,200 feet at Bruin Point. Price is the county seat of Carbon County.

Most of the survey area consists of high mountains and canyons that have very steep side slopes. The south-central part of the area is characterized by rolling hills, narrow valleys, and low mesas.

Beef cattle is the main source of agricultural income. Sheep operations have been important, but the number of sheep has decreased to only one or two large operations and some small ones.

The acreage of woodland in the survey area is large; however, only limited amounts of wood products are being harvested at present. The main use of the woodland areas is for limited Christmas tree and firewood production. Scofield Reservoir is the largest body of water in the survey area and a popular recreation area. Large deposits of coal are in the area, and coal mining is the main industry.

The main crops grown in the survey area are alfalfa, small grain, and irrigated pasture, and corn for silage. Droughtiness, a shortage of irrigation water late in summer, and a short growing season often limit crop production.

Descriptions, names, and delineations of soils in this soil survey do not fully agree with those on soil maps for adjacent survey areas. Differences are the result of better knowledge of soils, modifications in series concepts, intensity of mapping, or the extent of soils within the survey.

Climate

By Arlo Richardson, state climatologist, Utah Department of Agriculture.

This survey areas consists of a small section of valley and the partially surrounding bluffs and plateau. Elevation in the area ranges from about 5,400 to 10,000 feet, and thus the range in climate is great.

Precipitation in the area ranges from less than 8 inches to nearly 30 inches; it increases as elevation increases. In summer most of the precipitation is received during thunderstorns, as moisture-laden air from the Gulf of Mexico moves across the area from the south and southeast. Closed lows aloft, which can develop any time of the year but are most frequent in spring and fall, account for much of the precipitation received in some years.

The amount of precipitation received during the period of October to April ranges from less than 4 inches to more than 20 inches. At higher elevations, much of this precipitation is received as snow during frontal storms. The amount of precipitation decreases as the storms subside over the valley or descend the slopes on the eastern side of the Roan Plateau.

Much of the precipitation received in the area during the growing season, May to September, is in the form of thunderstorms. These storms can deposit as much as 1.5 inches of rainfall or more in only a few hours. This can result in flash flooding of streambeds that usually are dry. Precipitation during this period ranges from about 4 to 8 inches and is much more evenly distributed than it is during the period from October to April. During May, closed lows aloft can produce a secondary peak in the precipitation received during the growing season at some locations.

The snow received in the mountains in winter supplies much of the irrigation water needed on the farmland in the valleys. The average annual snowfall ranges from about 20 inches in the valley to about 200 inches at the higher elevations on the Wasatch and Roan Plateaus.

Temperatures in the survey area vary markedly with elevation. The average annual temperature ranges from 37 to 47 degrees F. The warmest month, July, has an average maximum temperature of 77 to 86 degrees. January is the coldest month, with an average minimum temperature of about 28 to 35 degrees. The extreme maximum recorded temperature was 98 degrees at Sunnyside, and the extreme minimum was -42 degrees at Scofield Dam. A summary of climatic data for four stations is given in table 1.

The length of the growing season in the survey area decreases almost linearly with increases in elevation. It ranges from more than 140 days in the valley to less than 20 days on top of the Roan Plateau, where freezing temperatures can occur any day of the year. Length of the growing season is given for each map unit in the section "Detailed Soil Map Units."

Estimates of pan evaporation are given in table 2 for four stations in the survey area. In areas that support dense vegetation, such as that of forests and irrigated fields, the plants transpire enough to increase the humidity of the air. Consequently, pan evaporation in these areas is 10 to 15 percent less than that in barren areas. Pan evaporation over the area ranges from about 30 to 55 inches during the period from May to October.

How This Survey Was Made

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

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

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

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

While the soil survey was in progress, samples of some of the soils in the area were collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses and under different levels of management. Some interpretations were modified to fit local conditions, and some new interpretations were developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

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

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

General Soil Map Units

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

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

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

The general map units in this survey have been grouped into general kinds of landscape for broad interpretive purposes. Each of the broad groups and the map units in each group are described in the following pages.

Map Unit Descriptions

Dominantly somewhat poorly drained and well drained, nearly level to very steep soils, Badland, and Rock outcrop in an arid climatic zone

This group consists of four map units. It makes up about 14 percent of the survey area.

1. Ravola-Billings-Hunting

Very deep, somewhat poorly drained and well drained, nearly level and gently sloping soils; on valley floors and alluvial fans

This map unit is dominantly in the south-central part of the survey area, near Price. Slope is 0 to 6 percent. The vegetation on the Ravola and Billings soils is mainly shadscale, galleta, Indian ricegrass, and black greasewood. The vegetation on the Hunting soil is mainly saltgrass, redtop, and black greasewood. Elevation is 5,200 to 5,800 feet. The average annual precipitation is about 6 to 8 inches, the average annual air temperature is 47 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit makes up about 5 percent of the survey area. It is about 50 percent Ravola and similar soils, 10 percent Billings soils, and 10 percent Hunting soils. The remaining 30 percent is components of minor extent.

Ravola soils are on alluvial fans and narrow valley floors. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The soils are light brownish gray loam and silt loam.

Billings soils are on alluvial fans, flood plains, and narrow valley floors. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The soils are light brownish gray silty clay loam throughout.

Hunting soils are on alluvial fans and valley floors. These soils are very deep and somewhat poorly drained. They formed in alluvium derived dominantly from sandstone and shale. The soils are light brownish gray and grayish brown loam and silt loam.

The soils in this unit are salt- and alkali-affected in some areas.

Of minor extent in this unit are Penoyer Variant, Killpack, Green River, Juva Variant, Persayo, Chipeta, Ferron, and Rafael soils. The Ferron and Rafael soils are poorly drained.

This unit is used mainly as rangeland and wildlife habitat. It is also used for irrigated crops and urban development.

The areas of this unit that are salt- and alkali-affected are poorly suited to homesite development.

2. Persayo-Chipeta-Badland

Shallow, well drained, gently sloping and moderately steep soils, and Badland; on shale hills

This map unit is dominantly south and east of Price. Slope is 3 to 20 percent. The vegetation on the Persayo soils is mainly shadscale, galleta, winterfat, and blue grama. The vegetation on the Chipeta soils is mainly mat saltbush and Nuttall saltbush. Elevation is 5,300 to 6,100 feet. The average annual precipitation is about 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit makes up about 4 percent of the survey area. It is about 40 percent Persayo soils, 25 percent Chipeta soils, and 10 percent Badland. The remaining 25 percent is components of minor extent.

Persayo soils are on shale hills. These soils are shallow and well drained. They formed in residuum and alluvium derived dominantly from shale and sandstone. The soils are pale brown loam to a depth of 12 inches. Weathered shale is at a depth of 10 to 20 inches.

Chipeta soils are on shale hills. These soils are shallow and well drained. They formed in residuum derived dominantly from shale. The soils are gray silty clay loam to a depth of 17 inches. Weathered shale is at a depth of 10 to 20 inches.

The soils are salt- and alkali-affected in some areas.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways. Some areas are interbedded with sandstone.

Of minor extent in the unit are Ravola, Libbings, Killpack, Sagers, Saltair, and Minchey soils and Gullied land. The Libbings and Saltair soils are poorly drained.

This unit is used as rangeland and wildlife habitat and for urban development.

This unit is poorly suited to homesite development. The main limitations are the shallow soil depth, shrink-swell potential, and steepness of slope.

3. Ravola-Persayo-Moffat

Shallow and very deep, well drained, nearly level to moderately steep soils; on alluvial fans, valley floors, benches, and hillslopes

This map unit is dominantly south and east of Wellington. Slope is 1 to 30 percent. The vegetation on the Ravola soils is mainly galleta, shadscale, and black greasewood. The vegetation on the Persayo soils is mainly shadscale, galleta, blue grama, and black sagebrush. The vegetation on the Moffat soils is mainly black sagebrush, blue grama, fourwing saltbush, and galleta. Elevation is 5,300 to 5,800 feet. The average annual precipitation is about 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit makes up about 3 percent of the survey area. It is about 40 percent Ravola and similar soils, 25 percent Persayo soils, and 10 percent Moffat soils. The remaining 25 percent is components of minor extent.

Ravola soils are on alluvial fans and narrow valley floors. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The soils are light brownish gray loam and silt loam.

Persayo soils are on shale hills. These soils are shallow and well drained. They formed in residuum and alluvium derived dominantly from shale and sandstone. The soils are pale brown loam to a depth of 12 inches. Weathered shale is at a depth of 10 to 20 inches.

Moffat soils are on alluvial fans and benches. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The surface layer and subsoil are brown fine sandy loam. Below this to a depth of 60 inches or more the soils are pink and pinkish white fine sandy loam.

Of minor extent in the unit are Billings, Greybull, Killpack, and Chipeta soils and Badland.

This unit is used as rangeland and wildlife habitat.

4. Casmos-Travessilla-Rock outcrop

Shallow, well drained, nearly level to very steep soils, and Rock outcrop; on canyonsides, benches, and mountain slopes

This map unit is dominantly in the northeastern corner of the survey area. Slope is 1 to 70 percent. The vegetation on the Casmos soils is mainly shadscale, galleta, black sagebrush, and blue grama. The vegetation on the Travessilla soils is mainly black sagebrush, galleta, Indian ricegrass, and fourwing saltbush. Elevation is 4,700 to 6,000 feet. The average annual precipitation is about 6 to 8 inches for the Casmos soils and 8 to 10 inches for the Travessilla soils. The average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit makes up about 2 percent of the survey area. It is about 45 percent Casmos soils, 20 percent Travessilla soils that are dry, and 15 percent Rock outcrop. The remaining 20 percent is components of minor extent.

Casmos soils are on canyonsides and pediment slopes. These soils are shallow and well drained. They formed in residuum derived dominantly from siltstone and shale. The surface layer is pale brown channery loam. Below this to a depth of 6 inches the soils are light yellowish brown clay loam. Unweathered siltstone is at a depth of 5 to 20 inches.

Travessilla soils are on benches, mesas, and mountain slopes. These soils are shallow and well drained. They formed in residuum derived dominantly from sandstone and shale. The surface layer is light yellowish brown channery sandy loam. Below this to a depth of 13 inches the soils are light yellowish brown and very pale brown sandy loam. Unweathered sandstone is at a depth of 8 to 20 inches.

Rock outcrop consists of nearly barren exposures of sandstone, siltstone, and shale.

Of minor extent in the unit are Podo, Cabba family, Green River, Juva Variant, and Winetti Variant soils.

This unit is used as rangeland and wildlife habitat.

Dominantly shallow to very deep, well drained, nearly level to steep soils in a semi-arid climatic zone

This group consists of two map units. It makes up about 10 percent of the survey area.

5. Travessilla-Strych-Stormitt

Shallow to very deep, well drained, gently sloping to moderately steep soils; on benches, outwash plains, mesas, hillslopes, and toe slopes

This map unit is dominantly in the south-central part of the survey area. Slope is 3 to 30 percent. The vegetation on the Travessilla soils is mainly Utah juniper, pinyon, galleta, black sagebrush, and Indian ricegrass. The vegetation on the Strych soils is mainly Utah juniper, pinyon, Salina wildrye, and Indian ricegrass. The vegetation on the Stormitt soils is mainly Wyoming big sagebrush, black sagebrush, Indian ricegrass, and galleta. Elevation is 5,400 to 6,800 feet. The average annual precipitation is about 8 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

This unit makes up about 6 percent of the survey area. It is about 30 percent Travessilla soils that are dry and similar soils; 20 percent Strych soils that are dry; and 15 percent Stormitt soils. The remaining 35 percent is components of minor extent.

Travessilla soils are on benches and mesas. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is brown very fine sandy loam. Below this to a depth of 10 inches the soils are brown very fine sandy loam. Unweathered sandstone is at a depth of 8 to 20 inches.

Strych soils are on outwash plains and toe slopes. These soils are very deep and well drained. They formed in glacial outwash derived dominantly from sandstone and shale. The surface layer is pale brown very stony loam. Below this to a depth of 60 inches or more the soils are light yellowish brown and pale brown very stony sandy loam and very cobbly sandy loam.

Stormitt soils are on benches, hillslopes, and mesas. These soils are very deep and well drained. They formed in colluvium and glacial outwash derived dominantly from sandstone, shale, and quartzite. The surface layer is pale brown gravelly sandy clay loam. The subsoil is light yellowish brown and brownish yellow gravelly sandy clay loam. Below this to a depth of 60 inches or more the soils are very pale brown very cobbly sandy clay loam.

Of minor extent in this unit are Gerst, Hernandez family, Haverdad, Mivida, Atrac, and Nelman soils and Badland.

This unit is used as rangeland, woodland, and wildlife habitat.

6. Hernandez family-Mivida-Strych

Very deep, well drained, nearly level to moderately steep soils; on alluvial fans and fan terraces

This map unit is dominantly south and west of Sunnyside. Slope is 1 to 30 percent. The vegetation on the Hernandez family soils is mainly Wyoming big sagebrush, galleta, Indian ricegrass, and blue grama. The vegetation on the Strych soils is mainly Utah juniper, pinyon, Salina wildrye, and Indian ricegrass. The vegetation on the Stormitt soils is mainly galleta, Indian ricegrass, blue grama, and fourwing saltbush. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 8 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

This unit makes up about 4 percent of the survey area. It is about 45 percent Hernandez family and similar soils, 25 percent Mivida and similar soils, and 10 percent Strych soils that are dry. The remaining 20 percent is components of minor extent.

Hernandez family soils are on fan terraces. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The surface layer and subsoil are brown loam. Below this to a depth of 60 inches or more the soils are light brown or pink loam.

Mivida soils are on fan terraces. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The surface layer is brown very stony fine sandy loam. The subsoil is pink fine sandy loam. Below this to a depth of 60 inches or more the soils are pinkish white and pink fine sandy loam and very cobbly fine sandy loam.

Strych soils are on alluvial fans. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The surface layer is pale brown very stony loam. Below this to a depth of 60 inches or more the soils are light yellowish brown and pale brown very stony sandy loam and very cobbly sandy loam.

Of minor extent in this unit are Haverdad, Ravola, Persayo, and Glenberg soils.

This unit is used as rangeland, woodland, and wildlife habitat.

Dominantly, shallow to very deep, well drained, nearly level to very steep soils and Rock outcrop in a dry, subhumid climatic zone

This group consists of four map units. It makes up about 39 percent of the survey area.

7. Strych-Gerst-Travessilla

Shallow to very deep, well drained, nearly level to moderately steep soils; on outwash plains, benches, and mesas

This map unit is in the central part of the survey area. It is at the base of the Book Cliffs and in areas that extend from Sunnyside to Helper on the north and then south past Hiawatha to the survey area boundary. Slope is 1 to 30 percent. The vegetation is mainly pinyon, Utah juniper, Salina wildrye, Indian ricegrass, and birchleaf mountainmahogany. Elevation is 6,200 to 8,000 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 80 to 120 days.

This unit makes up about 13 percent of the survey area. It is about 35 percent Strych soils, 15 percent Gerst soils, and 10 percent Travessilla and similar soils. The remaining 40 percent is components of minor extent.

Strych soils are on outwash plains. These soils are very deep and well drained. They formed in alluvium, colluvium, and glacial outwash derived dominantly from sandstone, shale, and quartzite. The surface layer is pinkish gray very stony loam. Below this to a depth of 60 inches or more the soils are very pale brown very stony loam and very cobbly sandy loam.

Gerst soils are on the sides of mesas. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is light brownish gray extremely stony loam. Below this to a depth of 19 inches the soils are gray and light brownish gray channery silt loam. Weathered shale is at a depth of 10 to 20 inches.

Travessilla soils are on benches and mesas. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is brown sandy loam. Below this to a depth of 17 inches the soils are brown and light brown loam. Unweathered sandstone is at a depth of 7 to 20 inches.

Of minor extent in this unit are Haverdad, Glenberg, Nelman, Mivida, Chipeta, Hernandez family, and Stormitt soils, Badland, and Rock outcrop.

This unit is used as rangeland, woodland, and wildlife habitat.

8. Travessilla-Rock outcrop-Gerst

Shallow, well drained, steep and very steep soils, and Rock outcrop; on mountain slopes and canyonsides

This map unit is on the eastern edge of the survey area, adjacent to the Green River. Slope is 40 to 70 percent. The vegetation on the Travessilla and Gerst soils is mainly pinyon, Utah juniper, Salina wildrye, Indian ricegrass, birchleaf mountainmahogany, and Douglas-fir. Elevation is 5,000 to 7,000 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 145 days.

This unit makes up about 4 percent of the survey area. It is about 30 percent Travessilla and similar soils, 25 percent Rock outcrop, and 20 percent Gerst soils that are dry and similar soils. The remaining 25 percent is components of minor extent.

Travessilla soils are on mountain slopes and canyonsides. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is pale brown extremely bouldery loam. Below this to a depth of 12 inches the soils are pale brown very fine sandy loam. Unweathered sandstone is at a depth of 10 to 20 inches.

Rock outcrop consists of nearly barren exposures of sandstone, siltstone, and shale.

Gerst soils are on canyonsides. These soils are shallow and well drained. They formed in residuum derived dominantly from shale. The surface layer is light brownish gray very channery loam. Below this to a depth of 19 inches the soils are light brownish gray channery loam. Unweathered shale is at a depth of 10 to 20 inches.

Of minor extent in this unit are Guben, Cabba family, Podo, Shupert, Winetti, and Winetti Variant soils.

Most areas of this unit are used as wildlife habitat. A few areas are used as rangeland and woodland.

9. Cabba family-Podo-Doney family

Shallow and moderately deep, well drained, nearly level to very steep soils; on benches, mesas, and canyonsides

This map unit is in the northeastern part of the survey area, adjacent to the Carbon-Duchesne County line. Slope is 1 to 70 percent. The vegetation on the Cabba family and Podo, dry, soils is mainly pinyon, Utah juniper, Salina wildrye, birchleaf mountainmahogany, and Douglas-fir. The vegetation on the Doney family soils is mainly Wyoming big sagebrush, Salina wildrye, western wheatgrass, and fourwing saltbush. Elevation is 5,900 to 8,200 feet. The average annual precipitation is about 12 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 80 to 120 days.

This unit makes up about 11 percent of the survey area. It is about 35 percent Cabba family and similar soils, 30 percent Podo soils that are dry and similar soils, and 10 percent Doney family soils. The remaining 25 percent is components of minor extent.

Cabba family soils are on benches, mesas, and canyonsides. These soils are shallow and well drained. They formed in residuum derived dominantly from shale and siltstone. The surface layer is pale brown bouldery loam. Below this to a depth of 15 inches the soils are brown and light yellowish brown loam. Weathered shale is at a depth of 7 to 20 inches.

Podo soils are on benches, mesas, and canyonsides. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone. The surface layer is brown gravelly sandy loam. Below this to a depth of 11 inches the soils are brown loam and gravelly loam. Unweathered sandstone is at a depth of 10 to 20 inches.

Doney family soils are on benches. These soils are moderately deep and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is light brownish gray silt loam. Below this to a depth of 36 inches the soils are pale brown and light gray loam. Weathered shale is at a depth of 20 to 40 inches.

Of minor extent in this unit are Travessilla, Grobutte, Guben, Haverdad, and Hernandez family soils and Rock outcrop.

This unit is used as rangeland, woodland, and wildlife habitat.

10. Travessilla-Rock outcrop-Midfork family

Shallow to very deep, well drained, steep and very steep soils, and Rock outcrop; on mountain slopes and canyonsides

This map unit is in the central part of the survey area, extending from Price Canyon, along the face of the Book Cliffs, to the Carbon-Emery County line, south of Sunnyside. It is mainly on mountain slopes and canyonsides. Slope is 40 to 70 percent. The vegetation on the Travessilla soils is mainly pinyon, Utah juniper, Salina wildrye, birchleaf mountainmahogany, and big sagebrush. The vegetation on the Midfork family soils is mainly Douglas-fir, snowberry, and white fir. Elevation is 7,000 to 8,800 feet. The average annual precipitation ranges from about 14 to 25 inches, but it is dominantly 14 to 18 inches. The average annual air temperature is 38 to 47 degrees F, and the average freeze-free period is 60 to 100 days.

This unit makes up about 11 percent of the survey area. It is about 30 percent Travessilla and similar soils, 25 percent Rock outcrop, and 10 percent Midfork family and similar soils. The remaining 35 percent is components of minor extent.

Travessilla soils are on mountain slopes and canyonsides that dominantly face south and west. These soils are shallow and well drained. They formed in residuum derived dominantly from sandstone. The surface layer is brown very gravelly fine sandy loam. Below this to a depth of 17 inches the soils are brown and light brown loam. Unweathered sandstone is at a depth of 10 to 20 inches.

Rock outcrop consists of nearly barren exposures of sandstone, siltstone, and shale.

Midfork family soils are on mountain slopes that dominantly face north and east. These soils are very deep and well drained. They formed in colluvium derived dominantly from sandstone and shale. The surface is covered with a mat of partially decomposed twigs and needles. The surface layer is brown bouldery loam. Below this to a depth of 60 inches or more the soils are yellowish brown very gravelly loam.

Of minor extent in this unit are Gerst, Strych, Cabba family, Datino, Toze family, Rabbitex, Comodore, Rottulee, and Guben soils and Badland.

Most areas of this unit are used as wildlife habitat and woodland. A few areas are used as rangeland.

Dominantly shallow to very deep, well drained, nearly level to very steep soils and Rock outcrop in a moist, subhumid climatic zone

This group consists of five map units. It makes up about 37 percent of the survey area.

11. Beje-Pathead-Podo

Shallow and moderately deep, well drained, nearly level to very steep soils; on ridges, mesas, mountain slopes, and canyonsides

This map unit is in the northeastern part of the survey area. Slope is 1 to 70 percent. The vegetation on the Beje soils is mainly black sagebrush, serviceberry, big sagebrush, and Salina wildrye. The vegetation on the Podo soils is mainly big sagebrush, Salina wildrye, serviceberry, and birchleaf mountainmahogany. The vegetation on the Pathead soils is mainly curlleaf mountainmahogany, pinyon, Utah juniper, serviceberry, and Salina wildrye. Elevation is 6,500 to 9,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit makes up about 7 percent of the survey area. It is about 35 percent Beje soils, 25 percent Pathead soils similar soils, and 10 percent Podo soils. The remaining 30 percent is components of minor extent.

Beje soils are on ridges and benches. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is brown loam. The subsoil is brown clay loam over sandstone at a depth of 14 inches. Unweathered sandstone is at a depth of 8 to 20 inches.

Pathead soils are on mountain slopes and canyonsides. These soils are moderately deep and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is brown extremely stony loam. Below this to a depth of 26 inches the soils are pale brown very cobbly loam. Unweathered sandstone is at a depth of 20 to 40 inches.

Podo soils are on mountain slopes and canyonsides. These soils are shallow and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is grayish brown very stony loam. Below this to a depth of 16 inches the soils are brown gravelly sandy loam. Unweathered sandstone is at a depth of 10 to 20 inches.

Of minor extent in the unit are Cabba family, Doney, Rabbitex, Perma, Datino, and Guben soils and Rock outcrop.

This unit is used as rangeland, woodland, and wildlife habitat.

12. Pathead-Curecanti family

Moderately deep to very deep, well drained, very steep soils; on mountain slopes and canyonsides

This map unit is in the northwestern part of the survey area, west of Castle Gate, and in the north-central part. Slope is 50 to 70 percent. The vegetation on the Pathead soils is mainly big sagebrush, Salina wildrye, curlleaf mountainmahogany, Utah juniper, and pinyon. The vegetation on the Curecanti family soils is mainly Gambel oak, snowberry, Salina wildrye, and slender wheatgrass. Elevation is 6,800 to 9,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit makes up about 4 percent of the survey area. It is about 45 percent Pathead and similar soils and 25 percent Curecanti family soils. The remaining 30 percent is components of minor extent.

Pathead soils are on mountain slopes and canyonsides. These soils are moderately deep and well drained. They formed in residuum and colluvium derived dominantly from sandstone and shale. The surface layer is brown extremely stony loam. Below this to a depth of 26 inches the soils are pale brown very cobbly loam. Unweathered sandstone is at a depth of 20 to 40 inches.

Curecanti family soils are on mountain slopes. These soils are very deep and well drained. They formed in colluvium derived dominantly from sandstone and shale. The surface layer is dark grayish brown loam. The subsurface layer is very pale brown very stony loam. The subsoil to a depth of 60 inches or more is very pale brown very stony loam.

Of minor extent in this unit are Rabbitex, Rottulee, Midfork family, Doney family, Senchert, and Podo soils and Rock outcrop.

Most areas of this unit are used as wildlife habitat. A few areas are used as rangeland and woodland.

13. Midfork family-Guben-Rock outcrop

Very deep, well drained, very steep soils, and Rock outcrop; on mountain slopes and canyonsides

This map unit is in the southeastern part of the survey area, south and east of Sunnyside. Slope is 50 to 75 percent. The vegetation on the Midfork family soils is mainly Douglas-fir, white fir, snowberry, and aspen. The vegetation on the Guben soils is mainly Douglas-fir, serviceberry, birchleaf mountainmahogany, western wheatgrass, and pinyon. Elevation is 6,500 to 9,500 feet. The average annual precipitation is about 16 to 25 inches, the average annual air temperature is 36 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit makes up about 2 percent of the survey area. It is about 25 percent Midfork family and similar soils, 25 percent Guben and similar soils, and 20 percent Rock outcrop. The remaining 30 percent is components of minor extent.

Midfork family soils are on steep mountain slopes. These soils are very deep and well drained. They formed in colluvium derived dominantly from calcareous sedimentary rock. The surface is covered with a mat of partially decomposed twigs and needles. The surface layer is brown bouldery loam. Below this to a depth of 60 inches or more the soils are yellowish brown very gravelly loam.

Guben soils are on canyonsides and mountain slopes. These soils are very deep and well drained. They formed in colluvium derived dominantly from sandstone and shale. The surface is covered with a mat of partially decomposed needles and twigs. The surface layer is brown extremely bouldery fine sandy loam. The subsoil is brown very stony loam. Below this to a depth of 60 inches or more the soils are light brown very stony loam.

Rock outcrop consists of nearly barren exposures of sandstone, siltstone, and shale.

Of minor extent in this unit are Comodore, Podo, Cabba family, Travessilla, Perma, Senchert, Beje, and Trag soils.

This unit is used as woodland and wildlife habitat.

14. Beje-Trag-Senchert

Shallow to very deep, well drained, gently sloping to moderately steep soils; on plateaus and mountain valley floors

This map unit is in the northwestern part of the survey area, adjacent to the Duchesne-Carbon County line. The vegetation on the Beje soils is mainly mountain big sagebrush, Gambel oak, western wheatgrass, and snowberry. The vegetation on the Trag soils is mainly mountain big sagebrush, serviceberry, Salina wildrye, and western wheatgrass. The vegetation on the Senchert soils is mainly aspen, snowberry, and slender wheatgrass. Elevation is 7,000 to 8,400 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit makes up about 7 percent of the survey area. It is about 30 percent Beje soils, 25 percent Trag and similar soils, and 10 percent Senchert soils. The remaining 35 percent is components of minor extent.

Beje soils are on plateaus. These soils are shallow and well drained. They formed in residuum derived dominantly from sandstone and shale. The surface layer is brown loam. The subsoil is brown clay loam over sandstone at a depth of 14 inches. Unweathered sandstone is at a depth of 8 to 20 inches.

Trag soils are on valley floors and plateaus. These soils are very deep and well drained. They formed in alluvium derived dominantly from sandstone and shale. The surface layer is dark brown clay loam. The subsoil is brown and light brown clay loam. Below this to a depth of 60 inches or more the soils are light yellowish brown clay loam.

Senchert soils are on plateaus. These soils are moderately deep and well drained. They formed in alluvium and residuum derived dominantly from sandstone and shale. The surface layer is very dark grayish brown loam. The subsoil to a depth of 35 inches is brown loam and clay loam. Weathered sandstone is at a depth of 20 to 40 inches.

Of minor extent in this unit are Frandsen, Rabbitex, Cabba family, Rottulee, Falcon, Silas, and Brycan soils.

This unit is used as rangeland, wildlife habitat, and recreation.

15. Senchert-Uinta family-Midfork family

Moderately deep to very deep, well drained, nearly level to very steep soils; mainly on mountaintops, mountain slopes, and canyonsides

This map unit is in the western part of the survey area, near Scofield Reservoir, and in the east-central part, east and north of Sunnyside. Slope is 1 to 70 percent. The vegetation on the Senchert soils is mainly aspen, mountain big sagebrush, Thurber fescue, subalpine fir, Engelmann spruce, and Douglas-fir. The vegetation on the Uinta family soils is mainly subalpine fir, Englemann spruce, Douglas-fir, and aspen. The vegetation on Midfork family soils is mainly Douglas-fir and aspen. Elevation is 7,000 to 10,000 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

This unit makes up about 17 percent of the survey area. It is about 30 percent Senchert and similar soils, 15 percent Uinta family and similar soils, and 10 percent Midfork family and similar soils. The remaining 45 percent is components of minor extent.

Senchert soils are on mountain slopes, benches, and plateaus. These soils are moderately deep and well drained. They formed in residuum and alluvium derived dominantly from sandstone and shale. The surface layer is very dark grayish brown loam. The subsoil to a depth of 35 inches is brown loam and clay loam. Weathered sandstone is at a depth of 20 to 40 inches.

Uinta family soils are on mountain slopes and canyonsides. These soils are deep and well drained. They formed in colluvium derived dominantly from sandstone, siltstone, and shale. The surface is covered with a mat of leaves, twigs, and needles. The surface layer is dark grayish brown loam. The subsurface layer is light yellowish brown stony sandy loam. The subsoil is pale brown and light brownish gray stony clay loam over sandstone at a depth of 42 inches. Unweathered sandstone is at a depth of 40 to 60 inches.

Midfork family soils are on mountain slopes and canyonsides. These soils are very deep and well drained. They formed in colluvium derived dominantly from sandstone and shale. The surface is covered with a mat of partially decomposed twigs and needles. The surface layer is brown bouldery loam. Below this to a depth of 60 inches or more the soils are yellowish brown very gravelly loam.

Of minor extent in this unit are Beje, Doney, Podo, Perma, Datino, Croydon, Trag, Toze, Silas, Winetti, Shupert, and Comodore soils. The Silas soils are poorly drained.

This unit is used as woodland, wildlife habitat, rangeland, and recreation areas.

Detailed Soil Map Units

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Persayo loam, 3 to 8 percent slopes, is one of several phases in the Persayo series.

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

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

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

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

Table 3 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Map Unit Descriptions

1—Atrac very fine sandy loam, 1 to 6 percent slopes. This very deep, well drained soil is on benches and fan terraces. It is near Wattis, on Wiregrass Bench, and on Long Bench. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 100 to 300 feet long. The present vegetation is mainly big sagebrush, bottlebrush squirreltail, blue grama, Indian ricegrass, and needleandthread. Elevation is 6,000 to 7,000 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is yellowish brown very fine sandy loam about 4 inches thick. The subsoil is yellowish brown and light yellowish brown loam about 16 inches thick. The substratum is light yellowish brown loam that extends to a depth of 60 inches or more.

Included in this unit are about 10 percent Hernandez family, moist, soils on ridges and 5 percent Strych very stony loam on alluvial fans.

Permeability of this Atrac soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 6 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. A few areas are used for irrigated crops.

The potential plant community on this unit is about 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are western wheatgrass, big sagebrush, needleandthread, Indian ricegrass, and muttongrass. Dense stands of big sagebrush may develop with continuous overgrazing.

Practices needed to maintain or improve the vegetation include a planned grazing system, proper grazing use, and proper location of water developments. Brush management by prescribed burning, chemical spraying, or mechanical treatment can be used to improve deteriorated rangeland.

Seeding may be advisable if the plant community is in poor condition. Plants suitable for seeding include Russian wildrye, intermediate wheatgrass, Tegmar wheatgrass, pubescent wheatgrass, alfalfa, small burnet, prostrate kochia, and adapted native plants.

If this unit is irrigated, management practices used to maintain or improve the irrigated areas include conservation cropping systems with rotations of hay or pasture and small grain. Crop residue should be kept on the surface of the soil. Pasture management that incorporates use of a rotation grazing system is best.

Sprinkler irrigation systems provide the best erosion control and the ability to apply irrigation water evenly to the fields. Flood irrigation can also be used if erosion is controlled.

This unit is in capability unit IIIe-2, irrigated, and capability subclass VIe, nonirrigated. It is in the Upland Loam (Basin Big Sagebrush) range site.

2—Badland. Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways; some areas of shale are interbedded with sandstone. Runoff is rapid to very high, and geologic erosion is active. Badland is associated mainly with the Mancos Shale Formation and is in the Carbon County part of Castle Valley, at the base of the Book Cliffs and Gentry Mountains.

Included in this unit are about 5 percent Chipeta soils and 5 percent Gerst, dry, soils.

This unit is used as wildlife habitat.

This map unit is in capability subclass VIIIe, nonirrigated. It is not placed in a range site.

3—Badland-Rubbleland-Rock outcrop complex. This map unit is on mountain slopes and hillslopes. It is in the Carbon County part of Castle Valley, at the base of the Book Cliffs and Gentry Mountains.

This unit is 60 percent Badland, 15 percent Rubbleland, 10 percent Rock outcrop, and 15 percent included areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Travessilla soils that are dry and have slopes of 50 to 80 percent and 5 percent Gerst soils that have slopes of 50 to 70 percent.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways; in some areas the shale is interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

Rubbleland consists of stones and boulders that are virtually free of vegetation. Areas of Rubbleland are near the base of very steep slopes.

Rock outcrop consists of exposures of bedrock in the form of steep and very steep escarpments and ridges. The rock is sandstone, siltstone, and shale. These areas are mostly barren, although small depressional areas, crevices, and cracks have collected enough soil material to support some grasses and stunted trees and shrubs.

This unit is used as wildlife habitat.

Badland is in capability subclass VIIIe, nonirrigated, and Rubbleland and Rock outcrop are in capability subclass VIIIs, nonirrigated. They are not placed in a range site.

4—Beje very gravelly fine sandy loam, 1 to 8 percent slopes. This shallow, well drained soil is on mountaintops and ridges in the area of the Roan Cliffs. It formed in residuum derived dominantly from calcareous sandstone. Slopes are 100 to 200 feet long and are concave to convex. The present vegetation in most areas is mainly black sagebrush, Salina wildrye, needleandthread, and snowberry. Elevation is 8,000 to 8,800 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 120 days.

Typically, the surface layer is brown very gravelly fine sandy loam about 2 inches thick. The subsoil to a depth of 10 inches is brown loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Included in this unit are about 10 percent soils that are similar to this Beje soil but are 35 to 60 percent rock fragments throughout and are on ridges, 10 percent Podo soils that are dry and have slopes of 1 to 8 percent, 10 percent Trag clay loam in concave areas, and 5 percent Rock outcrop.

Permeability of this Beje soil is moderate. Available water capacity is about 1.5 to 2.0 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit can be used as rangeland and wildlife habitat.

The potential plant community on this unit is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are black sagebrush, bluegrass, and Salina wildrye.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, planned grazing systems, and proper location of water developments.

It is not practical to revegetate large areas of rangeland because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, Russian wildrye, small burnet, ladak alfalfa, Lewis flax, and yellow sweetclover.

This map unit is in capability subclass VIIs, nonirrigated, and in the Mountain Shallow Loam (Black Sagebrush) range site.

5—Beje complex. This map unit is on mountain ridgetops near Bruin Point, Bishop Ridge, Summerhouse Ridge, Steer Ridge, and Gooseneck Ridge. Slopes are 8 to 40 percent. They are 300 to 400 feet long and are plane to slightly convex. Elevation is 8,000 to 8,700 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 120 days.

This unit is 45 percent Beje very gravelly fine sandy loam, 8 to 40 percent slopes; 35 percent Beje fine sandy loam, 8 to 40 percent slopes; and 20 percent other soils. The Beje very gravelly fine sandy loam is on the broad ridge lines, and the Beje fine sandy loam is in areas throughout the unit. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Doney family soils, 7 percent Trag clay loam, and small areas of Senchert family soils.

The Beje very gravelly fine sandy loam is shallow and well drained. It formed in residuum derived dominantly from sandstone and shale. The present vegetation is mainly black sagebrush, Salina wildrye, rabbitbrush, and larkspur.

Typically, the surface layer is brown very gravelly fine sandy loam about 2 inches thick. The subsoil to a depth of 10 inches is brown loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Beje very gravelly fine sandy loam is moderate. Available water capacity is 1.5 to 2.0 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Beje fine sandy loam is shallow and well drained. It formed in residuum derived dominantly from sandstone and shale. The present vegetation is mainly serviceberry, birchleaf mountainmahogany, Salina wildrye, big sagebrush, snowberry, chokecherry, and needleandthread.

Typically, the surface layer is dark brown fine sandy loam about 2 inches thick. The upper 6 inches of the subsoil is dark brown loam, and the lower part is dark yellowish brown cobbly sandy clay loam to a depth of 12 inches. Sandstone is at a depth of 12 inches. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Beje fine sandy loam is moderate. Available water capacity is 1.5 to 2.0 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Beje very gravelly fine sandy loam is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are black sagebrush, bluegrass, and Salina wildrye.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, planned grazing systems, and proper location of water developments.

It is not practical to revegetate large areas of rangeland because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, Russian wildrye, small burnet, ladak alfalfa, Lewis flax, and yellow sweetclover.

The potential plant community on the Beje fine sandy loam is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, planned grazing systems, and proper location of water developments.

It is not practical to revegetate large areas of rangeland because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This unit is in capability subclass VIIs, nonirrigated. The Beje very gravelly fine sandy loam is in the Mountain Shallow Loam (Black Sagebrush) range site. The Beje fine sandy loam is in the Mountain Stony Loam (Browse) range site.

6—Beje-Comodore complex. This map unit is on mountain slopes in the Book Cliffs, northeast of Price. Slopes are 30 to 60 percent. They are 300 to 400 feet long and are concave to convex. Elevation is 6,800 to 8,100 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 50 percent Beje loam, 30 to 50 percent slopes; 35 percent Comodore very stony fine sandy loam, moist, 50 to 60 percent slopes; and 15 percent other soils. The Beje soil is in the steep treeless areas of the side slopes, and the Comodore soil is on very steep slopes near draws. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Trag stony loam and small areas of Rock outcrop and Beje loam in undulating to rolling areas.

The Beje soil is shallow and well drained. It formed in colluvium and residuum derived dominantly from sandstone. The present vegetation is mainly mountain big sagebrush, Salina wildrye, serviceberry, bluebunch wheatgrass, Nevada bluegrass, and snowberry.

Typically, the surface layer is brown loam about 6 inches thick. The subsoil, to a depth of 14 inches, is brown clay loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Beje soil is moderate. Available water capacity, to a depth of 14 inches, is about 2 to 3 inches. Water supplying capacity is 4 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Comodore soil is shallow and well drained. It formed in colluvium derived dominantly from sandstone. The present vegetation is mainly Douglas-fir, Salina wildrye, snowberry, serviceberry, and big sagebrush.

Typically, the surface layer is dark grayish brown very stony fine sandy loam about 6 inches thick. The underlying material, to a depth of 14 inches, is very dark grayish brown very stony loam over sandstone. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Comodore soil is moderate. Available water capacity is about 1 to 2 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential plant community on the Beje soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, mountain big sagebrush, bluegrass, and slender wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Suitable brush management practices include prescribed burning and chemical spraying.

Suitability for rangeland seeding is very poor. The main limitations for rangeland seeding are the shallow depth to bedrock and steepness of slope.

The potential vegetation on the Comodore soil includes an overstory of Rocky Mountain Douglas-fir and pinyon with a canopy of 50 percent. The understory vegetation is 40 percent grasses, 15 percent forbs, and 45 percent shrubs. Among the important plants are Salina wildrye, slender wheatgrass, birchleaf mountainmahogany, and snowberry.

Limitations for harvesting wood products are severe because of the steepness of slope, stones and boulders on the surface, and associated areas of Rock outcrop.

This unit is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated. The Beje soil is in the Mountain Shallow Loam (Mountain Big Sagebrush) range site. The Comodore soil is in the Mountain Very Steep Stony Loam (Douglas-fir) woodland site.

7—Beje-Trag complex. This map unit is on gently sloping to sloping plateaus. It is in the Price Canyon and Minniemaud Creek areas. Slopes are 3 to 30 percent. They are 200 to 300 feet long and convex. The present vegetation is mainly mountain big sagebrush, serviceberry, Salina wildrye, and western wheatgrass. Elevation is 7,000 to 9,700 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 55 percent Beje loam, 3 to 15 percent slopes; 20 percent Trag clay loam, 3 to 30 percent slopes; and 25 percent other soils. The Beje soil is on ridges. The Trag soil is in draws. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Doney family soils on ridges, 5 percent Trag loam in swales, 8 percent Senchert family soils, 2 percent Rock outcrop, and 2 percent Silas soils. Also included are small areas of a soil that is similar to the Beje soil but has a layer of calcium carbonate accumulation.

The Beje soil is shallow and well drained. It formed in residuum derived dominantly from calcareous sandstone. Typically, the surface layer is brown loam about 6 inches thick. The subsoil, to a depth of 14 inches, is brown clay loam over fractured sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Beje soil is moderate. Available water capacity is about 2 to 3 inches. Water supplying capacity is 4 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is slight.

The Trag soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Typically, the surface layer is dark brown clay loam about 5 inches thick. The subsoil is brown and light brown clay loam about 34 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown clay loam.

Permeability of the Trag soil is moderate. Available water capacity is about 10 to 11 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Beje soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, mountain big sagebrush, bluegrass, and slender wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Suitable brush management practices include prescribed burning and chemical spraying.

The suitability of this soil for rangeland seeding is very poor. The main limitations for rangeland seeding are the shallow depth to bedrock and steepness of slope.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this soil for rangeland seeding is good. Plants suitable for rangeland seeding include all adapted native plants, intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability for grazing is good.

This map unit is in capability subclass VIIe, nonirrigated. The Beje soil is in the Mountain Shallow Loam (Mountain Big Sagebrush) range site. The Trag soil is in the Mountain Loam (Saline Wildrye) range site.

8—Billings silty clay loam, 1 to 3 percent slopes. This very deep, well drained soil is on alluvial fans, flood plains, and narrow alluvial valley floors, mainly south and east of Price City. It formed in alluvium derived dominantly from alkaline, gypsiferous marine shale. Slopes are about 300 feet long and plane to slightly concave. The vegetation in areas not cultivated is mainly shadscale and galleta. Elevation is 5,300 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray silty clay loam about 11 inches thick. The upper 31 inches of the underlying material is light brownish gray silty clay loam, and the lower part to a depth of 60 inches or more is strongly saline, light brownish gray silty clay loam.

Included in this unit is about 10 percent Ravola loam, alkali. Also included are small areas of Ravola loam below the adjacent hills.

Permeability of this Billings soil is slow. Available water capacity is about 9 to 11 inches. The water supplying capacity is 4 to 5 inches in areas where the soils are not irrigated. Effective rooting depth is about 42 inches for plants that are not salt tolerant and is 60 inches or more for plants that are salt tolerant. The organic matter content of the surface layer is less than 0.5 percent.

Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly for irrigated crops, rangeland, and wildlife habitat. It is also used for homesite development.

The potential plant community on the Billings soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native vegetation.

If this unit is irrigated, suitable management practices include using a conservation cropping system with rotations of alfalfa and alfalfa-grass hay, small grain, and corn, which generally is grown for silage. Tillage and cultivation should be done when the soil is dry. Crop residue should be incorporated into the soil. Pasture management systems should include rotation grazing and grazing only when the soil is dry to prevent damage from trampling.

Irrigation water can be applied by the sprinkler or flood method. It is important to control erosion and to apply only the water needed to meet the needs of the crop grown.

This map unit is in capability unit IIIe-25, irrigated, and in capability subclass VIIs, nonirrigated. It is in the Desert Loam range site.

9—Billings-Gullied land complex. This map unit is on alluvial fans and valley floors, mainly south of Price City and Wellington, along the Carbon-Emery County line. It formed in alluvium derived dominantly from alkaline, gypsiferous marine shale. Slopes are 1 to 6 percent; they are about 300 feet long and are plane to slightly concave. The present vegetation in most areas is mainly shadscale and galleta with black greasewood in some areas. Elevation is 5,200 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 70 percent Billings silty clay loam, 1 to 6 percent slopes; 15 percent Gullied land; and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Ravola loam, alkali. Also included are small areas of Ravola loam and a soil that is similar to the Billings soil but has a gravelly silty clay loam surface layer.

The Billings soil is very deep and well drained. Typically, the surface layer is light brownish gray silty clay loam about 11 inches thick. The upper 31 inches of the underlying material is light brownish gray silty clay loam, and the lower part to a depth of 60 inches or more is strongly saline, light brownish gray silty clay loam.

Permeability of this Billings soil is slow. Available water capacity is about 4.5 to 9.0 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is about 42 inches for plants that are not salt tolerant and 60 inches for plants that are salt tolerant. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

Gullied land consists of eroded areas intermingled with areas of the Billings soil. Runoff from adjacent areas is concentrated in the gullies. Gullies are *V*-shaped, 3 to 10 feet deep, and 100 to 500 feet apart.

This unit is used mainly as rangeland and wildlife habitat. It is also used for irrigated crops.

The potential plant community on the Billings soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and black greasewood.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation; partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of the Billings soil because of low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

The Billings soil is in capability subclass VIIe, nonirrigated, and in the Alkali Flat range site. Gullied land is in capability subclass VIIIe. It is not placed in a range site.

10—Cabba family loam, 20 to 40 percent slopes. This shallow, well drained soil on benches and canyonsides in the vicinity of Flat Canyon and Jack's Creek. It formed in residuum and colluvium derived dominantly from shale and siltstone. Slopes are 100 to 300 feet long and are slightly concave. The present vegetation is mainly pinyon, Utah juniper, birchleaf mountainmahogany, and Salina wildrye. Elevation is 6,400 to 7,600 feet. The average annual precipitation is about 12 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 60 to 120 days.

Typically, the surface layer is pale brown bouldery loam about 3 inches thick. The underlying material to a depth of 15 inches is brown and light yellowish brown loam over soft shale. Depth to shale ranges from 8 to 20 inches.

Included in this unit are about 5 percent soils that are similar to this Cabba family soil but are moderately deep, 5 percent Strych very stony loam on toe slopes, and 5 percent Rock outcrop on sandstone and shale ledges.

Permeability of this Cabba family soil is moderate. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 8 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used for wildlife habitat, woodland, and rangeland.

The potential vegetation on the Cabba family soil includes an overstory of pinyon and Utah juniper with a canopy of 60 percent. The understory vegetation is 15 percent grasses, 10 percent forbs, and 75 percent shrubs. Among the important plants are pinyon, Utah juniper, birchleaf mountainmahogany, and Mexican cliffrose.

The site index for pinyon and Utah juniper is 32. Average yield is 4 cords of wood per acre. The potential is poor for production of posts or Christmas trees.

This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If pinyon and Utah juniper are thinned, the desirable understory plants can be expected to increase for a short period of time before pinyon and Utah juniper revegetate the unit.

Suitability for rangeland seeding is very poor because of the shallow depth to soft rock. It is not practical to revegetate large areas of rangeland. For critical erosion control, small areas can be mechanically treated and seeded.

This map unit is in capability subclass VIIs, nonirrigated, and in the Upland Shallow Loam (Pinyon-Utah Juniper) woodland site.

11—Cabba family, 40 to 70 percent slopes. This shallow, well drained soil is on mountain slopes. It is in the vicinity of Wattis and in the Deadman Canyon area. It formed in colluvium derived dominantly from sandstone and shale. Slope is mainly 40 to 70 percent, but it is 30 to 50 percent in about 25 percent of the unit. Slopes are 100 to 200 feet long, are concave or convex, and dominantly have south aspect. The present vegetation in most areas is mainly pinyon, juniper, Indian ricegrass, Salina wildrye, and birchleaf mountainmahogany. Elevation is 7,200 to 8,600 feet. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 80 to 120 days.

Typically, the surface layer is light yellowish brown extremely stony fine sandy loam about 2 inches thick. The underlying material to a depth of 15 inches is light yellowish brown gravelly loam over soft sandstone. Depth to sandstone ranges from 10 to 20 inches.

Included in this unit are about 10 percent soils that are similar to this Cabba family soil but have bedrock at a depth of 20 to 40 inches and about 5 percent Rock outcrop.

Permeability of this Cabba family soil is moderate. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 3.5 to 6.0 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is very high.

This unit is used as wildlife habitat, rangeland, and woodland and for mining operations.

The potential vegetation on the Cabba family soil includes an overstory of pinyon and Utah juniper with a canopy of 30 percent. The understory vegetation is 45 percent grasses, 10 percent forbs, and 45 percent shrubs. Among the important plants are birchleaf mountainmahogany, black sagebrush, Salina wildrye, and needleandthread.

The site index for pinyon and Utah juniper is 50. Average yield is 6 cords of wood per acre. The potential is poor for production of posts or Christmas trees. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

This unit is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIIe, nonirrigated, and in the Upland Very Steep Stony Loam (Pinyon-Utah Juniper) woodland site.

12—Cabba family-Badland-Rock outcrop complex. This map unit is on south-facing canyonsides in the Nine Mile Canyon and Cow Canyon areas. Slopes are 40 to 60 percent. Elevation is 6,400 to 8,200 feet. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 40 percent Cabba family extremely channery clay loam, 40 to 60 percent slopes, eroded; 20 percent Badland; 20 percent Rock outcrop; and 20 percent other soils. The Cabba family soil is on side slopes associated with Badland. The Rock outcrop is on very steep escarpments and ledges. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Gerst soils that have slopes of 15 to 50 percent and are in concave areas. Also included is 10 percent soils that are similar to the Cabba family soil but have slopes of 15 to 25 percent.

The Cabba family soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from shale. Slope ranges from 40 to 60 percent, but about 50 percent of the soil has slopes of 40 to 50 percent. Slopes are 100 to 300 feet long, are concave or convex, and have south aspect. The present vegetation in most areas is mainly pinyon, Utah juniper, birchleaf mountainmahogany, Salina wildrye, and greasebush. Typically, 65 to 85 percent of the surface is covered with rock fragments. The surface layer is light brownish gray extremely channery clay loam about 2 inches thick. The underlying material to a depth of 8 inches is light olive gray clay loam underlain by fractured shale. Depth to shale ranges from 8 to 20 inches.

Permeability of the Cabba family soil is moderate. Available water capacity is less than 1 inch to 1.5 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 8 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of areas of exposed sandstone and siltstone. It occurs on ridges and escarpments. Slopes are very steep to perpendicular. Sparse vegetation, dominantly Utah juniper, pinyon, and curlleaf mountainmahogany, grow in some cracks and fissures.

This unit is used as rangeland and wildlife habitat.

The potential vegetation on the Cabba family soil includes an overstory of pinyon and Utah juniper with a canopy of 15 percent. The understory vegetation is 40 percent grasses, 20 percent forbs, and 40 percent shrubs. Among the important plants are Salina wildrye, Indian ricegrass, birchleaf mountainmahogany, and Utah serviceberry.

The site index for Utah juniper and pinyon is 15 to 25. Average yield is 1 to 2 cords of wood per acre. The potential for production of posts or Christmas trees is very poor. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. For critical erosion control, small areas can be mechanically treated and seeded. It is not practical to revegetate large areas of rangeland because of the shallow soil depth and the hazard of water erosion. Plants that may be suitable for critical area seedings are those that are native to the unit.

The Cabba family soil is in capability subclass VIIs and in the Upland Shallow Clay Loam (Utah Juniper-Pinyon) woodland site. Badland is in capability subclass VIIIe, and Rock outcrop is in capability subclass VIIIs. Badland and Rock outcrop are not placed in a woodland site.

13—Cabba family-Guben-Rock outcrop complex. This map unit is on canyonsides, mainly east of Price Canyon and south of Nine Mile Canyon. Slopes are 40 to 75 percent, 300 to 400 feet long, and convex. Elevation is 6,000 to 8,200 feet. The average annual precipitation is about 14 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 60 to 120 days.

This unit is 50 percent Cabba family bouldery loam, 40 to 70 percent slopes; 20 percent Guben extremely bouldery loam, dry, 40 to 75 percent slopes; 15 percent Rock outcrop; and 15 percent other soils. About 30 percent of this unit has slopes of 40 to 50 percent. The Cabba family soil is on canyonsides between ledges of Rock outcrop, the Guben soil is on toe slopes, and Rock outcrop is on canyon rims, ledges, and very steep side slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Guben extremely bouldery fine sandy loam, 5 percent Guben extremely stony loam, and small areas of Winetti soils on the bottoms of drainageways.

The Cabba family soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale of the Green River Formation. The present vegetation is mainly pinyon, juniper, Salina wildrye, and Mormon-tea. Typically, the surface layer is pale brown bouldery loam about 3 inches thick. The underlying material is brown and light yellowish brown loam about 12 inches thick. Soft shale is at a depth of about 15 inches. Depth to shale ranges from 8 to 20 inches.

Permeability of the Cabba family soil is moderate. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 8 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

The Guben soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale of the Green River Formation. The present vegetation is mainly Douglas-fir, pinyon, juniper, Salina wildrye, birchleaf mountainmahogany, and serviceberry. Typically, the surface is covered with a mat of partially decomposed leaves, twigs, and needles about 0.5 inch thick. The surface layer is grayish brown extremely bouldery loam about 7 inches thick. The subsoil is pale brown very stony loam about 8 inches thick. The upper 15 inches of the substratum is very pale brown very stony loam, and the lower part to a depth of 60 inches or more is light yellowish brown very stony loam. A layer of carbonate accumulation is at a depth of about 15 inches.

Permeability of the Guben soil is moderate. Available water capacity is about 3.5 to 5.0 inches. Water supplying capacity is 7 to 10 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of areas of exposed bedrock. It is dominantly sandstone and shale and is on canyon rims, ledges, and very steep side slopes.

This unit is used as wildlife habitat, rangeland, and woodland.

The potential vegetation on the Cabba family and Guben soils includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 50 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37. Average yield is 6 cords of wood per acre. The potential is poor for production of posts or Christmas trees. The unit is severely limited for the harvesting of wood products because of the steepness of slope, rock fragments on the surface, and the hazard of erosion.

This unit is not grazeable by livestock because of the steepness of slope and the bouldery surface layer.

The Cabba family and Guben soils are in capability subclass VIIe, nonirrigated, and in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site. Rock outcrop is in capability subclass VIIIs. It is not placed in a woodland site.

14—Casmos-Rock outcrop complex, 2 to 25 percent slopes. This map unit is on summits and pediment slopes between Desolation and Nine Mile Canyons, along the Green River. Slopes are 100 to 300 feet long and are concave to convex. Elevation is 4,700 to 5,600 feet. The average annual precipitation is about 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 135 days.

This unit is 65 percent Casmos channery loam, 2 to 25 percent slopes, eroded; 10 percent Rock outcrop; and 25 percent other soils. The Casmos soil is on shoulders, side slopes and summits, and Rock outcrop is along the shoulders and side slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are 10 percent Minchey loam on summits; 5 percent Haverdad loam, alkali, in draws; and 10 percent of a soil, on summits, that is similar to this Casmos soil but has more than 35 percent rock fragments.

The Casmos soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sedimentary rock of the Green River Formation. The present vegetation is mainly galleta, shadscale, black sagebrush, bud sagebrush, and blue grama.

Typically, the surface layer is pale brown channery loam about 2 inches thick. The underlying material is light yellowish brown clay loam about 4 inches thick. Hard siltstone is at a depth of about 6 inches. Depth to siltstone or shale ranges from 5 to 20 inches.

Permeability of the Casmos soil is moderate. Available water capacity is about 1.0 to 1.5 inches. Water supplying capacity is 1 to 2 inches. Effective rooting depth is about 5 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

Rock outcrop consists of exposures of sandstone, siltstone, and shale in the form of steep and very steep escarpments and ridges. The areas of Rock outcrop are mostly barren, although enough soil material has collected in small depressional areas, crevices, and cracks to support some grasses and stunted trees and shrubs.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Casmos soil is 30 percent grasses, 10 percent forbs, and 60 percent shrubs. Among the important plants are black sagebrush, shadscale, galleta, and Salina wildrye. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of the Casmos soil because of the low annual precipitation and shallow depth to bedrock. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia.

The Casmos soil is in capability subclass VIIs, nonirrigated, and in the Desert Shallow Loam (Black Sagebrush) range site. Rock outcrop is in capability subclass VIIIs. It is not placed in a range site.

15—Casmos-Rock outcrop complex, 40 to 70 percent slopes. This map unit is on canyonsides near Horse Bench. Slopes are 300 to 400 feet long. Elevation is 5,200 to 6,000 feet. The average annual precipitation is about 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 135 days.

This unit is 65 percent Casmos channery loam, 40 to 70 percent slopes, severely eroded; 20 percent Rock outcrop; and 15 percent other soils and miscellaneous areas. About 10 percent of this unit has slopes of 40 to 50 percent. The Casmos soil is in areas below escarpments, and Rock outcrop occurs as terrace escarpments. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are 10 percent Casmos channery loam, 2 to 25 percent slopes, and 5 percent Badland.

The Casmos soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sedimentary rock of the Green River Formation. The present vegetation is mainly shadscale, galleta, yellowbrush, eriogonum, and Salina wildrye.

Typically, the surface layer is pale brown channery loam about 2 inches thick. The underlying material is light yellowish brown clay loam about 4 inches thick. Hard siltstone is at a depth of about 6 inches. Depth to siltstone or shale ranges from 5 to 20 inches.

Permeability of the Casmos soil is moderate. Available water capacity is about 1.0 to 1.5 inches. Water supplying capacity is 1 to 2 inches. Effective rooting depth is 5 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

Rock outcrop consists of exposures of sandstone, siltstone, and shale in the form of steep and very steep escarpments and ridges. These areas are mostly barren, although enough soil material has collected in small depressional areas, crevices, and cracks to support some grasses and stunted trees and shrubs.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Casmos soil is 25 percent grasses, 10 percent forbs, and 65 percent shrubs. Among the important plants are galleta, shadscale, and Nuttall saltbush.

The suitability of the Casmos soil for grazing is very poor. The main limitation is steepness of slope.

It is not practical to revegetate large areas because of the steepness of slope and low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded.

The Casmos soil is in capability subclass VIIe, nonirrigated, and in Desert Very Steep Shallow Loam (Shadscale) range site. Rock outcrop is in capability subclass VIIIs. It is not placed in a range site.

16—Chipeta silty clay loam, 8 to 15 percent slopes. This shallow, well drained soil is on shale hills near Serviceberry Creek. It formed in residuum derived dominantly from shale. Slopes are 100 to 300 feet long and concave to convex. The present vegetation in most areas is mainly mat saltbush, globemallow, deserttrumpet, and big white aster. Elevation is 6,100 to 6,300 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is gray silty clay loam 2 inches thick. The underlying material to a depth of 17 inches is gray silty clay loam. Weathered shale is at a depth of 17 inches. Depth to weathered shale ranges from 10 to 20 inches.

Included in this unit are about 5 percent Badland, 5 percent Greybull loam, and 5 percent Persayo soils.

Permeability of this Chipeta soil is slow. Available water capacity is about 2.0 to 2.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is rapid, and the hazard of water erosion is severe. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on this unit is 15 percent grasses, 15 percent forbs, and 70 percent shrubs. Among the important plants are mat saltbush, galleta, deserttrumpet, and bud sagebrush.

This unit is limited for grazing because of the low annual precipitation and relative unpalatability of the dominant plants.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. It is not practical to revegetate large areas because of the low annual precipitation and shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are native plants and prostrate kochia.

This map unit is in capability subclass VIIe, nonirrigated, and in the Desert Shallow Clay range site.

17—Chipeta-Badland complex. This map unit is on shale hills. It is in the area extending from Helper to Wellington and south to the county line and in the area north of Wellington. Slopes are 3 to 20 percent, 100 to 200 feet long, and concave to convex. The present vegetation in most areas is mainly mat saltbush and Nuttall saltbush. Elevation is 5,400 to 6,100 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 60 percent Chipeta silty clay loam, 3 to 20 percent slopes, eroded; 20 percent Badland; and 20 percent other soils and miscellaneous areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Persayo loam, 5 percent Greybull loam on foot slopes and toe slopes, and 5 percent Badland.

The Chipeta soil is shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is light brownish gray silty clay loam 5 inches thick. The underlying material to a depth of 17 inches is light brownish gray silty clay. Weathered shale is at a depth of 17 inches. A layer of gypsum is at a depth of about 7 to 10 inches. Depth to weathered shale ranges from 10 to 20 inches.

Permeability of the Chipeta soil is slow. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is rapid, and the hazard of water erosion is very high. Runoff accelerates gully erosion on the lower slopes. The hazard of soil blowing is moderate.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways; some areas are interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

This unit is used mainly as rangeland and wildlife habitat.

The potential plant community on the Chipeta soil is 15 percent grasses, 15 percent forbs, and 70 percent shrubs. Among the important plants are mat saltbush, galleta, deserttrumpet, and bud sagebrush.

The Chipeta soil is limited for grazing because of the low annual precipitation and the relative unpalatability of the dominant plants. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas because of the low annual precipitation and shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are native plants and prostrate kochia.

The Chipeta soil is in capability subclass VIIe, nonirrigated, and in the Desert Shallow Clay range site. Badland is in capability subclass VIIIe. It is not placed in a range site.

18—Chipeta-Persayo complex. This map unit is on toe slopes near Wellington and Price, south to the county line. Slopes are 1 to 3 percent, 100 to 300 feet long, and concave to convex. The present vegetation in most areas is mainly galleta and shadscale. Elevation is 5,400 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 55 percent Chipeta silty clay loam, 1 to 3 percent slopes; 35 percent Persayo loam, 1 to 3 percent slopes; and 10 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Killpack clay loam and 5 percent Ravola loam.

The Chipeta soil is shallow and well drained. It formed in residuum derived dominantly from shale. The present vegetation in most areas is mainly mat saltbush, Nuttall saltbush, and shadscale. Typically, the surface layer is light brownish gray silty clay loam 5 inches thick. The underlying material to a depth of 17 inches is light brownish gray silty clay. Weathered shale is at a depth of 17 inches. The lower part of the underlying material has many fine gypsum crystals.

Permeability of the Chipeta soil is slow. Available water capacity is about 1.5 to 3.0 inches. The water supplying capacity is 2 to 3 inches in areas not irrigated. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Persayo soil is shallow and well drained. It formed in residuum and alluvium derived dominantly from shale. Typically, the surface layer is light brownish gray loam 3 inches thick. The underlying material to a depth of 12 inches is light brownish gray silty clay loam. Depth to weathered shale ranges from 10 to 20 inches. The lower part of the underlying material has few to common gypsum crystals.

Permeability of the Persayo soil is moderately slow. Available water capacity is about 1.5 to 2.5 inches. The water supplying capacity is 2 to 3 inches in areas not irrigated. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate. Erosion has mainly resulted in the formation of rills and shallow gullies. The hazard of soil blowing is moderate.

Most areas of this unit are used as rangeland in spring and fall. A few areas are used for irrigated alfalfa, grain, and pasture plants, although the unit is poorly suited to those crops. A few areas are used as homesites.

The potential plant community on the Chipeta soil is 15 percent grasses, 15 percent forbs, and 70 percent shrubs. Among the important plants are mat saltbush, galleta, deserttrumpet, and bud sagebrush.

The suitability of this soil for grazing is limited because of the low annual precipitation and the relative unpalatability of the dominant plants.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas because of the low annual precipitation and shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and prostrate kochia.

The potential plant community on the Persayo soil is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are shadscale, galleta, Indian ricegrass, and bud sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas because of the low precipitation and the fine texture of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and prostrate kochia.

If this unit is irrigated, suitable management practices include planting to salt tolerant grasses, plowing under crop residue, and applying fertilizer to improve cover. Irrigation water management is generally limited to careful application of water. Leveling generally is not a suitable practice.

This map unit is in capability subclass VIe, irrigated, and VIIe, nonirrigated. The Chipeta soil is in the Desert Shallow Clay range site. The Persayo soil is in the Desert Loamy Clay range site.

19—Chupadera fine sandy loam, 1 to 8 percent slopes. This moderately deep, well drained soil is on terraces and benches near Cedar Bench, Horsebench, and Miller Creek and north of Price. It formed in alluvium and residuum derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are slightly concave. The present vegetation is mainly basin big sagebrush, yellowbrush, bottlebrush squirreltail, needleandthread, and blue grama. Elevation is 5,900 to 7,400 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is light yellowish brown fine sandy loam about 6 inches thick. The next layer is light yellowish brown loam 10 inches thick. Below this to a depth of 28 inches is very pale brown loam over sandstone. Depth to sandstone ranges from 20 to 40 inches.

Included in this unit are about 5 percent of Atrac soils and 10 percent Travessilla sandy loam.

Permeability of this Chupadera soil is moderately rapid. Available water capacity is about 4 to 6 inches. Water supplying capacity is 5.0 to 6.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Chupadera soil is about 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are western wheatgrass, big sagebrush, needleandthread, Indian ricegrass, and muttongrass. Dense stands of big sagebrush may develop if the soil is continuously overgrazed.

Practices needed to maintain or improve the vegetation include a planned grazing system, proper grazing use, and proper location of water developments. Brush management by prescribed burning, chemical spraying, or mechanical treatment can be used to improve areas of deteriorated rangeland.

Seeding may be advisable if the plant community is in poor condition. Plants suitable for seeding include Russian wildrye, intermediate wheatgrass, Tegmar wheatgrass, pubescent wheatgrass, alfalfa, small burnet, prostrate kochia, and adapted native plants.

This map unit is in capability subclass VIIe, nonirrigated, and in the Upland Loam (Basin Big Sagebrush) range site.

20—Comodore-Datino Variant complex. This map unit is on mountain slopes and toe slopes in the Book Cliffs, northeast of Price. Slopes are 40 to 60 percent. Elevation is 6,800 to 8,100 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 50 percent Comodore very stony fine sandy loam, moist, 50 to 60 percent slopes; 35 percent Datino Variant extremely stony fine sandy loam, 40 to 60 percent slopes; and 15 percent other soils. About 15 percent of the unit has slopes of 40 to 50 percent. The Comodore soil is on side slopes, and the Datino Variant soil is on toe slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Perma soils that have slopes of 15 to 40 percent, 5 percent Toze family soils that have slopes of 60 to 90 percent, small areas of soils that are similar to this Datino Variant soil but are 20 to 40 inches thick, and small areas of Rock outcrop.

The Comodore soil is shallow and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes have northwest and east aspects, are 300 to 400 feet long, and are convex. The present vegetation is mainly Douglas-fir, Salina wildrye, snowberry, serviceberry, and mountain big sagebrush.

Typically, the surface layer is dark grayish brown very stony fine sandy loam about 6 inches thick. The underlying material to a depth of 14 inches is very dark grayish brown very stony loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Comodore soil is moderate. Available water capacity is about 1 to 2 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

The Datino Variant soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long, are convex, and have east and west aspects. The present vegetation is mainly Douglas-fir, pinyon, Salina wildrye, bluebunch wheatgrass, snowberry, and serviceberry.

Typically, the surface layer is brown extremely stony fine sandy loam about 9 inches thick. The subsoil is brown very stony loam about 7 inches thick. The substratum to a depth of 60 inches or more is pale brown very stony fine sandy loam. A layer of calcium carbonate accumulation is at a depth of about 16 inches.

Permeability of the Datino Variant soil is moderate. Available water capacity is about 4 to 6 inches. Water supplying capacity is 6 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as wildlife habitat and woodland.

The potential vegetation on the Comodore and Datino Variant soils includes an overstory of Rocky Mountain Douglas-fir and pinyon with a canopy of 50 percent. The understory vegetation is 40 percent grasses, 15 percent forbs, and 45 percent shrubs. Among the important plants are Salina wildrye, slender wheatgrass, birchleaf mountainmahogany, and snowberry.

This unit is limited for harvesting wood products because of the steepness of slope, stones and boulders on the surface, and the areas of Rock outcrop.

This unit is not grazeable by livestock because of the steepness of slope.

This unit is in capability subclass VIIe, nonirrigated, and in the Mountain Very Steep Stony Loam (Douglas-fir) woodland site.

21—Croydon loam, 8 to 30 percent slopes. This deep, well drained, moderately slowly permeable soil is on foot slopes. It is between Winter Quarts Canyon and Boardinghouse Canyon, south of Scofield. It formed in alluvium derived dominantly from shale and sandstone. Slopes are about 300 to 400 feet long, are concave to convex, and mostly have east aspect. The present vegetation in most areas is mainly quaking aspen, blue wildrye, slender wheatgrass, peavine, bearded wheatgrass, and silver sagebrush. Elevation is 7,800 to 9,500 feet. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface layer is dark yellowish brown and yellowish brown loam about 16 inches thick. The subsurface layer is very pale brown loam about 7 inches thick. The subsoil to a depth of 48 inches is light yellowish brown clay loam over weathered sandstone. Depth to weathered sandstone ranges from 40 to 60 inches or more.

Included in this unit are 5 percent soils that are similar to this Croydon soil but has about 25 percent cobbles in the surface layer and 5 percent Croydon loam that has slopes of 30 to 50 percent.

Permeability of this Croydon soil is moderately slow. Available water capacity is 7 to 9 inches. Water supplying capacity is 16 to 18 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is slow, and the hazard of water erosion is slight.

This unit is used as rangeland, woodland, and wildlife habitat and for urban development.

The potential vegetation on the Croydon soil includes an overstory of aspen with a canopy of 40 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, Thurber fescue, and quaking aspen.

This unit is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. Production of aspen is about 40 cubic feet per year. Minimizing the risk of erosion is essential in harvesting timber. The main limitation for the harvesting of wood products is the steepness of slope.

The suitability of this unit for grazing is good. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability for rangeland seeding is poor. The main limitation is competition from aspen.

This map unit is in capability subclass VIe, nonirrigated, and in High Mountain Loam (Aspen) woodland site.

22—Croydon loam, 30 to 50 percent slopes. This deep, well drained, moderately slowly permeable soil is on mountain slopes in the vicinity of Pleasant Valley. It formed in alluvium and colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long, are concave to convex, and have north and east aspects. The present vegetation in most areas is mainly quaking aspen, snowberry, blue wildrye, slender wheatgrass, and peavine. Elevation is 7,800 to 9,500 feet. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free season is 40 to 60 days.

Typically, the surface layer is dark yellowish brown and yellowish brown loam about 16 inches thick. The subsurface layer is very pale brown loam about 7 inches thick. The subsoil to a depth of 48 inches is light yellowish brown clay loam over weathered sandstone. Depth to sandstone ranges from 40 to 60 inches or more.

Included in this unit are about 5 percent Uinta family soils under conifers and small areas of a soil that is about 10 inches thick over sandstone. Also included are small areas of Croydon loam that has slopes of 8 to 30 percent and Trag stony loam.

Permeability of this Croydon soil is moderately slow. Available water capacity is about 7 to 9 inches. Water supplying capacity is 16 to 18 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is severe.

This unit is used as rangeland, woodland, and wildlife habitat.

The vegetation on the Croydon soil includes an overstory of aspen with a canopy of 60 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, Thurber fescue, and quaking aspen.

This unit is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. Production of aspen is about 40 cubic feet per acre per year. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, care should be taken to minimize the risk of erosion. Proper design of road drainage systems is essential.

The suitability of this unit for grazing is good. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability of this unit for rangeland seeding is poor because of the steepness of slope and competition from aspen.

This unit is in capability subclass VIIe, nonirrigated, and in High Mountain Loam (Aspen) woodland site.

23—Curecanti family-Pathead complex. This map unit is on mountain slopes in the area of Price Canyon. Slopes are 40 to 70 percent, 300 to 400 feet long, and plane to concave. Elevation is 7,000 to 9,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 30 percent Curecanti family loam, 50 to 70 percent slopes; 25 percent Pathead extremely bouldery fine sandy loam, 40 to 70 percent slopes; 25 percent Pathead extremely stony loam, 50 to 70 percent slopes; and 20 percent other soils. About 10 percent of the unit has slopes of 40 to 50 percent. The Curecanti family soil has southwest and southeast aspects and is along small stabilized drainageways, and the other soils are intermingled throughout the unit.

Included in this unit are about 10 percent Perma family soils in drainageways, 7 percent Midfork family soils that have slopes of 50 to 70 percent and are in the deeper drainageways, and small areas of Senchert family soils in concave areas.

The Curecanti family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Gambel oak, snowberry, slender wheatgrass, and Sandberg bluegrass.

Typically, the upper part of the surface layer is dark grayish brown loam about 7 inches thick and the lower part is brown very stony loam about 8 inches thick. The subsurface layer is very pale brown very stony loam about 5 inches thick. The subsoil to a depth of 60 inches or more is pale brown very stony loam.

Permeability of the Curecanti family soil is moderate. Available water capacity is about 5.0 to 6.5 inches. Water supplying capacity is 8 to 12 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is severe.

The Pathead extremely bouldery fine sandy loam is moderately deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly curlleaf mountainmahogany, Salina wildrye, and Gambel oak.

Typically, the surface layer is pale brown extremely bouldery fine sandy loam about 4 inches thick. The underlying material to a depth of 38 inches is pale brown and very pale brown very stony fine sandy loam. Depth to hard sandstone ranges from 20 to 40 inches.

Permeability of this Pathead soil is moderate. Available water capacity is about 1.3 to 3.0 inches. Water supplying capacity is 4.0 to 8.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is slight.

The Pathead extremely stony loam is moderately deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Salina wildrye, black sagebrush, and winterfat.

Typically, the surface layer is brown extremely stony loam about 3 inches thick. The underlying material to a depth of 26 inches is pale brown very cobbly loam. Sandstone is at a depth of 20 to 40 inches.

Permeability of this Pathead soil is moderate. Available water capacity is about 1 to 2 inches. Water supplying capacity is 3.5 to 5.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is slight.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Curecanti family soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Gambel oak, snowberry, and bluegrass.

This soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Pathead very bouldery fine sandy loam is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are curlleaf mountainmahogany, Salina wildrye, Utah serviceberry, and snowberry.

This soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Pathead extremely stony loam is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This soil is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

This map unit is in capability subclass VIIe, nonirrigated. The Curecanti family soil is in the Mountain Very Steep Loam (Oak) range site. The Pathead very bouldery fine sandy loam is in the Mountain Very Steep Stony Loam (Curlleaf Mountainmahogany) range site. The Pathead extremely stony loam is in the Mountain Very Steep Loam (Saline Wildrye) range site.

24—Datino Variant very stony loam, 50 to 80 percent slopes. This very deep, well drained soil is on mountain slopes. It is near the upper end of Three Canyon, Trail Canyon, and Whitmore Canyon. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are slightly convex. The present vegetation is mainly Gambel oak, serviceberry, and birchleaf mountainmahogany. Elevation is 6,800 to 8,700 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface layer is dark grayish brown very stony loam about 4 inches thick. The subsoil is grayish brown very cobbly loam about 10 inches thick. The upper 8 inches of the substratum is pale brown very cobbly loam, and the lower part to a depth of 60 inches or more is pale brown very stony fine sandy loam. A layer of calcium carbonate accumulation is at a depth of about 16 inches.

Included in this unit are about 10 percent Perma soils that have slopes of 60 to 80 percent. Areas of this soil are intermingled with areas of the Datino Variant soil.

Permeability of this Datino Variant soil is moderate. Available water capacity is about 4.0 to 6.5 inches. Water supplying capacity is 7 to 9 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat.

The potential plant community on the Datino Variant soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Columbia needlegrass, mountain brome, Gambel oak, snowberry, and Utah serviceberry.

This unit is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Datino Variant soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Gambel oak, snowberry, serviceberry, and bluegrass.

This unit is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated, and in the Mountain Very Steep Loam (Oak) range site.

25—Doney family, 3 to 15 percent slopes. This moderately deep, well drained soil is on benches and foot slopes near the Stone Cabin gas fields and Dry Creek. It formed in residuum derived dominantly from sandstone, siltstone, and shale. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation in most areas is mainly Wyoming big sagebrush, Salina wildrye, western wheatgrass, and needleandthread. Elevation is 7,000 to 8,000 feet. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 85 to 105 days.

Typically, the surface layer is light brownish gray silt loam 4 inches thick. The subsoil is pale brown loam 14 inches thick. The substratum to a depth of 36 inches is light gray loam. Depth to weathered shale ranges from 20 to 40 inches.

Included in this unit are about 10 percent Podo gravelly sandy loam, dry, at the lower elevations throughout the unit and 5 percent Haverdad loam, moist, in draws.

Permeability of this Doney family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 7 to 9 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Doney family soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are basin big sagebrush, western wheatgrass, Indian ricegrass, and needleandthread.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and broadcast seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, chaining, and railing.

The suitability of this unit for rangeland seeding is good. Plants suitable for seeding include those native to the unit, crested wheatgrass, Russian wildrye, fourwing saltbush, pubescent wheatgrass, ladak alfalfa, and small burnet.

This map unit is in capability subclass VIe, nonirrigated, and in the Upland Loam (Basin Big Sagebrush) range site.

26—Doney family, 50 to 70 percent slopes. This moderately deep, well drained soil is on mountain slopes. It is in the vicinity of Bruin Point and Price Canyon. It formed in residuum and colluvium derived dominantly from siltstone and shale. Slopes are 100 to 300 feet long, are slightly concave, and dominantly have south and west aspects. The present vegetation is mainly Salina wildrye, bluebunch wheatgrass, mountain big sagebrush, snowberry, and lupine. Elevation is 8,100 to 9,500 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 100 days.

Typically, the surface layer is brown stony loam about 4 inches thick. The subsoil is pale brown loam 11 inches thick. The substratum to a depth of 35 inches is light gray loam over shale. Depth to weathered shale ranges from 20 to 40 inches.

Included in this unit are about 10 percent Pathead extremely stony loam on side slopes, 5 percent Rottulee family loam in drainageways, and small areas of a Midfork family soil that has slopes of 50 to 70 percent and has north and east aspects, Rock outcrop that occurs as ledges, and Curecanti family soil in the Price Canyon area.

Permeability of the Doney family soil is moderate. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 7 to 11 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is moderate.

This unit is used as wildlife habitat and rangeland.

The potential plant community on the Doney family soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This unit is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

This map unit is in capability subclass VIIe, nonirrigated, and in the Mountain Very Steep Loam (Saline Wildrye) range site.

27—Doney family-Podo complex. This map unit is on mountain slopes near Bruin Point and Beaver Ridge. Slopes are 40 to 70 percent, 200 to 300 feet long, and concave. The present vegetation is mainly big sagebrush, Salina wildrye, serviceberry, and birchleaf mountainmahogany. Elevation is 8,000 to 9,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 100 days.

This unit is 55 percent Doney family stony loam, 50 to 70 percent slopes; 35 percent Podo very stony loam, 40 to 70 percent slopes; and 10 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Rock outcrop, small areas of Midfork family bouldery loam in drainageways, and 2 percent Senchert loam, 30 to 50 percent slopes.

The Doney family soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone and shale. Typically, the surface layer is brown stony loam about 4 inches thick. The subsoil is pale brown loam about 11 inches thick. The substratum is light gray loam over shale at a depth of 35 inches. Depth to weathered shale ranges from 20 to 40 inches.

Permeability of the Doney family soil is moderate. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 7 to 11 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is moderate.

The Podo soil is shallow and well drained. It formed in residuum derived dominantly from sandstone and shale. Typically, the surface layer is grayish brown very stony loam about 5 inches thick. The underlying material to a depth of 16 inches is light brownish gray loam over shale. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity is about 2 to 3 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Doney family soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This unit is not grazeable by livestock because of steepness of slope and the hazard of erosion.

The potential plant community on the Podo soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This unit is not usable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated. The Doney family soil is in the Mountain Very Steep Loam (Saline Wildrye) range site. The Podo soil is in the Mountain Very Steep Stony Loam (Browse) range site.

28—Doney-Toze families complex. This map unit is on mountain slopes about 5 miles west of Helper and in the vicinity of Wattis. Slopes are 50 to 90 percent. Elevation is 6,700 to 9,000 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 70 to 100 days.

This unit is 50 percent Doney family stony loam, 50 to 70 percent slopes; 25 percent Toze family loam, warm, 60 to 90 percent slopes; and 25 percent other soils and miscellaneous areas. The Doney family soil is in open areas that are dominantly under grass, and the Toze family soil is in areas under Douglas-fir. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Comodore very stony fine sandy loam, moist; 10 percent Datino loam; and 5 percent Rock outcrop.

The Doney family soil is moderately deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long, are convex, and have northeast aspect. The present vegetation in most areas is mainly Salina wildrye, mountain big sagebrush, serviceberry, aster, snowberry, birchleaf mountainmahogany, and lupine.

Typically, the surface layer is brown stony loam about 4 inches thick. The subsoil is pale brown loam about 11 inches thick. The substratum to a depth of 35 inches is light gray loam. Weathered shale is at a depth of 20 to 40 inches.

Permeability of the Doney family soil is moderate. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 7 to 11 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

The Toze family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long, are concave, and have north aspect. The present vegetation in most areas is mainly Douglas-fir, Salina wildrye, elk sedge, snowberry, quaking aspen, and golden rod.

Typically, the surface is covered with a mat of duff 2 inches thick. The upper part of the surface layer is dark grayish brown loam about 9 inches thick, and the lower part is dark grayish brown cobbly silt loam and gravelly silt loam about 22 inches thick. The next layer is pale brown cobbly silt loam about 13 inches thick. Below this to a depth of 60 inches or more is pale brown gravelly very fine sandy loam. A layer of calcium carbonate accumulation is at a depth of about 31 inches.

Permeability of the Toze family soil is moderate. Available water capacity is about 6.5 to 10.5 inches. Water supplying capacity is 9.5 to 16.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is high.

This unit is used for woodland, wildlife habitat, and mining operations.

The potential plant community on the Doney family soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This unit is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

The potential vegetation on the Toze family soil includes an overstory of Douglas-fir with a canopy of 75 percent. The understory vegetation is 15 percent grasses, 10 percent forbs, and 75 percent shrubs. Among the important plants are sedge, bluegrass, snowberry, and Utah serviceberry.

The site index for Douglas-fir is 60. Average yield is about 20,600 board feet per acre of 100-year-old trees 15 inches in diameter or more. The limitations for harvesting wood products are severe because of the steepness of slope and the hazard of erosion.

This unit is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe. The Doney family soil is in the Mountain Very Steep Loam (Saline Wildrye) range site. The Toze family soil is in the Mountain Very Steep Loam (Douglas-fir) woodland site.

29—Dumps, mine. This map unit consists of piles of waste material from coal mines. The material is mostly coal, hard shale, and sandstone fragments. The fragments are about 0.5 to 7.0 inches in size and are angular in shape. Most areas of this unit are barren. Some areas have a 6- to 8-inch surface layer of mixed soil material and rock fragments. These areas support sparse vegetation of snowberry, Salina wildrye, rabbitbrush, and some annuals.

This map unit is in capability subclass VIIIs, nonirrigated. It is not placed in a range site.

30—Falcon-Rock outcrop complex. This map unit is on hillslopes near Scofield Reservoir. Slopes are 30 to 50 percent, 60 to 100 feet long, and convex to plane. The present vegetation in most areas is mainly mountain big sagebrush, needleandthread, native bluegrasses, and lupine. Elevation is 7,620 to 8,000 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 37 to 40 degrees F, and the average freeze-free period is 60 to 80 days.

This unit is 70 percent Falcon stony sandy loam, cool, 8 to 50 percent slopes; 15 percent Rock outcrop; and 15 percent other soils. The Falcon soil is on foot slopes and hillslopes, and the Rock outcrop occurs as ledges near the summits. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent soils that are similar to the Falcon soil but have a very stony surface layer and are adjacent to Rock outcrop and 5 percent soils that are similar to the Falcon soil but are moderately deep and are in draws.

The Falcon soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is brown stony sandy loam about 5 inches thick. The underlying layer to a depth of 12 inches is brown sandy loam. Sandstone is at a depth of 12 inches. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Falcon soil is rapid. Available water capacity is about 1.0 to 1.5 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is moderate.

Rock outcrop consists of areas of exposed sandstone. It dominantly occurs as ledges near the summits.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Falcon soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, mountain big sagebrush, bluegrass, and slender wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Suitable brush management practices include prescribed burning and chemical spraying.

The suitability of this unit for rangeland seeding is very poor. The main limitations are the shallow soil depth and steepness of slope.

The Falcon soil is in capability subclass VIIe, nonirrigated, and in the Mountain Shallow Loam (Mountain Big Sagebrush) range site. Rock outcrop is in capability subclass VIIIs. It is not placed in a range site.

31—Ferron silt loam. This very deep, poorly drained soil is on alluvial fans and alluvial valley bottoms. It is in the area extending from Spring Glen to Wellington. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 0 to 3 percent. Slopes are 200 to 500 feet long and are concave. The present vegetation in most areas is mainly wiregrass, sedges, redtop, and saltgrass. Elevation is 5,400 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface is covered with a mat of undecomposed organic matter 1 inch thick. The surface layer is light brownish gray silt loam about 3 inches thick. The underlying layer to a depth of 60 inches or more is light brownish gray loam and very fine sandy loam. Mottles are at a depth of 0 to 60 inches.

Included in this unit are about 5 percent Hunting loam and 5 percent Saltair silty clay loam.

Permeability of this Ferron soil is moderate. Available water capacity is about 7.5 to 10 inches. Effective rooting depth is limited by a seasonal high water table that is at a depth of 1.0 to 2.5 feet from January to December. The organic matter content of the surface layer is 2 to 4 percent. Runoff is slow, and the hazard of water erosion is slight.

This unit is used as rangeland.

The potential plant community on the Ferron soil is 85 percent grasses, 10 percent forbs, and 5 percent shrubs. Among the important plants are Inland saltgrass, alkali sacaton, sedges, and Baltic rush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. The suitability of the unit for grazing is good.

The suitability of this unit for rangeland seeding is poor. The main limitations are the seasonal high water table and salinity. Plants suitable for seeding include alkali sacaton and tall wheatgrass.

This map unit is in capability subclass VIIw, nonirrigated, and in the Salt Meadow range site.

32—Frandsen-Gullied land complex. This map unit is on fan terraces. It is in the Whitmore Park area. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 1 to 8 percent, 200 to 400 feet long, and concave to convex. The present vegetation is mainly mountain big sagebrush, galleta, and yellowbrush. Elevation is 7,200 to 7,600 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 80 days.

This unit is 70 percent Frandsen loam, 1 to 8 percent slopes; 15 percent Gullied land; and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Senchert family soils on ridges, 5 percent Rottulee family soils on ridges, 3 percent Trag loam in concave areas, and small areas of Brycan loam.

The Frandsen soil is very deep and well drained. Typically, the surface layer is reddish brown loam about 4 inches thick. The next layer is reddish brown loam and clay loam about 36 inches thick. Below this to a depth of 60 inches or more is reddish brown fine sandy loam.

Permeability of this Frandsen soil is moderate. Available water capacity is about 8 to 10 inches. Water supplying capacity is 11 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

Gullied land consists of eroded areas. The gullies are V-shaped, 6 to 12 feet deep, and 400 to 500 feet apart. Runoff from adjacent areas is concentrated in the gullies.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Frandsen soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, Letterman needlegrass, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment. The suitability of the unit for grazing is good.

The suitability of this unit for rangeland seeding is good. Plants suitable for seeding include all those native to the unit and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa.

The Frandsen soil is in capability subclass VIe, nonirrigated, and in the Mountain Loam (Saline Wildrye) range site. Gullied land is in capability subclass VIIIe. It is not placed in a range site.

33—Gerst-Badland-Rubbleland complex, 15 to 50 percent slopes. This map unit is on the side slopes of mesas and fan terraces near Mohrland, northeast of Wellington, and northwest of East Carbon City. Elevation is 6,000 to 8,000 feet. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 40 percent Gerst extremely stony loam, 15 to 50 percent slopes; 25 percent Badland; 20 percent Rubbleland; and 15 percent other soils and miscellaneous areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 12 percent Strych very stony loam and small areas of Rock outcrop.

The Gerst soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are concave to convex. Typically, the surface layer is light brownish gray extremely stony loam about 7 inches thick. The underlying material to a depth of 19 inches is gray and light brownish gray channery silt loam over weathered shale. Depth to weathered shale ranges from 10 to 20 inches.

Permeability of the Gerst soil is moderately slow. Available water capacity is about 2 to 3 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3. Runoff is rapid, and the hazard of water erosion is high.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways. Some areas are interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

Rubbleland consists of areas covered by stones and boulders. It supports only sparse vegetation other than lichens.

This unit is used as wildlife habitat and rangeland.

The potential vegetation on the Gerst soil includes an overstory of pinyon and Utah juniper with a canopy of 15 percent. The understory vegetation is 40 percent grasses, 20 percent forbs, and 40 percent shrubs. Among the important plants are Salina wildrye, Indian ricegrass, birchleaf mountainmahogany, and Utah serviceberry.

The site index for Utah juniper and pinyon is 15 to 25. Average yield is 1 to 2 cords of wood per acre. The potential for the production of posts or Christmas trees is very poor. The limitation for the harvesting of wood products is moderate to severe because of the steepness of slope. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. For critical erosion control, small areas can be mechanically treated and seeded. It is not practical to revegetate large areas of rangeland because of the shallow soil depth and the hazard of erosion. Plants that may be suitable for critical area seedings are those native to the unit.

The Gerst soil is in capability subclass VIIs and in the Upland Shallow Clay Loam (Utah Juniper-Pinyon) woodland site. Badland is in capability subclass VIIIe, and Rubbleland is in capability subclass VIIIs. Badland and Rubbleland are not placed in a woodland site.

34—Gerst-Badland-Rubbleland complex, 50 to 70 percent slopes. This map unit is on benches and mountain slopes. It is north of Wattis and southeast of Mohrland. Slopes are 100 to 300 feet long and are concave to convex. The present vegetation is mainly Salina wildrye, Indian ricegrass, daisy, skeleton locoweed, shadscale, black sagebrush, and birchleaf mountainmahogany. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 45 percent Gerst extremely stony loam, 50 to 70 percent slopes, eroded; 25 percent Badland; 20 percent Rubbleland; and 10 percent other soils and miscellaneous areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are 5 percent Strych very stony loam and 5 percent Rock outcrop.

The Gerst soil is shallow and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale. Typically, the surface layer is light brownish gray extremely stony loam about 7 inches thick. The underlying material to a depth of 19 inches is gray and light brownish gray channery silt loam over weathered shale. Depth to weathered shale ranges from 10 to 20 inches.

Permeability of the Gerst soil is moderately slow. Available water capacity is about 2 to 3 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

Badland consists of steep and very steep, nearly barren beds of actively eroding shale, shale interbedded with gypsum, and small areas of shale capped with sandstone.

Rubbleland consists of areas covered by stones and boulders. It supports very little vegetation.

This unit is used as wildlife habitat and woodland.

The potential vegetation on the Gerst soil includes an overstory of pinyon and Utah juniper with a canopy of 15 percent. The understory vegetation is 40 percent grasses, 20 percent forbs, and 40 percent shrubs. Among the important plants are Salina wildrye, Indian ricegrass, birchleaf mountainmahogany, and Utah serviceberry.

The site index for Utah juniper and pinyon is 15 to 25. Average yield is 1 to 2 cords of wood per acre. The potential for the production of posts or Christmas trees is very poor. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The suitability of the Gerst soil for grazing is very poor. For critical erosion control, small areas can be mechanically treated and seeded. It is not practical to revegetate large areas of rangeland because of the shallow soil depth and and the hazard of erosion. Plants that may be suitable for critical area seedings are those native to the soil.

The Gerst soil is in capability subclass VIIe, nonirrigated, and in the Upland Very Steep Shallow Clay Loam (Utah Juniper-Pinyon) woodland site. Badland is in capability subclass VIIIe, and Rubbleland is in capability subclass VIIIs. Badland and Rubbleland are not placed in a woodland site.

35—Gerst-Badland-Stormitt complex. This map unit is on hillslopes north of the Price River, extending from Clarks Valley to Helper. It is south of the Price River from Wellington to Price and south of Helper to the Carbon-Emery county line. Slopes are 10 to 60 percent, 100 to 200 feet long, and concave to convex. Elevation is 5,400 to 6,800 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

This unit is 55 percent Gerst cobbly loam, dry, 30 to 60 percent slopes; 20 percent Badland; 15 percent Stormitt gravelly sandy clay loam, dry, 10 to 30 percent slopes; and 10 percent other soils and miscellaneous areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Gerst very channery loam, dry, and small areas of Rock outcrop.

The Gerst soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from shale and sandstone. The present vegetation in most areas is mainly black sagebrush, galleta, Indian ricegrass, blue grama, shadscale, yellowbrush, and bottlebrush squirreltail.

Typically, the surface layer is pale brown cobbly loam about 2 inches thick. The underlying material to a depth of 17 inches is light brownish gray channery clay loam. Depth to soft shale ranges from 10 to 20 inches.

Permeability of the Gerst soil is moderately slow. Available water capacity is about 1.5 to 2.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways. Some areas are interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

The Stormitt soil is very deep and well drained. It formed in colluvium and glacial outwash derived dominantly from sandstone, shale, and quartzite. Slopes are 75 to 100 feet long and are convex. The present vegetation in most areas is mainly galleta, blue grama, Wyoming big sagebrush, Salina wildrye, yellowbrush, and shadscale.

Typically, the surface layer is pale brown gravelly sandy clay loam about 1 inch thick. The subsoil is light yellowish brown and brownish yellow gravelly sandy clay loam about 8 inches thick. The substratum to a depth of 60 inches or more is very pale brown very cobbly sandy clay loam. In some areas the surface layer has been lost through erosion.

Permeability of the Stormitt soil is moderate. Available water capacity is about 4.0 to 6.5 inches. Water supplying capacity is 3.5 to 5.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Gerst soil is 35 percent grasses, 5 percent forbs, and 60 percent shrubs.

Among the important plants are black sagebrush, Indian ricegrass, shadscale, and galleta.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of the Gerst soil for rangeland seeding is very poor. It is not practical to revegetate large areas of rangeland because of the steepness of slope, shallow soil depth, and low precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit, prostrate kochia, and crested wheatgrass.

The potential plant community on the Stormitt soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Wyoming big sagebrush, Indian ricegrass, galleta, and needleandthread.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of the Stormitt soil for rangeland seeding is poor. The main limitations for seeding are the stoniness of the soil and low annual precipitation. Plants suitable for seeding include those native to the unit, crested wheatgrass, pubescent wheatgrass, and prostrate kochia.

The Gerst and Stormitt soils are in capability subclass VIIe, nonirrigated, and Badland is in capability subclass VIIIe. The Gerst soil is in the Semidesert Shallow Loam (Black Sagebrush) range site. The Stormitt soil is in the Semidesert Gravelly Loam (Wyoming Big Sagebrush) range site. Badland is not placed in a range site.

36—Gerst-Strych-Badland complex, 3 to 50 percent slopes. This map unit is on mountain slopes and toe slopes. It is west of Helper. Slopes are 100 to 300 feet long and are concave to convex. Elevation is 6,100 to 7,200 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 40 percent Gerst extremely stony loam, 15 to 50 percent slopes, eroded; 30 percent Strych very stony loam, 3 to 15 percent slopes; 15 percent Badland; and 15 percent other soils. The Gerst soil and Badland are on foot slopes. The Strych soil is on toe slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Travessilla sandy loam on small remnant tops and 5 percent Haverdad loam, moist, in drainageways.

The Gerst soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. The present vegetation is mainly pinyon, Utah juniper, Salina wildrye, buckwheat, birchleaf mountainmahogany.

Typically, the surface layer is light brownish gray extremely stony loam about 7 inches thick. The underlying material to a depth of 19 inches is gray and light brownish gray channery silt loam over weathered shale. Depth to shale ranges from 10 to 20 inches.

Permeability of the Gerst soil is moderately slow. Available water capacity is about 2 to 3 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is severe.

The Strych soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. The present vegetation is mainly pinyon, juniper, Salina wildrye, Indian ricegrass, black sagebrush, and birchleaf mountainmahogany.

Typically, the surface layer is pinkish gray very stony loam about 5 inches thick. The next layer is light gray and very pale brown very stony loam about 42 inches thick. Below this to a depth of 60 inches or more is very pale brown very cobbly sandy loam. A layer of calcium carbonate accumulation is at a depth of about 5 inches.

Permeability of the Strych soil is moderately rapid. Available water capacity is about 3.5 to 6.5 inches. Water supplying capacity is 4 to 7 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 3.0 percent. Runoff is medium, and the hazard of water erosion is severe.

Badland consists of steep and very steep, nearly barren areas of shale that are dissected by many intermittent drainageways. Some areas are interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Gerst soil includes an overstory of pinyon and Utah juniper with a canopy of 15 percent. The understory vegetation is 40 percent grasses, 20 percent forbs, and 40 percent shrubs. Among the important plants are Salina wildrye, Indian ricegrass, birchleaf mountainmahogany, and Utah serviceberry.

The site index for Utah juniper and pinyon is 15 to 25. Average yield is 1 to 2 cords of wood per acre. The potential of the Gerst soil for production of posts or Christmas trees is very poor. This unit is moderately to severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. For critical erosion control, small areas can be mechanically treated and seeded. It is not practical to revegetate large areas of rangeland because of the shallow soil depth and the hazard of erosion. Plants that may be suitable for critical area seedings are those native to the soil.

The potential vegetation on the Strych soil includes an overstory of pinyon and Utah juniper with a canopy of 30 percent. The understory vegetation is 45 percent grasses, 10 percent forbs, and 45 percent shrubs. Among the important plants are birchleaf mountainmahogany, black sagebrush, Salina wildrye, and needleandthread.

The site index for pinyon and Utah juniper is 65. Average yield is 9 cords of wood per acre. The potential of the Strych soil for production of posts or Christmas trees is good. Limitations for the harvesting of wood products are slight.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the pinyon and Utah juniper are thinned, the desirable understory plants can be expected to increase for a short period before the pinyon and Utah juniper revegetate the area. Suitable brush management practices include prescribed burning, chaining, and cutting.

The suitability of the Strych soil for rangeland seeding is poor. The main limitation for seeding is stoniness of the surface layer.

The Gerst and Strych soils are in capability subclass VIIs, nonirrigated, and Badland is in capability subclass VIIIe. The Gerst soil is in the Upland Shallow Clay Loam (Utah Juniper-Pinyon) woodland site. The Strych soil is in the Upland Stony Loam (Pinyon-Utah Juniper) woodland site. Badland is not placed in a woodland site.

37—Gerst-Strych-Badland complex, 50 to 70 percent slopes. This map unit is on side slopes of benches. It is at the base of the Book Cliffs and Gentry Mountain, extending from Horse Canyon to Huntington Canyon. Slopes are 100 to 300 feet long, are concave to convex, and have all aspects. Elevation ranges from 5,800 to 7,500 feet but is dominantly 6,000 to 7,000 feet. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 50 percent Gerst extremely stony loam, 50 to 70 percent slopes, eroded; 15 percent Strych very stony loam, 50 to 70 percent slopes; 15 percent Badland; and 20 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Rubbleland and 5 percent Travessilla sandy loam and 5 percent Rock outcrop on remnant tops. Also included are small areas of Strych very stony loam.

The Gerst soil is shallow and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale. The present vegetation is mainly pinyon, juniper, Salina wildrye, Indian ricegrass, needleandthread, galleta, and birchleaf mountainmahogany.

Typically, the surface layer is light brownish gray extremely stony loam about 7 inches thick. The underlying material to a depth of 19 inches is gray and light brownish gray channery silt loam over weathered shale. Depth to shale ranges from 10 to 20 inches.

Permeability of this Gerst soil is moderately slow. Available water capacity is about 2 to 3 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

The Strych soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly pinyon, Utah juniper, Salina wildrye, Indian ricegrass, black sagebrush, and birchleaf mountainmahogany.

Typically, the surface layer is pinkish gray very stony loam about 5 inches thick. The next layer is light gray and very pale brown very stony loam about 42 inches thick. Below this to a depth of 60 inches or more is very pale brown very cobbly sandy loam. A layer of secondary calcium carbonate accumulation is at a depth of about 5 inches.

Permeability of the Strych soil is moderately rapid. Available water capacity is about 3.5 to 6.5 inches. Water supplying capacity is 4 to 7 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways. Some areas are interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

This unit is used as wildlife habitat, rangeland, and woodland.

The potential vegetation on the Gerst soil includes an overstory of pinyon and Utah juniper with a canopy of 15 percent. The understory vegetation is 40 percent grasses, 20 percent forbs, and 40 percent shrubs. Among the important plants are Salina wildrye, Indian ricegrass, birchleaf mountainmahogany, and Utah serviceberry.

The site index for Utah juniper and pinyon is 15 to 25. Average yield is 1 to 2 cords of wood per acre. The potential for the production of posts or Christmas trees is very poor. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The suitability of the Gerst soil for grazing is poor. For critical erosion control, small areas can be mechanically treated and seeded. It is not practical to revegetate large areas of rangeland because of the shallow soil depth and the hazard of water erosion. Plants that may be suitable for critical area seedings are those native to the soil.

The potential vegetation on the Strych soil includes an overstory of pinyon and Utah juniper with a canopy of 30 percent. The understory vegetation is 45 percent grasses, 10 percent forbs, and 45 percent shrubs. Among the important plants are birchleaf mountainmahogany, black sagebrush, Salina wildrye, and needleandthread.

The site index for pinyon and Utah juniper is 50. Average yield is 6 cords of wood per acre. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

This unit is not grazeable by livestock because of the steepness of slope.

The Gerst and Strych soils are in capability subclass VIIe, and Badland is in capability subclass VIIIe. The Gerst soil is in the Upland Very Steep Shallow Clay Loam (Pinyon-Utah Juniper) woodland site. The Strych soil is in the Upland Very Steep Stony Loam (Pinyon-Utah Juniper) woodland site. Badland is not placed in a woodland site.

38—Gerst-Travessilla complex. This map unit is on dissected foot slopes and benches. It extends from west of Helper to east of Wellington and is near Wattis and Poison Spring Ranch. Slopes are 3 to 40 percent. The present vegetation in most areas is mainly juniper, pinyon, galleta, Indian ricegrass, black sagebrush, and blue grama. Elevation is 5,500 to 6,800 feet. The average annual precipitation is 8 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

This unit is 50 percent Gerst very channery loam, dry, 15 to 40 percent slopes, eroded; 25 percent Travessilla fine sandy loam, dry, 3 to 20 percent slopes, eroded; and 25 percent other soils. The Gerst soil is on the sides of eroded benches, and the Travessilla soil is on benches. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Stormitt gravelly sandy clay loam, dry, on the larger remnant surfaces; 5 percent Haverdad loam in drainageways; 5 percent Badland; and 5 percent Rock outcrop intermingled throughout the unit.

The Gerst soil is shallow and well drained. It formed in residuum derived dominantly from shale. Slopes are 75 to 100 feet long and are concave to convex. Typically, the surface layer is light brownish gray very channery loam about 5 inches thick. The underlying material to a depth of 19 inches is light brownish gray channery loam over soft shale. Soft shale is at a depth of 10 to 20 inches.

Permeability of the Gerst soil is moderately slow. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is rapid, and the hazard of water erosion is high. The soil is subject to sheet and gully erosion. In some areas gullies are about 200 to 400 feet apart.

The Travessilla soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Slopes are 100 to 200 feet long and are concave to convex. Typically, the surface layer is brown fine sandy loam about 2 inches thick. The underlying material to a depth of 10 inches is brown fine sandy loam or sandstone. Depth to sandstone ranges from 10 to 20 inches. In some areas the surface layer is sandy loam.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is about 1.0 to 1.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium to rapid, and the hazard of water erosion is high. Many areas of this soil are gullied. The hazard of soil blowing is moderate.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Gerst soil includes an overstory of Utah juniper and pinyon with a canopy of 5 to 10 percent. The understory vegetation is 55 percent grasses, 25 percent forbs, and 20 percent shrubs. Among the important plants are Salina wildrye, shadscale, Utah juniper, and pinyon.

The site index for Utah juniper and pinyon is 15 to 20. Average yield is 1 to 2 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. The main limitation for the harvesting of wood products is the steepness of slope. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. For critical erosion control, small areas can be mechanically treated and seeded. It is not practical to revegetate large areas of rangeland because of the shallow soil depth. The suitability of the soil for rangeland seeding is very poor.

The potential vegetation on the Travessilla soil includes an overstory of Utah juniper and pinyon with a canopy of 30 percent. The understory vegetation is 15 percent grasses, 5 percent forbs, and 80 percent shrubs. Among the important plants are black sagebrush, Mormon-tea, Salina wildrye, and Utah juniper.

The site index for Utah juniper and pinyon is 40. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is good.

Limitations for the harvesting of wood products are slight.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of rangeland because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. If Utah juniper and pinyon are thinned, the desirable understory plants can be expected to increase for a short period before Utah juniper and pinyon revegetate the area.

This map unit is in capability subclass VIIe, nonirrigated. The Gerst soil is in the Semidesert Shallow Clay (Utah Juniper) woodland site. The Travessilla soil is in the Semidesert Shallow Loam (Utah Juniper-Pinyon) woodland site.

39—Glenberg family, 1 to 3 percent slopes. This very deep, well drained soil is on flood plains and valley floors. It is south of East Carbon City and east of Wellington. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long. The present vegetation is mainly Indian ricegrass, ragweed, Russian-thistle, threeawn, and galleta. Elevation is 5,400 to 5,700 feet. The average annual precipitation is about 8 to 10 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is brown loamy fine sand about 4 inches thick. The underlying layer to a depth of 60 inches or more is brown very fine sandy loam and fine sandy loam.

Included in this unit are about 10 percent Ravola loam, 1 to 3 percent slopes, and 5 percent soils that are similar to this Glenberg family soil but have more than 35 percent rock fragments.

Permeability of this Glenberg family soil is moderately rapid. Available water capacity is about 7 to 10 inches. Water supplying capacity is 4.5 to 5.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Glenberg family soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Indian ricegrass, needleandthread, galleta, and fourwing saltbush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is fair. The main limitation is low annual precipitation. Plants suitable for seeding include adapted native plants and crested wheatgrass.

This map unit is in capability subclass VIIc, nonirrigated, and in the Semidesert Sandy Loam range site.

40—Glenberg family, 3 to 6 percent slopes. This very deep, well drained soil is on valley floors and low terraces along the South Fork of Gordon Creek and near Poison Spring Bench. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 100 to 300 feet long. The present vegetation in most areas is mainly Wyoming big sagebrush, blue grama, Salina wildrye, black greasewood, fourwing saltbush, and globemallow. Elevation is 6,400 to 6,900 feet. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is pale brown very fine sandy loam about 4 inches thick. The next layer is pale brown very fine sandy loam about 6 inches thick. The next layer is a buried surface layer of brown loam 4 inches thick. Below this to a depth of 60 inches or more is pale brown fine sandy loam and loam.

Included in this unit are about 10 percent Haverdad loam and 5 percent Haverdad loam, moist.

Permeability of this Glenberg family soil is moderately rapid. Available water capacity is about 7.0 to 10.5 inches. Water supplying capacity is 5.5 to 6.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Glenberg family soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are Indian ricegrass, galleta, Wyoming big sagebrush, and winterfat. If a large percentage of the potential plant community is removed, Utah juniper and pinyon may invade.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is fair. The main limitation is low annual precipitation. Plants suitable for seeding include those native to the unit and crested wheatgrass, ladak alfalfa, and prostrate kochia.

This map unit is in capability subclass VIIe, nonirrigated, in the Semidesert Loam (Wyoming Big Sagebrush) range site.

41—Green River-Juva Variant complex. This map unit is on flood plains, alluvial fans, and stream terraces on valley floors. It is along the Price and Green Rivers. Slopes are 0 to 5 percent. Elevation is 4,600 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 45 percent Green River silt loam, 0 to 2 percent slopes; 30 percent Juva Variant fine sandy loam, 1 to 5 percent slopes; and 25 percent other soils. The Green River soil is on flood plains along meandering streams about 1 to 5 feet above the channel bottoms. The Juva Variant soil is on alluvial fans and stream terraces about 5 to 15 feet above the channel bottoms. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent soils, on flood plains, that are similar to the Green River soil but are 35 to 50 percent pebbles below a depth of 10 inches; 7 percent of soils, on stream terraces, that are similar to the Juva Variant soil but are loamy fine sand below a depth of about 10 inches; and 5 percent Ravola loam, alkali, on stream terraces. Also included are small areas of Rafael silty clay loam on flood plains and Winetti Variant soils on stream terraces.

The Green River soil is very deep and moderately well drained. It formed in alluvium derived dominantly from mixed sedimentary rock. Slopes are 200 to 300 feet long and are concave. The present vegetation in most areas is mainly tamarisk, willows, saltgrass, sedges, and cottonwood.

Typically, the surface is covered with mat of leaves 1 inch thick. The surface layer is pale brown silt loam about 16 inches thick. Below this to a depth of 60 inches or more is pale brown, stratified loamy fine sand, fine sandy loam, and very fine sandy loam.

Permeability of the Green River soil is moderate. Available water capacity is about 4.0 to 11.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 2 to 3 percent. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. A seasonal high water table fluctuates between depths of 24 to 36 inches during part of the growing season. This soil is subject to brief periods of flooding in May through August.

The Juva Variant soil is very deep and well drained. It formed in alluvium derived dominantly from mixed sedimentary rock. Slopes are 50 to 100 feet long and are concave to convex. The present vegetation in most areas is mainly shadscale, pricklypear, galleta, greasewood, and rabbitbrush.

Typically, the surface layer is light brownish gray fine sandy loam about 6 inches thick. Below this to a depth of 60 inches or more is light brownish gray loam with thin strata of gravelly loam and sandy loam.

Permeability of the Juva Variant soil is moderately rapid. Available water capacity is about 6 to 9 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is slow, and the hazard of water erosion is slight. Channeling and deposition are common along streambanks. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. It is also used for homesite and urban development and for irrigated crops.

The potential plant community on the Green River soil is 55 percent grasses, 5 percent forbs, and 40 percent shrubs. Among the important plants are inland saltgrass, alkali sacaton, skunkbush sumac, and Fremont cottonwood.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning.

The suitability of the Green River soil for rangeland seeding is poor. The main limitation is the high content of alkali in the soil.

The potential plant community on the Juva Variant soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are alkali sacaton, galleta, seepweed, and black greasewood.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation and the content of alkali in the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, prostrate kochia, and Russian wildrye.

If areas of this unit are irrigated, sprinkler or flood irrigation is suitable if the land is smoothed for even application of water. Crop management systems include rotations of hay, small grain, and corn for silage. Plowing under straw and other crop residue helps to improve soil tilth. Proper irrigation water management is essential to reduce the deep percolation of water, the buildup of a water table, and the movement of salts to areas where they will cause problems.

This map unit is in capability unit IIw-28, irrigated, and in capability subclass VIw, nonirrigated. The Green River soil is in the Wet Salt Streambank range site. The Juva Variant soil is in the Alkali Flat range site.

42—Greybull loam, 3 to 8 percent slopes. This moderately deep, well drained soil is on foot slopes of hills in the vicinity of Mounds Reef. It formed in alluvium over residuum derived dominantly from shale and sandstone. Slopes are 100 to 300 feet long, are concave to convex, and have south and east aspects. The present vegetation in most areas is mainly Indian ricegrass, shadscale, Russian-thistle, winterfat, galleta, and scarlet globemallow. Elevation is 5,200 to 5,500 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 34 inches is grayish brown loam. The lower part of this layer is about 15 percent soft shale fragments. Weathered shale is at a depth of 34 inches. Bedrock is at a depth of 20 to 40 inches.

Included in this unit are about 5 percent Persayo loam, 3 to 8 percent slopes, on ridges and 5 percent Ravola loam, 1 to 6 percent slopes, in draws. Also included are small areas soils that are similar to this Greybull soil but have weathered shale at a depth of 40 to 60 inches or more.

Permeability of this Greybull soil is moderate. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 3.0 to 4.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 0.5 to 1 percent. Runoff is medium, and the hazard of water erosion is moderate. Runoff from adjacent areas has formed gullies in some areas of this soil. The gullies are *V*-shaped, are 1 to 4 feet deep, and in some areas are 200 to 600 feet apart. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Greybull soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

This map unit is in capability subclass VIIe and in the Desert Loam range site.

43—Grobutte-Cabba families association. This map unit is on mountain slopes. Slopes are 25 to 70 percent. Elevation is 6,000 to 7,400 feet.

This unit is 40 percent Grobutte family very gravelly loam, 25 to 40 percent slopes, eroded; 35 percent Cabba family gravelly loam, dry, 40 to 70 percent slopes, eroded; and 25 percent other soils. The Grobutte family soil mainly has south and west aspects, and the Cabba family soil has mainly north and east aspects.

Included in this unit are about 5 percent Rock outcrop, 10 percent Cabba family bouldery loam on ridges, and 8 percent Podo soils that have slopes of 50 to 70 percent and support Douglas-fir. Also included are small areas of Shupert gravelly loam along channels.

The Grobutte family soil is very deep and well drained. It formed in colluvium derived dominantly from shale, sandstone, and siltstone of the Green River Formation. Slopes are 100 to 200 feet long, are concave to convex, and have south aspect. The present vegetation in most areas is mainly pinyon, Utah juniper, Salina wildrye, and bluebunch wheatgrass. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is pale brown very gravelly loam about 9 inches thick. The upper 13 inches of the underlying material is light olive gray extremely cobbly loam, the next 18 inches is pale olive extremely stony sandy clay loam, and the lower part to a depth of 60 inches or more is light olive gray extremely cobbly loam.

Permeability of the Grobutte family soil is moderate. Available water capacity is about 3 to 5 inches. Water supplying capacity is 5 to 7 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is high.

The Cabba family soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale of the Green River Formation. About 25 percent of the acreage of this soil has slopes of 40 to 50 percent. Slopes are 100 to 200 feet long, are concave to convex, and have south aspect. The present vegetation in most areas is mainly pinyon, Utah juniper, Douglas-fir, Rocky Mountain juniper, and birchleaf mountainmahogany. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is pale brown gravelly loam about 3 inches thick. The underlying material is brown gravelly loam about 12 inches thick. Shale is at a depth of 15 inches.

Permeability of the Cabba family soil is moderate. Available water capacity is about 2 to 3 inches. Water supplying capacity is 5.0 to 6.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as woodland, rangeland, and wildlife habitat and for recreation.

The potential vegetation on the Grobutte family soil includes an overstory of pinyon and Utah juniper with a canopy of 30 percent. The understory vegetation is 45 percent grasses, 10 percent forbs, and 45 percent shrubs. Among the important plants are birchleaf mountainmahogany, black sagebrush, Salina wildrye, and needleandthread.

The site index for pinyon and Utah juniper is 65. Average yield is 9 cords of wood per acre. The potential for the production of posts or Christmas trees is good. This unit is moderately limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the pinyon and Utah juniper are thinned, the desirable plants can be expected to increase for a short period before the pinyon and Utah juniper revegetate the area. Suitable brush management practices include prescribed burning, chaining, and cutting.

The suitability of the Grobutte family soil for rangeland seeding is poor. The main limitation is stoniness of the surface layer.

The potential vegetation on the Cabba family soil includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 50 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. Harvesting of wood products is severely limited by the steepness of slope, the hazard of erosion, and rock fragments on the surface.

This unit is not grazeable by livestock because of the steepness of slope and the stoniness of the surface layer.

This map unit is in capability subclass VIIe, nonirrigated. The Grobutte family soil is in the Upland Stony Loam (Pinyon-Utah Juniper) woodland site. The Cabba family soil is in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site.

44—Guben-Doney family-Datino Variant complex, 15 to 40 percent slopes. This map unit is on mountain slopes and canyonsides in the Argyle Ridge and Nine Mile Creek areas. Elevation is 7,200 to 7,800 feet.

This unit is 40 percent Guben extremely bouldery fine sandy loam, 15 to 40 percent slopes; 25 percent Doney family gravelly sandy loam, 15 to 40 percent slopes; 20 percent Datino Variant loam, 15 to 40 percent slopes, and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Sheepcan stony loam and 7 percent Trag clay loam.

The Guben soil is very deep and well drained. It formed in colluvium derived dominantly from sedimentary rock of the Green River Formation. Slopes are 200 to 300 feet long, are concave to convex, and have north and east aspects. The present vegetation in most areas is mainly Douglas-fir, snowberry, pinegrass, serviceberry, and peavine. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface is covered with a mat of partially decomposed needles, twigs, and leaves about 0.5 inch thick. The surface layer is brown extremely bouldery fine sandy loam about 7 inches thick. The subsoil is brown very stony loam about 17 inches thick. The substratum to a depth of 60 inches or more is light brown very stony loam.

Permeability of the Guben soil is moderate. Available water capacity is about 3.5 to 5.0 inches. Water supplying capacity is 8.5 to 12.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

The Doney family soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sedimentary rock of the Green River Formation. Slopes are 200 to 300 feet long, concave to convex, and on south and west aspects. The present vegetation in most areas is mainly Salina wildrye, bluebunch wheatgrass, serviceberry, snowberry, and muttongrass. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 100 days.

Typically, the surface layer is light brownish gray gravelly sandy loam about 7 inches thick. The subsoil is grayish brown loam about 10 inches thick. The substratum to a depth of 39 inches is pale yellow loam over soft shale. Depth to soft shale ranges from 20 to 40 inches.

Permeability of the Doney family soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 7 to 11 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

The Datino Variant soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. About 30 percent of this soil has slopes of 40 to 50 percent. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation in most areas is big sagebrush, Salina wildrye, snowberry, Indian ricegrass, and serviceberry. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface layer is brown loam about 7 inches thick. The subsoil is brown very cobbly loam about 8 inches thick. The substratum to a depth of 60 inches or more is pale brown very stony fine sandy loam.

Permeability of the Datino Variant soil is moderate. Available water capacity is about 4 to 7 inches. Water supplying capacity is 6 to 9 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential vegetation on Guben soil includes an overstory of Douglas-fir and pinyon with a canopy of 20 percent. The understory vegetation is 40 percent grasses, 15 percent forbs, and 45 percent shrubs. Among the important plants are snowberry, wheatgrass, and Salina wildrye.

The site index for Douglas-fir is 25. Average yield is about 2,000 board feet per acre for 100-year-old trees 15 inches in diameter or more. This unit is moderately limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

The suitability of this soil for livestock grazing is poor because of the low production of desirable forage.

The potential plant community on the Doney family soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, bluegrasses, and snowberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this soil for rangeland seeding is very poor. The main limitation is moderate depth to bedrock.

The potential plant community on the Datino Variant soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this unit because of the stoniness of the soils. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit, intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This unit is in capability subclass VIIs, nonirrigated. The Guben soil is in the Mountain Stony Loam (Douglas-fir-Pinyon) woodland site. The Doney family soil is in the Mountain Loam (Saline Wildrye) range site. The Datino Variant soil is in the Mountain Stony Loam (Browse) range site.

45—Guben-Doney family-Datino Variant complex, 40 to 70 percent slopes. This map unit is on mountain slopes in the area of Argyle Ridge and Nine Mile Creek. Elevation is 7,500 to 9,000 feet.

This unit is 40 percent Guben extremely bouldery fine sandy loam, 40 to 70 percent slopes, eroded; 25 percent Doney family gravelly sandy loam, 40 to 70 percent slopes, eroded; 20 percent Datino Variant loam, 40 to 60 percent slopes; and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Trag soils that have slopes of 30 to 60 percent and 5 percent Pathead extremely stony loam. Also included are small areas of Sheepcan stony loam.

The Guben soil is very deep and well drained. It formed in colluvium derived dominantly from sedimentary rock of the Green River Formation. About 25 percent of the acreage of this soil has slopes of 40 to 50 percent. Slopes are 200 to 300 feet long, are concave to convex, and have north and east aspects. The present vegetation in most areas is mainly Douglas-fir, snowberry, pinegrass, serviceberry, and peavine. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface is covered with a mat of partially decomposed needles, twigs, and leaves about 0.5 inch thick. The surface layer is brown extremely bouldery fine sandy loam about 7 inches thick. The subsoil is brown very stony loam about 17 inches thick. The substratum to a depth of 60 inches or more is light brown very stony loam.

Permeability of the Guben soil is moderate. Available water capacity is about 3.5 to 5.0 inches. Water supplying capacity is 8.5 to 12.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

The Doney family soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sedimentary rock of the Green River Formation. About 25 percent of this soil has slopes of 40 to 50 percent. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation in most areas is mainly Salina wildrye, bluebunch wheatgrass, serviceberry, snowberry, and muttongrass. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 100 days.

Typically, the surface layer is light brownish gray gravelly sandy loam about 7 inches thick. The subsoil is grayish brown loam about 10 inches thick. The substratum to a depth of 39 inches is pale yellow loam over soft shale. Depth to soft shale ranges from 20 to 40 inches.

Permeability of the Doney family soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is about 7 to 11 inches. Effective rooting depth is about 20 to 40 inches. The organic matter content surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

The Datino Variant soil is very deep and well drained. It formed in colluvium derived dominantly from sedimentary rock of the Green River Formation. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation in most areas is mainly big sagebrush, Salina wildrye, snowberry, Indian ricegrass, and serviceberry. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface layer is brown loam about 7 inches thick. The subsoil is brown very cobbly loam about 8 inches thick. The substratum to a depth of 60 inches or more is pale brown very stony fine sandy loam.

Permeability of the Datino Variant soil is moderate. Available water capacity is about 4.5 to 7.0 inches. Water supplying capacity is 6 to 9 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland, wildlife habitat, woodland, and recreation areas.

The potential vegetation on the Guben soil includes an overstory of Rocky Mountain Douglas-fir and pinyon with a canopy of 50 percent. The understory vegetation is 40 percent grasses, 15 percent forbs, and 45 percent shrubs. Among the important plants are Salina wildrye, wheatgrass, birchleaf mountainmahogany, and snowberry.

This soil is severely limited for harvesting wood products because of the steepness of slope, the hazard of erosion, and stones and boulders on the surface.

This soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Doney family soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This soil is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

The potential plant community on the Datino Variant soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

For critical erosion control, small areas of this soil can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This soil is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated. The Guben soil is in the Mountain Very Steep Stony Loam (Douglas-fir) woodland site. The Doney family soil is in the Mountain Very Steep Loam (Saline Wildrye) range site. The Datino Variant soil is in the Mountain Very Steep Stony Loam (Browse) range site.

46—Guben-Pathead extremely stony loams. This map unit is on mountain slopes south and west of Hiawatha. Slopes are 30 to 50 percent, are 300 to 400 feet long and convex, and have north, west, and east aspects. Elevation is 7,500 to 8,700 feet. The average annual precipitation is 16 to 18 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 60 percent Guben extremely stony loam, 30 to 50 percent slopes; 25 percent Pathead extremely stony loam, 30 to 50 percent slopes; and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Comodore very stony fine sandy loam, moist, on north aspects and 5 percent Rock outcrop on ridges.

The Guben soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone. The present vegetation in most areas is mainly Salina wildrye, birchleaf mountainmahogany, serviceberry, and a few Douglas-fir and white fir.

Typically, the surface layer is dark brown extremely stony loam about 8 inches thick. The subsoil is grayish brown and light brownish gray very cobbly loam about 15 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown very cobbly fine sandy loam and very stony loam.

Permeability of the Guben soil is moderate. Available water capacity is about 3.5 to 5.0 inches. Water supplying capacity is 6 to 10 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Pathead soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sandstone. The present vegetation in most areas is mainly Salina wildrye, eriogonum, birchleaf mountainmahogany, and yellowbrush.

Typically, the surface layer is brown extremely stony loam 3 inches thick. The underlying material to a depth of 26 inches is pale brown very cobbly loam over sandstone. Sandstone is at a depth of 20 to 40 inches.

Permeability of the Pathead soil is moderate. Available water capacity is about 1 to 2 inches. Water supplying capacity is 3.5 to 5.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Guben soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the stoniness of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil, intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

The potential plant community on the Pathead soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, bluegrasses, and snowberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of the Pathead soil for rangeland seeding is very poor. The main limitations are the moderate depth to bedrock and steepness of slope.

This map unit is in capability subclass VIIs, nonirrigated. The Guben soil is in the Mountain Stony Loam (Browse) range site. The Pathead soil is in the Mountain Shallow Loam (Saline Wildrye) range site.

47—Guben-Rock outcrop complex. This map unit is on mountain slopes. It is in the Book Cliffs, north of Helper and west of the Green River. Slopes are 50 to 80 percent, 100 to 200 feet long, and plane to convex. The present vegetation is mainly Douglas-fir, serviceberry, birchleaf mountainmahogany, mockorange, and western wheatgrass. Elevation ranges from 5,000 to 9,500 feet but is dominantly 6,000 to 7,500 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 55 percent Guben extremely bouldery fine sandy loam, 50 to 80 percent slopes; 20 percent Rock outcrop, and 25 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 12 percent Midfork family soils in concave areas and 10 percent Comodore very stony fine sandy loam, moist, intermingled throughout the unit. Also included are small areas of Perma family soils that have slopes of 60 to 80 percent.

The Guben soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Typically, the surface is covered with a mat of partially decomposed needles, twigs, and leaves about 0.5 inch thick. The surface layer is brown extremely bouldery fine sandy loam about 7 inches thick. The subsoil is brown very stony loam about 17 inches thick. The substratum to a depth of 60 inches or more is light brown very stony loam.

Permeability of the Guben soil is moderate. Available water capacity is about 3.5 to 5.0 inches. Water supplying capacity is 8.5 to 12.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is moderate, and the hazard of water erosion is slight.

Rock outcrop consists of areas of exposed bedrock, dominantly interbedded sandstone and shale. It occurs as ledges.

This unit is used as rangeland, wildlife habitat, woodland, and recreation areas.

The potential vegetation on the Guben soil includes an overstory of Rocky Mountain Douglas-fir and pinyon with a canopy of 50 percent. The understory vegetation is 40 percent grasses, 15 percent forbs, and 45 percent shrubs. Among the important plants are Salina wildrye, wheatgrass, birchleaf mountainmahogany, and snowberry.

This unit is severely limited for harvesting wood products because of the steepness of slope, the hazard of erosion, and stones and boulders on the surface.

This unit is not grazeable by livestock because of the steepness of slope.

The Guben soil is in capability subclass VIIe, nonirrigated, and in the Mountain Very Steep Stony Loam (Douglas-fir) woodland site. Rock outcrop is in capability subclass VIIIs. It is not placed in a woodland site.

48—Haverdad loam, 1 to 8 percent slopes. This very deep, well drained soil is on alluvial fans and valley floors. It is in Clarks Valley, in an area near East Carbon City, in the area west of Helper, and in the Coal Creek area. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation in most areas is mainly Wyoming big sagebrush, blue grama, winterfat, and bottlebrush squirreltail. Elevation is

5,500 to 6,200 feet. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is light brownish gray loam about 3 inches thick. The underlying layer to a depth of 60 inches or more is pale brown and light yellowish brown loam and clay loam.

Included in this unit are about 5 percent Ravola loam, alkali; 5 percent Glenberg family soils, 3 to 6 percent slopes; and small areas of Billings silty clay loam and Haverdad loam, alkali, 0 to 3 percent slopes, eroded. Also included are some areas of soils that are very strongly alkali.

Permeability of this Haverdad soil is moderate. Available water capacity is about 9 to 11 inches. Water supplying capacity is 6 to 7 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. It is also used for irrigated crops.

The potential plant community on the Haverdad soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are Indian ricegrass, galleta, needleandthread, Wyoming big sagebrush, and winterfat. If a large percentage of the potential plant community is removed, Utah juniper and pinyon may invade.

If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment. The suitability of this unit for rangeland seeding is fair. The main limitation is the low annual precipitation. Plants suitable for seeding include adapted native plants, Russian wildrye, crested wheatgrass, and prostrate kochia.

If areas of this unit are irrigated, suitable management practices to maintain or improve these areas include conservation cropping systems with a rotation of hay or pasture and small grain. Crop residue should be kept on the surface of the soil. Pasture management that incorporates use of a rotation grazing system is best.

Sprinkler irrigation systems provide the best erosion control and the ability to apply irrigation water evenly to the fields. Flood irrigation can also be used if erosion is controlled.

This map unit is in capability unit IIIe-2, irrigated, and capability subclass VIe, nonirrigated. It is in the Semidesert Loam (Wyoming Big Sagebrush) range site.

49—Haverdad loam, alkali, 0 to 3 percent slopes. This very deep, well drained soil is on fan terraces, alluvial fans, and valley floors. It is in Clarks Valley and in small areas near East Carbon City, Wellington, and Hiawatha. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 100 to 300 feet long and are concave to convex. The vegetation in areas not cultivated is mainly greasewood, pricklypear, shadscale, big sagebrush, galleta, and Russian-thistle. Elevation is 5,600 to 6,200 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 140 days.

Typically, the surface layer is light yellowish brown loam 7 inches thick. The underlying layer to a depth of 60 inches or more is light yellowish brown, stratified loam, sandy clay loam, and fine sandy loam. The soil is strongly alkali below a depth of 17 inches.

Included in this unit are about 5 percent Glenberg family soils, 3 to 6 percent slopes, and 5 percent Haverdad loam, 1 to 8 percent slopes.

Permeability of this Haverdad soil is moderate. Available water capacity is about 7.5 to 11.5 inches. Water supplying capacity is 5 to 6 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. Runoff, originating from adjacent areas, has resulted in the formation of gullies in some areas of this soil. The gullies are *U*-shaped, are 10 to 15 feet deep, and in some areas are 100 to 1,000 feet apart. The hazard of soil blowing is moderate.

Most areas of this unit are used as rangeland and wildlife habitat. A few areas are used for irrigated crops during years of high precipitation in winter.

The potential plant community on the Haverdad soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are alkali sacaton, galleta, seepweed, and black greasewood.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas because of the low annual precipitation and the content of alkali in the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, prostrate kochia, and Russian wildrye.

If this unit is irrigated, suitable management practices to maintain and improve the pasture and hayland include irrigation water management, rotation grazing, and occasional seeding.

Areas that are irrigated are usually planted to salt and alkali tolerant grasses. The flood or sprinkler irrigation method is suitable. Yields are generally low. The high content of salt in the soil makes reclamation impractical.

This map unit is in capability unit IVe-28, irrigated, and in capability subclass VIIs, nonirrigated. It is in the Alkali Flat range site.

50—Haverdad loam, moist, 1 to 5 percent slopes. This very deep, well drained soil is on alluvial fans and valley floors. It is in the areas of Clarks Valley, Gordon Creek, and Coal Creek and near Wattes. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long. The present vegetation is mainly big sagebrush, greasewood, blue grama, Indian ricegrass, and needleandthread. Elevation is 6,300 to 6,850 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is brown loam about 6 inches thick. The next layer is pale brown loam about 30 inches thick. Below this to a depth of 60 inches or more is pale brown fine sandy loam.

Included in this unit are 5 percent Glenberg family soils that have slopes of 3 to 6 percent and 5 percent soils that are similar to this Haverdad soil are colder.

Permeability of this Haverdad soil is moderate. Available water capacity is about 8.0 to 10.5 inches. Water supplying capacity is 6.5 to 8.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. Runoff, originating from adjacent areas, has resulted in the formation of gullies in some areas of this soil. The gullies are *U*-shaped, 5 to 10 feet deep, and in some areas 300 to 500 feet apart. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. A few areas are used for irrigated crops.

The potential plant community on the Haverdad soil is about 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are western wheatgrass, basin big sagebrush, needleandthread, Indian ricegrass, and muttongrass. Dense stands of basin big sagebrush may develop with continuous overgrazing.

Practices needed to maintain or improve the vegetation include a planned grazing system, proper grazing use, and proper location of water developments. Brush management by prescribed burning, chemical spraying, or mechanical treatment can be used to improve deteriorated rangeland.

Seeding may be advisable if the plant community is in poor condition. Plants suitable for seeding include Russian wildrye, intermediate wheatgrass, Tegmar wheatgrass, pubescent wheatgrass, alfalfa, small burnet, prostrate kochia, and adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability unit IIe-2, irrigated, and in capability subclass VIe, nonirrigated. It is in the Upland Loam (Basin Big Sagebrush) range site.

51—Hernandez family, 1 to 3 percent slopes. This very deep, well drained soil is on fan terraces. It is in Clark Valley, near Sunnyside, Helper, and Hiawatha. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long, and some are concave to convex. The vegetation in most areas not cultivated is mainly big sagebrush, yellowbrush, galleta, Indian ricegrass, and blue grama. Elevation is 5,600 to 6,500 feet. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is brown loam 3 inches thick. The subsoil is brown loam 11 inches thick. The substratum to a depth of 60 inches or more is light brown or pink loam.

Included in this unit are about 10 percent Strych very stony loam, dry, on erratically located stone bars; 5 percent soils that are similar to this Hernandez family soil but are moderately deep and are on side slopes; and 5 percent Haverdad loam along drainageways.

Permeability of this Hernandez family soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 5.5 to 6.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. A few areas are used for irrigated crops.

The potential plant community on the Hernandez family soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are Indian ricegrass, galleta, Wyoming big sagebrush, and winterfat. If a large percentage of the potential plant community is removed, Utah juniper and pinyon may invade.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment. The suitability of this unit for rangeland seeding is fair. The main limitation is the low annual precipitation. Plants suitable for seeding include adapted native plants, Russian wildrye, crested wheatgrass, and prostrate kochia.

If areas of this unit are irrigated, suitable management practices include a conservation cropping system with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability unit IIe-2, irrigated, and in capability subclass VIe, nonirrigated. It is in the Semidesert Loam (Wyoming Big Sagebrush) range site.

52—Hernandez family, 3 to 8 percent slopes. This very deep, well drained soil is on fan terraces. It is in Clark Valley, near Sunnyside and Helper. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long, and some are concave to convex. The present vegetation in most areas is mainly Wyoming big sagebrush, yellowbrush, galleta, Indian ricegrass, and blue grama. Elevation is 5,600 to 6,500 feet. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is brown loam 3 inches thick. The subsoil is brown loam 11 inches thick. The substratum to a depth of 60 inches or more is light brown or pink loam.

Included in this unit are about 10 percent Strych very stony loam, dry, on erratically located stone bars; 5 percent soils that are similar to this Hernandez family soil but are moderately deep and are on side slopes; and 5 percent Haverdad loam along drainageways.

Permeability of this Hernandez family soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 5.5 to 6.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. A few areas are used for irrigated crops.

The potential plant community on the Hernandez family soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are Indian ricegrass, galleta, Wyoming big sagebrush, and winterfat. If a large percentage of the potential plant community is removed, Utah juniper and pinyon may invade.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment. The suitability of the unit for rangeland seeding is fair. The main limitation is the low annual precipitation. Plants suitable for seeding include adapted native plants, Russian wildrye, crested wheatgrass, and prostrate kochia.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of hay or pasture and small grain. Crop residue should be kept on the surface of the soil. Pasture management that incorporates use of a rotation grazing system is best.

Sprinkler irrigation systems provide the best erosion control and the ability to apply irrigation water evenly to the fields. Flood irrigation can also be used if erosion is controlled.

This map unit is in capability unit IIIe-2, irrigated, and in capability subclass VIe, nonirrigated. It is in the Semidesert Loam (Wyoming Big Sagebrush) range site.

53—Hernandez family, moist, 1 to 6 percent slopes. This very deep, well drained soil is on fan terraces near Hiawatha and north of Wellington. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 200 feet to more than 300 feet long, and some are concave to convex. The present vegetation in most areas is mainly basin big sagebrush, western wheatgrass, blue grama, and needleandthread. Elevation is 6,200 to 7,100 feet. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is brown very fine sandy loam 3 inches thick. The subsoil is brown loam 14 inches thick. The substratum to a depth of 60 inches or more is light brown loam. A layer of calcium carbonate accumulation is at a depth of about 17 inches.

Included in this unit are about 10 percent Strych very stony loam on erratically located stone bars; 5 percent Haverdad loam, moist, in draws; and 5 percent soils that are similar to this Hernandez family soil but are moderately deep over shale.

Permeability of this Hernandez family soil is moderate. Available water capacity is about 8.5 to 10.5 inches. Water supplying capacity is 6 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. It is also used for irrigated crops.

The potential plant community on the Hernandez family soil is about 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are western wheatgrass, basin big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, and muttongrass. Dense stands of big sagebrush may develop with continuous overgrazing.

Practices needed to maintain or improve the vegetation include a planned grazing system, proper grazing use, and proper location of water developments. Brush management by prescribed burning, chemical spraying, or mechanical treatment can be used to improve deteriorated rangeland.

Seeding may be advisable if the plant community is in poor condition. Plants suitable for seeding include

Russian wildrye, intermediate wheatgrass, Tegmar wheatgrass, pubescent wheatgrass, alfalfa, small burnet, prostrate kochia, and adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of hay or pasture and small grain. Crop residue should be kept on the surface of the soil. Pasture management that incorporates use of a rotation grazing system is best.

Sprinkler irrigation systems provide the best erosion control and the ability to apply irrigation water evenly to the fields. Flood irrigation can also be used if erosion is controlled.

This map unit is in capability unit IIIe-2, irrigated, and in capability subclass VIe, nonirrigated. It is in the Upland Loam (Basin Big Sagebrush) range site.

54—Hernandez family-Atrac complex. This map unit is on fan terraces on Porphyry Bench. Slopes are 1 to 6 percent. The present vegetation in most areas is mainly basin big sagebrush, western wheatgrass, blue grama, and needleandthread. Elevation is 6,200 to 6,700 feet. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 55 percent Hernandez family very fine sandy loam, cool, 1 to 6 percent slopes; 35 percent Atrac very fine sandy loam, cool, 1 to 6 percent slopes; and 10 percent other soils. The Hernandez family soil is on slight ridges and side slopes, and the Atrac soil is in shallow depressional areas. The components of this unit are so intricately intermingled that is was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Nelman very gravelly loam in convex areas.

The Hernandez family soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 200 feet to more than 300 feet long and are concave to convex. Typically, the surface layer is brown very fine sandy loam 3 inches thick. The subsoil is brown loam 14 inches thick. The substratum to a depth of 60 inches or more is light brown loam. A layer of carbonate accumulation is at a depth of about 17 inches.

Permeability of the Hernandez family soil is moderate. Available water capacity is about 8.5 to 10.5 inches. Water supplying capacity is 6 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Atrac soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone. Slopes are 200 feet to more than 300 feet long, are concave, and have north aspect. Typically, the surface layer is yellowish brown very fine sandy loam 4 inches thick. The subsoil is yellowish brown and light yellowish brown loam 16 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown loam.

Permeability of the Atrac soil is moderate. Available water capacity is about 8.5 to 10.5 inches. Water supplying capacity is 6 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the soils in this unit is about 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are western wheatgrass, basin big sagebrush, needleandthread, Indian ricegrass, and muttongrass. Dense stands of big sagebrush may develop with continuous overgrazing.

Practices needed to maintain or improve the vegetation include a planned grazing system, proper grazing use, and proper location of water developments. Brush management by prescribed burning, chemical spraying, or mechanical treatment can be used to improve deteriorated rangeland.

Seeding may be advisable if the plant community is in poor condition. Plants suitable for seeding include Russian wildrye, intermediate wheatgrass, Tegmar wheatgrass, pubescent wheatgrass, alfalfa, small burnet, prostrate kochia, and adapted native plants.

This map unit is in capability subclass VIe, nonirrigated, and in Upland Loam (Basin Big Sagebrush) range site.

55—Hunting loam, 1 to 3 percent slopes. This very deep, somewhat poorly drained soil is on alluvial fans and valley floors. It is adjacent to Gordon Creek, Price River, and Miller Creek. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 400 to 600 feet long and are plane to concave. The vegetation is mainly saltgrass and redtop, but greasewood grows in places. Elevation is 5,400 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray loam 9 inches thick. The underlying layer to a depth of 60 inches or more is light brownish gray and grayish brown loam. Mottles are at a depth of 20 to 40 inches.

Included in this unit are small areas of soils that are similar to this Hunting soil but have a silt loam surface layer, Billings silty clay loam, Rafael silty clay loam, and a soil that is similar to this Hunting soil but is strongly saline and alkali.

Permeability of this Hunting soil is moderate. Available water capacity is about 7.5 to 10.0 inches. Effective rooting depth is 60 inches or more for water-tolerant plants, but it is limited to a depth of 20 to 40 inches for non-water-tolerant plants. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. A water table fluctuates between depths of 20 and 40 inches throughout the year.

This unit is used mainly for irrigated pasture. It is also used for alfalfa or small grain.

This unit is suited to irrigated grass and legume pasture, alfalfa, and small grain. Unless the moderately saline areas are reclaimed, they are suitable only for grass and legume pasture.

Good control of irrigation water is needed to lower the water table and to reduce the salinity of the soil. Applying only enough water to satisfy the needs of the crop grown helps to lower the existing water table. Water applied in excess of crop requirements raises the water table. Land leveling can facilitate the uniform distribution of water. The moderately saline areas can be leached of excess salts by irrigating late in fall.

This map unit is in capability unit IIIw-2, irrigated. It is not placed in a range site.

56—Hunting loam, moderately saline, 1 to 3 percent slopes. This very deep, somewhat poorly drained soil is on alluvial fans and valley floors. It is north of Wellington and adjacent to Miller Creek and Marsing Wash. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 300 to 500 feet long and are concave. The vegetation is mainly saltgrass and redtop, but greasewood grows in places. Elevation is 5,400 to 5,600 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray loam 9 inches thick. The underlying layer to a depth of 60 inches or more is light brownish gray and grayish brown loam. Mottles are at a depth of 20 to 40 inches. This soil is moderately saline.

Included in this unit are small areas of Hunting silty clay loam, 1 to 3 percent slopes, and small areas, generally less than 1 acre of soils that are similar to this Hunting soil but is strongly saline.

Permeability of this Hunting soil is moderate. Available water capacity is about 6 to 8 inches. Effective rooting depth is 60 inches or more for water-tolerant plants but is limited to 20 to 40 inches for non-water-tolerant plants. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. A water table fluctuates between depths of 20 and 40 inches throughout the year. Salinity is 8 to 16 millimhos per centimeter. This soil is subject to rare periods of flooding.

This unit is used for irrigated pasture.

Some areas of this unit are irrigated. These areas are used mainly for long-term hay or pasture and for small grain while the hay or pasture is being reestablished. Management of hay and pasture includes seeding, rotation grazing, and fertilizing.

Irrigation water management should include light, frequent applications of water. Sprinkler or flood irrigation can be used, but sprinkler irrigation is preferable because it helps to control erosion and runoff.

This map unit is in capability unit IVe-28, irrigated. It is not placed in a range site.

57—Hunting silty clay loam, 1 to 3 percent slopes. This very deep, somewhat poorly drained soil is on alluvial fans and valley floors. It is adjacent to the Price River, near Price, and adjacent to Miller Creek. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 200 to 400 feet long and are concave. Elevation is 5,400 to 5,600 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray silty clay loam 9 inches thick. The underlying layer to a depth of 60 inches or more is light brownish gray and grayish brown loam. Mottles are at a depth of 20 to 40 inches.

Included in this unit are small areas of Ravola loam, 1 to 3 percent slopes; Penoyer loam, 1 to 3 percent slopes; and Ferron silt loam.

Permeability of this Hunting soil is moderate. Available water capacity is about 7.5 to 10.0 inches. Effective rooting depth is 60 inches or more for water-tolerant plants but is limited to 20 to 40 inches for non-water-tolerant plants. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. A seasonal high water table fluctuates between depths of 20 to 40 inches throughout the year.

This unit is used mainly for irrigated crops. It is also used for irrigated pasture.

This unit is suited to irrigated grass and legume pasture, alfalfa, and small grain. Unless the moderately saline areas are reclaimed, they are suitable only for grass and legume pasture.

Good control of irrigation water is needed to lower the water table and to reduce the salinity of the soils. Applying only enough irrigation water to satisfy the needs of the crop grown helps to lower the existing water table. Water applied in excess of crop requirements raises the water table. Land leveling can facilitate the uniform distribution of water. The content of salt in the soil can be reduced by irrigating late in fall.

This map unit is in capability unit IIIw-2, irrigated. It is not placed in a range site.

58—Juva Variant fine sandy loam. This very deep, well drained soil is on alluvial fans and valley floors. It is mainly in the Hayes Wash and Miller Creek areas. It formed in alluvium derived dominantly from mixed sedimentary rock. Slopes are 1 to 5 percent, 200 to 300 feet long, and concave to convex. The present vegetation in most areas is mainly greasewood, shadscale, galleta, big sagebrush, and pricklypear. Elevation is 5,600 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray fine sandy loam about 6 inches thick. The underlying layer to a depth of 60 inches or more is light brownish gray loam with thin strata of gravelly loam and sandy loam.

Included in this unit are small areas of soils that are similar to this Juva soil but have a loam surface layer and are in concave areas and small areas of soils, near draws, that have shallow rills and gullies.

Permeability of this Juva Variant soil is moderately rapid. Available water capacity is about 6 to 9 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 1 percent. Runoff is slow, and the hazard of water erosion is slight. Runoff from adjacent areas has formed gullies in some areas of this soil. The gullies are *V*-shaped, 5 to 10 feet deep, and in some areas 300 to 500 feet apart. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Juva Variant soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are alkali sacaton, galleta, seepweed, and black greasewood.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation and the content of alkali in the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, prostrate kochia, and Russian wildrye.

This map unit is in capability subclass VIIe, nonirrigated. The Juva Variant soil is in the Alkali Flat range site.

59—Killpack clay loam, 1 to 3 percent slopes. This moderately deep, well drained soil is on shale hills. It is near Price, Wellington, and Miller creek. It formed in residuum derived dominantly from shale. Slopes are 300 to 500 feet long and are plane to convex. The vegetation in areas not cultivated is mainly shadscale, Indian ricegrass, and galleta. Elevation is 5,400 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is slightly saline, grayish brown clay loam about 9 inches thick. The underlying material to a depth of 29 inches is slightly saline to moderately saline, light brownish gray clay loam and silty clay loam. Weathered shale is at a depth of 20 to 40 inches.

Included in this unit are about 5 percent Persayo loam on side slopes, 5 percent Billings silty clay loam in narrow alluvial valleys, and small areas of Chipeta silty clay loam and Libbings silty clay loam.

Permeability of this Killpack soil is slow. Available water capacity is about 4.0 to 5.5 inches. The water supplying capacity is 3 to 4 inches in nonirrigated areas. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent in nonirrigated areas and 1 to 2 percent in irrigated areas. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

Most areas of this unit are used for spring and fall range. A few areas are used for irrigated pasture and small grain.

The potential plant community on the Killpack soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with crop rotations of alfalfa-grass hay and small grain. The soil should be tilled and cultivated only when the soil is dry. Irrigated pasture should be seeded to salt tolerant plants. The pastures should be grazed only when the soil is dry, and a rotation grazing system should be used.

Sprinkler irrigation is best suited to this unit, but the surface flooding method can also be used. Occasional chiseling may be needed to improve the penetration of water into the soil. Water should be applied efficiently to prevent waterlogging.

This map unit is in capability unit IIIe-23, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

60—Killpack clay loam, 3 to 6 percent slopes. This moderately deep, well drained soil is on shale hills. It is near Spring Glen, Price, Wellington, and miller creek. It formed in residuum derived dominantly from shale. Slopes are 100 to 300 feet long and are plane to convex. The vegetation in areas not cultivated is mainly shadscale, Indian ricegrass, and galleta. Elevation is 5,400 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is slightly saline, grayish brown clay loam about 9 inches thick. The underlying material to a depth of 29 inches is slightly saline and moderately saline, light brownish gray clay loam and silty clay loam. Weathered shale is at a depth of 20 to 40 inches.

Included in this unit are about 5 percent Persayo loam, 5 percent Chipeta silty clay loam on side slopes, and 5 percent Billings silty clay loam in adjacent narrow alluvial valleys.

Permeability of this Killpack soil is slow. Available water capacity is about 4.0 to 5.5 inches. The water supplying capacity is 3 to 4 inches in nonirrigated areas. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent in nonirrigated areas and 1 to 2 percent in irrigated areas. Runoff is rapid, and the hazard of water erosion is high. Runoff from adjacent areas has formed gullies in some areas of this soil. The gullies are *V*-shaped, are 3 to 6 feet deep, and in some areas are 100 to 300 feet apart. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland. It is also used for irrigated alfalfa, small grain, and pasture.

The potential plant community on the Killpack soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native vegetation.

This map unit is in capability unit IVe-23, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

61—Libbings silty clay loam. This moderately deep, poorly drained, strongly saline soil is on foot slopes of shale hills. It is adjacent to the Price, Carbon, and Wellington Canals. It formed in residuum derived dominantly from shale. Slope is 0 to 3 percent. Slopes are 200 to 400 feet long and are convex. The present vegetation in most areas is mainly greasewood and saltgrass. Elevation is 5,400 to 5,500 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is grayish brown silty clay loam 9 inches thick. Below this to a depth of 34 inches is light brownish gray and gray silty clay loam and silty clay over soft shale. The content of salt above a depth of 20 inches is 2 to 5 percent.

Included in this unit are about 10 percent Saltair silty clay loam in narrow alluvial valleys and 5 percent Hunting loam.

Permeability of this Libbings soil is slow. Available water capacity is about 1 to 2 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. A water table is at a depth of 10 to 30 inches in January through December, but it is highest early in summer.

This unit is used for grazing.

The potential plant community on the Libbings soil is 85 percent grasses, 10 percent forbs, and 5 percent shrubs. Among the important plants are inland saltgrass, alkali sacaton, sedge, and Baltic rush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. The suitability of this unit for grazing is good.

The suitability of this unit for rangeland seeding is poor. The main limitations are the high water table and salinity. Plants suitable for seeding include alkali sacaton and tall wheatgrass.

This map unit is in capability subclass VIIw, nonirrigated, and in Salt Meadow range site.

62—Midfork family-Comodore complex. This map unit is on mountain slopes. It is along the Book Cliffs and Whitmore and Price Canyons. Slopes are 200 to 300 feet long and are convex. The present vegetation is mainly Douglas-fir, snowberry, and quaking aspen. Elevation is 7,900 to 9,500 feet.

This unit is 50 percent Midfork family bouldery loam, 50 to 70 percent slopes; 20 percent Comodore bouldery loam, 50 to 70 percent slopes; and 30 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent soils that are similar to the Midfork family soil but have a dark-colored surface layer less than 6 inches thick; 10 percent soils that are similar to the Midfork family soil but have a thick surface layer and a layer of calcium carbonate accumulation; and 5 percent Comodore very stony fine sandy loam, moist.

The Midfork family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface is covered with a mat of partially decomposed twigs, leaves, and needles about 2 inches thick. The surface layer is brown bouldery loam about 7 inches thick. The next layer is yellowish brown very channery loam 10 inches thick. Below this to a depth of 60 inches or more is yellowish brown very gravelly loam.

Permeability of the Midfork family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 10 to 17 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

The Comodore soil is shallow and well drained. It formed in colluvium derived dominantly from sandstone, siltstone, and shale. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 80 days.

Typically, the surface is covered with a mat of needles and twigs about 1 inch thick. The surface layer is brown bouldery loam about 6 inches thick. The underlying material to a depth of 19 inches is brown very stony loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Comodore soil is moderate. Available water capacity is about 1.5 to 2.5 inches. Water supplying capacity is 3 to 5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat and woodland.

The potential vegetation on this unit includes an overstory of Douglas-fir with a canopy of 90 percent. The understory vegetation is 10 percent grasses, 5 percent forbs, and 85 percent shrubs. Among the important plants are sedge, mountainlover, and snowberry.

The site index for Douglas-fir is 50. Average yield is about 27,200 board feet per acre for 100-year-old trees 12 inches in diameter or more.

This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

This map unit is in capability subclass VIIe, nonirrigated, and in the High Mountain Very Steep Loam (Douglas-fir) woodland site.

63—Midfork family-Podo association. This map unit is on mountain ridges and side slopes in the Price Canyon area, west of Helper. Slopes are 30 to 70 percent. Elevation is 7,500 to 8,500 feet.

This unit is 40 percent Midfork family bouldery loam, 50 to 70 percent slopes; 40 percent Podo cobbly loam, 30 to 50 percent slopes; and 20 percent other soils. The Midfork soil is in narrow drainageways and on side slopes adjacent to drainageways. The Podo soil is on ridgetops, the upper part of mountain slopes, and narrow spur ridges.

Included in this unit are about 10 percent Curecanti family soils in small depressional areas and drainageways, 5 percent Perma family soils along drainageways and in depressional areas, and 5 percent Senchert loam in drainageways.

The Midfork family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long and are concave. The present vegetation is mainly Douglas-fir and snowberry. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface is covered with a mat of partially decomposed leaves, twigs, and needles about 2 inches thick. The surface layer is brown bouldery loam about 7 inches thick. The next layer is yellowish brown very channery loam 10 inches thick. Below this to a depth of 60 inches or more is yellowish brown very gravelly loam.

Permeability of the Midfork family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 10 to 17 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

The Podo soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are convex. The present vegetation is mainly Salina wildrye, rabbitbrush, and lambsquarters. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 120 days.

Typically, the surface layer is light brownish gray cobbly loam about 5 inches thick. The underlying material to a depth of 11 inches is light brownish gray gravelly loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity is 1 to 2 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat, woodland, and rangeland.

The potential vegetation on the Midfork family soil includes an overstory of Douglas-fir with a canopy of 90 percent. The understory vegetation is 10 percent grasses, 5 percent forbs, and 85 percent shrubs. Among the important plants are sedges, Oregon-grape, mountainlover, and snowberry.

The site index for Douglas-fir is 50. Average yield is about 27,200 board feet per acre for trees 12 inches in diameter or more. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The Midfork family soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Podo soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, bluegrasses, and snowberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of the Podo soil for rangeland seeding is very poor. The main limitation is shallow depth to bedrock.

This map unit is in capability subclass VIIe, nonirrigated. The Midfork family soil is in the High Mountain Very Steep Loam (Douglas-fir) woodland site. The Podo soil is in the Mountain Shallow Loam (Saline Wildrye) range site.

64—Minchey loam, 1 to 3 percent slopes. This very deep, well drained soil is on benches and mesas near Wellington and south of Miller Creek, along the county line. It formed in moderately fine textured glacial outwash derived dominantly from sandstone, quartzite, and shale. Slopes are 200 to 400 feet long and are convex. The vegetation in areas not cultivated is mainly galleta, black sagebrush, and Indian ricegrass. Elevation is 5,400 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is pale brown loam 3 inches thick. The next layer is brown, pale brown, or very pale brown clay loam or sandy clay loam about 29 inches thick. Below this is to a depth of 60 inches or more is pale brown or light yellowish brown gravelly sandy loam and very gravelly sandy loam.

Included in this unit is about 10 percent Moffat fine sandy loam. Also included are small areas of soils that are similar to this Minchey soil but have a gravelly surface layer and substratum.

Permeability of this Minchey soil is moderate. Available water capacity is about 7.0 to 8.5 inches. The water supplying capacity is 4 to 5 inches in nonirrigated areas. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The potential plant community on the Minchey soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Adapted native plants are suitable for seedings.

This unit is used mainly as rangeland. It is also used for irrigated alfalfa, small grain, or pasture if water is available.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability unit IIe-2, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

65—Mivida very fine sandy loam, 1 to 6 percent slopes. This very deep, well drained soil is on benches, mesas, and fan terraces. It is near Helper, Price and Wellington and on Poison Spring Bench. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are slightly concave to convex. The vegetation in areas not cultivated is mainly galleta, shadscale, Indian ricegrass, and fourwing saltbush. Elevation is 5,450 to 6,400 feet. The average annual precipitation is 8 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is brown very fine sandy loam 3 inches thick. The subsoil is pink fine sandy loam 11 inches thick. The upper 31 inches of the substratum is pinkish white and pink fine sandy loam, and the lower part to a depth of 60 inches or more is pink very cobbly fine sandy loam.

Included in this unit are about 10 percent Minchey loam, 5 percent Strych very stony loam, dry, and 5 percent Stormitt soils.

Permeability of this Mivida soil is moderately rapid. Available water capacity is about 6.0 to 7.5 inches. Water supplying capacity is 5.0 to 6.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

Most areas of this unit are used as rangeland and wildlife habitat. A few areas are used for irrigated crops and urban development.

The potential plant community on the Mivida soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Indian ricegrass, needleandthread, galleta, and fourwing saltbush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is fair. The main limitation is the low annual precipitation. Plants suitable for seeding include adapted native plants and crested wheatgrass.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems and irrigation water management. Crop management includes rotations of alfalfa, small grain, and corn; maintenance of crop residue on the surface of the soil to reduce soil blowing; and application of fertilizer to maintain crop yields.

Sprinkler irrigation is best suited to this unit. Use of this method helps to prevent loss of water and plant nutrients through deep percolation.

This map unit is in capability unit IIIe-24, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Semidesert Sandy Loam range site.

66—Mivida gravelly fine sandy loam, 3 to 8 percent slopes. This very deep, well drained soil is on benches, mesas, and fan terraces. It is northeast of Wellington and north of Clark Valley. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are concave to convex. The present vegetation in most areas is mainly pinyon, Utah juniper, blue grama, and Indian ricegrass. Elevation is 5,900 to 6,600 feet. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is brown gravelly fine sandy loam 4 inches thick. The subsoil is pink fine sandy loam 11 inches thick. The upper 29 inches of the substratum is pinkish white and pink fine sandy loam. The lower part to a depth of 60 inches or more is pink very cobbly fine sandy loam.

Included in this unit are about 5 percent Strych very stony loam on outwash plains; 5 percent Haverdad loam, moist, in drainageways; and 5 percent Gerst soils on canyonsides.

Permeability of this Mivida soil is moderately rapid. Available water capacity is about 6 to 7 inches. Water supplying capacity is 6.5 to 8.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Mivida soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are basin big sagebrush, fourwing saltbush, Indian ricegrass, and western wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and broadcast seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, chaining, and railing.

The suitability of this unit for rangeland seeding is good. The main limitation is the content of pebbles and cobbles in the soil, which interferes with plowing and drilling. Plants suitable for seeding include those native to the unit, crested wheatgrass, Russian wildrye, fourwing saltbush, pubescent wheatgrass, ladak alfalfa, and small burnet.

This map unit is in capability subclass VIe, nonirrigated. It is in the Upland Loam (Basin Big Sagebrush) range site.

67—Mivida very stony fine sandy loam, 1 to 3 percent slopes. This very deep, well drained soil is on fan terraces south of East Carbon City. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 300 to 500 feet long and are concave. The present vegetation is mainly galleta, Indian ricegrass, fourwing saltbush, and blue grama. Elevation is 5,500 to 6,500 feet. The average annual precipitation is about 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is brown very stony fine sandy loam about 4 inches thick. The subsoil is pink fine sandy loam about 11 inches thick. The upper 32 inches of the substratum is pinkish white and pink fine sandy loam, and the lower part to a depth of 60 inches or more is pink very cobbly fine sandy loam. A layer of secondary calcium carbonate accumulation is at a depth of about 15 inches.

Included in this unit are about 10 percent Hernandez family soils and 5 percent Glenberg family soils.

Permeability of this Mivida soil is moderately rapid. Available water capacity is about 6 to 7 inches. Water supplying capacity is 5.0 to 6.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Mivida soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Indian ricegrass, needleandthread, galleta, and fourwing saltbush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is fair. The main limitations are the stones on the surface and the low annual precipitation. Plants suitable for seeding include adapted native plants and crested wheatgrass.

This map unit is in capability subclass VIIs, nonirrigated. It is in Semidesert Sandy Loam range site.

68—Moffat fine sandy loam, 3 to 6 percent slopes. This very deep, well drained soil is on alluvial fans and benches. It is east of Sunnyside Junction. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 200 to 400 feet long and are convex. The present vegetation in most areas is mainly Indian ricegrass, shadscale, galleta, threeawn, and winterfat. Elevation is 5,400 to 5,600 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is brown fine sandy loam 2 inches thick. The subsoil is brown fine sandy loam 7 inches thick. The substratum to a depth of 60 inches or more is pink and pinkish white fine sandy loam. A layer of carbonate accumulation is at a depth of about 9 inches.

Included in this unit are about 10 percent soils that are similar to this Moffat soil but have more than 35 percent pebbles below a depth of about 30 inches and 5 percent soils that are similar to this Moffat soil but have more than 18 percent clay between depths of 10 and 40 inches and have a loam surface layer.

Permeability of this Moffat soil is moderately rapid. Available water capacity is about 6.5 to 8.5 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Moffat soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

This map unit is in capability subclass VIIe, nonirrigated. It is in the Desert Sandy Loam range site.

69—Moffat-Persayo complex. This map unit is on benches and hillslopes north of Sunnyside Junction. Slopes are 3 to 30 percent. Elevation is 5,500 to 5,750 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is about 70 percent Moffat fine sandy loam, 3 to 6 percent slopes; 25 percent Persayo very cobbly clay loam, 15 to 30 percent slopes; and 5 percent other soils. The Moffat soil is on benches, and the Persayo soil is on convex hillslopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 5 percent Killpack clay loam adjacent to washes.

The Moffat soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long. The present vegetation in most areas is mainly shadscale, hairy grama, fourwing saltbush, and galleta. Typically, the surface layer is brown fine sandy loam 2 inches thick. The subsoil is brown fine sandy loam 7 inches thick. The substratum to a depth of 60 inches or more is pink and pinkish white fine sandy loam. A layer of calcium carbonate accumulation is at a depth of 9 inches.

Permeability of the Moffat soil is moderately rapid. Available water capacity is about 6.5 to 8.5 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Persayo soil is shallow and well drained. It formed in residuum and local alluvium derived dominantly from shale and sandstone. Slopes are 100 to 300 feet long and are convex. The present vegetation in most areas is mainly black sagebrush, shadscale, blue grama, Salina wildrye, and yellowbrush. Typically, the surface layer is light brownish gray very cobbly clay loam 4 inches thick. The underlying material to a depth of 11 inches is light brownish gray silty clay loam. Weathered shale is at a depth of 11 inches. The rock fragments in the surface layer occur mainly as a mantle at the surface.

Permeability of the Persayo soil is moderately slow. Available water capacity is about 1.5 to 2.0 inches.

Water supplying capacity is 1.5 to 2.0 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Moffat soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this soil because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

The potential plant community on the Persayo soil is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are shadscale, galleta, Indian ricegrass, and bud sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the low precipitation and the fine texture of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia.

This map unit is in capability subclass VIIe, nonirrigated. The Moffat soil is in the Desert Sandy Loam range site. The Persayo soil is in the Desert Loamy Clay range site.

70—Nelman-Travessilla-Rock outcrop complex. This map unit in on benches and canyonsides. It is along the North Fork and and the South Fork of Gordon Creek. Slopes are 8 to 50 percent, 200 to 300 feet long, and concave to convex. Elevation is 6,400 to 7,000 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 60 percent Nelman very gravelly loam, moist, 15 to 50 percent slopes, eroded; 15 percent Travessilla sandy loam, 8 to 30 percent slopes, eroded; 10 percent Rock outcrop; and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Gerst soils that have slopes of 15 to 50 percent and small areas of Rubbleland and Badland.

The Nelman soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone and shale. The present vegetation is mainly Salina wildrye, birchleaf mountainmahogany, cliffrose, juniper, and pinyon. Typically, the surface layer is pale brown very gravelly loam about 4 inches thick. The underlying material to a depth of 27 inches is very pale brown fine sandy loam. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Nelman soil is moderately rapid. Available water capacity is about 2.5 to 3.5 inches. Water supplying capacity is 4 to 6 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Travessilla soil is shallow and well drained. It formed in residuum derived dominantly from sandstone and shale. The present vegetation is mainly pinyon, juniper, Salina wildrye, birchleaf mountainmahogany, and snowberry. Typically, the surface layer is brown sandy loam about 3 inches thick. The upper 6 inches of the underlying material is brown loam, and the lower part to a depth of 17 inches is light brown loam. Sandstone is at a depth of 7 to 20 inches.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is about 2 to 3 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 7 to 20 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

Rock outcrop is areas of exposed bedrock, dominantly sandstone. In some areas sparse vegetation grows in the cracks and fissures in the rock. The vegetation is dominantly juniper, pinyon, and birchleaf mountainmahogany.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential plant community on the Nelman soil is about 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are western wheatgrass, basin big sagebrush, needleandthread, Indian ricegrass, and muttongrass. Dense stands of basin big sagebrush may develop with continuous overgrazing.

Practices needed to maintain or improve the vegetation include a planned grazing system, proper grazing use, and proper location of water developments. Brush management by prescribed burning, chemical spraying, or mechanical treatment can be used to improve deteriorated rangeland.

Seeding may be advisable if the plant community is in poor condition. Plants suitable for seeding include Russian wildrye, intermediate wheatgrass, Tegmar wheatgrass, pubescent wheatgrass, alfalfa, small burnet, prostrate kochia, and adapted native plants.

The potential vegetation on the Travessilla soil includes an overstory of pinyon and Utah juniper with a canopy of 60 percent. The understory vegetation is 15 percent grasses, 10 percent forbs, and 75 percent shrubs. Among the important plants are pinyon, Utah juniper, birchleaf mountainmahogany, and Mexican cliffrose.

The site index for pinyon and Utah juniper is 32. Average yield is 4 cords of wood per acre. The potential for production of posts or Christmas trees is poor.

This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the pinyon and Utah juniper are thinned, the desirable plants present can be expected to increase for a short period before the pinyon and Utah juniper revegetate the unit.

The suitability of this soil for rangeland seeding is very poor because of the shallow soil depth. It is not practical to revegetate large areas of rangeland. For critical erosion control, small areas can be mechanically treated and seeded.

The Nelman and Travessilla soils are in capability subclass VIIs, nonirrigated, and Rock outcrop is in capability subclass VIIIs. The Nelman soil is in the Upland Loam (Basin Big Sagebrush) range site. The Travessilla soil is in the Upland Shallow Loam (Pinyon-Utah Juniper) woodland site. Rock outcrop is not placed in a range or woodland site.

71—Pathead extremely bouldery fine sandy loam, 40 to 70 percent slopes. This moderately deep, well drained soil is on mountain slopes and canyonsides. It is in the areas of Range Creek, Rock Creek, Whitmore Canyon, and Price Canyon. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and have south aspects. The present vegetation in most areas is mainly curlleaf mountainmahogany, pinyon, juniper, Salina wildrye, and serviceberry. Elevation is 7,500 to 9,000 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface layer is pale brown extremely bouldery fine sandy loam about 4 inches thick. The underlying material to a depth of 38 inches is pale brown and very pale brown very stony fine sandy loam. Depth to bedrock ranges from 20 to 40 inches.

Included in this unit are about 15 percent Perma soils that have slopes of 60 to 80 percent; 10 percent Comodore soils; and small areas of Senchert loam and Rock outcrop. The soils are in concave areas.

Permeability of this Pathead soil is moderate. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 4.0 to 8.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3. Runoff is rapid, and the hazard of water erosion is moderate.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Pathead soil is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are curlleaf mountainmahogany, Salina wildrye, and snowberry.

This unit is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated, and in the Mountain Very Steep Stony Loam (Curlleaf Mountainmahogany) range site.

72—Pathead-Curecanti family association. This map unit is on mountain slopes. It is in the Spring Canyon and Gordon Creek areas, west of Helper. Slopes are 50 to 70 percent, 300 to 400 feet long, and convex. Elevation is 6,800 to 9,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 40 percent Pathead extremely stony loam, 50 to 70 percent slopes; 30 percent Curecanti family loam, 50 to 70 percent slopes; and 30 percent other soils and miscellaneous areas. The Pathead soil is on ridges and shoulders, and the Curecanti family soil generally has north aspects and is in drainageways.

Included in this unit are about 8 percent Podo cobbly loam, 7 percent Midfork family soils, and small areas of Pathead extremely bouldery fine sandy loam, Podo very bouldery sandy loam, Senchert loam, and Rock outcrop.

The Pathead soil is moderately deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Salina wildrye, low gray sage, and winterfat. Typically, the surface layer is brown extremely stony loam about 3 inches thick. The underlying material is pale brown very cobbly loam to a depth of 26 inches. Sandstone is at a depth of 20 to 40 inches.

Permeability of the Pathead soil is moderate. Available water capacity is about 1 to 2 inches. Water supplying capacity is 3.5 to 6.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

The Curecanti family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Gambel oak, snowberry, Kentucky bluegrass, and aspen peavine. Typically, the upper part of the surface layer is dark grayish brown loam about 7 inches thick and the lower part is brown very stony loam about 8 inches thick.

The subsurface layer is very pale brown very stony loam about 5 inches thick. The subsoil to a depth of 60 inches or more is pale brown very stony loam.

Permeability of the Curecanti family soil is moderate. Available water capacity is about 5.0 to 6.5 inches. Water supplying capacity is 8 to 12 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as wildlife habitat and rangeland.

The potential plant community on the Pathead soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This soil is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

The potential plant community on the Curecanti family soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Gambel oak, snowberry, serviceberry, and bluegrass.

This soil is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated. The Pathead soil in the Mountain Very Steep Loam (Saline Wildrye) range site, and the Curecanti family soil is in the Mountain Very Steep Loam (Oak) range site.

73—Penoyer Variant loam, 1 to 3 percent slopes. This very deep, well drained soil is on valley floors. It is near Helper, Price, Wellington, and Miller Creek. It formed in alluvium derived dominantly from sandstone and shale. Slopes are about 300 to 400 feet long and are slightly concave to convex. The vegetation in areas not cultivated is mainly Indian ricegrass, galleta, and shadscale. Elevation is 5,400 to 6,000 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray loam about 9 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray very fine sandy loam, loam, and silt loam.

Included in this unit are small areas of a soil, mainly near Hiawatha Junction, that is similar to this Penoyer Variant soil but has a silty clay loam surface layer and small areas of soils that are similar to this Penoyer Variant soil but have gravelly loam below a depth of 20 to 30 inches or have a gravelly loam surface layer.

Permeability of this Penoyer Variant soil is moderate. Available water capacity is about 10 to 12 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate.

This unit is used mainly for irrigated crops and as rangeland. It is also used for homesite and urban development.

The potential plant community on the Penoyer Variant soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability unit IIe-2, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

74—Penoyer Variant loam, 3 to 6 percent slopes. This very deep, well drained soil is on alluvial fans and valley floors. It is along the Price River, extending from Helper to Wellington. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long and are concave to convex. The vegetation in areas not cultivated is mainly Indian ricegrass, galleta, and shadscale. Elevation is 5,400 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray loam about 9 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray very fine sandy loam, loam, and silt loam.

Included in this unit are small areas of soils that are similar to this Penoyer Variant soil but have gravelly loam below a depth of 20 to 30 inches or have a gravelly loam surface layer.

Permeability of this Penoyer Variant soil is moderate. Available water capacity is about 10 to 12 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is medium, and the hazard of water erosion is moderate. This soil is subject to sheet erosion. Rills and shallow gullies are in many areas. The hazard of soil blowing is moderate.

This unit is used for irrigated crops, rangeland, and wildlife habitat.

The potential plant community on the Penoyer Variant soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of hay or pasture and small grain. Crop residue should be kept on the surface of the soil. Pasture management that incorporates use of a rotation grazing system is best.

Sprinkler irrigation systems provide the best erosion control and the ability to apply irrigation water evenly to the fields. Flood irrigation can also be used if erosion is controlled.

This map unit is in capability unit IIe-2, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

75—Perma family, 15 to 40 percent slopes. This very deep, well drained soil is on steep escarpments of benches. It is near Steer Ridge and Bishop Ridge, in the Book Cliffs. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are convex. The present vegetation is mainly serviceberry, birchleaf mountainmahogany, big sagebrush, and curlleaf mountainmahogany. Elevation is 7,200 to 8,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 90 days.

Typically, the surface layer is dark brown very stony sandy loam about 7 inches thick. The upper 15 inches of the subsoil is brown cobbly sandy loam, and the lower 13 inches is brown very cobbly sandy loam. The substratum to a depth of 60 inches or more is brown very stony sandy loam.

Included in this unit are about 10 percent Datino Variant loam, 5 percent soils that are similar to this Perma family soil but have an extremely bouldery surface layer, and 5 percent soils that are similar to this Perma family soil but have slopes of 40 to 70 percent. The included areas are intermingled throughout the unit.

Permeability of this Perma family soil is moderately rapid. Available water capacity is about 3 to 5 inches. Water supplying capacity is 6 to 9 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Perma family soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this unit because of the stoniness of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit, intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This map unit is in capability subclass VIe, nonirrigated, and in the Mountain Stony Loam (Browse) range site.

76—Perma family-Datino complex. This map unit is on mountain slopes and canyonsides. It is near Range Creek, Dry Canyon, Patmos Head, Range Valley Mountain, and Soldier Creek and in Price Canyon. Slopes are 60 to 80 percent. Elevation is 7,200 to 8,700 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 80 days.

This unit is 40 percent Perma family very stony sandy loam, 60 to 80 percent slopes; 35 percent Datino extremely stony fine sandy loam, 60 to 80 percent slopes; and 25 percent other soils. The Perma soil on narrow spur ridges, and the Datino soil is near the tops of the side slopes and in shallow alluvial drainageways. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Sheepcan stony loam, 5 percent soils that are similar to the Datino soil but have an extremely bouldery surface layer, 5 percent Datino Variant loam that has slopes of 40 to 60 percent, and 5 percent Rock outcrop. The included areas are intermingled throughout the unit.

The Perma family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are plane to convex. The present vegetation is mainly serviceberry, birchleaf mountainmahogany, mountain big sagebrush, and curlleaf mountainmahogany. Typically, the surface layer is dark brown very stony sandy loam about 7 inches thick. The upper 15 inches of the subsoil is brown cobbly sandy loam, and the lower 13 inches is brown very cobbly sandy loam. The substratum to a depth of 60 inches or more is brown very stony sandy loam.

Permeability of the Perma family soil is moderately rapid. Available water capacity is about 3 to 5 inches. Water supplying capacity is 6 to 9 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

The Datino soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are plane to convex. The present vegetation is mainly birchleaf mountainmahogany, serviceberry, Douglas-fir, Wasatch penstemon, mountain big sagebrush, snowberry, pinegrass, and Salina wildrye. Typically, the surface layer is brown extremely stony fine sandy loam about 9 inches thick. The subsoil is brown very stony loam about 7 inches thick. The substratum to a depth of 60 inches or more is pale brown very stony fine sandy loam. A layer of calcium carbonate accumulation is at a depth of about 16 inches.

Permeability of the Datino soil is moderate. Available water capacity is about 3.5 to 6.0 inches. Water supplying capacity is 6 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat.

The potential plant community on the Perma family soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the stoniness of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the area, intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

The potential vegetation on the Datino soil includes an overstory of Rocky Mountain Douglas-fir and pinyon with a canopy of 30 percent. The understory vegetation is 40 percent grasses, 15 percent forbs, and 45 percent shrubs. Among the important plants are Salina wildrye, slender wheatgrass, birchleaf mountainmahogany, and snowberry.

This soil is severely limited for harvesting wood products because of the steepness of slope, the hazard of erosion, and stones and boulders on the surface.

This unit is not grazeable by livestock because of the steepness of slope.

This unit is in capability subclass VIIe, nonirrigated. The Perma family soil is in the Mountain Very Steep Stony Loam (Browse) range site. The Datino soil is in the Mountain Very Steep Stony Loam (Douglas-fir) woodland site.

77—Persayo loam, 3 to 8 percent slopes. This shallow, well drained soil is on undulating hills near Mounds Reef, Clark Valley, and Sunnyside Junction. It formed in residuum and alluvium derived dominantly from marine shale and sandstone. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation in most areas is mainly shadscale, galleta, blue grama, and Indian ricegrass. Elevation is 5,300 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is pale brown loam 5 inches thick. The underlying material to a depth of 12 inches is pale brown loam over weathered shale. Depth to weathered shale ranges from 10 to 20 inches.

Included in this unit are about 10 percent Persayo loam, 8 to 30 percent slopes, on hillslopes and 5 percent Killpack clay loam, 3 to 6 percent slopes, adjacent to washes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Permeability of this Persayo soil is moderately slow. Available water capacity is about 1.5 to 2.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Persayo soil is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are shadscale, galleta, Indian ricegrass, and bud sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this unit because of the low precipitation and the fine texture of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia.

This map unit is in capability subclass VIIe, nonirrigated, and in the Desert Loamy Clay range site.

78—Persayo very cobbly clay loam, 3 to 15 percent slopes. This shallow, well drained soil is on dissected hillslopes southeast of Wellington and east of Sunnyside Junction. It formed in residuum and alluvium derived dominantly from marine shale and sandstone.

Slopes are 60 to 100 feet long and are concave to convex. The present vegetation in most areas is mainly galleta, phcelia, pricklypear, shadscale, and lambsquarter. Elevation is 5,300 to 5,500 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray very cobbly clay loam 4 inches thick. The underlying material to a depth of 11 inches is light brownish gray silty clay loam. Weathered shale is at a depth of 10 to 20 inches. A mantle of rock fragments is on the surface.

Included in this unit are about 10 percent Ravola loam, 1 to 6 percent slopes, eroded, in drainageways and 5 percent Chipeta silty clay loam on ridges.

Permeability of this Persayo soil is moderately slow. Available water capacity is about 1.5 to 2.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Persayo soil is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are shadscale, galleta, Indian ricegrass, and bud sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this unit because of the low precipitation and the fine texture of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia.

This map unit is in capability subclass VIIe, nonirrigated, and in the Desert Loamy Clay range site.

79—Persayo-Badland complex. This map unit is on dissected shale hills near Mounds Reef and East Carbon City. The present vegetation in most areas is mainly shadscale, pricklypear, galleta, winterfat, Indian ricegrass, and blue grama. Slopes are 3 to 30 percent. Elevation is 5,300 to 5,800 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is about 40 percent Persayo loam, 8 to 30 percent slopes; 20 percent Persayo very cobbly clay loam, 3 to 15 percent slopes; 20 percent Badland; and 20 percent other soils. The Persayo loam is on hillslopes, the Persayo very cobbly clay loam is on summits, and Badland is along washes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Killpack clay loam near washes, 5 percent Chipeta silty clay loam on ridges, and 5 percent Rubbleland near sandstone ridges.

The Persayo loam is shallow and well drained. It formed in residuum and alluvium derived dominantly from marine shale and sandstone. Slopes are less than 100 feet long and are concave to convex. Typically, the surface layer is pale brown loam 5 inches thick. The underlying material to a depth of 12 inches is pale brown loam. Weathered shale is at a depth of 10 to 20 inches.

Permeability of the Persayo loam is moderately slow. Available water capacity is about 1.5 to 2.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

The Persayo very cobbly clay loam is shallow and well drained. It formed in residuum and alluvium derived dominantly from shale and sandstone. Slopes are 100 to 300 feet long and are plane to convex. Typically, the surface layer is light brownish gray very cobbly clay loam 4 inches thick. The underlying material to a depth of 11 inches is light brownish gray silty clay loam over weathered shale. Depth to weathered shale ranges from 10 to 20 inches. A mantle of rock fragments is on the surface.

Permeability of the Persayo very cobbly clay loam is moderately slow. Available water capacity is about 1.5 to 2.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

Badland is steep or very steep, nearly barren areas of shale that are dissected by many intermittent drainageways. Some areas are interbedded with sandstone. Runoff is rapid to very rapid, and geologic erosion is active.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Persayo soils is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are shadscale, galleta, Indian ricegrass, and bud sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas because of the low precipitation and the fine texture of the soils. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia.

The Persayo soils are in capability subclass VIIe, nonirrigated, and Badland is in capability subclass VIIIe.

The Persayo soils are in the Desert Loamy Clay range site. Badland is not placed in a range site.

80—Persayo-Chipeta complex. This map unit is on shale hills near Helper, Price, and Wellington. Slopes are 3 to 20 percent, 100 to 200 feet long, and concave to convex. Elevation is 5,300 to 6,100 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 55 percent Persayo loam, 3 to 20 percent slopes, eroded; 35 percent Chipeta silty clay loam, 3 to 20 percent slopes, eroded; and 10 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Killpack clay loam near washes and 5 percent Saltair silty clay loam in swales.

The Persayo soil is shallow and well drained. It formed in residuum and alluvium derived dominantly from shale. The present vegetation in most areas is mainly galleta and shadscale. Typically, the surface layer is light brownish gray loam 3 inches thick. The underlying material to a depth of 12 inches is light brownish gray silty clay loam over weathered shale. Depth to weathered shale ranges from 10 to 20 inches. The lower part of the underlying material has few to common gypsum crystals.

Permeability of the Persayo soil is moderately slow. Available water capacity is about 1.5 to 2.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate. Sheet erosion is active, and in many places shallow gullies are cut into the weathered shale. The hazard of soil blowing is moderate.

The Chipeta soil is shallow and well drained. It formed in residuum derived dominantly from shale. The present vegetation in most areas is mainly mat saltbush, Nuttall saltbush, and shadscale. Typically, the surface layer is light brownish gray silty clay loam 5 inches thick. The underlying material to a depth of 17 inches is light brownish gray silty clay over weathered shale. Depth to weathered shale ranges from 10 to 20 inches.

Permeability of the Chipeta soil is slow. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is rapid, and the hazard of water erosion is high. Rill and gully erosion is active. The hazard of soil blowing is moderate.

Most areas of this unit are used as rangeland in spring and fall. A few areas are used for urban development.

The potential plant community on the Persayo soil is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are shadscale, galleta, Indian ricegrass, and bud sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the low precipitation and fine texture of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia.

The potential plant community on the Chipeta soil is 15 percent grasses, 15 percent forbs, and 70 percent shrubs. Among the important plants are mat saltbush, galleta, deserttrumpet, and bud sagebrush.

The suitability of this soil for grazing is limited because of the low precipitation and the relative unpalatability of the dominant plants.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the low annual precipitation and the shallow depth to bedrock. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are native plants and prostrate kochia.

This map unit is in capability subclass VIIe, nonirrigated. The Persayo soil is in the Desert Loamy Clay range site. The Chipeta soil is in the Desert Shallow Clay range site.

81—Persayo-Greybull complex. This map unit is on low hills in the western part of Clarks Valley, east of Wellington, west of Horse Canyon, and east of Hiawatha. Slopes are 3 to 8 percent. Elevation is 5,400 to 5,700 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 55 percent Persayo very channery loam, 3 to 8 percent slopes, 35 percent Greybull loam, 3 to 8 percent slopes, and 10 percent other soils. The Persayo soil is on small ridges, and the Greybull soil is on hillslopes and in swales. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 5 percent Ravola loam, 1 to 3 percent slopes, in swales. Also included are small areas of Travessilla soils that are dry and have slopes of 3 to 20 percent.

The Persayo soil is shallow and well drained. It formed in residuum derived dominantly from shale. Slopes are 200 to 300 feet long and are plane to convex. The present vegetation in most areas is mainly black sagebrush, shadscale, blue grama, and Indian ricegrass.

Typically, the surface layer is pale brown very channery loam about 2 inches thick. The underlying material to a depth of 11 inches is pale brown loam over soft shale. Depth to soft shale ranges from 10 to 20 inches.

Permeability of the Persayo soil is moderately slow. Available water capacity is about 1.5 to 2.0 inches. Water supplying capacity is 2.0 to 2.5 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Greybull soil is moderately deep and well drained. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 200 to 300 feet long and are concave. The present vegetation in most areas is mainly shadscale, galleta, blue grama, and winterfat. Typically, the surface layer is grayish brown loam about 3 inches thick. The underlying material to a depth of 34 inches is grayish brown loam over weathered shale. The lower part of the underlying material is about 15 percent soft shale fragments. Depth to weathered shale ranges from 20 to 40 inches.

Permeability of the Greybull soil is moderate. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 3.0 to 4.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Persayo soil is 30 percent grasses, 10 percent forbs, and 60 percent shrubs. Among the important plants are black sagebrush, shadscale, galleta, and Salina wildrye.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this soil because of the low annual precipitation and the shallow soil depth. For critical erosion control, small areas may be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and prostrate kochia.

The potential plant community on the Greybull soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this soil because of the low annual precipitation. For critical erosion control, small areas may be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

This map unit is in capability subclass VIIe, nonirrigated. The Persayo soil is in the Desert Shallow Loam (Black Sagebrush) range site. The Greybull soil is in the Desert Loam range site.

82—Podo gravelly sandy loam, 1 to 8 percent slopes. This shallow and well drained soil is on benches and mesa tops. It is predominantly in the Cottonwood Ridge area. Slopes are 100 to 200 feet long and are concave to convex. It formed in residuum derived dominantly from sandstone of the Green River Formation. The present vegetation in most areas is mainly pinyon and Utah juniper with an understory of black sagebrush, Mormon-tea, and birchleaf mountainmahogany. Elevation is 6,300 to 7,700 feet. The average annual precipitation is about 14 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is brown gravelly sandy loam about 2 inches thick. The next layer is brown loam about 6 inches thick. Below this to a depth of about 11 inches is brown gravelly sandy loam underlain by sandstone. Depth to bedrock ranges from 10 to 20 inches.

Included in this unit are about 10 percent Rock outcrop, 10 percent Cabba family gravelly loam, and small areas of Haverdad loam, moist, and Podo gravelly sandy loam in the steeper areas. The included areas are intermingled throughout the unit.

Permeability of the Podo soil is moderately rapid. Available water capacity is about 1 to 2 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is slight.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Podo soil includes an overstory of pinyon and Utah juniper with a canopy of 60 percent. The understory vegetation is 15 percent grasses, 10 percent forbs, and 75 percent shrubs. Among the important plants are pinyon, Utah juniper, birchleaf mountainmahogany, and Mexican cliffrose.

The site index for pinyon and Utah juniper is 32. Average yield is 4 cords of wood per acre. The potential of this soil for the production of posts or Christmas trees is fair.

Limitations for the harvesting of wood products are slight.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If pinyon and Utah juniper are thinned, the desirable plants present can be expected to increase for a short period before the pinyon and Utah juniper revegetate the unit.

The suitability of this unit for rangeland seeding is very poor because of the shallow soil depth. It is not practical to revegetate large areas of the unit because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded.

This map unit is in capability subclass VIIs, nonirrigated, and in the Upland Shallow Loam (Pinyon-Utah Juniper) woodland site.

83—Podo-Cabba family complex. This map unit is on benches, canyon rims, and side slopes. It is east of Range Creek, south of Nine Mile Canyon, and west of the Green River. Slopes are 3 to 30 percent, 75 to 100 feet long, and concave to convex. The present vegetation is mainly pinyon, juniper, Mormon-tea, black sagebrush, and shadscale. Elevation ranges from 5,900 to 8,200 feet. The average annual precipitation is about 12 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 80 to 120 days.

This unit is 50 percent Podo gravelly sandy loam, dry, 8 to 30 percent slopes; 30 percent Cabba family gravelly loam, 3 to 30 percent slopes; and 20 percent other soils and miscellaneous areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent soils that are similar to the Podo soil but are under black sagebrush and are on foot slopes and bench interiors, 5 percent Doney family soils that have slopes of 3 to 15 percent and are on toe slopes and some bench interiors, and 5 percent Rock outcrop on canyon rims and benches.

The Podo soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone. Typically, the surface layer is brown gravelly sandy loam about 2 inches thick. The next layer is brown loam about 6 inches thick. Below this to a depth of 11 inches is brown gravelly sandy loam underlain by sandstone. Depth to fractured sandstone ranges from 10 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity is about 1 to 2 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Cabba family soil is shallow and well drained. It formed in colluvium and residuum derived dominantly from interbedded shale and sandstone. Typically, the surface layer is pale brown gravelly loam about 2 inches thick. The underlying material to a depth of 13 inches is brown gravelly loam underlain by weathered shale. Depth to shale ranges from 8 to 20 inches.

Permeability of the Cabba family soil is moderate. Available water capacity is about 1 to 2 inches. Water supplying capacity is 2 to 5 inches. Effective rooting depth is 8 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used for wildlife habitat, rangeland, and woodland.

The potential vegetation on the Podo and Cabba family soils includes an overstory of pinyon and Utah juniper with a canopy of 30 percent. The understory vegetation is 15 percent grasses, 10 percent forbs, and 75 percent shrubs. Among the important plants are pinyon, Utah juniper, birchleaf mountainmahogany, and Mexican cliffrose.

The site index for pinyon and Utah juniper is 32. Average yield is 4 cords of wood per acre. The potential for the production of posts or Christmas trees is poor.

This unit is moderately limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If pinyon and Utah juniper are thinned, the desirable plants present can be expected to increase for a short period before the pinyon and Utah juniper revegetate the unit.

The suitability of this unit for rangeland seeding is very poor because of the shallow soil depth. It is not practical to revegetate large areas because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded.

This map unit is in capability subclass VIIs, nonirrigated, and in the Upland Shallow Loam (Pinyon-Utah Juniper) woodland site.

84—Podo-Rock outcrop complex. This map unit is on mountain slopes between the Green River and Range Creek. Slopes are 50 to 70 percent, 300 to 400 feet long, and plane to slightly convex. They have south aspect at lower elevations and north aspect at higher elevations. The present vegetation is mainly pinyon, Utah juniper, Salina wildrye, Mormon-tea, and Douglas-fir. Elevation is 5,200 to 8,900 feet. The average annual precipitation is about 14 to 16 inches, the average annual air temperature is 42 to 45 degrees F, and the average freeze-free period is 100 to 120 days.

This unit is 50 percent Podo very bouldery sandy loam, dry, 50 to 70 percent slopes; 30 percent Rock outcrop; and 20 percent other soils. The Podo soil is on mountain slopes, and the areas of Rock outcrop occur as nearly vertical ledges and cliffs. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Cabba bouldery loam, 40 to 70 percent slopes; 5 percent Beje very gravelly fine sandy loam; and 5 percent Guben soils that have slopes of 50 to 80 percent. These included soils are intermingled throughout the unit.

The Podo soil is shallow and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale. Typically, the surface layer is brown very bouldery sandy loam about 5 inches thick. The underlying material to a depth of 12 inches is strong brown gravelly sandy loam. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity 1 to 2 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of areas of exposed bedrock, dominantly sandstone.

This unit is used for wildlife habitat.

The potential vegetation on the Podo soil includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 50 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. Limitations for the harvesting of wood products are severe because of the steepness of slope, the hazard of erosion, and rock fragments on the surface.

This unit is not grazeable by livestock because of the steepness of slope and the bouldery surface layer.

The Podo soil is in capability subclass VIIe, nonirrigated, and the Rock outcrop is in capability subclass VIIIs. The Podo soil is in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site. Rock outcrop is not placed in a range site.

85—Rabbitex silt loam, 15 to 50 percent slopes. This deep, well drained soil is on mountain ridgetops and side slopes in the Price Canyon area, near Beaver Ridge. It formed in residuum and colluvium derived from limestone, sandstone, and shale. Slopes are 300 to 400 feet long and are concave to convex. The present vegetation is mainly Salina wildrye and mountain big sagebrush. Elevation is 8,400 to 9,000 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

Typically, the surface layer is brown silt loam about 10 inches thick. The next layer is dark yellowish brown gravelly loam about 4 inches thick. The next layer is light yellowish brown and pale brown cobbly loam 30 inches thick. The underlying material to a depth of 59 inches is very pale brown loam. Sandstone is at a depth of 59 inches.

Included in this unit are about 10 percent Datino Variant very stony loam on ridgetops, 10 percent soils that are similar to this Rabbitex soil but have a thicker, dark-colored surface layer and are in concave areas, 5 percent soils that are similar to this Rabbitex soil but are more than 60 percent rock fragments, and 5 percent soils, on ridgetops, that are similar to this Rabbitex soil but are shallow and have slopes of 3 to 15 percent.

Permeability of the Rabbitex soil is moderate. Available water capacity is about 7 to 10 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Rabbitex soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, bluebunch wheatgrass, bluegrasses, and snowberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this unit for rangeland seeding is very poor. The main limitation is the shallow soil depth.

This map unit is in capability subclass VIIe, nonirrigated, and in the Mountain Loam (Saline Wildrye) range site.

86—Rabbitex-Doney family-Midfork family complex. This map unit is on mountain slopes. It is in the Price Canyon area. Slopes are 50 to 70 percent, 100 to 300 feet long, and concave to convex. Elevation is 7,600 to 9,200 feet.

This unit is 30 percent Rabbitex bouldery loam, 50 to 70 percent slopes; 25 percent Doney family stony loam, 50 to 70 percent slopes; 15 percent Midfork family bouldery loam, 50 to 70 percent slopes; and 30 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Senchert loam in drainageways, 10 percent Rabbitex loam on concave side slopes, 8 percent gently sloping Beje loam on ridges, and small areas of Silas loam near stream channels.

The Rabbitex soil is deep and well drained. It formed in colluvium derived dominantly from shale and siltstone. The present vegetation is mainly Gambel oak, snowberry, Oregon-grape, and Salina wildrye. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days. Typically, the surface is covered with a mat of leaves and twigs about 1 inch thick. The surface layer is very dark brown and brown bouldery loam about 11 inches thick. The underlying layer to a depth of 43 inches is very pale brown gravelly loam over sandstone. A layer of calcium carbonate accumulation is at a depth of about 13 inches.

Permeability of the Rabbitex soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 6 to 11 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is moderate.

The Doney family soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone and shale. The present vegetation is mainly Salina wildrye, mountain big sagebrush, and rabbitbrush. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 100 days. Typically, the surface layer is brown stony loam about 4 inches thick. The subsoil is pale brown loam 11 inches thick. The substratum to a depth of 35 inches is light gray loam over weathered shale. Depth to weathered shale is 20 to 40 inches.

Permeability of the Doney family soil is moderate. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 7 to 11 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is moderate.

The Midfork family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Douglas-fir, serviceberry, and snowberry. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days. Typically, the surface is covered with a mat of partially decomposed twigs, leaves, and needles about 2 inches thick. The surface layer is dark brown bouldery loam about 7 inches thick. The next layer is yellowish brown very channery loam about 10 inches thick. Below this to a depth of 60 inches or more is yellowish brown very gravelly loam.

Permeability of the Midfork family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 10 to 17 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential plant community on the Rabbitex soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are bluegrass, Gambel oak, snowberry, and serviceberry.

This soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Doney family soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, bluegrass, and snowberry.

This soil is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

The potential vegetation on the Midfork family soil is an overstory of Douglas-fir with a canopy of 50 percent. The understory vegetation is 10 percent grasses, 5 percent forbs, and 85 percent shrubs. Among the important plants are sedge, Oregon-grape, mountainlover, wheatgrass, and snowberry.

The site index for Douglas-fir is 50. Average yield is about 27,200 board feet per acre of trees 12 inches in diameter or more. This unit is limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

This soil is not grazeable by livestock because of the steepness of slope.

This map unit is in capability subclass VIIe. The Rabbitex soil is in the Mountain Very Steep Loam (Oak) range site. The Doney family soil is in the Mountain Very Steep Loam (Saline Wildrye) range site. The Midfork family soil is in the High Mountain Very Steep Loam (Douglas-fir) woodland site.

87—Rabbitex-Pathead complex. This map unit is on mountain slopes near the top of Harmon Canyon, Summerhouse Ridge, Bishop Ridge, and Cottonwood Ridge. Slopes are 25 to 50 percent, 300 to 400 feet long, and concave to convex. Elevation is 7,200 to 8,400 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 35 percent Rabbitex loam, 25 to 50 percent slopes; 35 percent Pathead gravelly loam, 25 to 50 percent slopes; and 30 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent Podo very stony loam, 10 percent Rottulee family loam in concave areas, and 5 percent Rock outcrop.

The Rabbitex soil is deep and well drained. It formed in alluvium and colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Salina wildrye, western wheatgrass, and birchleaf mountainmahogany. Typically, the upper part of the surface layer is dark brown loam about 5 inches thick and the lower part is dark brown channery loam about 7 inches thick. The next layer is yellowish brown and pale brown channery loam and gravelly loam 18 inches thick. The next 7 inches is pale brown gravelly loam. Below this to a depth of 59 inches or more is very pale brown loam. A layer of secondary calcium carbonate accumulation is at a depth of about 30 inches.

Permeability of the Rabbitex soil is moderate. Available water capacity is about 7.0 to 10.5 inches. Water supplying capacity is 8.5 to 16.0 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

The Pathead soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Salina wildrye, muttongrass, larkspur, black sagebrush, and rabbitbrush. Typically, the surface layer is brown gravelly loam about 4 inches thick. The upper 22 inches of the underlying material is pale brown very cobbly loam, and the lower part to a depth of 39 inches is pale brown extremely cobbly loam over siltstone. Depth to siltstone ranges from 20 to 40 inches.

Permeability of the Pathead soil is moderate. Available water capacity is about 2 to 4 inches. Water supplying capacity is 4.5 to 8.5 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Rabbitex soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the stoniness of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil, intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

The potential plant community on the Pathead soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are black sagebrush, bluegrass, Salina wildrye, and bluebunch wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. Plants suitable for critical area seedings are those native to the soil, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, Russian wildrye, small burnet, ladak alfalfa, Lewis flax, and yellow sweetclover.

This map unit is in capability subclass VIIe, nonirrigated. The Rabbitex soil is in the Mountain Stony Loam (Browse) range site. The Pathead soil is in the Mountain Shallow Loam (Black Sagebrush) range site.

88—Rabbitex family-Datino Variant complex. This map unit is on mountain slopes. It is in the Price Canyon area and south of Whitmore Park. Slopes are 15 to 50 percent, 100 to 200 feet long, and concave to convex. Elevation is 7,000 to 8,500 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 55 percent Rabbitex family stony loam, 30 to 50 percent slopes; 30 percent Datino Variant very stony loam, 15 to 40 percent slopes; and 15 percent other soils. The Rabbitex family soil is on the steeper side slopes and in convex areas on ridges, and the Datino Variant soil is in concave areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are 5 percent Trag soils on ridges, 5 percent Midfork family soils in concave areas, and 5 percent Comodore soils in concave areas.

The Rabbitex family soil is deep and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale. The present vegetation is mainly ponderosa pine, white fir, Douglas-fir, Gambel oak, and Salina wildrye. Typically, the upper part of the surface layer is dark grayish brown stony loam about 4 inches thick and the lower part is dark grayish brown cobbly loam about 9 inches thick. The underlying material to a depth of 45 inches is light yellowish brown and very pale brown cobbly loam over sandstone. A layer of carbonate accumulation is at a depth of about 13 inches.

Permeability of the Rabbitex family soil is moderate. Available water capacity is about 5.5 to 7.0 inches. Water supplying capacity is 6 to 11 inches. Effective rooting depth is 45 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Datino Variant soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. The present vegetation is mainly Gambel oak, serviceberry, birchleaf mountainmahogany, and mountain big sagebrush. Typically, the surface layer is dark grayish brown very stony loam about 4 inches thick. The subsoil is grayish brown very cobbly loam about 10 inches thick. The upper 8 inches of the substratum is pale brown very cobbly loam, and the lower part to a depth of 60 inches or more is pale brown very stony fine sandy loam. A layer of carbonate accumulation is at a depth of about 15 inches.

Permeability of the Datino Variant soil is moderate. Available water capacity is about 4.0 to 6.5 inches. Water supplying capacity is 7 to 9 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential vegetation on the Rabbitex family soil includes an overstory of ponderosa pine with a canopy of 30 percent. The understory vegetation is 35 percent grasses, 20 percent forbs, and 45 percent shrubs. Among the important plants are Gambel oak, Salina wildrye, Letterman needlegrass, and snowberry.

The site index for ponderosa pine ranges from 60 to 80. Because this soil is only in small, widely spaced areas, the potential for commercial harvesting of wood products is low.

The potential plant community on the Datino Variant soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Gambel oak, serviceberry, bluegrass, and snowberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment. Eradication of Gambel oak is very difficult. A combination of burning, spraying, and mechanical treatment may have to be used; however, Gambel oak will re-occupy the site in time.

The suitability for rangeland seeding is good. The main limitation is plant competition. Plants suitable for seeding include adapted native plants and smooth brome, orchardgrass, intermediate wheatgrass, and alfalfa.

This map unit is in capability subclass VIIe, nonirrigated. The Rabbitex family soil is in the Mountain Stony Loam (Ponderosa Pine) woodland site. The Datino Variant soil is in the Mountain Loam (Oak) range site.

89—Rafael silty clay loam. This very deep, poorly drained soil is on alluvial fans, flood plains, and valley floors. It is near Price and Wellington, south of Miller Creek, and east of Hiawatha. It formed in alluvium derived dominantly from shale. Slope is 1 to 3 percent. Slopes are 100 to 200 feet long and are concave. The present vegetation in most areas is mainly wiregrass, sedge, redtop, and saltgrass. Elevation is 5,450 to 5,600 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray silty clay loam 3 inches thick. The next layer to a depth of 60 inches or more is grayish brown silty clay loam with strata of clay loam or loam. Mottles are at a depth of 0 to 20 inches.

Included in this unit are about 5 percent Ferron silt loam, 5 percent Hunting loam, moderately saline, and 5 percent Ravola loam, alkali.

Permeability of this Rafael soil is slow. Available water capacity is about 6.0 to 10.5 inches. Effective rooting depth is 60 inches or more for water-tolerant plants but is limited to 0 to 20 inches for non-water-tolerant plants. The organic matter content of the surface layer is 3 to 5 percent. Runoff is slow, and the hazard of water erosion is slight. A water table fluctuates between depths of 0 and 24 inches in January through December.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Rafael soil is 85 percent grasses, 10 percent forbs, and 5 percent shrubs. Among the important plants are inland saltgrass, alkali sacaton, sedge, and Baltic rush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. The suitability for grazing is good.

The suitability of this unit for rangeland seeding is poor. The main limitations are the fluctuating water table and salinity. Plants suitable for seeding include alkali sacaton and tall wheatgrass.

This map unit is in capability subclass VIIw, nonirrigated, and in Salt Meadow range site.

90—Ravola loam, 1 to 3 percent slopes. This very deep, well drained soil is on alluvial fans and narrow valley floors. It extends from Helper to Wellington and south to the Carbon-Emery County line. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 400 to 600 feet long and are concave to convex. The vegetation in areas not cultivated is mainly galleta, shadscale, and some greasewood. Elevation is 5,400 to 5,800 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray loam about 6 inches thick. Below this to a depth of 60 inches or more is light brownish gray loam.

Included in this unit are about 10 percent Billings silty clay loam and small areas of Hunting loam, moderately saline. Also included are small areas of Ravola loam that has slopes of less than 1 percent and small areas of Ravola soils that have a silty clay loam surface layer.

Permeability of this Ravola soil is moderate. Available water capacity is about 7.5 or 10.5 inches. The water supplying capacity is 4 to 5 inches in areas not irrigated. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used mainly for irrigated crops and as rangeland. It is also used for urban and homesite development and as wildlife habitat.

The potential plant community on the Ravola soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Native plants are suitable for critical area seedings.

If areas of this unit are irrigated, suitable management practices used to maintain or improve the area include conservation cropping systems with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability unit IIe-2, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

91—Ravola loam, 1 to 6 percent slopes, eroded. This very deep, well drained soil is on alluvial fans and narrow valley floors. It extends from Helper to Wellington and south to the Carbon-Emery county line. It formed in alluvium derived dominantly from sandstone and shale. Slopes are dominantly 3 to 6 percent, 100 to 300 feet long, and concave to convex. The vegetation in areas not cultivated is mainly galleta, shadscale, and some greasewood. Elevation is 5,300 to 6,000 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray loam about 2 inches thick. The next layer is light brownish gray loam about 21 inches thick. Below this to a depth of 60 inches or more is light brownish gray silt loam.

Included in this unit are about 5 percent Billings silty clay loam, 5 percent Killpack clay loam, and small areas of Persayo loam. Also included are small areas of Ravola loam, 1 to 3 percent slopes.

Permeability of this Ravola soil is moderate. Available water capacity is about 7.5 to 10.5 inches. The water supplying capacity is 4 to 5 inches in areas not irrigated. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate. Runoff from adjacent areas has formed gullies in some areas of this soil. The gullies are *V*-shaped, are 4 to 8 feet deep, and in some areas are 100 to 400 feet apart. The hazard of soil blowing is moderate.

This unit is used mainly as rangeland and wildlife habitat. It is also used for irrigated crops and for homesite and urban development.

The potential plant community on the Ravola soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of hay or pasture and small grain. Crop residue should be kept on the surface of the soil. Pasture management that incorporates use of a rotation grazing system is best.

Sprinkler irrigation systems provide the best erosion control and the ability to apply irrigation water evenly to the fields. Flood irrigation can also be used if erosion is controlled.

This map unit is in capability unit IIIe-2, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Desert Loam range site.

92—Ravola-Gullied land complex. This map unit is on alluvial fans and dissected narrow valley floors. It is widely distributed throughout the survey area. Some of the larger areas are along Drunkards Wash, Coal Creek, Miller Creek, Gordon Creek, and Soldier Creek. Slopes are 1 to 6 percent. Elevation is 5,300 to 6,000 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 70 percent Ravola loam, 1 to 6 percent slopes, eroded; 20 percent Gullied land; and 10 percent other soils. The Ravola soil is generally on valley floors, and the Gullied land is adjacent to the washes on the bottom of valleys. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Green River silt loam on the bottom of washes. Also included are small areas of Killpack clay loam near the adjacent shale hills.

The Ravola soil is very deep and well drained. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 50 to 150 feet long and are concave to convex. The present vegetation in most areas is mainly shadscale, halogeton, winterfat, yellow eveningprimrose, galleta, and greasewood. Typically, the surface layer is light brownish gray loam about 2 inches thick. The next layer is light brownish gray loam about 21 inches thick. Below this to a depth of 60 inches or more is light brownish gray silt loam.

Permeability of the Ravola soil is moderate. Available water capacity is about 7.5 to 10.5 inches. Water supplying capacity is about 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is moderate. Runoff, originating from adjacent areas, has resulted in the formation of gullies in some areas of this soil. The gullies are *U*-shaped, are 5 to 10 feet deep, and in some areas are 200 to 400 feet apart. The hazard of soil blowing is moderate.

Gullied land consists of areas where erosion has cut a network of *U*-shaped and *V*-shaped gullies. The gullies occur in a dendritic pattern and drain into deep washes in the lower lying areas. The gullies are 10 to 15 feet deep and 30 to 50 feet apart. They cover 85 to 90 percent of the total surface area. The gullied areas are essentially barren.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Ravola soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of the Ravola soil because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Adapted native plants are suitable for seedings.

The Ravola soil is in capability subclass VIIe, nonirrigated, and the Gullied land is in capability subclass VIIIe. The Ravola soil is in Desert Loam range site. Gullied land is not placed in a range site.

93—Ravola-Slickspots complex. This map unit is on alluvial fans and flood plains. It is in the vicinity of Sunnyside Junction, in drainageways extending from Helper to Wellington, and in the Miller Creek area. Slopes are 1 to 3 percent, 200 to 300 feet long, and are concave to convex. Elevation is 5,300 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

This unit is 70 percent Ravola loam, alkali, 1 to 3 percent slopes, eroded; 20 percent Slickspots; and 10 percent other soils. The Slickspots are irregularly shaped. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Billings silty clay loam.

The Ravola soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. The present vegetation in most areas is mainly greasewood, alkali sacaton, pricklypear, Russian-thistle, galleta, and Indian ricegrass. Typically, the surface layer is light brownish gray loam about 8 inches thick. The underlying layer to a depth of 60 inches or more is light brownish gray loam. This soil is strongly alkaline below a depth of 20 inches.

Permeability of the Ravola soil is moderate. Available water capacity is about 7.5 to 10.5 inches. The water supplying capacity is 4 to 5 inches in areas not irrigated. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate. Runoff from adjacent areas formed gullies in some areas of this soil. The gullies are *V*-shaped, 4 to 5 feet deep, and in some areas 100 to 400 feet apart. The hazard of soil blowing is moderate.

Slickspots are barren or nearly barren areas. They have a very strongly alkaline, nearly impervious surface layer of loam about 4 inches thick. The underlying layer is light grayish brown loam and silt loam. This layer is strongly saline and is moderately alkali or strongly alkali.

Most areas of this unit are used as rangeland and wildlife habitat. A few areas are used for urban and homesite development.

The potential plant community on the Ravola soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are alkali sacaton, galleta, seepweed, and black greasewood.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of the Ravola soil because of the low annual precipitation and the content of alkali in the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants, prostrate kochia, and Russian wildrye.

This map unit is in capability subclass VIIIe, nonirrigated. The Ravola soil is in the Alkali Flat range site. Slickspots are not placed in a range site.

94—Riverwash. Riverwash is along the Price River. It consists of streambeds or riverbeds, including meanders and other channels. These areas are exposed when the water level is low, and they are subject to deposition and erosion when the water level is high. The material is extremely variable, ranging from boulders to silt and clay. Most areas are channeled, They support little if any vegetation.

This unit is used for wildlife habitat.

This map unit is in capability subclass VIIIw, nonirrigated. It is not placed in a range site.

95—Rock outcrop. Rock outcrop is throughout the survey area. It consists of exposures of bedrock in the form of steep and very steep escarpments and ridges. The rock is sandstone, siltstone, and shale. The areas of Rock outcrop are mostly barren; however, enough soil material has collected in small depressional areas, crevices, and cracks to support some grasses and stunted trees and shrubs.

This unit is used for wildlife habitat.

This map unit is in capability subclass VIIIs, nonirrigated. It is not placed in a range site.

96—Rock outcrop-Rubbleland-Travessilla complex. This map unit is on mesa escarpments and canyonsides. It is on the Book Cliffs and in the Hiawatha area. Slopes are 30 to 70 percent and 100 to 200 feet long. The present vegetation is mainly Utah juniper, pinyon, Salina wildrye, and galleta. Elevation is 6,500 to 8,700 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 80 to 120 days.

This unit is 35 percent Rock outcrop; 30 percent Rubbleland; 25 percent Travessilla very gravelly fine sandy loam, 30 to 70 percent slopes; and 10 percent other soils. About 25 percent of the acreage of the Travessilla soil has slopes of 30 to 50 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Strych very stony loam, 50 to 70 percent slopes, and Gerst extremely stony loam, 50 to 70 percent slopes.

Rock outcrop is exposed sandstone and limestone.

Rubbleland is areas of stones and boulders that are virtually free of vegetation.

The Travessilla soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone. Typically, the surface layer is brown very gravelly fine sandy loam about 3 inches thick. The upper 6 inches of the underlying material is brown loam, and the lower part to a depth of 17 inches is light brown loam over sandstone. Depth to sandstone ranges from 7 to 20 inches.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is 2 to 3 inches. Water supplying capacity is 3 to 4 inches. Effective rooting depth is 7 to 20 inches. Organic matter content in the surface layer is 1 to 2 percent. Runoff is very rapid, and the hazard of water erosion is severe.

This unit is used for wildlife habitat, rangeland, and woodland.

The potential vegetation on the Travessilla soil includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 30 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. Limitations for the harvesting of wood products are severe because of the steepness of slopes, the hazard of erosion, and rock fragments on the surface.

The Travessilla soil is not grazeable by livestock because of the steepness of slope and the stoniness of the surface layer.

This map unit is in capability subclass VIIIs, nonirrigated. The Travessilla soil is in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site. The Rock outcrop and Rubbleland are not placed in a woodland site.

97—Rottulee family-Trag complex. This map unit is on mountain slopes and canyonsides. It is in the vicinity of Whitmore and Emma Parks. Slopes are 30 to 60 percent. Elevation is 7,100 to 8,700 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 60 percent Rottulee family loam, 30 to 60 percent slopes; 20 percent Trag stony loam, 30 to 60 percent slopes, eroded; and 20 percent other soils. About 30 percent of the acreage of this unit has slopes of 30 to 50 percent. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Trag clay loam, 5 percent Curecanti family soils, and small areas of Rock outcrop, Badland, and Senchert loam, 30 to 50 percent slopes.

The Rottulee family soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sandstone and shale. Slopes are 50 to 100 feet long and are convex. The present vegetation is serviceberry, Salina wildrye, and mountain big sagebrush. Typically, the surface layer is reddish brown loam about 2 inches thick. The upper 13 inches of the subsoil is reddish brown loam and clay loam, and the lower 8 inches is reddish brown gravelly silty clay loam. The substratum to a depth of 34 inches is reddish brown gravelly silt loam over shale. Depth to shale ranges from 20 to 40 inches.

Permeability of the Rottulee family soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 7 to 10 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Trag soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale. Slopes are 75 to 100 feet long and are concave. The present vegetation is mainly mountain big sagebrush, Salina wildrye, snowberry, serviceberry, and scattered Douglas-fir. Typically, the surface layer is dark grayish brown stony loam about 10 inches thick. The subsoil is dark grayish brown clay loam about 26 inches thick. The substratum to a depth of 60 inches or more is dark grayish brown and very pale brown clay loam.

Permeability of the Trag soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for wildlife habitat and rangeland.

The potential plant community on the Rottulee family soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany and serviceberry.

For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This soil is not grazeable by livestock because of the steepness of slope.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of the Trag soil for rangeland seeding is good. Plants suitable for seeding include those native to this soil and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability for grazing is good.

This unit is in capability subclass VIIe, nonirrigated. The Rottulee family soil is in the Mountain Very Steep Stony Loam (Browse) range site. The Trag soil is in the Mountain Loam (Saline Wildrye) range site.

98—Sagers silty clay loam. This very deep, well drained soil is on alluvial fans and narrow valley floors. It is in the area extending from the junction of Utah Highways 10 and 122 to about 5 miles southeast and in small areas along the Price River. It formed in alluvium derived dominantly from mixed sedimentary rock. Slopes are 1 to 3 percent, 200 to 300 feet long, and concave to convex. The vegetation in areas not cultivated is mainly shadscale, greasewood, and galleta. Elevation is 5,600 to 5,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray silty clay loam about 7 inches thick. The underlying material to a depth of 60 inches or more is light brownish gray silty clay loam.

Included in this unit are about 5 percent Penoyer Variant loam, 5 percent Billings silty clay loam, and 5 percent soils that are similar to this Sagers soil but are strongly saline.

Permeability of this Sagers soil is moderately slow. Available water capacity is about 9 to 11 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is about 3 percent in irrigated areas and is less than 1 percent in nonirrigated areas. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for irrigated crops, rangeland, and wildlife habitat.

The potential plant community on the Sagers soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of this unit because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

If areas of this unit are irrigated, suitable management practices include conservation cropping systems with rotations of alfalfa hay, small grain, and corn. To maintain production, crop residue should be incorporated into the soil and fertilizer should be applied.

Irrigation water can be applied by the sprinkler or flood method. Fields can be leveled.

This map unit is in capability subclasses IIe, irrigated, and VIIc, nonirrigated. It is in the Desert Loam range site.

99—Saltair silty clay loam. This very deep, poorly drained, strongly saline soil is on valley floors. It is adjacent to the Price River, Miller Creek, and Marsing Wash and is north of Wellington. It formed in alluvium derived dominantly from shale and sandstone. Slopes are 0 to 3 percent, 200 to 300 feet long, and concave. The present vegetation in most areas is mainly greasewood, saltgrass, and kochia. Elevation is 5,450 to 5,600 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is light brownish gray silty clay loam about 7 inches thick. Below this to a depth of 60 inches or more is light brownish gray and light gray silt loam. The upper 14 inches of the soil is more than 2 percent salt.

Included in this unit are about 5 percent Ravola loam, alkali, and 5 percent Billing silty clay loam.

Permeability of this Saltair soil is slow. Effective rooting depth generally is limited to the surface layer because of a fluctuating water table and the content of salt. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate. A water table fluctuates between depths of 6 and 60 inches, but it generally is between depths of 36 and 60 inches during March through October.

This unit is used for wildlife habitat.

The potential plant community on the Saltair soil is 85 percent grasses, 10 percent forbs, and 5 percent shrubs. Among the important plants are inland saltgrass, alkali sacaton, sedge, and Baltic rush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. The suitability for grazing is good.

The suitability of this unit for rangeland seeding is poor. The main limitations are the fluctuating water table and salinity. Plants suitable for seeding include alkali sacaton and tall wheatgrass.

This map unit is in capability subclass VIIw, nonirrigated, and in the Salt Meadow range site.

100—Senchert loam, 3 to 15 percent slopes. This moderately deep, well drained soil is on plateaus and ridges. It is near Steer, Gooseneck, Buckskin, and Van Duesen Ridges and at the top of Whitmore Park. It formed in alluvium and residuum derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are concave to convex. The present vegetation is mainly aspen and snowberry. Elevation is 8,700 to 9,500 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 36 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface layer is very dark grayish brown loam about 4 inches thick. The upper part of the subsoil is brown loam about 12 inches thick, and the lower part to a depth of 35 inches is brown clay loam over calcareous sandstone. Depth to sandstone ranges from 20 to 40 inches.

Included in this unit are about 10 percent Senchert family soils, 3 to 15 percent slopes; 5 percent Senchert loam, 30 to 50 percent slopes; 5 percent Senchert fine sandy loam; and small areas soils that are similar to this Senchert soil but is deep or very deep.

Permeability of the Senchert soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 11 to 17 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is slow, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, wildlife habitat, recreation, and watershed.

The potential vegetation on the Senchert soil includes an overstory of aspen with a canopy of 40 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, and Thurber fescue.

This unit is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. The unit can produce about 40 cubic feet of aspen per acre per year. Limitations for the harvesting of wood products are slight.

The suitability of this unit for grazing is good. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability of this unit for rangeland seeding is poor. The main limitation is competition from aspen.

This map unit is in capability subclass VIe, nonirrigated, and in the High Mountain Loam (Aspen) woodland site.

101—Senchert loam, 30 to 50 percent slopes. This moderately deep, well drained soil is on mountain slopes. It is near Steer, Gooseneck, Buckskin, and Van Duesen Ridges and near Bruin Point. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are concave to convex. The present vegetation is mainly aspen, snowberry, and perennial grasses. Elevation is 8,600 to 9,400 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 36 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface layer is very dark grayish brown loam about 4 inches thick. The upper part of the subsoil is brown loam about 12 inches thick, and the lower part to a depth of 35 inches is brown clay loam over calcareous sandstone. Depth to sandstone ranges from 20 to 40 inches.

Included in this unit are about 10 percent Senchert loam, 15 to 40 percent slopes; 5 percent Sheepcan stony loam; 5 percent soils that are similar to this Senchert soil but are 40 to 60 inches thick; and 5 percent Senchert loam, 3 to 15 percent slopes.

Permeability of this Senchert soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 12 to 17 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, wildlife habitat, recreation, and watershed.

The potential plant community on the Senchert soil includes an overstory of aspen with a canopy of 40 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, Thurber fescue, and quaking aspen.

This unit is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. The unit can produce about 40 cubic feet of wood products per acre per year. This unit is moderately limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The suitability of this unit for grazing is good. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability of this unit for rangeland seeding is poor. The main limitation is competition from aspen.

This map unit is in capability subclass VIIe, nonirrigated, and in the High Mountain Loam (Aspen) woodland site.

102—Senchert-Senchert family complex. This map unit is on plateaus and ridges on Bruin Point and Patmos Head. Slopes are 1 to 15 percent. Elevation is 9,400 to 10,100 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 36 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

This unit is 55 percent Senchert fine sandy loam, 1 to 15 percent slopes; 20 percent Senchert family loam, 3 to 15 percent slopes; and 25 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent soils that are similar to the Senchert family soil but are less than 20 inches thick, 5 percent soils that are similar to the Senchert soil but have sandstone at a depth of 60 inches or more, and 5 percent Senchert loam, clayey substratum, 15 to 30 percent slopes.

The Senchert soil is moderately deep and well drained. It formed in residuum derived dominantly from calcareous sandstone. Slopes are 100 to 200 feet long and are concave to convex. The present vegetation is mainly subalpine fir, white fir, Engelmann spruce, aspen, and snowberry. Typically, the surface is covered with a mat of leaves, twigs, and needles about 0.5 inch thick. The surface layer is very dark grayish brown fine sandy loam about 3 inches thick. The subsoil to a depth of 21 inches is brown loam over sandstone. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Senchert soil is moderate. Available water capacity is about 2.5 to 3.5 inches. Water supplying capacity is 11 to 13 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Senchert family soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone. Slopes are 200 to 300 feet long and are concave to convex. The present vegetation is mainly mountain big sagebrush, Thurber fescue, and melic. Typically, the surface layer is dark grayish brown loam about 11 inches thick. The subsoil to a depth of 35 inches is dark grayish brown loam and clay loam over sandstone. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Senchert family soil is moderately slow. Available water capacity is about 5 to 6 inches. Water supplying capacity is 12 to 16 inches. Effective rooting is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used for wildlife habitat, woodland, and recreation areas.

The potential vegetation on the Senchert soil includes an overstory of Engelmann spruce and subalpine fir with a canopy of 55 percent. The understory vegetation is 20 percent grasses, 5 percent forbs, and 75 percent shrubs. Among the important plants are blueberry, Oregon-grape, sedges, and pinegrass.

This unit is well suited to the production of Engelmann spruce and subalpine fir. The site index for Engelmann spruce is 55, and the site index for subalpine fir is 60. The main limitations for harvesting wood products are plant competition in large openings created by timber harvesting, windthrow potential, and the high content of rock fragments in the soil. Minimizing the risk of erosion is essential in harvesting timber. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills.

Trees that are suitable for planting are Engelmann spruce and subalpine fir.

The Senchert soil is limited for grazing because of low production of forage and the relative unpalatability of the understory plants.

The potential plant community on the Senchert family soil is 60 percent grasses, 25 percent forbs, and 15 percent shrubs. Among the important plants are Thurber fescue, mountain brome, slender wheatgrass, aspen peavine, and mountain big sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of the Senchert family soil for rangeland seeding is good. Plants suitable for seeding include adapted native plants and smooth brome, regar brome, alfalfa, and bitterbrush.

This map unit is in capability subclass VIe, nonirrigated. The Senchert soil is in the High Mountain Stony Loam (Engelmann Spruce) woodland site. The Senchert family soil is in the High Mountain Loam (Thurber Fescue) range site.

103—Senchert-Toze family complex. This map unit is on north, east, and west aspects of mountain slopes. It is in the vicinity of the Patmos Head, Mount Bartles, and Jump Creek. Slopes are I5 to 35 percent. The present vegetation is mainly aspen, white fir, and Douglas-fir. Elevation is 7,500 to 9,500 feet. The average annual precipitation is about 20 to 25 inches, the average annual air temperature is 36 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

This unit is 50 percent Senchert loam, clayey substratum, 15 to 30 percent slopes; 30 percent Toze family loam, 15 to 35 percent slopes; and 20 percent other soils. The Senchert soil is in plane areas, and the Toze family soil is in concave areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent soils that are similar to the Senchert soil but are 40 to 60 inches thick; 5 percent Podo gravelly sandy loam, dry, 8 to 30 percent slopes, on canyon rims; 5 percent Trag clay loam in small sagebrush parks; and 5 percent soils that are similar to the Toze family soil but have slopes of 35 to 50 percent.

The Senchert soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are concave. Typically, the surface is covered with a mat of partially decomposed leaves, twigs, and needles about 1 inch thick. The surface layer is very dark grayish brown loam 4 inches thick. The subsoil is grayish brown clay loam about 14 inches thick. The substratum to a depth of 25 inches is light brownish gray silty clay over calcareous sandstone. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Senchert soil is moderately slow. Available water capacity is about 3.5 to 5.0 inches. Water supplying capacity is 8.5 to 12.0 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is slow, and the hazard of water erosion is moderate.

The Toze family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone, siltstone, and shale. Slopes are 200 to 400 feet long and are concave. Typically, the surface is covered with a mat of leaves, twigs, and needles about 1 inch thick. The upper 3 inches of the surface layer is dark grayish brown loam, and the lower 22 inches is dark grayish brown loam and gravelly silt loam. The next layer is grayish brown gravelly silt loam about 8 inches thick. Below this to a depth of 60 inches or more is pale brown very gravelly fine sandy loam. A layer of calcium carbonate accumulation is at a depth of about 24 inches.

Permeability of the Toze family soil is moderate. Available water capacity is about 6 to 9 inches. Water supplying capacity is 11 to 18 inches. The organic matter content of the surface layer is 3 to 5 percent. Effective rooting depth is 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, wildlife habitat, and recreation areas.

The potential vegetation on the Senchert and Toze family soils includes an overstory of Douglas-fir with a canopy of 60 percent. The understory vegetation is 10 percent grasses, 5 percent forbs, and 85 percent shrubs. Among the important plants are sedges, mountainlover, snowberry, Oregon-grape, and quaking aspen.

The site index for aspen is 50. Average yield is about 27,200 board feet per acre of trees 12 inches in diameter or more. The unit is moderately limited for producing and harvesting wood products because of the steepness of slope, the hazard of erosion, and plant competition during the regeneration of Douglas-fir.

Management practices that maintain or improve the rangeland vegetation on this unit include proper grazing use, a planned grazing system, and proper location of water developments. The suitability for grazing is poor because of the low forage production. If the Douglas-fir is thinned, the desirable plants present can be expected to increase for a short period before Douglas-fir revegetates the unit.

This map unit is in capability subclass VIIe, nonirrigated, and in the High Mountain Loam (Douglas-fir) range site.

104—Senchert family, 3 to 15 percent slopes. This moderately deep, well drained soil is on rolling ridges and plateaus. It is near Steer Ridge, Bruin Point, and Patmos Head. It in formed residuum and alluvium derived dominantly from sandstone and shale. Slopes are 3 to 15 percent, 200 to 300 feet long, and slightly concave to convex. The present vegetation is mainly mountain big sagebrush and Thurber fescue. Elevation is 8,800 to 9,700 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 36 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

Typically, the surface layer is dark grayish brown loam about 11 inches thick. The subsoil to a depth of 35 inches is dark grayish brown loam and clay loam over sandstone. Depth to sandstone ranges from 20 to 40 inches.

Included in this unit are about 5 percent Beje fine sandy loam intermingled throughout the unit, 5 percent soils that are similar to this Senchert family soil but are more than 40 inches deep to bedrock and are intermingled throughout the unit, 5 percent Senchert loam, 3 to 15 percent slopes, and 5 percent Toze family loam.

Permeability of this Senchert family soil is moderately slow. Available water capacity is about 5 to 7 inches. Water supplying capacity is 12 to 16 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is slow, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Senchert family soil is 60 percent grasses, 25 percent forbs, and 15 percent shrubs. Among the important plants are Thurber fescue, mountain brome, slender wheatgrass, aspen peavine, and mountain big sagebrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is good. Plants suitable for seeding include adapted native plants and smooth brome, regar brome, alfalfa, and bitterbrush.

This map unit is in capability subclass VIe, nonirrigated, and in the High Mountain Loam (Thurber Fescue) range site.

105—Senchert family-Senchert complex. This map unit is on mountain slopes. It is east of Scofield Reservoir. Slopes are 30 to 40 percent, 100 to 200 feet long, and concave to convex. Elevation is 8,000 to 9,100 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 36 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

This unit is 40 percent Senchert family very fine sandy loam, 30 to 50 percent slopes; 35 percent Senchert loam, 30 to 50 percent slopes; and 25 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent Podo cobbly loam and 10 percent soils that are similar to the Senchert soil but have 35 percent rock fragments and are under oak.

The Senchert family soil is moderately deep and well drained. It formed in alluvium and residuum derived dominantly from calcareous sandstone. The present vegetation is mainly mountain big sagebrush, vetch, and Columbia needlegrass. Typically, the surface layer is brown very fine sandy loam about 8 inches thick. The subsoil is brown clay loam about 16 inches thick. The substratum to a depth of 27 inches is very pale brown clay loam over calcareous sandstone. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Senchert family soil is moderate. Available water capacity is about 4.0 to 5.5 inches. Water supplying capacity is 9 to 13 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Senchert soil is moderately deep and well drained. It formed in colluvium and residuum derived dominantly from sandstone. The present vegetation is mainly aspen, snowberry, and western coneflower. Typically, the surface layer is very dark grayish brown loam about 4 inches thick. The upper part of the subsoil is brown loam about 12 inches thick, and the lower part to a depth of 35 inches is brown clay loam over sandstone. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Senchert soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 12 to 17 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, wildlife habitat, recreation areas, and watershed.

The potential vegetation on the Senchert family soil is 60 percent grasses, 25 percent forbs, and 15 percent shrubs. Among the important plants are Thurber fescue, mountain brome, slender wheatgrass, mountain big sagebrush, and aspen peavine.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this soil for rangeland seeding is good. Plants suitable for seeding include adapted native plants and smooth brome, regar brome, alfalfa, and bitterbrush.

The vegetation on the Senchert soil includes an overstory of aspen with a canopy of 40 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, Thurber fescue, and quaking aspen.

This soil is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. The unit can produce about 40 cubic feet of aspen wood products per acre per year. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The suitability of this soil for grazing is only fair because of the steepness of slope. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability of this soil for rangeland seeding is poor. The main limitations are competition from aspen and steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated. The Senchert family soil is in the High Mountain Loam (Thurber Fescue) range site. The Senchert soil is in the High Mountain Loam (Aspen) woodland site.

106—Sheepcan-Podo-Rock outcrop complex. This map unit is on mountain slopes along the northern side of Minniemaud Creek. Slopes are 40 to 60 percent. Elevation is 7,000 to 8,500 feet. The average annual precipitation is 15 to 18 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 70 to 100 days.

This unit is 35 percent Sheepcan stony loam, 40 to 70 percent slopes, eroded, in the lower lying areas; 25 percent Podo gravelly loam, dry, 40 to 60 percent slopes, eroded, in the higher lying areas; 15 percent Rock outcrop intermingled with the areas of the Podo soil; and 25 percent other soils and miscellaneous areas. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 8 percent Pathead gravelly loam; 5 percent Guben extremely bouldery fine sandy loam, 50 to 80 percent slopes; 5 percent Shupert gravelly loam; and small areas of Datino Variant extremely stony fine sandy loam, Cabba family bouldery loam, 40 to 70 percent slopes, and Badland.

The Sheepcan soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale of the Green River Formation. About 20 percent of this soil has slopes of 40 to 50 percent. Slopes are 100 to 200 feet long, are concave to convex, and have south aspect. The present vegetation in most areas is mainly big sagebrush, Utah juniper, Rocky mountain juniper, and antelope bitterbrush. Typically, the surface layer is light yellowish brown stony loam about 9 inches thick. The upper 19 inches of the underlying material is light gray and pale yellow gravelly clay loam and cobbly clay loam, and the lower part to a depth of 60 inches or more is white very cobbly clay loam.

Permeability of the Sheepcan soil is moderately slow. Available water capacity is 6.0 to 7.5 inches. Water supplying capacity is 8.5 to 11.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 inches. Runoff is medium, and the hazard of water erosion is high.

The Podo soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from shale of the Green River Formation. About 20 percent of this soil has slopes of 40 to 50 percent. Slopes are 200 to 300 feet long, are concave to convex, and have south aspect. The present vegetation in most areas is mainly Salina wildrye, curlleaf mountainmahogany, Utah juniper, pinyon, and Douglas-fir. Typically, the surface layer is pale brown gravelly loam about 1 inch thick. The underlying material to a depth of 8 inches is pale brown gravelly loam over hard shale. Depth to bedrock ranges from 8 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity is about 1 to 2 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 8 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of exposures of bedrock in the form of steep and very steep escarpments and ridges. The rock is sandstone, siltstone, and shale. These areas are mostly barren; however, enough soil material has collected in small depressional areas, crevices, and cracks to support some grasses and stunted trees and shrubs.

This unit is used as rangeland, woodland, wildlife habitat, and recreation areas.

The potential plant community on the Sheepcan soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, prairie junegrass, snowberry, and serviceberry.

This soil is not grazeable by livestock because of the steepness of slope and the hazard of erosion.

The potential vegetation on the Podo soil includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 30 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is poor.

Harvesting of wood products is severely limited by the steepness of slope, the hazard of erosion, and rock fragments on the surface.

This soil is not grazeable by livestock because of the steepness of slope and the stoniness of the surface layer.

The Sheepcan and Podo soils are in capability subclass VIIe, nonirrigated, and the Rock outcrop is in capability subclass VIIIs. The Sheepcan soil is in the Mountain Very Steep Loam (Saline Wildrye) range site, and the Podo soil is in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site. The Rock outcrop is not placed in a range site or a woodland site.

107—Shupert-Winetti complex. This map unit is on narrow valley and canyon floors in the Book Cliffs and in an area northwest of Price and east of Sunnyside. Slopes are 1 to 8 percent, 100 to 200 feet long, and concave. The present vegetation in most areas is mainly basin big sagebrush, rabbitbrush, cheatgrass, needleandthread, and dropseed. Elevation ranges from 4,600 to 7,200 feet but commonly is 5,200 to 6,400 feet. The average annual precipitation is 12 to 16 inches, the average annual air temperature is 43 to 45 degrees F, and the average freeze-free period is 80 to 100 days.

This unit is 40 percent Shupert gravelly loam, 1 to 8 percent slopes; 35 percent Winetti bouldery sandy loam, 1 to 8 percent slopes; and 25 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent Haverdad loam on toe slopes, 5 percent Glenberg family very fine sandy loam on toe slopes at lower elevations, and 5 percent soils that are similar to the Winetti soil but are along the stream channels and support riparian vegetation.

The Shupert soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Typically, the surface layer is pale brown gravelly loam about 3 inches thick. The next layer is pale brown clay loam about 6 inches thick. Below this to a depth of 60 inches or more is light brownish gray and light yellowish brown clay loam.

Permeability of the Shupert soil is moderately slow. Available water capacity is about 10.0 to 11.5 inches. Water supplying capacity is 6.5 to 10.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

The Winetti soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Typically, the surface layer is grayish brown bouldery sandy loam about 6 inches thick. The next layer is pale brown loam about 5 inches thick. The next layer is pale brown and brown very bouldery loam about 23 inches thick. Below this to a depth of 60 inches or more is pale brown very gravelly sandy loam.

Permeability of the Winetti soil is moderately rapid. Available water capacity is about 4.0 to 5.5 inches. Water supplying capacity is 4.5 to 8.0 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is slow, and the hazard of water erosion is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used mainly as rangeland and wildlife habitat. It is also used for irrigated crops.

The potential plant community on the Shupert and Winetti soils is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Important plants are basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is good. Plants suitable for seeding include adapted native plants and Russian wildrye, crested wheatgrass, and ladak alfalfa.

This map unit is in capability unit IIIe-3, irrigated, and in capability subclass VIIe, nonirrigated. It is in the Loamy Bottom range site.

108—Silas loam. This very deep, somewhat poorly drained soil is in narrow alluvial valleys. It is in Pleasant Valley, north of Scofield, and in Emma Park, near Willow Creek. It formed in alluvium derived dominantly from sandstone and shale of the Price River and Black Hawk Formations. Slopes are 0 to 3 percent, 100 to 200 feet long, and concave to convex. The present vegetation in most areas is mainly Kentucky bluegrass, wiregrass, carex, and arrowgrass. Elevation is 7,200 to 7,700 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 80 days.

Typically, the surface layer is dark grayish brown loam about 28 inches thick. The next layer is grayish brown loam about 15 inches thick. Below this to a depth of 60 inches or more is light brownish gray sandy clay loam. Mottles are at a depth of 28 to 60 inches.

Included in this unit are about 10 percent tuffaceous material that originated from the sulfur spring in the area where the railroad crosses the highway and extends north to Scofield Reservoir and about 5 percent Brycan loam on alluvial fans at the foot of the mountain slopes. Also included are small areas of soils that are similar to this Silas soil but are poorly drained and are adjacent to Scofield Reservoir and in low areas.

Permeability of this Silas soil is moderate. Available water capacity is about 9 to 11 inches. Effective rooting depth is 60 inches or more for water-tolerant plants but is limited to 20 to 40 inches for non-water-tolerant plants. The organic matter content of the surface layer is 5 to 10 percent. Runoff is slow, and the hazard of water erosion is none.

This unit is used for irrigated pasture, grass hay, rangeland, and wildlife habitat.

The potential plant community on the Silas soil is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are sedges, tufted hairgrass, willow, shrubby cinquefoil, and clover.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this unit for grazing is good. The main limitations are the high water table and potential water pollution. Livestock grazing should be managed to protect the streambanks from excessive erosion.

This map unit is in capability subclass VIw, nonirrigated, and in the Mountain Meadow range site.

109—Silas-Brycan loams. This map unit is in narrow alluvial valleys and fans. It is in Pleasant Valley, along Mud Creek; along the Price River, below Scofield Reservoir; along Beaver Creek; and at the head of Jump Creek. Slopes are 0 to 8 percent. Elevation is 7,700 to 8,600 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 80 days.

This unit is 65 percent Silas loam, wet, 0 to 3 percent slopes; 20 percent Brycan loam, 3 to 8 percent slopes; and 15 percent other soils. The Silas soil is in low areas adjacent to the stream channel, and the Brycan soil is on alluvial fans adjacent to the narrow alluvial valleys. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of soils that are similar to the Silas soil but are poorly drained; soils that are similar to the Silas soil but have slopes of 3 to 6 percent; flooded areas of soils, adjacent to streams, that have a loamy very fine sand surface layer 8 to 12 inches thick; and soils that are similar to the Brycan soil but are about 30 percent pebbles throughout.

The Silas soil is very deep and somewhat poorly drained. It formed in alluvium derived dominantly from sandstone and shale of the Black Hawk Formation. Slopes are 300 to 500 feet long and are plane to concave. The present vegetation in most areas is mainly silver sagebrush, bluegrasses, sedges, wiregrass, and scattered Colorado blue spruce. Typically, the surface layer is dark grayish brown loam about 28 inches thick. The next layer is grayish brown loam about 15 inches thick. Below this to a depth of 60 inches or more is light brownish gray sandy clay loam. Mottles are at a depth of 28 to 60 inches. A water table fluctuates between depths of 20 and 25 inches in spring and between depths of 35 and 45 inches during the drier season. In some areas this soil is about 20 percent pebbles and cobbles at a depth of 36 inches. In some areas this soil is stratified. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Permeability of the Silas soil is moderate. Available water capacity is about 9 to 11 inches. Effective rooting depth is 60 inches or more for water-tolerant plants but is limited to 18 to 24 inches for non-water-tolerant plants. The organic matter content of the surface layer is 5 to 10 percent. Runoff is slow, and the hazard of water erosion is none.

The Brycan soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale of the Black Hawk Formation. Slopes are 100 to 200 feet long and are plane to convex. The present vegetation in most areas is mainly mountain big sagebrush and rabbitbrush. Typically, the surface layer is dark grayish brown and brown loam 12 inches thick. The subsoil is brown loam 20 inches thick. The substratum to a depth of 60 inches or more is brown silt loam.

Permeability of the Brycan soil is moderately slow. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 2 to 4 percent. Runoff is medium, and the hazard of water erosion is moderate.

Most areas of this unit are used for irrigated pasture, rangeland, and wildlife habitat. A few areas are used for urban development.

The potential plant community on the Silas soil is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are sedges, tufted hairgrass, willow, shrubby cinquefoil, and clover.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of the Silas soil for grazing is good. The main limitations are the fluctuating water table and the potential for pollution of water. Livestock grazing should be managed to protect the streambanks from erosion. If possible no other revegetation practices should be applied because this soil is a critical wildlife area.

The potential plant community on the Brycan soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are bluebunch wheatgrass, Letterman needlegrass, Salina wildrye, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of the Brycan soil for rangeland seeding is good. Plants suitable for seeding include those native to the soil and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability of this soil for grazing is good.

This map unit is in capability subclass VIw, nonirrigated. The Silas soil is in the Mountain Meadow range site. The Brycan soil is in the Mountain Loam (Saline Wildrye) range site.

110—Stormitt gravelly sandy clay loam, 3 to 10 percent slopes. This very deep, well drained soil is on benches near Helper, Price, and the Carbon-Emery county line. It formed in glacial outwash derived dominantly from sandstone, quartzite, and shale. Slopes are 200 to 400 feet long and are concave to convex. The present vegetation in most areas is mainly galleta, shadscale, black sagebrush, and Indian ricegrass. Elevation is 5,450 to 6,200 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is pale brown gravelly sandy clay loam about 1 inch thick. The subsoil is light yellowish brown and brownish yellow gravelly sandy clay loam about 8 inches thick. The substratum to a depth of 60 inches or more is very pale brown very cobbly sandy clay loam. In some areas the surface layer has been lost through erosion.

Included in this unit are about 5 percent Minchey loam in draws and 5 percent soils that are similar to this Stormitt soil but are 20 to 40 inches deep to sandstone and are on ridges.

Permeability of this Stormitt soil is moderate. Available water capacity is about 5 to 7 inches. Water supplying capacity is 3.5 to 5.5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is moderate, and the hazard of water erosion is slight. In places shallow gullies have formed.

This unit is used as rangeland in spring and fall.

The potential plant community on the Stormitt soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Wyoming big sagebrush, Indian ricegrass, galleta, and needleandthread.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this unit for rangeland seeding is poor. The main limitations are the stoniness of the soil and the low annual precipitation. Plants suitable for seeding include those native to the unit and crested wheatgrass, pubescent wheatgrass, and prostrate kochia.

This map unit is in capability subclass VIIs, nonirrigated, and in the Semidesert Gravelly Loam (Wyoming Big Sagebrush) range site.

111—Stormitt-Minchey complex. This map unit is on benches and mesas near Price, Wellington, and the Carbon-Emery county line. Slopes are 1 to 10 percent. The present vegetation in most areas is mainly galleta, shadscale, Wyoming big sagebrush, and Indian ricegrass. Elevation is 5,500 to 6,000 feet.

This unit is 55 percent Stormitt gravelly sandy clay loam, 3 to 10 percent slopes, eroded; 35 percent Minchey loam, 1 to 3 percent slopes; and 10 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 10 percent Mivida very fine sandy loam.

The Stormitt soil is very deep and well drained. It formed in glacial outwash derived dominantly from sandstone, shale, and quartzite. Slopes are 100 to 300 feet long and are concave to convex. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days. Typically, the surface layer is pale brown gravelly sandy clay loam about 1 inch thick. The subsoil is light yellowish brown and brownish yellow gravelly sandy clay loam about 8 inches thick. The substratum to a depth of 60 inches or more is very pale brown very cobbly sandy clay loam. In some areas the surface layer has been lost through erosion.

Permeability of the Stormitt soil is moderate. Available water capacity is about 5 to 7 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 2 percent. Runoff is moderate, and the hazard of water erosion is medium. In places shallow gullies have formed.

The Minchey soil is very deep and well drained. It formed in moderately fine textured glacial outwash derived dominantly from sandstone, quartzite, and shale. Slopes are 200 to 400 feet long and are convex. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 115 to 140 days. Typically, the surface layer is pale brown loam 3 inches thick. The next layer is brown, pale brown, or very pale brown clay loam or sandy clay loam about 29 inches thick. Below this to a depth of 60 inches or more is pale brown or light yellowish brown gravelly sandy loam and very gravelly sandy loam.

Permeability of the Minchey soil is moderate. Available water capacity is about 7.0 to 8.5 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland in spring and fall.

The potential plant community on the Stormitt soil is 35 percent grasses, 10 percent forbs, and 55 percent shrubs. Among the important plants are Wyoming big sagebrush, Indian ricegrass, galleta, and needleandthread.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of the Stormitt soil for rangeland seeding is poor. The main limitations are the stoniness of the soil and the low annual precipitation. Plants suitable for seeding include those native to the soil and crested wheatgrass, pubescent wheatgrass, and prostrate kochia.

The potential plant community on the Minchey soil is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Among the important plants are galleta, Indian ricegrass, shadscale, and winterfat.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Severe drought may adversely affect the production of the perennial vegetation. Partial or total removal of livestock from the range may be necessary.

It is not practical to revegetate large areas of the Minchey soil because of the low annual precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are adapted native plants.

This map unit is in capability subclass VIIs, nonirrigated. The Stormitt soil is in the Semidesert Gravelly Loam (Wyoming Big Sagebrush) range site. The Minchey soil is in the Desert Loam range site.

112—Strych very bouldery fine sandy loam, 3 to 20 percent slopes. This very deep, well drained soil is on dissected alluvial fans and fan terraces. It is in the vicinity of Horse Canyon. It formed in alluvium and glacial outwash derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long, are convex, and have south, east, and west aspects. The present vegetation is mainly juniper, pinyon, Mormon-tea, and pricklypear. Elevation is 5,300 to 6,100 feet. The average annual precipitation is about 8 to 12 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 115 to 140 days.

Typically, the surface layer is pale brown very bouldery fine sandy loam 3 inches thick. The next layer is pale brown very stony sandy loam 21 inches thick. Below this to a depth of 60 inches or more is light yellowish brown very cobbly sandy loam.

Included in this unit are small areas of Strych very stony loam, 3 to 15 percent slopes; Strych very stony loam, dry; and Gerst soils that are dry and have slopes of 15 to 40 percent.

Permeability of this Strych soil is moderately rapid. Available water capacity is about 3.5 to 7.0 inches. Water supplying capacity is 4 to 5 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Strych soil is 55 percent grasses, 10 percent forbs, and 35 percent shrubs. Among the important plants are Indian ricegrass, shadscale, Salina wildrye, and galleta.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this unit for rangeland seeding is very poor. The main limitation is boulders on the surface. The suitability for grazing is fair.

This map unit is in capability subclass VIIs, nonirrigated, and in the Semidesert Bouldery Loam range site.

113—Strych very stony loam, 3 to 15 percent slopes. This very deep, well drained soil is on benches and outwash plains. It is in the mouths of canyons near Helper and Sunnyside and south of Pace Canyon and along the north fork of Gordon Creek, near Cedar Bench. This soil formed in glacial outwash and alluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are concave to convex. The present vegetation is mainly pinyon, Utah juniper, Salina wildrye, Indian ricegrass, black sagebrush, and birchleaf mountainmahogany. Elevation is 5,800 to 7,200 feet. The average annual precipitation is about 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 100 to 120 days.

Typically, the surface layer is pinkish gray very stony loam about 5 inches thick. The next layer is light gray and very pale brown very stony loam about 42 inches thick. Below this to a depth of 60 inches or more is very pale brown very cobbly sandy loam. A layer of secondary calcium carbonate accumulation is at a depth of about 5 inches.

Included in this unit are about 15 percent Chupadera fine sandy loam and small areas of weakly developed soils that are similar to this Strych soil but have a cobbly surface layer, Atrac very fine sandy loam, and Hernandez family very fine sandy loam.

Permeability of this Strych soil is moderately rapid. Available water capacity is about 4.0 to 7.5 inches. Water supplying capacity is 4 to 7 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Strych soil includes an overstory of pinyon and Utah juniper with a canopy of 30 percent. The understory vegetation is 45 percent grasses, 10 percent forbs, and 45 percent shrubs. Among the important plants are birchleaf mountainmahogany, black sagebrush, Salina wildrye, and needleandthread.

The site index for pinyon and Utah juniper is 65. Average yield is 9 cords of wood per acre. The potential for the production of posts or Christmas trees is good. Limitations for the harvesting of Christmas trees are slight.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the pinyon and Utah juniper are thinned, the desirable plants present can be expected to increase for a short period before the pinyon and Utah juniper revegetate the unit. Suitable brush management practices include prescribed burning, chaining, and cutting.

The suitability of this unit for rangeland seeding is poor. The main limitation is the stoniness of the surface layer.

This map unit is in capability subclass VIIs, nonirrigated, and in the Upland Stony Loam (Pinyon-Utah Juniper) woodland site.

114—Strych very stony loam, dry, 3 to 30 percent slopes. This very deep, well drained soil is on alluvial fans and terraces. It is at the foot of the Book Cliffs, extending from Horse Canyon to the town of Wattis. This soil formed in alluvium and glacial outwash derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are concave to convex. The present vegetation is mainly Utah juniper, pinyon, Salina wildrye, Indian ricegrass, and Mormon-tea. Elevation is 5,400 to 6,400 feet. The average annual precipitation is about 8 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is pale brown very stony loam about 3 inches thick. The next layer is pale brown very stony sandy loam about 21 inches thick. Below this to a depth of 60 inches or more is light yellowish brown very cobbly sandy loam.

Included in this unit are about 10 percent Mivida gravelly fine sandy loam and 5 percent Hernandez family loam.

Permeability of this Strych soil is moderately rapid. Available water capacity is about 3.5 to 7.0 inches. Water supplying capacity is 4 to 6 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Strych soil includes an overstory of Utah juniper and pinyon with a canopy of 25 percent. The understory vegetation is 35 percent grasses, 15 percent forbs, and 50 percent shrubs. Among the important plants are Utah juniper, black sagebrush, galleta, and needleandthread.

The site index for Utah juniper and pinyon is 40. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is good. This unit is moderately limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If Utah juniper and pinyon are thinned, the desirable plants present can be expected to increase for a short period before the Utah juniper and pinyon revegetate the unit.

The suitability of this unit for rangeland seeding is poor. The main limitations are the content of rock fragments on and in the soil, low annual precipitation, and competition from Utah juniper and pinyon. Broadcast seeding followed by surface dragging of an anchor chain or drag rail to cover the seed is a suitable practice. Plants that may be suitable for seeding are pubescent wheatgrass, crested wheatgrass, and adapted native plants.

This map unit is in capability subclass VIIs, nonirrigated, and in the Semidesert Stony Loam (Utah Juniper-Pinyon) woodland site.

115—Trag stony loam, 30 to 60 percent slopes. This deep, well drained soil is on mountain slopes east and west of Pleasant Valley. It formed in colluvium and alluvium derived dominantly from sandstone and shale. Slopes are 200 to 300 feet long and are concave to convex. About 75 percent of the soil has slopes of 30 to 50 percent. The present vegetation in most areas is mainly mountain big sagebrush, bluebunch wheatgrass, bitterbrush, rabbitbrush, and lupine. Elevation is 7,600 to 7,900 feet. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 36 to 40 degrees F, and the average freeze-free period is 60 to 80 days.

Typically, the surface layer is dark grayish brown stony loam about 10 inches thick. The subsoil is dark grayish brown clay loam about 26 inches thick. The substratum to a depth of 60 inches or more is dark grayish brown and very pale brown clay loam.

Included in this unit are about 5 percent soils that are similar to the Trag soil but have a thin surface layer, 5 percent soils that are similar to this Trag soil but have a bouldery loam surface layer, 5 percent soils that are similar to this Trag soil but have 15 to 35 percent rock fragments in the subsoil, 5 percent Falcon stony sandy loam, and 5 percent Rock outcrop.

Permeability of this Trag soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is poor because of the steepness of slope. Plants suitable for seeding include those native to this unit and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability of the unit for grazing is poor because of the steepness of slope.

This map unit is in capability subclass VIIe, nonirrigated, and in the Mountain Loam (Saline Wildrye) range site.

116—Trag-Beje-Rottulee family complex. This map unit is on plateaus near Emma Park. Slopes are 3 to 30 percent. The present vegetation is mainly mountain big sagebrush, western wheatgrass, and Salina wildrye. Elevation is 7,200 to 7,400 feet. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days.

This unit is 40 percent Trag loam, 3 to 8 percent slopes; 20 percent Beje loam, 3 to 15 percent slopes; 15 percent Rottulee family loam, 15 to 30 percent slopes; and 25 percent other soils. The Trag soil is on valley floors, the Beje soil is on benches and low ridges, and the Rottulee family soil is on valley sides. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Trag stony loam on the sides of ridges, 10 percent Doney family soils that have slopes of 15 to 40 percent and are on hillslopes and summits, and small areas of Silas loam in draws, Brycan loam, and Falcon stony sandy loam.

The Trag soil is very deep and well drained. It formed in alluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are concave. Typically, the surface layer is dark brown loam about 5 inches thick. The subsoil is brown and light brown clay loam about 34 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown clay loam.

Permeability of the Trag soil is moderate. Available water capacity is about 9 to 11 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is slow, and the hazard of water erosion is slight.

The Beje soil is shallow and well drained. It formed in colluvium and residuum derived dominantly from sedimentary rock of the Green River Formation. Slopes are 100 to 200 feet long and are concave to convex. Typically, the surface layer is brown loam about 6 inches thick. The subsoil to a depth of 14 inches is brown clay loam over sandstone. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Beje soil is moderate. Available water capacity is 2 to 3 inches. Water supplying capacity is 4 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Rottulee family soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long and are concave to convex. Typically, the surface layer is reddish brown loam about 2 inches thick. The upper 13 inches of the subsoil is reddish brown loam and clay loam, and the lower 8 inches is reddish brown gravelly silty clay loam. The substratum to a depth of 34 inches is reddish brown gravelly silt loam. Depth to shale ranges from 20 to 40 inches.

Permeability of the Rottulee family soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 7 to 10 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is moderate, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland, wildlife habitat, and recreation areas.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this soil for rangeland seeding is good. Plants suitable for seeding include those native to the soil and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability for grazing is good.

The potential plant community on the Beje soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, mountain big sagebrush, snowberry, and slender wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Suitable brush management practices include prescribed burning and chemical spraying.

The suitability of this soil for rangeland seeding is very poor. The main limitations are the shallow soil depth and steepness of slope.

The potential plant community on the Rottulee family soil is 20 percent grasses, 10 percent forbs, and 70 percent shrubs. Among the important plants are birchleaf mountainmahogany, and serviceberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this soil because of the stoniness of the soil. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and intermediate wheatgrass, orchardgrass, smooth brome, ladak alfalfa, Lewis flax, small burnet, and yellow sweetclover.

This map unit is in capability subclass VIe, nonirrigated. The Trag soil is in the Mountain Loam (Saline Wildrye) range site. The Beje soil is in the Mountain Shallow Loam (Mountain Big Sagebrush) range site. The Rottulee family soil is in the Mountain Stony Loam (Browse) range site.

117—Trag-Beje-Senchert complex. This map unit is on north aspects of plateaus in the Emma Park. Slopes are 3 to 30 percent, 300 to 400 feet long, and convex. Elevation is 7,200 to 8,500 feet.

This unit is 45 percent Trag clay loam, 3 to 30 percent slopes; 15 percent Beje loam, 3 to 15 percent slopes; and 15 percent Senchert loam, 3 to 15 percent slopes; and 25 percent other soils. The Trag soil is on mountain slopes, the Beje soil is on side slopes adjacent to drainageways, and the Senchert soil is on the sides of drainageways and in draws. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Perma family soils that have slopes of 15 to 40 percent and are on spur ridges, 15 percent soils that are similar to the Beje soil but have a layer of calcium carbonate accumulation and are on the sides of drainageways, and small areas of Beje very gravelly fine sandy loam and Silas loam in draws.

The Trag soil is very deep and well drained. It formed in alluvium derived dominantly from shale and sandstone. The present vegetation is mainly mountain big sagebrush, Salina wildrye, and serviceberry. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days. Typically, the surface layer is dark brown clay loam about 5 inches thick. The subsoil is brown and light brown clay loam about 34 inches thick. The substratum to a depth of 60 inches or more is light yellowish brown clay loam.

Permeability of the Trag soil is moderate. Available water capacity is about 9.5 to 11.0 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is moderate.

The Beje soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from calcareous sandstone. The present vegetation is mainly Gambel oak, western wheatgrass, snowberry, and mountain big sagebrush. The average annual precipitation is about 16 to 20 inches, the average annual air temperature is 38 to 45 degrees F, and the average freeze-free period is 60 to 100 days. Typically, the surface layer is brown loam about 6 inches thick. The subsoil to a depth of 14 inches is brown clay loam over sandstone. Depth to bedrock ranges from 10 to 20 inches.

Permeability of the Beje soil is moderate. Available water capacity is 2 to 3 inches. Water supplying capacity is 4 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 3 to 5 percent. Runoff is medium, and the hazard of water erosion is slight.

The Senchert soil is moderately deep and well drained. It formed in residuum and colluvium derived dominantly from sandstone. The present vegetation is mainly aspen and snowberry. The average annual precipitation is 20 to 22 inches, the average annual air temperature is 37 to 38 degrees F, and the average freeze-free period is 50 to 60 days. Typically, the surface layer is very dark grayish brown loam about 4 inches thick. The upper part of the subsoil is brown loam about 12 inches thick, and the lower part to a depth of 35 inches is brown clay loam over calcareous sandstone. Depth to sandstone ranges from 20 to 40 inches.

Permeability of the Senchert soil is moderate. Available water capacity is about 5 to 6 inches. Water supplying capacity is 9 to 17 inches. Effective rooting depth is 20 to 40 inches. The organic matter content of the surface layer is 5 to 10 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain brome, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this soil for rangeland seeding is good. Plants suitable for seeding include those native to the soil and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability for grazing is good.

The potential plant community on the Beje soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, mountain big sagebrush, serviceberry, and slender wheatgrass.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. Suitable brush management practices include prescribed burning and chemical spraying.

The suitability of this soil for rangeland seeding is very poor. The main limitations are the shallow soil depth and steepness of slope.

The vegetation on the Senchert soil includes an overstory of aspen with a canopy of 60 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, Thurber fescue, and quaking aspen.

This soil is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. The unit can produce about 40 cubic feet of aspen wood products per acre per year. Limitations for the harvesting of wood products are slight.

The suitability of this soil for grazing is good. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability of this soil for rangeland seeding is poor. The main limitation is competition from aspen.

The map unit is in capability subclass VIIe, nonirrigated. The Trag soil is in the Mountain Loam (Saline Wildrye) range site. The Beje soil is in the Mountain Shallow Loam (Mountain Big Sagebrush) range site. The Senchert soil is in the High Mountain Loam (Aspen) woodland site.

118—Trag-Croydon complex. This map unit is on mountain slopes in the vicinity of Pleasant Valley. Slopes are 30 to 60 percent, 100 to 200 feet long, and concave to convex. Elevation is 7,600 to 9,500 feet.

This unit is 50 percent Trag stony loam, 30 to 60 percent slopes, eroded; 30 percent Croydon loam, 30 to 50 percent slopes; and 20 percent other soils and miscellaneous areas. About 80 percent of the unit has slopes of 30 to 50 percent.

Included in this unit are about 10 percent soils that are similar to the Trag soil but have a thin extremely bouldery loam surface layer, 5 percent Falcon stony sandy loam, and 5 percent Rock outcrop.

The Trag soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone and shale of the Black Hawk Formation. The present vegetation in most areas is mainly mountain big sagebrush, lupine, bitterbrush, and rabbitbrush. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 36 to 40 degrees F, and the average freeze-free period is 60 to 80 days. Typically, the surface layer is dark grayish brown stony loam about 10 inches thick. The subsoil is dark grayish brown clay loam about 26 inches thick. The substratum to a depth of 60 inches or more is dark grayish brown and very pale brown clay loam.

Permeability of the Trag soil is moderate. Available water capacity is about 9.0 to 10.5 inches. Water supplying capacity is 10 to 16 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 3 to 5 percent. Runoff is rapid, and the hazard of water erosion is high.

The Croydon soil is deep and well drained. It formed in colluvium and alluvium derived dominantly from sandstone and shale of the Black Hawk Formation. The present vegetation in most areas is mainly quaking aspen, peavine, sneezeweed, Columbia needlegrass, and bluegrasses. The average annual precipitation is 20 to 25 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days. Typically, the surface layer is dark yellowish brown and yellowish brown loam 16 inches thick. The subsurface layer is very pale brown loam 7 inches thick. The subsoil to a depth of 48 inches is light yellowish brown clay loam over weathered sandstone. Depth to sandstone ranges from 40 to 60 inches or more.

Permeability of the Croydon soil is moderately slow. Available water capacity is about 7 to 9 inches. Water supplying capacity is 16 to 18 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential plant community on the Trag soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are Salina wildrye, bluegrass, mountain big sagebrush, and snowberry.

If the desirable forage plants are mostly depleted, brush management and seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this soil for rangeland seeding is poor because of the steepness of slope. Plants suitable for seeding include those native to the soil and intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, and alfalfa. The suitability for grazing is good.

The vegetation on the Croydon soil includes an overstory of aspen with a canopy of 40 percent. The understory vegetation is 65 percent grasses, 15 percent forbs, and 20 percent shrubs. Among the important plants are slender wheatgrass, Columbia needlegrass, Thurber fescue, and quaking aspen.

This soil is well suited to the production of aspen. The site index for aspen ranges from 60 to 80. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The suitability of this soil for grazing is poor because of the steepness of slope. Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, burning can be used to improve the rangeland vegetation.

The suitability of this soil for rangeland seeding is very poor. The main limitation is competition from aspen.

This map unit is in capability subclass VIIe, nonirrigated. The Trag soil is in the Mountain Loam (Saline Wildrye) range site. The Croydon soil is in the High Mountain Loam (Aspen) woodland site.

119—Travessilla sandy loam, 1 to 8 percent slopes. This shallow, well drained soil is on benches and mesas between Helper and Hiawatha. It formed in residuum derived dominantly from sandstone. Slopes are 300 to 400 feet long and are concave to convex. The present vegetation in most areas is mainly pinyon, juniper, Salina wildrye, Indian ricegrass, and birchleaf mountainmahogany. Elevation is 6,000 to 8,700 feet. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 80 to 120 days.

Typically, the surface layer is brown sandy loam about 3 inches thick. The upper 6 inches of the underlying material is brown loam, and the lower part to a depth of 17 inches is light brown loam over sandstone. Depth to sandstone ranges from 7 to 20 inches.

Included in this unit are about 5 percent Rock outcrop on ridges and 5 percent Chupadera fine sandy loam in concave areas.

Permeability of this Travessilla soil is moderate. Available water capacity is about 2 to 3 inches. Water supplying capacity is 3 to 4 inches. Effective rooting depth is 7 to 20 inches. The organic matter content of the surface layer is 1 to 2 percent. Runoff is slow, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Travessilla soil includes an overstory of pinyon and Utah juniper with a canopy of 60 percent. The understory vegetation is 15 percent grasses, 10 percent forbs, and 75 percent shrubs. Among the important plants are pinyon, Utah juniper, birchleaf mountainmahogany, Mexican cliffrose, and Salina wildrye.

The site index for pinyon and Utah juniper is 32. Average yield is 4 cords of wood per acre. The potential for the production of posts or Christmas trees is poor.

Limitations for the harvesting of wood products are slight.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If pinyon and Utah juniper are thinned, the desirable plants present can be expected to increase for a short period before the pinyon and Utah juniper revegetate the unit.

The suitability of this unit for rangeland seeding is very poor because of the shallow soil depth. It is not practical to revegetate large areas of rangeland because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded.

This map unit is in capability subclass VIIs, nonirrigated, and in the Upland Shallow Loam (Pinyon-Utah Juniper) woodland site.

120—Travessilla-Rock outcrop complex. This map unit is on benches and mesas between Spring Glen and Hiawatha. Slopes are 3 to 20 percent. Elevation is 5,600 to 6,200 feet. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

This unit is 70 percent Travessilla fine sandy loam, dry, 3 to 20 percent slopes, eroded; 15 percent Rock outcrop; and 15 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit is about 15 percent Haverdad loam near drainageways.

The Travessilla soil is shallow and well drained. It formed in residuum derived dominantly from sandstone and interbedded shale. Slopes are 100 to 200 feet long and are concave to convex. The present vegetation in most areas is mainly Utah juniper, pinyon, galleta, Indian ricegrass, black sagebrush, and Mormon-tea. Typically, the surface layer is brown fine sandy loam about 2 inches thick. The underlying material to a depth of 10 inches is brown fine sandy loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is about 1 to 2 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

Rock outcrop consists of areas of exposed bedrock. It is dominantly sandstone. Sparse vegetation is in the cracks and fissures in the rock. The vegetation is dominantly juniper, pinyon, and birchleaf mountainmahogany.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Travessilla soil includes an overstory of Utah juniper and pinyon with a canopy of 30 percent. The understory vegetation is 15 percent grasses, 5 percent forbs, and 80 percent shrubs. Among the important plants are galleta, black sagebrush, Salina wildrye, and Mormon-tea.

The site index for Utah juniper and pinyon is 40. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is good. This unit is moderately limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion. If wood products are harvested, the slash should be left scattered on the surface to protect the soil from erosion.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

It is not practical to revegetate large areas of this unit because of the shallow soil depth. For critical erosion control, small areas can be mechanically treated and seeded. If Utah juniper and pinyon are thinned, the desirable plants present can be expected to increase for a short period before Utah juniper and pinyon revegetate the unit.

The Travessilla soil is in capability subclass VIIs, nonirrigated, and the Rock outcrop is in capability subclass VIIIs. The Travessilla soil is in the Semidesert Shallow Loam (Utah Juniper-Pinyon) woodland site. The Rock outcrop is not placed in a woodland site.

121—Travessilla-Rock outcrop-Gerst complex. This map unit is on canyonsides in the area of Jack Creek and along the Book Cliffs, extending from Price Canyon to Sunnyside. Slopes are 40 to 70 percent. Elevation ranges from 5,000 to 8,100 feet but dominantly is 6,000 to 7,500 feet.

This unit is 40 percent Travessilla extremely bouldery loam, 40 to 70 percent slopes; 30 percent Rock outcrop; 20 percent Gerst very channery loam, dry, 50 to 70 percent slopes; and 10 percent other soils. About 25 percent of the Travessilla soil has slopes of 40 to 50 percent. The Travessilla soil is on north and west aspects at the higher elevations. Rock outcrop is on canyon rims and ledges. The Gerst soil is on south and west aspects at the lower elevations. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Travessilla sandy loam on benches and 5 percent Guben extremely bouldery loam on canyonsides.

The Travessilla soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 100 to 200 feet long, are concave to convex, and have north and east aspects. The present vegetation in most areas is mainly pinyon, juniper, Douglas-fir, Salina wildrye, and birchleaf mountainmahogany. The average annual precipitation is 12 to 14 inches, the average annual air temperature is 45 to 47 degrees F, and the average freeze-free period is 80 to 120 days. Typically, the surface layer is pale brown extremely bouldery loam about 2 inches thick. The underlying material to a depth of 12 inches is pale brown very fine sandy loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is about 1 to 2 inches. Water supplying capacity is 3 to 4 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 2 inches. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of areas of exposed sandstone and siltstone.

The Gerst soil is shallow and well drained. It formed in residuum derived dominantly from shale. Slopes are 100 to 200 feet long, are concave to convex, and have south and west aspects. The present vegetation in most areas is mainly juniper, pinyon, Salina wildrye, and Mormon-tea. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days. Typically, the surface layer is light brownish gray very channery loam about 5 inches thick. The underlying material to a depth of 19 inches is light brownish gray channery loam over weathered shale. Weathered shale is at a depth of 10 to 20 inches.

Permeability of the Gerst soil is moderately slow. Available water capacity is about 1.5 to 3.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Travessilla soil includes an overstory of pinyon, Utah juniper, and Douglas-fir with a canopy of 30 percent. The understory vegetation is 10 percent grasses, 15 percent forbs, and 75 percent shrubs. Among the important plants are birchleaf mountainmahogany, Utah serviceberry, bluegrass, and Salina wildrye.

The site index for pinyon and Utah juniper is 37. Average yield is 6 cords of wood per acre. The potential for the production of posts or Christmas trees is very poor. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

This soil is not grazeable by livestock because of the steepness of slope and the stony surface layer.

The potential vegetation on the Gerst soil includes an overstory of Utah juniper and pinyon with a canopy of 5 to 20 percent. The understory vegetation is 10 percent grasses, 10 percent forbs, and 80 percent shrubs. Among the important plants are galleta, Salina wildrye, and shadscale.

The site index for Utah juniper and pinyon is 15 to 20. Average yield is 1 to 2 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. Limitations for the harvesting of wood products are severe because of the steepness of slope and the hazard of erosion.

The suitability of this soil for grazing is very poor. The main limitations are steepness of slope and the hazard of erosion.

This map unit is in capability subclass VIIe, nonirrigated. The Travessilla soil is in the Upland Very Steep Shallow Loam (Pinyon-Utah Juniper) woodland site. The Gerst soil is in the Semidesert Very Steep Shallow Clay (Utah Juniper) woodland site. The Rock outcrop is not placed in a woodland site.

122—Travessilla-Travessilla family-Rock outcrop complex. This map unit is on canyonsides in the Dry Canyon and Cottonwood Canyon areas. Slopes are 30 to 80 percent.

This unit is 35 percent Travessilla fine sandy loam, dry, 50 to 80 percent slopes; 20 percent Travessilla family channery sandy loam, dry, 30 to 50 percent; 15 percent Rock outcrop; and 30 percent other soils. The Travessilla soil is generally near the canyon rims, the Travessilla family soil is near the canyon bottoms, and the Rock outcrop is on nearly vertical cliffs. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 13 percent Strych very stony loam, dry; 10 percent Cabba family bouldery loam, 40 to 70 percent slopes; and 7 percent Badland.

The Travessilla soil is shallow and well drained. It formed in residuum derived dominantly from sandstone and interbedded shale. Slopes are 100 to 200 feet long, are convex, and have north aspect. The present vegetation in most areas is mainly pinyon, Utah juniper, shadscale, and eriogonum. Elevation is 5,600 to 6,200 feet. The average annual precipitation is 10 to 12 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days. Typically, the surface layer is brown fine sandy loam about 2 inches thick. The underlying material to a depth of 10 inches is brown fine sandy loam over sandstone. Depth to sandstone ranges from 8 to 20 inches.

Permeability of the Travessilla soil is moderately rapid. Available water capacity is about 1.0 to 1.5 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 8 to 20 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is moderate.

The Travessilla family soil is shallow and well drained. It formed in residuum derived dominantly from sandstone and interbedded shale. Slopes are 100 to 200 feet long, are convex, and have west aspect. The present vegetation in most areas is mainly black sagebrush, galleta, Indian ricegrass, yellowbrush, and fourwing saltbush. Elevation is 5,600 to 5,800 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 110 to 135 days. Typically, the surface layer is light yellowish brown channery sandy loam about 4 inches thick. The upper 7 inches of the underlying material is light yellowish brown sandy loam, and the lower part to a depth of 13 inches is very pale brown sandy loam over sandstone. Depth to sandstone ranges from 8 to 15 inches.

Permeability of the Travessilla family soil is moderately rapid. Available water capacity is about 1.5 to 2.0 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 8 to 15 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of areas of exposed sandstone. It is dominantly on nearly vertical cliffs. Sparse vegetation is in the cracks and fissures in the rock. The vegetation is dominantly juniper and pinyon.

This unit is used as rangeland, woodland, and wildlife habitat.

The potential vegetation on the Travessilla soil includes an overstory of Utah juniper and pinyon with a canopy of 30 percent. The understory vegetation is 15 percent grasses, 5 percent forbs, and 80 percent shrubs. Among the important plants are black sagebrush, Salina wildrye, bluebunch wheatgrass, and Mormon-tea.

The site index for Utah juniper and pinyon is 40. Average yield is 8 cords of wood per acre. The potential for the production of posts or Christmas trees is poor. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

The suitability of this soil for grazing is very poor. The main limitation is the steepness of slope, which results in poor distribution of livestock.

The potential plant community on the Travessilla family channery sandy loam is 35 percent grasses, 5 percent forbs, and 60 percent shrubs. Among the important plants are black sagebrush, Indian ricegrass, shadscale, and galleta.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this soil for rangeland seeding is poor because of the steepness of slope and shallow depth. It is not practical to revegetate large areas because of the shallow soil depth and low precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the soil and prostrate kochia and crested wheatgrass.

This map unit is in capability subclass VIIe, nonirrigated. The Travessilla soil is in the Semidesert Very Steep Shallow Loam (Utah Juniper-Pinyon) woodland site. The Travessilla family soil is in the Semidesert Shallow Loam (Black Sagebrush) range site. The Rock outcrop is not placed in a woodland site or a range site.

123—Travessilla family, 1 to 8 percent slopes. This shallow, well drained soil is on benches. It is east of Wellington and on Horse Bench. It formed in residuum derived dominantly from sandstone. Slopes are 200 to 300 feet long and are plane to concave. The present vegetation is mainly black sagebrush, galleta, Indian ricegrass, yellowbrush, and fourwing saltbush. Elevation is 5,600 to 5,780 feet. The average annual precipitation is about 8 to 10 inches, the average annual air temperature is 48 to 50 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is light yellowish brown channery sandy loam 4 inches thick. The upper 7 inches of the underlying material is light yellowish brown sandy loam, and the lower part to a depth of 13 inches is very pale brown sandy loam. Depth to sandstone ranges from 8 to 15 inches.

Included in this unit are small areas of soils that are similar to this Travessilla family soil but are 20 to 40 inches deep to sandstone and support mainly shadscale or have soft shale at a depth of 10 to 20 inches.

Permeability of this Travessilla family soil is moderately rapid. Available water capacity is about 1 to 2 inches. Water supplying capacity is 2 to 3 inches. Effective rooting depth is 8 to 15 inches. The organic matter content of the surface layer is 0.5 to 1.0 percent. Runoff is medium, and the hazard of water erosion is high.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Travessilla family soil is 35 percent grasses, 5 percent forbs, and 60 percent shrubs. Among the important plants are black sagebrush, Indian ricegrass, shadscale, and galleta.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this unit for rangeland seeding is poor. It is not practical to revegetate large areas because of the shallow soil depth and low precipitation. For critical erosion control, small areas can be mechanically treated and seeded. Plants that may be suitable for critical area seedings are those native to the unit and prostrate kochia and crested wheatgrass.

This map unit is in capability subclass VIIs, nonirrigated, and in the Semidesert Shallow Loam (Black Sagebrush) range site.

124—Uinta family-Podo association. This map unit is on mountain ridges and mountain slopes. It is in the vicinity of Mount Bartles and at the head of Jump Creek and Beaver Creek. Slopes are 30 to 70 percent. Elevation is 8,000 to 9,000 feet.

This unit is 50 percent Uinta family loam, 40 to 70 percent slopes; 20 percent Podo cobbly loam, 30 to 50 percent slopes; and 30 percent other soils. The Uinta family soil is on foot slopes and in shallow drainageways, and the Podo soil is on ridgetops and on mountain slopes.

Included in this unit are about 10 percent Doney family stony loam on or below ridge crests, 10 percent Curecanti family loam in small depressional areas and along drainageways, 5 percent Perma very stony sandy loam on foot slopes, and 5 percent Senchert loam along drainageways.

The Uinta family soil is deep and well drained. It formed in colluvium derived dominantly from sandstone and siltstone. About 30 percent of the acreage of this soil has slopes of 40 to 50 percent. Slopes are 300 to 400 feet long and are plane to slightly convex. The present vegetation is mainly subalpine fir, Engelmann spruce, and Douglas-fir. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days. Typically, the surface is covered with mat of leaves, twigs, and needles 1 inch thick. The surface layer is dark grayish brown loam about 3 inches thick. The subsurface layer is light yellowish stony sandy loam about 8 inches thick. The subsoil is pale brown and light brownish gray stony clay loam about 31 inches thick. Sandstone is at a depth of 42 inches. Depth to sandstone or siltstone ranges from 40 to 60 inches or more.

Permeability of the Uinta family soil is moderately slow. Available water capacity is about 4.5 to 6.0 inches. Water supplying capacity is 9 to 16 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

The Podo soil is shallow and well drained. It formed in residuum and colluvium derived dominantly from sandstone and shale. Slopes are 300 to 400 feet long and are dominantly convex. The present vegetation is mainly Salina wildrye, rabbitbrush, lambsquarter, and black sagebrush. The average annual precipitation is 16 to 20 inches, the average annual air temperature is 38 to 42 degrees F, and the average freeze-free period is 80 to 100 days. Typically, the surface layer is light brownish gray cobbly loam about 5 inches thick. The underlying layer to a depth of 11 inches is light brownish gray gravelly loam over sandstone. Depth to sandstone ranges from 10 to 20 inches.

Permeability of the Podo soil is moderately rapid. Available water capacity is 1 to 2 inches. Water supplying capacity is 3 to 6 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is rapid, and the hazard of water erosion is high.

This unit is used mainly for wildlife habitat and woodland. A few areas are used as rangeland.

The potential vegetation on the Uinta family soil includes an overstory of Engelmann spruce and subalpine fir with a canopy of 80 percent. The understory vegetation is 20 percent grasses, 5 percent forbs, and 75 percent shrubs. Among the important plants are blueberry, Oregon-grape, sedges, pinegrass, and currant.

This soil is well suited to the production of Engelmann spruce and subalpine fir. The site index for Engelmann spruce is 55, and the site index for subalpine fir is 60. The main limitation for producing and harvesting timber is the steepness of slope. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

Trees that are suitable for planting are Engelmann spruce and subalpine fir.

This soil is not grazeable by livestock because of the steepness of slope and low forage production.

The potential plant community on the Podo soil is 60 percent grasses, 15 percent forbs, and 25 percent shrubs. Among the important plants are Salina wildrye, bluegrasses, and snowberry.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments.

The suitability of this soil for rangeland seeding is very poor. The main limitation is the shallow soil depth.

This map unit is in capability subclass VIIe, nonirrigated. The Uinta family soil is in the High Mountain Very Steep Stony Loam (Engelmann Spruce) woodland site. The Podo soil is in the Mountain Shallow Loam (Saline Wildrye) range site.

125—Uinta-Toze families complex. This map unit is on mountain slopes. It is in the Bruin Point area and on the eastern side of Patmos Head. Slopes are 30 to 75 percent, 300 to 400 feet long, and plane to convex. The present vegetation is mainly subalpine fir, aspen, and Douglas-fir. Elevation is 7,800 to 9,600 feet. The average annual precipitation is about 20 to 30 inches, the average annual air temperature is 34 to 38 degrees F, and the average freeze-free period is 40 to 60 days.

This unit is 35 percent Uinta family loam, 40 to 70 percent slopes; 30 percent Toze family fine sandy loam, 35 to 70 percent slopes; and 35 percent other soils. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 15 percent soils that are similar to the Uinta family soil but do not have a bleached layer below the surface layer, 15 percent Comodore bouldery loam, and 5 percent Midfork family bouldery loam.

The Uinta family soil is deep and well drained. It formed in colluvium derived dominantly from sandstone and siltstone. About 30 percent of the acreage of this soil has slopes of 40 to 50 percent. Typically, the surface is covered with a mat of leaves, twigs, and needles 1 inch thick. The surface layer is dark grayish brown loam about 3 inches thick. The subsurface layer is light yellowish brown stony sandy loam about 8 inches thick. The subsoil is pale brown and light brownish gray stony clay loam about 31 inches thick. Sandstone is at a depth of 42 inches. Depth to sandstone or siltstone ranges from 40 to 60 inches or more.

Permeability of the Uinta family soil is moderately slow. Available water capacity is about 6.0 to 7.5 inches. Water supplying capacity is 9 to 16 inches. Effective rooting depth is 40 to 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is high.

The Toze family soil is very deep and well drained. It formed in colluvium derived dominantly from sandstone, siltstone, and shale. About 40 percent of the acreage of this soil has slopes of 35 to 50 percent. Typically, the surface is covered with mat of leaves, twigs, and needles about 1 inch thick. The upper 3 inches of the surface layer is dark grayish brown fine sandy loam, and the lower part is dark grayish brown loam and gravelly silt loam 21 inches thick. The next layer is grayish brown gravelly silt loam about 8 inches thick. Below this to a depth of 60 inches or more is pale brown very gravelly fine sandy loam. A layer of calcium carbonate accumulation is at a depth of about 24 inches.

Permeability of the Toze family soil is moderate. Available water capacity is about 6 to 9 inches. Water supplying capacity is 11 to 18 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 5 to 10 percent. Runoff is rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for wildlife habitat and woodland.

The potential vegetation on the soils in this unit includes an overstory of Engelmann spruce and subalpine fir with a canopy of 80 percent. The understory vegetation is 20 percent grasses, 5 percent forbs, and 75 percent shrubs. Among the important plants are blueberry, Oregon-grape, sedges, pinegrass, and currant.

This unit is well suited to the production of Engelmann spruce and subalpine fir. The site index for Engelmann spruce is 55, and the site index for subalpine fir is 60. This unit is severely limited for the harvesting of wood products because of the steepness of slope and the hazard of erosion.

Trees that are suitable for planting are Engelmann spruce and subalpine fir.

This unit is not grazeable by livestock because of the steepness of slope and low forage production.

This map unit is in capability subclass VIIe, nonirrigated, and in the High Mountain Very Steep Stony Loam (Engelmann Spruce) woodland site.

126—Winetti Variant cobbly fine sandy loam, 0 to 8 percent slopes. This very deep, well drained soil is on alluvial fans along the Green River. It formed in alluvium derived dominantly from sedimentary rock. Slopes are 300 to 400 feet long and are plane to slightly convex. The present vegetation is mainly greasewood, cheatgrass, big sagebrush, and alkali sacaton. Elevation is 4,300 to 5,200 feet. The average annual precipitation is about 8 to 10 inches, the average annual air temperature is 47 to 49 degrees F, and the average freeze-free period is 110 to 135 days.

Typically, the surface layer is pale brown cobbly fine sandy loam about 3 inches thick. The upper 15 inches of the underlying material is pale brown sand, sandy loam, and fine sandy loam, the next 35 inches is pale brown extremely gravelly sand, and the lower part to a depth of 60 inches or more is pale brown fine sandy loam.

Included in this unit are about 10 percent Green River silt loam on streambanks and 5 percent Glenberg family very fine sandy loam on streambanks.

Permeability of this Winetti Variant soil is moderately rapid. Available water capacity is about 2 to 3.5 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is 1 to 3 percent. Runoff is very slow, and the hazard of water erosion is slight. This soil is subject to flooding during prolonged, high-intensity storms. Channeling and deposition are common along streambanks.

This unit is used as rangeland and wildlife habitat.

The potential plant community on the Winetti soil is 60 percent grasses, 10 percent forbs, and 30 percent shrubs. Among the important plants are basin wildrye, western wheatgrass, basin big sagebrush, and rubber rabbitbrush.

Management practices that maintain or improve the rangeland vegetation include proper grazing use, a planned grazing system, and proper location of water developments. If the desirable forage plants are mostly depleted, brush management and rangeland seeding can be used to improve the rangeland vegetation. Suitable brush management practices include prescribed burning, chemical spraying, and mechanical treatment.

The suitability of this unit for rangeland seeding is good. Plants suitable for seeding include adapted native plants and Russian wildrye, crested wheatgrass, and ladak alfalfa.

This map unit is in capability subclass VIIs, nonirrigated, and in the Loamy Bottom range site.

Prime Farmland

In this section, prime farmland is defined and discussed and the prime farmland soils in this survey area are listed.

Prime farmland is of major importance in providing the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, seed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. Adequate moisture and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal units of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pastureland, or woodland, or they may be in other uses. They either are used for producing food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils commonly get an adequate and dependable supply of moisture from precipitation or irrigation. Temperature and growing season are favorable, and level of acidity or alkalinity is acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not flooded during the growing season. The slope ranges mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland soils if the limitations are overcome by drainage, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information on the criteria for prime farmland soils can be obtained 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.

About 75,500 acres, or nearly 8.5 percent of the part of the survey area that is in Carbon County, and 1,260 acres, or 5.6 percent of the part that is in Emery County, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available. The major irrigated areas are near the towns of Helper, Price, and Wellington. The major crops grown are wheat, corn silage, barley, and alfalfa hay.

The following map units meet the soil requirements for prime farmland when irrigated. 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.

1 Atrac very fine sandy loam, 1 to 6 percent slopes
8 Billings silty clay loam, 1 to 3 percent slopes
41 Green River-Juva Variant complex
50 Haverdad loam, moist, 1 to 5 percent slopes
51 Hernandez family, 1 to 3 percent slopes
53 Hernandez family, moist, 1 to 6 percent slopes
55 Hunting loam, 1 to 3 percent slopes
57 Hunting silty clay loam, 1 to 3 percent slopes
64 Minchey loam, 1 to 3 percent slopes
73 Penoyer Variant loam, 1 to 3 percent slopes
90 Ravola loam, 1 to 3 percent slopes
98 Sagers silty clay loam
107 Shupert-Winetti complex

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.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (*5*). 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. These levels are defined in the following paragraphs.

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, IIe. The letter *e* shows that the main limitation is 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.

The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Rangeland and Woodland Understory Vegetation

Most of the survey area is used as grazing sites. These sites include areas that support both rangeland and woodland understory vegetation suitable for grazing.

Livestock grazing and feeding make up a large part of the agricultural economy in the area. Only about 2 percent of the area is cropland. Some areas are used as woodland, and some consist of barren rock that is too steep and rough to graze. The areas of cropland are used to grow feed for livestock operations in winter. Cow-calf and cow-calf-yearling operations are most common in the survey area.

Excessive grazing by livestock since the late 1890's has depleted the desirable perennial forage plants and has led to an increased risk of soil erosion. Overgrazing and the control of wildfire have contributed to an increase in brush, cactus, and annual plants and to an invasion of pinyon and juniper trees on grasslands.

The grazing sites in the survey area support significantly different native plant communities. The soils vary in texture, depth, and parent material. Precipitation ranges from more than 30 inches in the high mountains to less than 8 inches in the desert.

The native vegetation in many parts of the area has been depleted by heavy grazing use. The amount of forage now produced is less than that originally produced. Productivity of the grazing sites can be increased by using management practices that are effective for specific kinds of soil and grazing sites.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on grazing sites are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 4 shows, for each soil, the grazing site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. Only those soils that are used as grazing sites or are suited to use as grazing sites are listed. Explanation of the column headings in table 4 follows.

A *grazing site* is a distinctive kind of land that produces a characteristic natural plant community that differs from natural plant communities on other grazing sites in kind, amount, and proportion of forage plants. The relationship between soils and vegetation was established during this survey; thus, grazing 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 forage plants. Soil reaction, salt content, and a seasonal water table are also important.

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some woodland, if well managed, can produce enough understory vegetation to support grazing of livestock or wildlife, or both, without damage to the trees. The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive.

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

Dry weight is the total annual yield per acre of air-dry vegetation. Yields are adjusted to a common percent of air-dry moisture content. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods.

Characteristic vegetation—the grasses, grasslike plants, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. Because only key species are listed, the percentages do not necessarily total 100. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season. Generally, all of the vegetation produced is not used.

Grazing site management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present condition. Grazing site condition is determined by comparing the present plant community with the potential natural plant community on a particular grazing site. The more closely the existing community resembles the potential community, the better the grazing site condition. Grazing site condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

The objective in grazing site 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, reduction of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a grazing site condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Productivity of grazing sites can be increased by using management practices that are effective for specific kinds of soil.

Proper grazing use is the major management concern for grazing sites. Control of grazing is needed so that the kinds and amounts of plants that make up the potential plant community can be reestablished and maintained. About 50 percent of the seasonal growth should remain at the end of the grazing period.

Deferment of grazing improves or helps to maintain the condition of grazing sites. Deferment consists of postponing grazing during the main part of the growing season of the key forage plants. If deferment is included in the grazing system on a recurring basis, key forage plants can produce seed.

Proper use of fences, livestock trails, water developments, salt, and herding are important in obtaining more uniform distribution of grazing.

Furrowing, chiseling, and pitting are mechanical treatments designed to capture runoff water, improve the water intake rate, prevent erosion, and speed recovery of vegetation in areas where the grazing site is in poor to fair condition. Seeding may be necessary to convert nonirrigated cropland to rangeland or to improve areas of depleted rangeland. Brush control is beneficial in areas where the proportion of competitive shrubs exceeds that in the potential plant community.

Recreation

In table 5, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 5 can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in table 7 and interpretations for septic tank absorption fields in table 8.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Wildlife Habitat

Most of the soils in the survey area support vegetation that is used by wildlife to some extent. Most species of wildlife are not confined to areas of a particular soil or group of soils. The presence of wildlife in a given area depends on the availability of food, water, and cover. The suitability of a soil for providing these elements and how the soil is used determines the relative abundance of wildlife species.

The mountainous part of the survey area provides summer habitat for mule deer and elk, as well as for coyote, blue grouse, snowshoe hare, and a few black bear. These areas also provide winter habitat for sage grouse, badger, bobcat, and ground squirrel. Areas in and adjacent to saline wetlands provide habitat for some small carnivores, including red fox, skunk, and weasel, and for other small mammals. These areas also provide habitat for birds such as hawks, owls, pheasants, songbirds, and ducks.

Semidesert areas provide habitat for several unique species including chukar partridge, rattlesnakes, scorpions, and kangaroo rat.

Natural streams and lakes in the survey area provide year-round fishing. Important fish species are rainbow trout, bass, and catfish. Small reservoirs and privately owned ponds in the area also support limited fisheries. Natural streams provide habitat for beaver, muskrat, and mink.

The endangered peregrine falcon and bald eagle migrate through the area. The eagle is more prevalent in winter, and the falcon is present in summer.

Wildlife in the survey area is discussed in more detail as it relates to the vegetation described in the section "General Soil Map Units."

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.

In table 6, 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 potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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, lovegrass, 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 bluestem, goldenrod, beggarweed, wheatgrass, and grama.

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 pine, spruce, fir, cedar, 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, wild millet, wild rice, saltgrass, cordgrass, rushes, sedges, and reeds.

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.

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. The wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

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 wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

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, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, sage grouse, meadowlark, and lark bunting.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building Site Development, Sanitary Facilities, Construction Materials, and Water Management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

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

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations 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 in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (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, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, 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 tables, along with the soil maps and soil descriptions, and other data provided in this survey can be used to make additional interpretations.

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

Building Site Development

Table 7 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features 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.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills 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.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 8 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations 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.

Table 8 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 8 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage because of rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 8 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area 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 surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 9 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. 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.

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

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, 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 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. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 9, 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 soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a *probable* source has a layer of clean sand or gravel or a layer of sand or gravel that is as much as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an *improbable* source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

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

Water Management

Table 10 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage and irrigation.

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

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

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

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.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features listed in tables are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

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

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 11 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area (*3*). 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 soil series 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 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials (*1*) and the Unified soil classification system (*2*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry 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 rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 12 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Taxonomic Units and Their Morphology."

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

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, 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 inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

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

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

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.

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 and the amount of soil lost. Soils are grouped according to the amount of stable aggregates 0.84 millimeters in size. These are represented idealistically by USDA textural classes. Soils containing rock fragments can occur in any group.

1. 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 sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse 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 loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, 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. Loamy soils that are less than 20 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 20 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 12, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 13 gives estimates of various soil and water features. 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 intake 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.

Table 13 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal 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; November-May, for example, means that flooding can occur during the period November through May.

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. Indicated in table 13 are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Cemented pans 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 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 most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors 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 (*6*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 14 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten 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 Entisol.

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 Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

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 Haplaquents (*Hapl*, meaning minimal horizonation, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

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

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 fine-loamy, mixed, nonacid, mesic Typic Haplaquents.

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 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* (*4*). Many of the technical terms used in the descriptions are defined in *Soil Taxonomy* (*6*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

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

Atrac Series

The Atrac series consists of very deep, well drained, moderately permeable soils on benches and fan terraces. These soils formed in alluvium derived dominantly from sandstone and shale. Slope is 1 to 6 percent. Elevation is 6,000 to 7,000 feet. Average annual precipitation is 12 to 14 inches, and average annual air temperature is 45 to 47 degrees F.

These soils are fine-loamy, mixed, mesic Ustollic Camborthids.

Typical pedon of Atrac very fine sandy loam, 1 to 6 percent slopes, about 4.4 miles west of Helper, about

700 feet north and 700 feet east of the southwest corner of sec. 29, T. 13 S., R. 9 E.

A11—0 to 2 inches; yellowish brown (10YR 5/4) very fine sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine pores; neutral (pH 6.6); abrupt smooth boundary.

A12—2 to 4 inches; yellowish brown (10YR 5/4) very 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; common very fine pores; neutral (pH 6.6); abrupt smooth boundary.

B21—4 to 8 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to moderate coarse subangular blocky; hard, firm, sticky and plastic; few very fine and fine roots; many very fine pores and few fine and medium pores; neutral (pH 6.6); clear smooth boundary.

B22—8 to 12 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; strong coarse subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; many very fine and few fine pores; neutral (pH 6.6); abrupt smooth boundary.

B23—12 to 20 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, very firm, sticky and slightly plastic; few very fine and fine roots; common very fine and few fine pores; neutral (pH 6.8); abrupt smooth boundary.

C1—20 to 32 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; very hard, very firm, sticky and slightly plastic; common very fine pores; slightly calcareous; veins of calcium carbonate; moderately alkaline (pH 8.0); gradual smooth boundary.

C2—32 to 49 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine and few fine pores; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

C3—49 to 60 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine pores; moderately alkaline (pH 8.0).

Bedrock is at a depth of 60 inches or more. The solum is 17 to 26 inches thick.

A horizon: Value is 3 or 4 when moist, and chroma is 3 or 4.

B2 horizon: Value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 4 to 6. Clay content is 20 to 26 percent.

C horizon: Value is 6 or 7 when dry and 4 to 6 moist, and chroma is 2 to 4. Clay content is 18 to 26 percent. Rock fragment content is 0 to 15 percent, of which 0 to 15 percent is pebbles and 0 to 5 percent is cobbles and stones. Calcium carbonate equivalent is 0 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Beje Series

The Beje series consists of shallow, well drained, moderately permeable soils on plateaus, mountain slopes, ridges, and benches. These soils formed in residuum and colluvium derived dominantly from sandstone and shale. Slope is 1 to 50 percent. Elevation is 6,800 to 9,700 feet. Average annual precipitation is 14 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are loamy, mixed Lithic Argiborolls.

Typical pedon of a Beje loam in an area of Beje-Comodore complex, about 12 miles northeast of Price, about 1,000 feet west and 1,500 feet south of the northeast corner of sec. 19, T. 13 S., R. 12 E.

A1—0 to 6 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine, fine, and medium pores; mildly alkaline (pH 7.6); abrupt smooth boundary.

B2t—6 to 14 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; hard, firm, sticky and plastic; common very fine, fine, and medium roots; common very fine and fine pores; few thin clay films on faces of peds; mildly alkaline (pH 7.6); abrupt smooth boundary.

R—14 inches; sandstone.

Depth to bedrock and thickness of the solum are 10 to 20 inches. The mollic epipedon is 8 to 14 inches thick. The control section is 0 to 35 percent rock fragments.

A horizon: Hue is 10YR or 7.5YR, value is 3 or 4 when dry and 2 or 3 when moist, and chroma is 2 or 3. Texture is loam, very fine sandy loam, fine sandy loam, very gravelly fine sandy loam, and cobbly fine sandy loam. Reaction is neutral to moderately alkaline.

B horizon: Hue is 7.5YR or 10YR, value is 3 or 4 when dry, and chroma is 2 to 4. Texture is clay loam, loam, cobbly loam, sandy clay loam, gravelly sandy clay loam, or cobbly sandy clay loam. Clay content is 18 to 35 percent. Reaction is mildly alkaline or moderately alkaline.

C horizon: This horizon, where present, is a thin layer of slightly calcareous fine sandy loam.

Billings Series

The Billings series consists of very deep, well drained, slowly permeable soils on alluvial fans, flood plains, and narrow alluvial valley floors. These soils formed in alluvium derived dominantly from alkaline gypsiferous marine shale and mixed sedimentary rocks. Slope is 0 to 6 percent. Elevation is 5,200 to 5,700 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Typic Torrifluvents.

Typical pedon of Billings silty clay loam, 1 to 3 percent slopes, about 1.5 miles east of Huntington, Utah, about 600 feet north and 2,000 feet west of the southeast corner of sec. 20, T. 17 S., R. 9 E.

Ap1—0 to 3 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium granular structure; hard, firm, sticky and plastic; many medium roots; common medium pores; strongly calcareous; moderately alkaline (pH 7.9); clear smooth boundary.

Ap2—3 to 11 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; many medium roots; common fine pores; strongly calcareous; moderately alkaline (pH 8.0); clear smooth boundary.

C1—11 to 18 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few fine pores; strongly calcareous; mildly alkaline (pH 7.8); gradual wavy boundary.

C2—18 to 42 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak coarse subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few fine pores; strongly calcareous; mildly alkaline (pH 7.6); diffuse wavy boundary.

C3sa—42 to 60 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, sticky and plastic; few fine roots; few fine pores; few fine grayish brown (10YR 6/2) soft gypsum nodules; strongly saline; strongly calcareous; moderately alkaline (pH 8.0).

A1 or Ap horizon: Hue is 2.5Y or 5Y, value is 6 or 7 when dry and 4 or 5 when moist, and chroma is 2 to 4.

C horizon: Hue is 2.5Y or 5Y, value is 6 or 7 when dry and 4 or 5 when moist, and chroma is 2 to 4. Clay content is 27 to 35 percent. In the lower part, gypsum content is 0.5 to 10.0 percent. Calcium carbonate equivalent is 5 to 25 percent. This horizon is slightly saline to very strongly saline and is mildly alkaline to very strongly alkaline.

Brycan Series

The Brycan series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and in valleys. These soils formed in alluvium derived from shale and sandstone. Slope is 3 to 8 percent. Elevation is 7,700 to 8,600 feet. Average annual precipitation is 16 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are fine-loamy, mixed Cumulic Haploborolls.

Typical pedon of a Brycan loam in an area of Silas-Brycan loams, about 2.5 miles north of the town of Scofield, about 2,500 feet south and 2,500 feet west of the northeast corner of sec. 21, T. 12 S., R. 7 E.

A11—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak medium platy structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; mildly alkaline (pH 7.6); abrupt smooth boundary.

A12—4 to 12 inches; brown (10YR 4/3) loam, very dark brown (10YR 2/2) moist; moderate 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 pores, mildly alkaline (pH 7.6); clear smooth boundary.

B21—12 to 24 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and slightly plastic; common very fine and fine roots; common very fine and fine pores; moderately alkaline (pH 7.6); clear smooth boundary.

B22—24 to 32 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and slightly plastic; few very fine and common fine roots; common very fine and fine pores; mildly alkaline (pH 7.8); clear smooth boundary.

C1—32 to 42 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine pores; mildly alkaline (pH 7.8); abrupt smooth boundary.

C2ca—42 to 60 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine pores; slightly calcareous; splotches of calcium carbonate; moderately alkaline (pH 8.2).

The profile is mildly alkaline or moderately alkaline.

A horizon: Value is 4 or 5 when dry and 2 or 3 when moist, and chroma is 2 or 3.

B2 horizon: Value is 5 or 6 when dry and 3 or 4 when moist, and chroma is 3 or 4.

C horizon: Value is 4 to 6 when dry and 3 or 4 when moist, and chroma is 3 or 4.

Cabba Family

The Cabba family consists of shallow, well drained, moderately permeable soils on benches, canyon rims, and steep canyonsides. These soils formed in residuum and colluvium derived dominantly from shale or siltstone of the Green River Formation. Slope is 3 to 70 percent. Elevation is 5,000 to 8,200 feet. Average annual precipitation ranges from 12 to 16 inches, and average annual air temperature ranges from 42 to 45 degrees F.

These soils are loamy, mixed (calcareous), frigid, shallow Typic Ustorthents.

Reference pedon of a Cabba family bouldery loam in an area of Cabba family-Guben-Rock outcrop complex, on the slopes of Cottonwood Ridge, about 250 feet west and 1,500 feet north of the southeast corner of sec. 7, T. 13 S., R. 16 E.

A1—0 to 3 inches; pale brown (10YR 6/3) bouldery loam, brown (10YR 4/3) moist; moderate medium granular structure parting to moderate fine granular; loose, slightly sticky and slightly plastic; common very fine and fine roots; 5 percent pebbles, 10 percent cobbles, and 15 percent boulders; slightly calcareous; disseminated calcium carbonate; mildly alkaline (pH 7.8); abrupt smooth boundary.

C1—3 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 4/3) moist; weak fine granular structure; loose, slightly sticky and slightly plastic; common very fine and fine roots; slightly calcareous; mildly alkaline (pH 7.8); abrupt smooth boundary.

C2—7 to 15 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; slightly calcareous; moderately alkaline (pH 8.3); abrupt smooth boundary.

C3r—15 inches; rippable shale; soft carbonate coatings on surface of rock.

Paralithic contact is at a depth of 8 to 20 inches.

A horizon: Hue is 10YR or 5Y, and value is 4 or 5 when moist. Texture is gravelly loam, bouldery loam, or extremely channery loam.

C horizon: Hue is 10YR or 2.5Y, value is 5 or 6 when dry, and chroma is 2 to 4. Texture is loam, gravelly loam, or clay loam. Clay content is 20 to 35 percent. Rock fragment content is 0 to 30 percent.

Casmos Series

The Casmos series consists of shallow, well drained, moderately permeable soils on summits, pediment slopes, and canyonsides. These soils formed in residuum and colluvium derived from siltstone and shale from the Green River Formation. Slope is 2 to 70 percent. Elevation is 4,700 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are loamy, mixed (calcareous), mesic Lithic Torriorthents.

Typical pedon of a Casmos channery loam in an area of Casmos-Rock outcrop complex, 2 to 25 percent slopes, about 0.25 mile northwest of Horse Bench, about 1,500 feet south and 100 feet west of the northeast corner of sec. 8, T. 12 S., R. 17 E.

A1—0 to 2 inches; pale brown (10YR 6/3) channery loam, brown (10YR 5/3) moist; weak fine granular structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine pores; 15 percent channers and 5 percent stones; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.

C1—2 to 6 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; slightly hard, firm, sticky and plastic; few very fine and fine roots; few very fine pores; 10 percent channers; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear wavy boundary.

R—6 inches; hard siltstone.

Bedrock is at a depth of 5 to 13 inches.

A horizon: Reaction is moderately alkaline or strongly alkaline.

Chipeta Series

The Chipeta series consists of shallow, well drained, slowly permeable soils on hills. These soils formed in residuum derived from shale. Slope is 1 to 20 percent. Elevation is 5,300 to 6,300 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are clayey, mixed (calcareous), mesic, shallow Typic Torriorthents.

Typical pedon of a Chipeta silty clay loam in an area of Chipeta-Badland complex, about 2.5 miles northwest of Wattis-Hiawatha Junction, about 1,750 feet south and 500 feet east of the northwest corner of sec. 21, T. 15 S., R. 9 E.

A1—0 to 2 inches; gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; weak medium platy structure parting to weak very fine granular; hard, firm, sticky and plastic; few very fine, fine, and medium roots; strongly calcareous; moderately alkaline (pH 8.0); abrupt smooth boundary.

C1—2 to 12 inches; gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; weak medium subangular blocky structure; very hard, very firm, sticky and very plastic; few very fine, fine, and medium roots; few fine pores; strongly calcareous; strongly alkaline (pH 8.8); clear smooth boundary.

C2cs—12 to 17 inches; gray (10YR 6/1) silty clay loam, dark gray (10YR 4/1) moist; moderate fine angular blocky structure; very hard, very firm, sticky and very plastic; few very fine and fine roots; few fine pores; 20 percent shale fragments; common gypsum flecks; strongly calcareous; strongly alkaline (pH 8.8); clear smooth boundary.

Cr—17 inches; weathered shale.

Paralithic contact is at a depth of 10 to 20 inches. Conductivity of the saturation extract is 8 to 16 millimhos.

A horizon: Hue is 10YR or 2.5Y, value is 6 to 8 when dry and 4 to 6 when moist, and chroma is 1 or 2.

C horizon: Hue is 10YR or 2.5Y, and chroma is 1 or 2. Texture is silty clay loam or silty clay. Gypsum ranges from 0.5 to 10.0 percent.

Chupadera Series

The Chupadera series consists of moderately deep, well drained, moderately rapidly permeable soils on benches and terraces. These soils formed in alluvium and residuum derived from sandstone and shale. Slope is 1 to 8 percent. Elevation is 5,900 to 7,400 feet. Average annual precipitation is 12 to 14 inches, and average annual air temperature is 45 to 47 degrees F.

These soils are coarse-loamy, mixed, mesic Ustollic Calciorthids.

Typical pedon of Chupadera fine sandy loam, 1 to 8 percent slopes, about 2 miles west of Porphyry Bench, about 500 feet north and 100 feet east of the southwest corner of sec. 1, T. 14 S., R. 8 E.

A1—0 to 6 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; weak medium platy structure; soft, friable; few very fine and fine roots; few very fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); abrupt smooth boundary.

AC—6 to 16 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular structure; hard, friable; few very fine, fine, and medium roots; few very fine and fine pores; strongly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

Cca—16 to 28 inches; very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; single grain; loose; few very fine and fine roots; strongly calcareous; splotches of calcium carbonate; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—28 inches; sandstone.

Bedrock is at a depth of 20 to 40 inches.

A horizon: Value is 5 or 6 when dry and 3 or 4 when moist, and chroma is 3 or 4.

AC horizon: Value is 5 or 6 when dry, and chroma is 3 or 4. Clay content is 14 to 17 percent.

Cca horizon: Value is 6 or 7 when dry and 4 to 6 when moist, and chroma is 3 or 4. Clay content is 14 to 17 percent. Calcium carbonate equivalent is 15 to 32 percent.

Comodore Series

The Comodore series consists of shallow, well drained, moderately permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from sandstone. Slope is 50 to 70 percent. Elevation is 6,800 to 9,000 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Lithic Haploborolls.

Typical pedon of a Comodore very stony fine sandy loam in an area of Comodore-Datino Variant complex; about 12 miles east of Price, near Dugout Creek; about 2,300 feet north and 2,000 feet east of the southwest corner of sec. 23, T. 13 S., R. 12 E.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) very stony fine sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; few very fine and fine pores; 15 percent pebbles, 20 percent cobbles, and 20 percent stones; mildly alkaline (pH 7.4); clear smooth boundary.

C1—6 to 14 inches; very dark grayish brown (10YR 3/2) very stony loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; few very fine pores; 15 percent pebbles, 15 percent cobbles, and 15 percent stones; mildly alkaline (pH 7.4); abrupt wavy boundary.

R—14 inches; fractured sandstone.

Bedrock is at a depth of 10 to 20 inches. The control section is 35 to 45 percent rock fragments.

A horizon: Value is 2 or 3 when moist, and chroma is 2 or 3. Texture is very stony fine sandy loam or bouldery loam.

C horizon: Value is 3 to 5 when dry and 2 to 4 when moist, and chroma is 2 or 3. Clay content is 19 to 24 percent. The horizon is 15 to 20 percent pebbles, 10 to 15 percent cobbles, and 15 to 20 percent stones.

Croydon Series

The Croydon series consists of deep, well drained, moderately slowly permeable soils on foot slopes and mountain slopes. These soils formed in alluvium and colluvium derived dominantly from sandstone and shale. Slope is 8 to 50 percent. Elevation is 7,600 to 9,500 feet. Average annual precipitation is 20 to 25 inches, and average annual air temperature is 34 to 38 degrees F.

These soils are fine-loamy, mixed Argic Cryoborolls.

Typical pedon of Croydon loam, 8 to 30 percent slopes, about 1.2 miles southwest of Scofield, about 500 feet north and 50 feet west of the southeast corner of sec. 6, T. 13 S., R. 7 E.

A11—0 to 5 inches; dark yellowish brown (10YR 4/4) loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; soft, very friable, slightly plastic; many very fine, fine, and medium roots and few coarse roots; slightly acid (pH 6.5); clear smooth boundary.

A12—5 to 16 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to moderate medium granular; soft, very friable, slightly plastic; many very fine, fine, and medium roots and few coarse roots; slightly acid (pH 6.4); abrupt smooth boundary.

A2—16 to 23 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; 10 percent pebbles; slightly acid (pH 6.4); abrupt wavy boundary.

B21t—23 to 33 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine, fine, and medium roots; common very fine pores; few moderately thick clay films on faces of peds and in pores; small pockets of soil material similar to that in the A2 horizon; 5 percent pebbles and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

B22t—33 to 48 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine and fine roots; common very fine pores; many moderately thick clay films on faces of peds; 10 percent pebbles; slightly acid (pH 6.4); abrupt smooth boundary.

R—48 inches; weathered sandstone.

Bedrock is at a depth of 40 to 60 inches. The solum is 40 to 60 inches thick.

A1 horizon: Value is 3 to 5 when dry and 2 or 3 when moist, and chroma is 2 to 4 when dry and 2 or 3 when moist.

A2 horizon: Value is 7 or 8 when dry and 5 or 6 when moist, and chroma is 2 to 4. Rock fragment content is 5 to 15 percent. The horizon is 5 to 15 percent pebbles and 0 to 5 percent cobbles.

B2 horizon: Hue is 5Y or 10YR, value is 6 or 7 when dry and 4 to 6 when moist, and chroma is 2 to 4 when dry. Clay content is 27 to 34 percent. Rock fragment content is 5 to 15 percent. The horizon is 0 to 15 percent pebbles, 0 to 5 percent cobbles, and 0 to 5 percent stones.

Curecanti Family

The Curecanti family consists of very deep, well drained, moderately permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from sandstone and shale. Slope is 50 to 70 percent. Elevation is 6,800 to 9,000 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Typic Argiborolls.

Reference pedon of a Curecanti family loam in an area of Curecanti family-Pathead complex, about 7 miles west and 3 miles north of Helper, 200 feet south and 700 feet east of the northwest corner of sec. 12, T. 13 S., R. 8 E.

A11—0 to 7 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine pores; 10 percent pebbles; neutral (pH 6.6); clear wavy boundary.

A12—7 to 15 inches; brown (10YR 5/3) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; hard, very firm, sticky and slightly plastic; few very fine and fine roots and common medium and coarse roots; few very fine pores; 15 percent pebbles, 10 percent cobbles, and 30 percent stones; neutral (pH 6.6); clear wavy boundary.

A2—15 to 20 inches; very pale brown (10YR 7/3) very stony loam, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots and common medium and coarse roots; many very fine and few fine pores; 20 percent pebbles, 5 percent cobbles, and 30 percent stones; slightly acid (pH 6.4); clear wavy boundary.

B21t—20 to 27 inches; pale brown (10YR 6/3) very stony loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure;

slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots and common medium roots; common very fine pores; few thin and moderately thick clay films on ped faces and in pores; 10 percent pebbles, 15 percent cobbles, and 30 percent stones; neutral (pH 6.6); clear wavy boundary.

B22t—27 to 60 inches; pale brown (10YR 6/3) very stony loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots and common medium roots; common very fine pores; common thin and moderately thick clay films on ped faces and in pores; 10 percent pebbles, 15 percent cobbles, and 30 percent stone; slightly acid (pH 6.4).

The solum is 40 to 60 inches thick. The mollic epipedon is 12 to 15 inches thick.

A1 horizon: Value is 3 to 5 when dry and 2 or 3 when moist, and chroma is 2 or 3.

A2 horizon: Value is 5 to 7 when dry and 3 to 5 when moist, and chroma is 2 or 3.

B2t horizon: Value is 4 or 5 when moist, and chroma is 2 to 4. Clay content is 18 to 27 percent.

Datino Series

The Datino Series consists of very deep, well drained, moderately permeable soils on canyonsides and mountain slopes. These soils formed in colluvium derived dominantly from sandstone and shale. Slope is 15 to 80 percent. Elevation is 6,800 to 8,700 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Typic Haploborolls.

Typical pedon of a Datino extremely stony fine sandy loam in an area of Perma family-Datino complex, about 0.25 mile south of Soldier Creek Mine, 2,400 feet west and 2,200 feet south of the northeast corner of sec. 18, T. 13 S., R. 12 E.

A1—0 to 10 inches; brown (10YR 4/3) extremely stony fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; few very fine pores; 15 percent pebbles, 25 percent cobbles, and 25 percent stones; moderately alkaline (pH 7.9); clear smooth boundary.

B2—10 to 16 inches; brown (10YR 5/3) very stony loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; common very fine and fine pores and few medium pores; 15 percent pebbles, 15 percent cobbles, and 10 percent stones; slightly calcareous; moderately alkaline (pH 7.9); gradual wavy boundary.

Clca—16 to 41 inches; pale brown (10YR 6/3) very stony fine sandy loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; common very fine and fine pores; 15 percent pebbles, 20 percent cobbles, and 25 percent stones; strongly calcareous; soft powdery masses of calcium carbonate; moderately alkaline (pH 8.0); gradual smooth boundary.

C2—41 to 60 inches; pale brown (10YR 6/3) very stony fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; few very fine pores; 15 percent pebbles, 20 percent cobbles, and 25 percent stones; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 7.9).

Secondary calcium carbonate is at a depth of 15 to 22 inches. The mollic epipedon is 10 to 15 inches thick. The solum is 15 to 22 inches thick. The particle-size control section is 35 to 60 percent rock fragments.

A horizon: Value is 4 or 5 when dry and 2 or 3 when moist, and chroma is 2 or 3.

B2 horizon: Value is 3 to 5 when dry and 2 to 4 when moist, and chroma is 2 or 3. Clay content is 18 to 26 percent. Rock fragment content is 35 to 45 percent. Reaction is mildly alkaline or moderately alkaline.

C horizon: Value is 5 or 6 when dry, and chroma is 2 or 3. Clay content is 16 to 25 percent. Rock fragment content is 40 to 70 percent. Reaction is mildly alkaline or moderately alkaline.

Datino Variant

The Datino Variant consists of very deep, well drained, moderately permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from sandstone and shale. Slope is 15 to 80 percent. Elevation is 6,800 to 9,000 feet. Average annual precipitation is 16 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Typic Haploborolls.

Typical pedon of Datino Variant very stony loam, 50 to 80 percent slopes, 3,500 feet southeast of Valley Mountain, at the head of Trail Canyon (No general land office survey made.)

A—0 to 4 inches; very dark grayish brown (10YR 3/2) very stony loam, very dark brown (10YR 2/2) moist; strong fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; 5

percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

B21—4 to 14 inches; very dark grayish brown (10YR 3/2) very cobbly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots and common medium roots; few very fine pores; 15 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.6); abrupt smooth boundary.

B3ca—14 to 22 inches; grayish brown (10YR 5/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots and few fine and medium roots; few very fine pores; 20 percent pebbles and 20 percent cobbles; moderately calcareous; mildly alkaline; (pH 7.8); clear smooth boundary.

IICca—22 to 60 inches; grayish brown (10YR 5/2) very stony fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine roots and few fine, medium, and coarse roots; 30 percent pebbles, 10 percent cobbles, and 20 percent stones; moderately calcareous; mildly alkaline (pH 7.8).

The mollic epipedon is 10 to 15 inches thick. The solum is 15 to 22 inches thick. The particle-size control section is 18 to 27 percent clay and 35 to 60 percent rock fragments.

Doney Family

The Doney family consists of moderately deep, well drained, moderately permeable soils on benches, foot slopes, and mountain slopes. These soils formed in residuum and colluvium derived dominantly from siltstone, shale, and sandstone. Slope is 3 to 70 percent. Elevation is 6,700 to 9,500 feet. Average annual precipitation ranges from 14 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are fine-loamy, mixed, frigid Typic Ustochrepts.

Reference pedon of a Doney family stony loam in an area of Rabbitex-Doney family-Midfork family complex, about 7.5 miles northwest of Helper, 800 feet south and 1,800 feet east of the northwest corner of sec. 19, T. 12 S., R. 9 E.

A1—0 to 4 inches; brown (10YR 5/3) stony loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate medium granular; soft, friable; common very fine and fine roots; few very fine pores; 10 percent pebbles, 5 percent cobbles, and 5 percent stones; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); abrupt smooth boundary.

B21—4 to 11 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and common fine roots; few very fine pores; 5 percent pebbles and 5 percent cobbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); gradual smooth boundary.

B22—11 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine pores; 10 percent pebbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); gradual smooth boundary.

C1—15 to 24 inches; light gray (2.5Y 7/2) loam, light olive brown (2.5Y 5/4) moist; massive; loose, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine pores; 10 percent pebbles; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8); clear smooth boundary.

C2—24 to 35 inches; light gray (2.5Y 7/2) loam, light olive brown (2.5Y 5/4) moist; massive; loose, very friable, slightly sticky; few fine roots; few very fine pores; 15 percent pebbles; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 9.0); gradual smooth boundary.

C3r—35 inches; weathered shale.

Paralithic contact is at a depth of 20 to 40 inches. The particle-size control section is 0 to 15 percent rock fragments.

A1 horizon: Hue is 10YR or 2.5Y, value is 5 or 6 when dry, and chroma is 2 or 3. Texture is gravelly sandy loam, silt loam, and stony loam. Clay content is 15 to 22 percent.

B horizon: Hue is 10YR or 2.5Y, value is 5 to 7 when dry and 4 to 6 when moist, and chroma is 2 or 3. Texture is loam or clay loam. Clay content is 18 to 30 percent.

C horizon: Hue is 10YR or 2.5Y, value is 6 or 7 when dry and 5 or 6 when moist, and chroma is 2 or 3. Texture is loam or clay loam.

Falcon Series

The Falcon series consists of shallow, well drained, rapidly permeable soils on hillslopes and summits. These soils formed in residuum derived from sandstone. Slope is 8 to 50 percent. Elevation is 7,600 to 8,200 feet. Average annual precipitation is 16 to 20 inches, and average annual air temperature is 37 to 40 degrees F.

These soils are loamy, mixed Lithic Haploborolls.

Typical pedon of a Falcon stony sandy loam in an area of Falcon-Rock outcrop complex, about 4 miles north of the town of Scofield, about 650 feet north and

1,400 feet east of the southwest corner of sec. 9, T. 12 S., R. 7 E.

A1—0 to 5 inches; brown (10YR 5/3) stony sandy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; loose; common very fine and fine roots; 5 percent pebbles and 10 percent stones; neutral (pH 6.8); clear smooth boundary.
C1—5 to 12 inches; brown (10YR 5/3) sandy loam, dark brown (7.5YR 4/2) moist; weak medium subangular blocky structure; soft, friable; common very fine and fine roots; 5 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.
R—12 inches; hard sandstone.

Bedrock is at a depth of 10 to 20 inches.
A horizon: Hue is 10YR or 7.5YR, value is 4 or 5 when dry and 2 or 3 when moist, and chroma is 2 or 3.
C horizon: Hue is 10YR or 7.5YR. Rock fragment content is 5 to 30 percent.

Ferron Series

The Ferron series consists of very deep, poorly drained, moderately permeable soils on alluvial fans and alluvial valley bottoms. These soils formed in alluvium derived from shale and sandstone. Slope is 0 to 3 percent. Elevation is 5,400 to 5,700 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are coarse-silty, mixed (calcareous), mesic Typic Fluvaquents.

Typical pedon of Ferron silt loam, about 350 feet north and 20 feet west of the southeast corner of sec. 11, T. 17 S., R. 8 E.

O1—1 inch to 0; undecomposed organic material, mainly grass roots.
A1—0 to 3 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine prominent yellowish red (5YR 4/8) mottles and common medium faint dark gray (N 4/0) mottles; weak thick platy structure parting to weak medium granular; slightly hard, friable, slightly sticky and slightly plastic; many fine and few medium roots; few fine and medium pores; moderately calcareous; moderately alkaline (pH 8.3); clear smooth boundary.
C1cs—3 to 15 inches; light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; many medium distinct olive brown (2.5Y 5/6) mottles; weak moderately thick platy structure parting to weak medium granular; soft, friable, slightly plastic; many fine and medium roots; common fine pores; many gypsum mycelia; moderately calcareous; mildly alkaline (pH 7.8); gradual wavy boundary.
C2—15 to 60 inches; light brownish gray (2.5Y 6/2) very fine sandy loam, grayish brown (2.5Y 5/2) when moist; many medium and faint light olive brown (2.5Y 5/6) mottles; massive; soft, friable; common medium and few fine roots; few fine pores; strongly calcareous; mildly alkaline (pH 7.7).

Calcium carbonate equivalent is 10 to 25 percent. Conductivity of the saturation extract is 2 to 8 millimhos. Reaction is mildly alkaline to strongly alkaline.
A horizon: Hue is 2.5Y or 5Y, value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 1 or 2.
C horizon: Hue is 2.5Y or 5Y, and value is 5 or 6 when dry and 4 or 5 when moist. Texture is loam or very fine sandy loam.

Frandsen Series

The Frandsen series consists of very deep, well drained, moderately permeable soils on fan terraces. These soils formed in alluvium derived dominantly from sandstone and shale. Slope is 1 to 8 percent. Elevation is 7,200 to 7,600 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are fine-loamy, mixed (calcareous), frigid Typic Ustorthents.

Typical pedon of a Frandsen loam in an area of Frandsen-Gullied land complex, about 14 miles northeast of Wellington, about 800 feet north and 400 feet west of the northeast corner of sec. 33, T. 12 S., R. 12 E. (No geodetic survey available.)

A1—0 to 4 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; few very fine and fine pores; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.
C1—4 to 11 inches; reddish brown (5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine roots and few medium and coarse roots; common very fine and few fine pores; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear smooth boundary.
C2—11 to 40 inches; reddish brown (5YR 5/4) light clay loam, dark reddish brown (5YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; common very fine and few fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.
IIC3—40 to 60 inches; reddish brown (5YR 5/4) fine sandy loam, dark reddish brown (5YR 3/4) moist;

weak medium subangular blocky structure; hard, firm; few very fine and fine roots; few very fine and fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4).

A horizon: Value is 4 or 5 when dry.

C horizon: Hue is 5YR or 7.5YR, value is 3 or 4 when moist, and chroma is 3 or 4. Texture is loam or light clay loam to a depth of 40 inches and is fine sandy loam below this depth. Clay content is 20 to 27 percent to a depth of 40 inches and is 10 to 18 percent clay below this depth. Reaction is moderately alkaline or strongly alkaline.

Gerst Series

The Gerst series consists of shallow, well drained, moderately slowly permeable soils on the sides of mesas, benches, terraces, and canyons and on mountain slopes and hillslopes. These soils formed in residuum and colluvium derived dominantly from shale and sandstone. Slope is 3 to 70 percent. Elevation is 5,200 to 8,000 feet. Average annual precipitation ranges from 8 to 14 inches, and average annual air temperature ranges from 45 to 50 degrees F.

These soils are loamy, mixed (calcareous), mesic, shallow Ustic Torriorthents.

Typical pedon of a Gerst extremely stony loam in an area of Gerst-Strych-Badland complex, 50 to 70 percent slopes, about 5 miles northwest of East Carbon City, about 2,400 feet south and 1,200 feet west of the northeast corner of sec. 16, T. 14 S., R. 13 E.

A1—0 to 7 inches; light brownish gray (10YR 6/2) extremely stony loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, few fine, and many coarse roots; many fine and few medium pores; 30 percent pebbles, 10 percent cobbles, and 30 percent stones and boulders; strongly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear smooth boundary.

C1—7 to 16 inches; gray (10YR 6/1) channery silt loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, sticky and plastic; common very fine roots and few medium and coarse roots; 15 percent shale fragments; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear smooth boundary.

C2—16 to 19 inches; light brownish gray (10YR 6/2) channery silt loam, grayish brown (10YR 5/2) moist; massive; hard, friable, slightly sticky and plastic; few very fine and fine roots; 20 percent shale fragments; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear smooth boundary.

Cr—19 inches; partly weathered shale.

Paralithic contact is at a depth of 8 to 20 inches.

A horizon: Value is 4 or 5 when moist, and chroma is 2 or 3. Texture is very channery loam, cobbly loam, or extremely stony loam. Reaction is moderately alkaline or strongly alkaline.

C horizon: Hue is 10YR or 2.5Y, value is 4 or 5 when moist, and chroma is 1 or 2. Texture is channery loam, channery silt loam, or channery clay loam. Clay content is 18 to 32 percent. Rock fragment content is 15 to 25 percent.

Glenberg Family

The Glenberg family consists of very deep, well drained, moderately rapidly permeable soils on flood plains, valley floors, and low terraces. These soils formed in alluvium derived from sandstone and shale. Slope is 1 to 6 percent. Elevation is 5,400 to 6,900 feet. Average annual precipitation is 8 to 12 inches, and average annual air temperature is 47 to 49 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Ustic Torrifluvents.

Reference pedon of Glenberg family, 3 to 6 percent slopes, about 2 miles southeast of Hiawatha, about 1,000 feet north and 2,400 feet west of the southeast corner of sec. 1, T. 16 S., R. 8 E.

A1—0 to 4 inches; pale brown (10YR 6/3) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, slightly sticky; common very fine and medium roots; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.4); abrupt smooth boundary.

C1—4 to 10 inches; pale brown (10YR 6/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable; common very fine, fine, and medium roots; strongly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); abrupt wavy boundary.

A1b—10 to 14 inches; brown (10YR 5/3) loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few fine pores; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8); abrupt wavy boundary.

C1b—14 to 46 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable; common very fine and fine roots; common fine pores; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.9); clear smooth boundary.

C2b—46 to 60 inches; pale brown (10YR 6/3) loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots;

many fine pores; strongly calcareous; veins of calcium carbonate; strongly alkaline (pH 9.0).

The A1b horizon is absent in some pedons.

A horizon: Hue is 10YR or 7.5YR, value is 5 or 6 when dry and 3 or 4 when moist, and chroma is 2 or 3. Texture is very fine sandy loam or loamy fine sand.

C horizon: Hue is 10YR or 7.5YR, value is 5 or 6 when dry, and chroma is 2 or 3. Texture is fine sandy loam, very fine sandy loam, or loam. Reaction is moderately alkaline or strongly alkaline.

Green River Series

The Green River series consists of very deep, moderately well drained, moderately permeable soils on flood plains. These soils formed in alluvium derived from mixed sedimentary rocks. Slope is 0 to 2 percent. Elevation is 4,400 to 5,900 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Aquic Ustifluvents.

Typical pedon of a Green River silt loam in an area of Green River-Juva Variant complex, near the junction of Jack Creek and the Green River, about 7 miles east of the southeast corner of sec. 9, T. 13 S., R. 16 E. (No geodetic survey has been made.)

O1—1 inch to 0; cottonwood leaves.

A11—0 to 3 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very coarse platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine pores; moderately calcareous; moderately alkaline (pH 8.4); abrupt smooth boundary.

A12—3 to 16 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; few very fine pores; moderately calcareous; moderately alkaline (pH 8.4); abrupt smooth boundary.

C1—16 to 27 inches; pale brown (10YR 6/3) loamy fine sand, light olive brown (10YR 5/4) moist; single grain; soft, very friable; few very fine roots; moderately calcareous; moderately alkaline (pH 8.4); clear smooth boundary.

C2—27 to 37 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; few fine faint grayish brown (10YR 5/2) mottles; single grain; soft, very friable; moderately calcareous; strongly alkaline (pH 8.6); clear smooth boundary.

C3—37 to 42 inches; pale brown (10YR 6/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; few fine faint grayish brown (10YR 5/2) mottles; massive; soft, very friable, slightly sticky and slightly plastic; moderately calcareous; strongly alkaline (pH 8.8); clear smooth boundary.

C4—42 to 52 inches; pale brown (10YR 6/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; few fine faint grayish brown (10YR 5/2) mottles; massive; soft, very friable, slightly sticky and slightly plastic; moderately calcareous; strongly alkaline (pH 8.8); clear smooth boundary.

C5—52 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; few fine faint grayish brown (10YR 5/2) mottles; massive; soft, very friable, slightly sticky and slightly plastic; moderately calcareous; strongly alkaline (pH 8.8).

Clay content in the particle-size control section ranges from 8 to 18 percent.

Greybull Series

The Greybull series consists of moderately deep, well drained, moderately slowly permeable soils on foot slopes of shale hills. These soils formed in local alluvium over residuum derived from shale and sandstone. Slope is 3 to 8 percent. Elevation is 5,200 to 5,700 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are fine-loamy, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Greybull loam, 3 to 8 percent slopes, about 5 miles southeast of Wellington, about 2,000 feet north and 800 feet east of the southwest corner of sec. 25, T. 15 S., R. 11 E.

A1—0 to 3 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; weak fine granular structure; soft, friable, slightly sticky and plastic; few very fine, fine, and medium roots; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); abrupt smooth boundary.

AC—3 to 10 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine, fine, and medium roots; common very fine and fine pores and few medium pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C1—10 to 19 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine and fine roots; few fine and medium pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C2—19 to 34 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, friable, slightly sticky and plastic; few very fine roots;

25 percent soft shale fragments; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear smooth boundary.

C3r—34 inches; weathered shale.

Paralithic contact is at a depth of 20 to 40 inches.

A horizon: Hue is 2.5Y or 10YR, value is 5 or 6 when dry and 4 or 5 moist, and chroma is 2 to 4.

C horizon: Hue is 2.5Y or 10YR, and value is 5 or 6 when dry. Clay content is 20 to 27 percent.

Grobutte Family

The Grobutte family consists of very deep, well drained, moderately rapidly permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from shale, siltstone, and sandstone of the Green River Formation. Slope is 25 to 40 percent. Elevation is 6,000 to 7,400 feet. Average annual precipitation is 12 to 14 inches, and average annual air temperature is 42 to 45 degrees F.

These soils are loamy-skeletal, mixed (calcareous), frigid Ustic Torriorthents.

Reference pedon of a Grobutte family very gravelly loam in an area of Grobutte-Cabba families association, about 2 miles east of the confluence of Nine Mile and Argyle Canyons, about 2,200 feet west and 600 feet south of the northeast corner of sec. 2, T. 12 S., R. 14 E.

A11—0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate thin platy structure parting to weak fine and very fine subangular blocky; slightly hard, friable, slightly sticky and plastic; few fine, medium, and coarse roots; many very fine and common fine vesicular pores; 55 percent pebbles, 10 percent cobbles, and 1 percent stones on the surface, and 35 percent pebbles and 10 percent cobbles in the horizon; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.

A12—3 to 9 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots and few medium and coarse roots; many very fine and fine and common medium random tubular pores; 40 percent pebbles and 15 percent cobbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear wavy boundary.

C1—9 to 22 inches; light olive gray (5Y 6/2) extremely cobbly loam, olive gray (5Y 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and few fine random tubular pores; 35 percent pebbles, 25 percent cobbles, and 10 percent stones; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

C2—22 to 40 inches; pale olive (5Y 6/3) extremely stony sandy clay loam, olive (5Y 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; 20 percent pebbles, 30 percent cobbles, and 30 percent stones; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

C3—40 to 60 inches; light olive gray (5Y 6/2) extremely cobbly loam, olive gray (5Y 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; 35 percent pebbles, 30 percent cobbles, and 10 percent stones; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6).

Bedrock is at a depth of 60 inches or more. The particle-size control section is 35 to 75 percent rock fragments.

Guben Series

The Guben series consists of very deep, well drained, moderately permeable soils on canyonsides and mountain slopes. These soils formed in colluvium derived dominantly from sandstone and shale. Slope is 15 to 75 percent. Elevation is 5,000 to 9,500 feet. Average annual precipitation ranges from 14 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Typic Calciborolls.

Typical pedon of Guben extremely bouldery loam in an area of Cabba family-Guben-Rock outcrop complex, in Prickly Pear Canyon, about 1,200 feet south and 2,000 feet east of the northwest corner of sec. 14, T. 12 S., R. 15 E.

O1—0.5 inch to 0; pine needles and grasses.

A1—0 to 7 inches; grayish brown (10YR 5/2) extremely bouldery loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; 15 percent pebbles, 10 percent cobbles, 5 percent stones, and 10 percent boulders; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

B2—7 to 15 inches; pale brown (10YR 6/3) very stony loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; 10 percent pebbles, 15 percent cobbles, and 20 percent stones; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

C1ca—15 to 30 inches; very pale brown (10YR 7/3) very stony loam, pale brown (10YR 6/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots and few fine, medium, and coarse roots; few very fine and fine pores; 10 percent pebbles, 20 percent cobbles, 20 percent stones, and 5 percent boulders; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear smooth boundary.

C2—30 to 60 inches; light yellowish brown (10YR 6/4) very stony loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine and medium pores and common fine pores; 10 percent pebbles, 20 percent cobbles, 25 percent stones, and 5 percent boulders; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 9.0).

The mollic epipedon is 7 to 10 inches thick. The solum is 15 to 24 inches thick. The particle-size control section is 35 to 60 percent rock fragments. Secondary calcium carbonate is at a depth of 11 to 24 inches.

A horizon: Value is 4 or 5 when dry, and chroma is 2 or 3. Texture is extremely bouldery loam, extremely stony loam, or extremely bouldery fine sandy loam. Reaction is mildly alkaline or moderately alkaline. Calcium carbonate equivalent is 11 to 19 percent.

B horizon: Hue is 10YR or 7.5YR, value is 5 or 6 when dry and 3 or 4 when moist, and chroma is 2 to 4. Texture is very stony loam or very cobbly loam. Clay content is 17 to 22 percent. Rock fragment content is 35 to 55 percent. Reaction is mildly alkaline or moderately alkaline. Calcium carbonate equivalent is 20 to 25 percent.

Cca horizon: Hue is 7.5YR or 10YR, value is 6 or 7 when dry and 5 or 6 when moist, and chroma is 2 to 4. Texture is very stony loam or very cobbly fine sandy loam. Clay content is 17 to 25 percent. Rock fragment content is 35 to 60 percent. Reaction is moderately alkaline or strongly alkaline. Calcium carbonate equivalent is 20 to 38 percent.

C horizon: Texture is very stony loam or very cobbly fine sandy loam. Clay content is 17 to 24 percent. Reaction is moderately alkaline or strongly alkaline. Calcium carbonate equivalent is 19 to 30 percent.

Haverdad Series

The Haverdad series consists of very deep, well drained, moderately permeable soils on alluvial fans, fan terraces, and valley floors. These soils formed in stratified alluvium derived dominantly from sandstone and shale. Slope is 1 to 8 percent. Elevation is 5,500 to 6,900 feet. Average annual precipitation ranges from 8 to 14 inches, and average annual air temperature ranges from 45 to 49 degrees F.

These soils are fine-loamy, mixed (calcareous), mesic Ustic Torrifluvents.

Typical pedon of Haverdad loam, 1 to 8 percent slopes, about 6 miles northeast of Wellington, about 2,900 feet west and 2,300 feet south of the northeast corner of sec. 18, T. 14 S., R. 12 E.

A1—0 to 3 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; few fine, medium, and coarse roots; many very fine and few fine vesicular pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

C1—3 to 10 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and plastic; few fine, medium, and coarse roots; common very fine and fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

C2—10 to 17 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and plastic; few fine roots; common very fine and fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

C3—17 to 46 inches; pale brown (10YR 6/3) clay loam, yellowish brown (10YR 5/4) moist; massive; very hard, firm, sticky and plastic; few fine roots; common very fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

C4—46 to 60 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; massive; very hard, friable, slightly sticky and plastic; few very fine roots; common very fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2).

A horizon: Value is 5 or 6 when dry, and chroma is 2 or 3.

C horizon: Value is 4 or 5 when moist, and chroma is 3 or 4. Texture is fine sandy loam, loam, clay loam, or sandy clay loam. Clay content is 14 to 30 percent. Reaction is moderately alkaline or strongly alkaline.

Hernandez Family

The Hernandez family consists of very deep, well drained, moderately permeable soils on fan terraces. These soils formed in alluvium derived from sandstone and shale. Slope is 1 to 8 percent. Elevation is 5,600 to 7,100 feet. Average annual precipitation is 10 to 14 inches, and average annual air temperature is 45 to 49 degrees F.

These soils are fine-loamy, mixed, mesic Ustollic Calciorthids.

Reference pedon of Hernandez family, 3 to 8 percent slopes, about 4.5 miles northwest of Sunnyside Junction, about 1,000 feet south and 800 feet east of the northwest corner of sec. 19, T. 14 S., R. 12 E.

A1—0 to 3 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 4/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; many fine and few medium pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); abrupt smooth boundary.

B2—3 to 14 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine and few medium pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C1ca—14 to 39 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and plastic; few very fine and fine roots; common fine and few medium pores; strongly calcareous; thin coatings of calcium carbonate on faces of peds; strongly alkaline (pH 8.8); gradual wavy boundary.

C2ca—39 to 60 inches; pink (7.5YR 7/4) loam, brown (7.5YR 5/4) moist; massive; hard, firm, slightly sticky and plastic; few very fine and fine roots; common fine and few medium pores; strongly calcareous; thin coatings of calcium carbonate on faces of peds; strongly alkaline (pH 9.0).

Secondary calcium carbonate is at a depth of 9 to 17 inches.

A horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry, and chroma is 2 to 4. Texture is loam or very fine sandy loam.

B horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 to 4.

Cca horizon: Hue is 7.5YR or 10YR, value is 6 to 8 when dry and 5 to 7 when moist, and chroma is 3 or 4. Calcium carbonate equivalent is 15 to 35 percent.

Hunting Series

The Hunting series consists of very deep, somewhat poorly drained. moderately permeable soils on alluvial fans and valleys floors. These soils formed in alluvium derived from shale and sandstone. Slope is 1 to 3 percent. Elevation is 5,400 to 5,700 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 47 to 49 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Aquic Ustifluvents.

Typical pedon of Hunting loam, 1 to 3 percent slopes, about 2.5 miles northeast of Clawson, about 950 feet west and 300 feet south of the northeast corner of sec. 19, T. 19 S., R. 8 E.

Ap—0 to 9 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine and coarse roots; few fine and medium pores; strongly calcareous; moderately alkaline (pH 8.0); gradual smooth boundary.

C1—9 to 27 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; few medium and fine pores; strongly calcareous; moderately alkaline (pH 8.0); clear smooth boundary.

C2—27 to 30 inches; grayish brown (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; few fine pores; moderately calcareous; moderately alkaline (pH 7.9); gradual smooth boundary.

C3—30 to 60 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; few medium distinct dark yellowish brown (10YR 4/5) mottles; massive; slightly hard, friable; few fine roots; few fine pores; moderately calcareous; moderately alkaline (pH 8.2).

Conductivity of the saturation extract is 2 to 8 millimhos. Calcium carbonate equivalent is 10 to 25 percent.

A horizon: Hue is 2.5Y or 5Y, and value is 5 or 6 when dry and 4 or 5 when moist. Texture is loam, silt loam, or silty clay loam. Clay content is 20 to 35 percent.

C horizon: This horizon is stratified in some places with sandy loam or clay loam.

Juva Variant

The Juva Variant consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans and valley floors. These soils formed in alluvium derived from mixed sedimentary rocks. Slope is 1 to 5 percent. Elevation is 4,600 to 5,900 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents.

Typical pedon of Juva Variant fine sandy loam, about 0.5 mile west of Carbon County Airport, about 200 feet west and 10 feet north of the southeast corner of sec. 14, T. 14 S., R. 10 E.

A1—0 to 6 inches; light brownish gray (2.5Y 6/2) fine sandy loam, grayish brown (2.5Y 5/2) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; moderately calcareous; moderately alkaline (pH 8.4); clear smooth boundary.

C1—6 to 18 inches; light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; moderately calcareous; moderately alkaline (pH 8.4); clear smooth boundary.

C2—18 to 33 inches; light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and plastic; few very fine and fine roots; moderately calcareous; strongly alkaline (pH 9.0); clear wavy boundary.

C3—33 to 60 inches; light brownish gray (2.5Y 6/2) loam with thin strata of sandy loam and gravelly loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; pockets of gypsum veining; moderately calcareous; strongly alkaline (pH 9.0).

Reaction is moderately alkaline or strongly alkaline. Conductivity of the saturation extract is less than 8 millimhos.

A horizon: Value is 4 or 5 when moist.

C horizon: Texture is loam, sandy loam, or gravelly loam. Clay content is 13 to 18 percent. The horizon is 0 to 20 percent pebbles.

Killpack Series

The Killpack series consists of moderately deep, well drained, slowly permeable soils on the sides of shale hills. These soils formed in residuum derived from shale. Slope is 1 to 6 percent. Elevation is 5,400 to 5,900 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Killpack clay loam, 1 to 3 percent slopes, about 800 feet north and 300 feet east of the southwest corner of sec. 33, T. 15 S., R. 10 E.

Ap—0 to 9 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium and fine granular structure; hard, firm, slightly sticky and slightly plastic; common fine roots; common fine pores; strongly calcareous; mildly alkaline (pH 7.8); clear smooth boundary.

C1—9 to 23 inches; light brownish gray (2.5Y 6/2) clay loam, grayish brown (2.5Y 5/2) moist; moderate coarse subangular blocky structure parting to weak fine subangular blocky; hard, firm, sticky and plastic; few fine roots; few fine pores; strongly calcareous; mildly alkaline (pH 7.7); gradual wavy boundary.

C2cs—23 to 29 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; massive; hard, very firm, sticky and plastic; few fine roots; many gypsum crystals 5 to 15 millimeters in diameter; strongly calcareous; mildly alkaline (pH 7.7); gradual wavy boundary.

Cr—29 inches; light brownish gray weathered shale.

Paralithic contact is at a depth of 20 to 40 inches.

Ap horizon: Hue is 10YR or 5Y, value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 or 3.

C horizon: Hue is 10YR or 5Y, value is 6 or 7 when dry and 4 to 6 when moist, and chroma is 2 or 3. Texture is silty clay loam or clay loam.

C2cs horizon: The horizon is 5 to 20 percent shale fragments.

Libbings Series

The Libbings series consists of moderately deep, poorly drained, strongly saline, slowly permeable soils on foot slopes of shale hills. These soils formed in residuum derived from shale. Slope is 0 to 3 percent. Elevation is 5,400 to 5,500 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 47 to 49 degrees F.

These soils are fine, mixed, mesic Typic Salorthids.

Typical pedon of Libbings silty clay loam, about 330 feet south and 160 feet east of the northwest corner of sec. 8, T. 17 S., R. 10 E.

A11sa—0 to 0.5 inch; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate thick platy structure parting to moderate fine granular; hard, friable, sticky and plastic; many very fine vesicular pores; strongly calcareous; very strongly saline; thin salt crust on surface; strongly alkaline (pH 8.5); abrupt smooth boundary.

A12sa—0.5 to 2 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate fine granular structure; soft, firm, sticky and plastic; few very fine roots; many very fine vesicular pores; strongly calcareous; very strongly saline; very fine salt grains; strongly alkaline (pH 8.9); abrupt smooth boundary.

C1sa—2 to 9 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine granular structure; very hard, very firm, sticky and very plastic; few very fine and fine roots; few very fine and fine discontinuous pores; strongly calcareous; very strongly saline; salt on faces of peds and in pores; strongly alkaline (pH 8.6); clear smooth boundary.

C2sacs—9 to 25 inches; gray (2.5Y 6/1) silty clay, dark gray (2.5Y 4/1) moist; massive; very hard, very firm, sticky and very plastic; few fine and medium roots; few very fine discontinuous pores; strongly calcareous; very strongly saline; common salt and gypsum crystals; strongly alkaline (pH 8.6); gradual smooth boundary.

C3sacs—25 to 34 inches; gray (2.5Y 6/1) silty clay, dark gray (2.5Y 4/1) moist; massive; very hard, very firm, sticky and plastic; few very fine and medium roots; few very fine discontinuous pores; strongly calcareous; numerous soft gypsum nodules 5 to 15 millimeters in diameter; about 10 percent shale fragments; strongly saline; strongly alkaline (pH 8.7); clear smooth boundary.

Cr—34 inches; soft platy shale; roots concentrated between shale plates.

Depth to shale ranges from 20 to 40 inches. The water table is at a depth of 10 to 30 inches. Exchangeable sodium content is 50 to 65 percent. Soluble salt content ranges from 2 to 5 percent at a depth of less than 20 inches. Reaction is strongly alkaline or very strongly alkaline.

A1 horizon: Hue is 10YR or 5Y, and value is 5 or 6 when dry and 4 or 5 when moist.

Csacs horizon: Texture is silty clay loam or silty clay. Gypsum accumulation ranges from weak to moderate, but typically there is 2 to 7 percent more gypsum in this horizon than in the underlying shale.

Midfork Family

The Midfork family consists of very deep, well drained, moderately permeable soils on mountain slopes. These soils formed in gravelly colluvium derived dominantly from calcareous sedimentary rock. Slope is 50 to 70 percent. Elevation is 7,500 to 9,500 feet. Average annual precipitation ranges from 20 to 25 inches, and average annual air temperature ranges from 34 to 38 degrees F.

These soils are loamy-skeletal, mixed Typic Cryoborolls.

Reference pedon of a Midfork family bouldery loam in an area of Midfork family-Comodore complex, about 16 miles east of Sunnyside, about 1,600 feet north and 950 feet east of the southwest corner of sec. 15, T. 15 S., R. 16 E. (No general land office survey has been made.)

O2—2 inches to 0; partially decomposed twigs, leaves, and needles.

A11—0 to 4 inches; brown (10YR 4/3) bouldery loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable; few very fine and fine roots; 5 percent channers, 5 percent flagstones, and 20 percent boulders; neutral (pH 7.2); abrupt smooth boundary.

A12—4 to 7 inches; brown (10YR 4/3) bouldery loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to weak medium granular; slightly hard, firm, slightly sticky and slightly plastic; common fine and few medium roots; few very fine and fine pores; 10 percent fine pebbles, 5 percent cobbles, and 5 percent boulders; mildly alkaline (pH 7.8); clear smooth boundary.

C1—7 to 17 inches; yellowish brown (10YR 5/4) very channery loam, brown (10YR 4/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; common fine and few medium roots; 10 percent pebbles, 30 percent channers, and 5 percent cobbles; slightly calcareous; disseminated calcium carbonate; mildly alkaline (pH 7.8); gradual smooth boundary.

C2—17 to 60 inches; yellowish brown (10YR 5/4) very gravelly loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few fine roots; 25 percent pebbles and 10 percent channers; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4).

The mollic epipedon is 7 to 15 inches thick. The particle-size control section is very gravelly loam or very channery loam. Clay content is 18 to 24 percent. Rock fragment content of the particle-size control section is 35 to 65 percent.

A horizon: Chroma is 2 or 3. Reaction is neutral or mildly alkaline.

C horizon: Chroma is 2 or 3. Reaction is mildly alkaline or moderately alkaline.

Minchey Series

The Minchey series consists of very deep, well drained, moderately permeable soils on benches and mesas. These soils formed in glacial outwash derived dominantly from sandstone, quartzite, and shale. Slope is 1 to 3 percent. Elevation is 5,400 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are fine-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Minchey loam, 1 to 3 percent slopes, about 200 feet north and 140 feet west of the southeast corner of sec. 35, T. 15 S., R. 10 E.

A11—0 to 3 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak thin platy structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine vesicular pores; moderately calcareous; moderately alkaline (pH 8.2); clear smooth boundary.

A12—3 to 12 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and plastic; few fine and medium roots; many medium pores; moderately calcareous; moderately alkaline (pH 8.0); gradual wavy boundary.

C1ca—12 to 20 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, very firm, sticky and plastic; few fine and medium roots; few fine pores; strongly calcareous; fine nodules of calcium carbonate; moderately alkaline (pH 8.3); gradual wavy boundary.

C2ca—20 to 32 inches; very pale brown (10YR 8/3) sandy clay loam, very pale brown (10YR 7/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine and medium roots; few fine pores; very strongly calcareous; fine nodules of calcium carbonate; moderately alkaline (pH 8.2); diffuse wavy boundary.

C3ca—32 to 48 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly plastic; few fine roots; few fine pores; strongly calcareous; moderately alkaline (pH 7.9); gradual wavy boundary.

IIC4—48 to 64 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, slightly plastic; few fine roots; strongly calcareous; moderately alkaline (pH 8.4)

Secondary calcium carbonate is at a depth of 10 to 20 inches. Calcium carbonate equivalent is 15 to 40 percent.

A horizon: Value is 5 to 7 when dry and 4 or 5 when moist, and chroma is 2 or 3.

C horizon: Hue is 7.5YR or 10YR, value is 5 to 8 when dry and 4 to 7 when moist, and chroma is 3 or 4. Texture is clay loam or sandy clay loam above a depth of 32 inches and is gravelly sandy loam or very gravelly sandy loam below this depth.

Mivida Series

The Mivida series consists of very deep, well drained, moderately rapidly permeable soils on benches, mesas, and fan terraces. These soils formed in alluvium derived from sandstone and shale. Slope is 1 to 8 percent. Elevation is 5,400 to 6,600 feet. Average annual precipitation is 8 to 14 inches, and average annual air temperature is 45 to 49 degrees F.

These soils are coarse-loamy, mixed, mesic Ustollic Calciorthids.

Typical pedon of Mivida gravelly fine sandy loam, 3 to 8 percent slopes, about 5 miles northeast of Wellington, about 1,300 feet south and 1,350 feet east of the northwest corner of sec. 18, T. 14 S., R. 12 E.

A1—0 to 4 inches; brown (7.5YR 5/4) gravelly fine sandy loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure parting to weak fine granular; soft, friable; few fine, medium, and coarse roots; common very fine and fine pores and few medium pores; 15 percent pebbles and 5 percent cobbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear smooth boundary.

B2—4 to 15 inches; pink (7.5YR 7/4) fine sandy loam, brown (7.5YR 5/4) moist; weak medium subangular blocky structure; soft, friable, slightly sticky; few fine, medium, and coarse roots; common fine and medium pores; 10 percent pebbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C1ca—15 to 24 inches; pinkish white (7.5YR 8/2) fine sandy loam, pink (7.5YR 7/4) moist; moderate medium subangular blocky structure; hard, friable; few fine, medium, and coarse roots; common fine pores; 10 percent pebbles; strongly calcareous; coatings of calcium carbonate on the underside of pebbles; strongly alkaline (pH 8.6); clear wavy boundary.

C2—24 to 44 inches; pink (7.5YR 7/4) fine sandy loam, light brown (7.5YR 6/4) moist; weak coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few fine pores; 10 percent pebbles; strongly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); abrupt smooth boundary.

IIC3—44 to 60 inches; pink (7.5YR 7/4) very cobbly fine sandy loam, reddish yellow (7.5YR 6/6) moist; massive; soft, friable, slightly sticky and slightly plastic; few fine roots; 25 percent pebbles, 15 percent cobbles, and 10 percent stones; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6).

A horizon: Texture is very fine sandy loam, gravelly fine sandy loam, or very stony fine sandy loam.

B2 horizon: Value is 6 or 7 when dry. The horizon is 0 to 10 percent pebbles and 0 to 5 percent stones.

Cca horizon: Value is 6 to 8 when dry and 5 to 7 when moist, and chroma is 2 to 4. The horizon is 5 to 10 percent pebbles and 0 to 5 percent cobbles. Calcium carbonate equivalent is 20 to 40 percent.

IIC horizon: The horizon is 15 to 25 percent pebbles and 15 to 20 percent cobbles.

Moffat Series

The Moffat series consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans and benches. These soils formed in alluvium derived from sandstone and shale. Slope is 3 to 6 percent. Elevation is 5,400 to 5,800 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are coarse-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Moffat fine sandy loam, 3 to 6 percent slopes, about 1,800 feet north and 2,400 feet east of the southwest corner of sec. 23, T. 15 S., R. 12 E.

A1—0 to 2 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 4/4) moist; weak fine granular structure; soft, friable; few fine and medium roots; many very fine, common fine, and few medium pores; moderately calcareous; moderately alkaline (pH 8.4); abrupt smooth boundary.

B2—2 to 9 inches; brown (7.5YR 5/4) fine sandy loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; soft, friable; few fine and medium roots; many very fine, common fine, and few medium pores; moderately calcareous; moderately alkaline (pH 8.4); abrupt smooth boundary.

C1ca—9 to 21 inches; pink (7.5YR 7/4) fine sandy loam, brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; hard, firm; few very fine, fine, and medium roots; many very fine and common fine pores; strongly calcareous; coatings of calcium carbonate on faces of peds; strongly alkaline (pH 8.8); clear smooth boundary

C2ca—21 to 29 inches; pinkish white (7.5YR 8/2) fine sandy loam, pink (7.5YR 7/4) moist; moderate medium subangular blocky structure; hard, firm; few very fine and fine roots; common very fine and few fine pores; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 9.0); gradual wavy boundary.

C3—29 to 60 inches; pink (7.5YR 8/4) fine sandy loam, light brown (7.5YR 6/4) moist; massive; very hard, very firm; few very fine and fine roots; common very fine and few fine pores; 5 percent pebbles and 5 percent cobbles; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 9.0).

Secondary calcium carbonate is at a depth of 9 to 15 inches.

Cca horizon: Value is 6 to 8 when dry and 5 to 7 when moist, and chroma is 2 to 4. Calcium carbonate equivalent is 20 to 35 percent.

Nelman Series

The Nelman series consists of moderately deep, well drained, moderately rapidly permeable soils on benches and canyonsides. These soils formed in residuum derived dominantly from sandstone and shale. Slope is 15 to 50 percent. Elevation is 6,400 to 7,200 feet. Average annual precipitation ranges from 12 to 14 inches, and average annual air temperature ranges from 45 to 47 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Ustic Torriorthents.

Typical pedon of a Nelman very gravelly loam in an area of Nelman-Travessilla-Rock outcrop complex, about 9 miles west of Price, 2,000 feet south and 250 feet east of the northwest corner of sec. 24, T. 14 S. R. 8 E.

A1—0 to 4 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; weak fine granular structure; hard, friable, slightly sticky; common very fine and fine roots; 30 percent pebbles, 5 percent cobbles, and 5 percent stones; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.

C1—4 to 10 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; very hard, friable; few very fine, fine, and medium roots; few very fine and fine pores; 5 percent pebbles, 2 percent cobbles, and 2 percent stones; moderately calcareous; fine veins of calcium carbonate; strongly alkaline (pH 8.8); clear smooth boundary.

C2—10 to 27 inches; very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; moderate medium subangular blocky structure; hard, friable, slightly plastic; few very fine, fine, and medium roots; few very fine and fine pores; 5 percent pebbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8); clear smooth boundary.

R—27 inches; sandstone.

Bedrock is at a depth of 20 to 40 inches.

A horizon: Value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 3 or 4. Reaction is moderately alkaline or strongly alkaline.

C horizon: Hue is 7.5YR or 10YR, value is 5 to 7 when dry and 4 to 7 when moist, and chroma is 2 to 4. Clay content is 10 to 15 percent. Reaction is moderately alkaline or strongly alkaline.

Pathead Series

The Pathead series consists of moderately deep, well drained, moderately permeable soils on benches, ridges, canyonsides, and mountain slopes. These soils formed in colluvium and residuum derived dominantly from sandstone and shale. Slope is 15 to 70 percent. Elevation is 5,900 to 9,000 feet. Average annual precipitation is 14 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are loamy-skeletal, mixed (calcareous), frigid Typic Ustorthents.

Typical pedon of a Pathead extremely stony loam in an area of Pathead-Curecanti family association, about 2 miles north and 4 miles west of Helper, about 1,100 feet north and 400 feet west of the southeast corner of sec. 6, T. 13 S., R. 9 E.

A1—0 to 3 inches; brown (10YR 5/3) extremely stony loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine pores; 5 percent pebbles, 15 percent cobbles, 40 percent stones, and 5 percent boulders; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.

C1—3 to 14 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; many very fine pores; 20 percent pebbles and 5 percent cobbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8); clear smooth boundary.

C2—14 to 26 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine pores; 20 percent pebbles, 25 percent cobbles, and 5 percent stones; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8); clear smooth boundary.

R—26 inches; sandstone.

Bedrock is at a depth of 20 to 40 inches. The particle-size control section is 35 to 60 percent rock fragments.

A horizon: Value is 5 or 6 when dry and 3 to 5 when moist, and chroma is 2 or 3. Texture is gravelly loam, cobbly loam, extremely stony fine sandy loam, extremely stony loam, or extremely bouldery fine sandy loam. Reaction is moderately alkaline or strongly alkaline.

C horizon: Hue is 10YR or 2.5Y, value is 6 or 7 when dry and 3 to 5 when moist, and chroma is 2 to 4. Texture is very cobbly loam, extremely cobbly loam, or very stony fine sandy loam. Clay content is 18 to 27 percent. Calcium carbonate equivalent is 11 to 28 percent. Reaction is moderately alkaline or strongly alkaline.

Penoyer Variant

The Penoyer Variant consists of very deep, well drained, moderately permeable soils on alluvial fans and valley floors. These soils formed in alluvium derived from sandstone and shale. Slope is 1 to 6 percent. Elevation is 5,400 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature 48 to 50 degrees F.

These soils are coarse-silty, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Penoyer Variant loam, 1 to 3 percent slopes, about 650 feet north and 100 feet west of the southeast corner of sec. 3, T. 15 S., R. 11 E.

Ap1—0 to 4 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; common medium roots; many fine and few coarse pores; strongly calcareous; mildly alkaline (pH 7.7); clear smooth boundary.

Ap2—4 to 9 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common medium roots; few fine and coarse pores; strongly calcareous; mildly alkaline (pH 7.7); clear smooth boundary.

C1—9 to 23 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse angular blocky structure parting to weak medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; many fine and few medium roots; strongly calcareous; moderately alkaline (pH 7.9); gradual wavy boundary.

C2—23 to 41 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable; few fine roots; common fine discontinuous pores; moderately calcareous; moderately alkaline (pH 8.0); gradual wavy boundary.

C3—41 to 60 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable; few fine roots; few fine pores; strongly calcareous; moderately alkaline (pH 8.2).

Calcium carbonate equivalent of the profile is 5 to 25 percent. Reaction is mildly alkaline or moderately alkaline.

A horizon: Value is 6 or 7 when dry and 4 or 5 when moist, and chroma is 2 or 3.

C horizon: Clay content is 13 to 18 percent.

Perma Family

The Perma family consists of very deep, well drained, moderately rapidly permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from sandstone and shale. Slope is 15 to 80 percent. Elevation is 7,200 to 8,800 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are loamy-skeletal, mixed Typic Haploborolls.

Reference pedon of a Perma family very stony sandy loam in an area of Perma family-Datino complex, about 1.5 miles north and east of Geneva Coal Mine; 2,400 feet north and 600 feet east of the southwest corner of sec. 35, T. 15 S., R. 14 E.

A11—0 to 7 inches; dark brown (7.5YR 4/2) very stony sandy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable; many very fine and coarse roots, common fine roots, and few medium roots; common very fine pores; 10 percent pebbles, 10 percent cobbles, and 20 percent stones; neutral (pH 6.8); clear smooth boundary.

A12—7 to 15 inches; dark brown (7.5YR 4/2) cobbly sandy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots, common fine and coarse roots, and few medium roots; common very fine pores; 10 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

B21—15 to 22 inches; brown (7.5YR 5/3) cobbly sandy loam, dark brown (7.5YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine and fine pores; 15 percent pebbles and 15 percent cobbles; neutral (pH 7.0); clear smooth boundary.

B22—22 to 35 inches; brown (7.5YR 5/3) very cobbly sandy loam, dark brown (7.5YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine, fine, coarse, and very coarse roots; common very fine pores; 25 percent pebbles and 20 percent cobbles; neutral (pH 6.6); clear smooth boundary.

C1—35 to 60 inches; brown (7.5YR 5/3) very stony sandy loam, dark brown (7.5YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots and common coarse roots; many very fine pores; 15 percent pebbles, 15 percent cobbles, and 20 percent stones; neutral (pH 6.6).

A horizon: Value is 4 or 5 when dry and 2 or 3 when moist, and chroma is 2 or 3.

B2 horizon: Hue is 7.5YR or 10YR, value is 4 or 5 when moist, and chroma is 2 or 3.

C horizon: Hue is 7.5YR or 10YR.

Persayo Series

The Persayo series consists of shallow, well drained, moderately slowly permeable soils that are dominantly on hillslopes. These soils formed in residuum and alluvium derived from shale and sandstone. Slope is 1 to 30 percent. Elevation is 5,300 to 6,100 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are loamy, mixed (calcareous), mesic, shallow Typic Torriorthents.

Typical pedon of a Persayo loam in an area of Persayo-Chipeta complex, about 2.2 miles southwest of Sunnyside Junction, about 1,900 feet north and 2,100 feet west of the southeast corner of sec. 18, T. 15 S., R. 12 E.

A1—0 to 5 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine and few medium pores; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear smooth boundary.

C1—5 to 12 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, firm, sticky and plastic; few very fine and fine roots; common very fine and few fine pores; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.

Cr—12 inches; weathered shale.

Paralithic contact is at a depth of 10 to 20 inches. Calcium carbonate equivalent is 7 to 14 percent.

A horizon: Hue is 10YR or 2.5YR, value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 or 3. Texture is dominantly loam, very cobbly clay loam, or very channery loam.

C horizon: Hue is 10YR or 2.5YR. Texture is loam or silty clay loam. Clay content is 20 to 30 percent.

Podo Series

The Podo series consists of shallow, well drained, moderately rapidly permeable soils on benches, mesas, and mountain slopes. These soils formed in residuum and colluvium derived from sandstone, shale, and limestone. Slope is 1 to 70 percent. Elevation is 5,200 to 9,000 feet. Average annual precipitation is 14 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are loamy, mixed (calcareous), frigid Lithic Ustorthents.

Typical pedon of Podo gravelly sandy loam, 1 to 8 percent slopes, about 26 miles northeast of Sunnyside, about 2,300 feet west and 50 feet south of the northeast corner of sec. 19, T. 12 S., R. 17 E.

A1—0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 4/3) moist; weak medium platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine and fine vesicular pores; 20 percent pebbles; moderately calcareous; moderately alkaline (pH 8.2); abrupt wavy boundary.

C1—2 to 8 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine and fine pores; 10 percent pebbles; strongly calcareous; moderately alkaline (pH 8.2); clear wavy boundary.

C2—8 to 11 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; 25 percent pebbles; strongly calcareous; moderately alkaline (pH 8.2); abrupt smooth boundary.

R—11 inches; sandstone.

Bedrock is at a depth of 8 to 20 inches.

A1 horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry and 3 to 5 when moist, and chroma is 2 to 4. Texture is gravelly sandy loam, gravelly loam, cobbly loam, very stony loam, or very bouldery sandy loam. Calcium carbonate equivalent is 12 to 15 percent.

C horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 to 4. Texture is gravelly sandy loam, loam, or gravelly loam. Clay content is 13 to 27 percent. Rock fragment content is 5 to 35 percent. Calcium carbonate equivalent is 22 to 33 percent.

Rabbitex Series

The Rabbitex series consists of deep, well drained, moderately permeable soils on mountain slopes and ridgetops. These soils formed in residuum and colluvium derived dominantly from sandstone, shale, limestone, and siltstone. Slope is 15 to 70 percent. Elevation is 7,000 to 9,200 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are fine-loamy, mixed Typic Calciborolls.

Typical pedon of a Rabbitex loam in an area of Rabbitex-Pathead complex, about 12 miles northeast of Sunnyside, about 1,400 feet north and 1,700 feet west of southeast corner of sec. 16, T. 13 S., R. 15 E.

A11—0 to 5 inches; dark brown (10YR 3/3) loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; slightly hard, firm, slightly sticky; common very fine and fine roots; few very fine and fine pores; 10 percent pebbles; moderately alkaline (pH 7.9); clear smooth boundary.

A12—5 to 12 inches; dark brown (10YR 4/3) channery loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine and fine pores; 20 percent channers and 10 percent pebbles; slightly calcareous; moderately alkaline (pH 8.2); clear smooth boundary.

C1ca—12 to 22 inches; yellowish brown (10YR 5/4) channery loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine and fine pores; 20 percent channers and 5 percent pebbles; slightly calcareous; moderately alkaline (pH 8.2); clear smooth boundary.

C2ca—22 to 30 inches; pale brown (10YR 6/3) gravelly loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine pores; 25 percent pebbles; strongly calcareous; soft masses of calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C3ca—30 to 53 inches; pale brown (10YR 6/3) gravelly loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, slightly sticky and slightly plastic; 20 percent pebbles; strongly calcareous; soft masses of calcium carbonate; moderately alkaline (pH 8.4); gradual smooth boundary.

C4—53 to 59 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; massive; soft, friable, slightly sticky and slightly plastic; 10 percent pebble-sized shale fragments; moderately calcareous; soft masses of calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.

R—59 inches; sandstone.

Bedrock is at a depth of 40 inches to more than 60 inches. Secondary calcium carbonate is at a depth of 11 to 24 inches. The mollic epipedon is 11 to 14 inches thick. The particle-size control section is 20 to 27 percent rock fragments. Clay content is 18 to 25 percent.

A1 horizon: Value is 3 to 5 when dry and 2 or 3 when moist, and chroma is 2 or 3. Texture is loam, stony loam, silt loam, or bouldery loam.

Cca horizon: Hue is 10YR or 2.5Y, value is 6 to 8 when dry and 5 to 7 when moist, and chroma is 2 to 4. Texture is gravelly loam, channery loam, or cobbly loam. Clay content is 18 to 25 percent. The horizon is 15 to 25 percent pebbles and channers and 0 to 10 percent cobbles. Reaction is moderately alkaline or strongly alkaline. Calcium carbonate equivalent is 25 to 40 percent.

Rabbitex Family

The Rabbitex family consists of deep, well drained, moderately permeable soils on mountainsides. These soils formed in colluvium and residuum derived dominantly from sandstone and shale. Slope is 30 to 50 percent. Elevation is 7,000 to 8,500 feet. Average annual precipitation ranges from 16 to 20 inches, and average annual air temperature ranges from 38 to 45 degrees F.

These soils are fine-loamy, mixed Typic Calciborolls.

Reference pedon of Rabbitex family stony loam in an area of Rabbitex family-Datino Variant complex, about 100 feet south and 2,000 feet east of the northwest corner of sec. 28, T. 12 S., R. 9 E.

A11—0 to 4 inches; dark grayish brown (10YR 4/2) stony loam, very dark gray (10YR 3/1) moist; weak medium to fine subangular blocky structure; slightly hard, firm; common very fine and fine roots; few very fine pores; 5 percent pebbles, 5 percent cobbles, and 10 percent stones; slightly calcareous; moderately alkaline (pH 8.0); abrupt smooth boundary.

A12—4 to 13 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; few very fine and fine pores; 5 percent pebbles and 10 percent cobbles; slightly calcareous; moderately alkaline (pH 8.4); abrupt smooth boundary.

C1ca—13 to 24 inches; light yellowish brown (10YR 6/4) cobbly loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine roots and few medium and coarse roots; common very fine and few fine pores; 5 percent pebbles and 15 percent cobbles; strongly calcareous; soft masses of calcium carbonate; strongly alkaline (pH 8.6); gradual smooth boundary.

C2ca—24 to 32 inches; light yellowish brown (10YR 6/4) cobbly loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few fine and medium roots; common very fine and few fine pores; 10 percent pebbles and 20 percent cobbles; strongly calcareous; soft masses of calcium carbonate and coatings of calcium carbonate on rock fragments; strongly alkaline (pH 8.8); gradual smooth boundary.

C3ca—32 to 45 inches; very pale brown (10YR 7/4) gravelly loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few fine roots; 15 percent pebbles and 5 percent cobbles; strongly calcareous; fine nodules of calcium carbonate and coatings of calcium carbonate on rock fragments; strongly alkaline (pH 8.8); abrupt smooth boundary.

R—45 inches; sandstone.

Bedrock is at a depth of 40 to 60 inches. Clay content in the particle-size control section ranges from 18 to 27 percent, and rock fragment content ranges from 15 to 35 percent.

Rafael Series

The Rafael series consists of very deep, poorly drained, slowly permeable soils on alluvial fans, flood plains, and valley floors. These soils formed in alluvium derived from shale. Slope is 1 to 3 percent. Elevation is 5,400 to 5,600 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 47 to 49 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Typic Haplaquepts.

Typical pedon of Rafael silty clay loam, about 1,300 feet west and 600 feet north of the southeast corner of sec. 29, T. 22 S., R. 6 E.

A11—0 to 3 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; common medium distinct strong brown (7.5YR 5/6) mottles; weak thin platy structure; slightly hard, firm, sticky and plastic; many fine and medium roots; few fine and medium pores; strongly calcareous; moderately alkaline (pH 8.0); clear smooth boundary.

A12—3 to 11 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; common medium distinct yellowish red (5YR 5/8) mottles; weak moderately thick platy structure; hard, firm, sticky and plastic; few fine and many medium roots; few fine and common medium pores; moderately calcareous; moderately alkaline (pH 8.4); clear wavy boundary.

C1—11 to 17 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; common medium distinct strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; slightly hard, firm, slightly sticky and plastic; many fine and medium roots; common fine and medium pores; strongly calcareous; strongly alkaline (pH 8.6); clear wavy boundary.

C2—17 to 33 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; few fine distinct strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure parting to weak coarse subangular blocky; very hard, very firm, sticky and very plastic; many fine and medium roots; common fine and few medium pores; many gypsum mycelia; moderately calcareous; strongly alkaline (pH 8.6); clear wavy boundary.

C3—33 to 43 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; few fine distinct strong brown (7.5YR 5/6) mottles; massive; hard, firm, slightly sticky and plastic; few fine and medium roots; common fine and few medium pores; moderately calcareous; moderately alkaline (pH 8.3); gradual wavy boundary.

C4—43 to 70 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 4/2) moist; massive;

hard, firm, slightly sticky and plastic; few fine and medium roots; common fine and few medium pores; strongly calcareous; moderately alkaline (pH 8.2).

The calcium carbonate equivalent in the profile is 10 to 30 percent and is greatest near the surface. Conductivity of the saturation extract is 4 to 16 millimhos.

A horizon: Hue is 2.5Y or 5Y, value is 5 to 7 when dry and 4 or 5 when moist, and chroma is 2 or 3.

C horizon: Texture is loam, clay loam, or silty clay loam. Clay content is 20 to 35 percent. Mottles are at a depth of 0 to 20 inches.

Ravola Series

The Ravola series consists of very deep, well drained, moderately permeable soils on alluvial fans and narrow valley floors. These soils formed in alluvium derived from shale and sandstone. Slope is 1 to 6 percent. Elevation is 5,300 to 6,000 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Typic Torrifluvents.

Typical pedon of Ravola loam, 1 to 6 percent slopes, eroded; about 5 miles northeast of Wellington; about 400 feet west and 1,800 feet south of the northeast corner of sec. 14, T. 14 S., R. 11 E.

A1—0 to 2 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; moderate thick platy structure; soft, friable, sticky and plastic; few very fine, fine, and medium roots; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); abrupt wavy boundary.

C1—2 to 23 inches; light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; moderate coarse subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine, fine, and medium roots; common very fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

C2—23 to 41 inches; light brownish gray (2.5Y 6/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; many very fine pores, common fine pores, and few medium and coarse pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); gradual smooth boundary.

C3—41 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, sticky and plastic; few very fine roots; many very fine pores and few fine, medium, and coarse pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2).

The profile has hue of 2.5Y or 5Y, value of 6 or 7 when dry and 4 or 5 when moist, and chroma of 2 to 4. Calcium carbonate equivalent is 5 to 25 percent. The 10- to 40-inch particle-size control section is loam, silt loam, or very fine sandy loam; it is 18 to 27 percent clay.

A horizon: Texture is loam or silty clay loam. Reaction is mildly alkaline or moderately alkaline.

C horizon: Texture is loam or silt loam. Clay content is 18 to 27 percent. Reaction is mildly alkaline to strongly alkaline.

Rottulee Family

The Rottulee family consists of moderately deep, well drained, moderately permeable soils on plateaus, mountain slopes, and canyonsides. These soils formed in residuum and colluvium derived from sandstone and shale. Slope is 15 to 60 percent. Elevation is 7,100 to 8,700 feet. Average annual precipitation is 16 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are fine-loamy, mixed Typic Haploborolls.

Reference pedon of Rottulee family loam in an area of Rottulee family-Trag complex, about 1 mile north of Emma Park, about 1,750 feet south and 550 feet east of the northwest corner of sec. 5, T. 12 S., R. 11 E.

A1—0 to 2 inches; reddish brown (5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse roots; 5 percent pebbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.0); abrupt smooth boundary.

B1—2 to 8 inches; reddish brown (5YR 5/3) loam, dark reddish brown (5YR 3/3) moist; weak fine subangular blocky structure parting to weak medium granular; soft, friable, slightly sticky and plastic; many very fine, fine, medium, and coarse roots; 5 percent pebbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.0); clear smooth boundary.

B2—8 to 15 inches; reddish brown (5YR 5/3) clay loam, reddish brown (5YR 4/3) moist; moderate very fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; 5 percent pebbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.0); clear wavy boundary.

B3—15 to 23 inches; reddish brown (5YR 5/3) gravelly silty clay loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; 20 percent hard shale pebbles; moderately calcareous; calcium carbonate on shale fragments; moderately alkaline (pH 8.4); abrupt wavy boundary.

C1ca—23 to 34 inches; reddish brown (5YR 5/3) gravelly silt loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; 20 percent hard shale pebbles; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt wavy boundary.

R—34 inches; hard shale.

Bedrock is at a depth of 20 to 40 inches. The control section is 0 to 20 percent rock fragments. Reaction is moderately alkaline or strongly alkaline.

A horizon: Value is 4 or 5 when dry, and chroma is 2 or 3.

B horizon: Value is 4 or 5 when dry and 3 or 4 when moist, and chroma is 2 or 3. Clay content is 24 to 30 percent.

C horizon: Value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 or 3. Clay content is 26 to 32 percent.

Sagers Series

The Sagers series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and narrow valley floors. These soils formed in alluvium derived from mixed sedimentary rocks. Slope is 1 to 3 percent. Elevation is 5,600 to 5,900 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are fine-silty, mixed (calcareous), mesic Typic Torriorthents.

Typical pedon of Sagers silty clay loam, about 2,000 feet north and 750 feet west of the southeast corner of sec. 35, T. 15 S., R. 10 E.

Ap1—0 to 2 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; soft, firm, slightly sticky and slightly plastic; common medium and coarse roots; common medium continuous pores; strongly calcareous; mildly alkaline (pH 7.6); clear smooth boundary.

Ap2—2 to 7 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure parting to moderate medium and fine granular; hard, firm, slightly sticky and plastic; common very fine, fine, medium, and coarse roots; common medium continuous pores; strongly calcareous; mildly alkaline (pH 7.6); clear smooth boundary.

C1—7 to 19 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; moderate medium angular blocky structure; very hard, very firm, sticky and plastic; common fine and medium roots; common fine discontinuous pores and common medium continuous pores; strongly calcareous; moderately alkaline (pH 7.9); diffuse wavy boundary.

C2—19 to 31 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; weak medium subangular blocky structure; very hard, very firm, sticky and plastic; common fine and few medium roots; common fine discontinuous pores; strongly calcareous; moderately alkaline (pH 7.9); diffuse wavy boundary.

C3—31 to 60 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; massive; very hard, very firm, sticky and plastic; few fine roots; common fine discontinuous pores; strongly calcareous; moderately alkaline (pH 7.9).

Calcium carbonate equivalent in the profile is 10 to 25 percent. The particle-size control section is clay loam or silty clay loam. Clay content is 27 to 35 percent.

Ap horizon: Hue is 10YR or 7.5YR, value is 5 to 7 when dry and 4 to 6 when moist, and chroma is 2 to 4.

Saltair Series

The Saltair series consists of very deep, poorly drained, strongly saline, slowly permeable soils on valley floors. These soils formed in alluvium derived from shale and sandstone. Slope is 0 to 3 percent. Elevation is 5,400 to 5,600 feet. Average annual precipitation is 6 to 8 inches, and average annual air temperature is 47 to 49 degrees F.

These soils are fine-silty, mixed, mesic Typic Salorthids.

Typical pedon of Saltair silty clay loam, about 1,200 feet north and 500 feet west of the southeast corner of sec. 31, T. 15 S., R. 11 E.

A1sa—0 to 1 inch; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak thin platy structure parting to moderate fine granular; soft, firm, very sticky and plastic; common coarse roots; many fine and medium vesicular pores; strongly calcareous; strongly alkaline (pH 8.9); thin salt crust; clear smooth boundary.

C1sa—1 to 7 inches; light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) moist; many fine distinct yellowish brown (10YR 5/6) mottles; moderate fine angular blocky structure; very hard, very firm, very sticky and very plastic; common fine and medium roots; common fine and medium pores; very strongly saline; strongly calcareous; efflorescent salt on many ped faces and in pores; moderately alkaline (pH 8.3); clear smooth boundary.

C2sa—7 to 14 inches; light brownish gray (2/5Y 6/2) heavy silt loam, grayish brown (2.5Y 5/2) moist;

common fine distinct yellowish brown (10YR 5/4) and common fine faint gray (N 5/0) mottles; weak fine angular blocky structure; very hard, very firm, very sticky and very plastic; few fine roots; common medium pores; very strongly saline; efflorescent salt on many ped faces and in pores; strongly calcareous; strongly alkaline (pH 8.5); gradual wavy boundary.

C3sa—14 to 32 inches; light brownish gray (2.5Y 6/2) heavy silt loam, grayish brown (2.5Y 5/2) moist; many fine distinct yellowish brown (10YR 5/4) mottles and common fine faint gray (N 5/0) mottles; massive; very hard, firm, sticky and plastic; few fine roots; common fine and medium pores; very strongly saline; efflorescent salt on many ped faces and in pores; strongly calcareous; strongly alkaline (pH 8.5); gradual wavy boundary.

C4sa—32 to 60 inches; light gray (2.5Y 7/2) heavy silt loam, grayish brown (2.5Y 5/2) moist; few fine distinct yellowish brown (10YR 5/4) and medium faint gray (N 5/0) mottles; massive; hard, firm, sticky and plastic; few fine roots; common fine pores; strongly calcareous; strongly alkaline (pH 8.5).

The percentage of exchangeable sodium in the profile is 15 to 70.

A horizon: Hue is 2.5Y or 5Y, value is 4 to 6 when moist and 5 to 7 when dry, and chroma is 1 or 2.

C horizon: Texture is silty clay loam or silt loam.

Senchert Series

The Senchert series consists of moderately deep, well drained, moderately permeable and moderately slowly permeable soils on mountain slopes, benches, and ridges of plateaus. These soils formed in residuum, colluvium, and alluvium derived dominantly from shale or sandstone. Slope is 1 to 50 percent. Elevation is 7,200 to 10,100 feet. Average annual precipitation is 20 to 30 inches, and average annual air temperature is 36 to 38 degrees F.

These soils are fine-loamy, mixed Argic Pachic Cryoborolls.

Typical pedon of Senchert loam, 3 to 15 percent slopes, about 10 miles north and 2 miles west of East Carbon City, about 1,000 feet north and 300 feet west of the southeast corner of sec. 32, T. 15 S., R. 16 E.

O1—3 inches to 0; partly decomposed leaves and twigs.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; soft, very friable; few very fine and fine roots; neutral (pH 7.2); abrupt smooth boundary.

B21t—4 to 9 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine, medium, and coarse roots; few very fine and fine pores; few thin clay films on ped faces and in pores; neutral (pH 7.2); clear smooth boundary.

B22t—9 to 16 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few very fine and fine pores; common moderately thick clay films on ped faces and in pores; mildly alkaline (pH 7.6); clear smooth boundary.

B23t—16 to 35 inches; brown (10YR 5/3) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few very fine, fine, and medium roots; few very fine and fine pores; few thin clay films on ped faces and in pores; mildlv alkaline (pH 7.6); abrupt smooth boundary.

R—35 inches; calcareous sandstone.

Bedrock is at a depth of 20 to 40 inches. The mollic epipedon and solum are 18 to 35 inches thick.

A horizon: Value is 3 to 5 when dry and 2 or 3 when moist, and chroma is 2 or 3. Texture is loam, very fine sandy loam, or fine sandy loam.

B2t horizon: Value is 4 or 5 when dry, and chroma is 2 or 3. Texture is loam or clay loam. Clay content is 24 to 35 percent. Reaction is neutral or mildly alkaline.

C horizon (where present): Texture is clay loam or silty clay. This horizon is 0 to 7 inches thick.

Senchert Family

The Senchert family consists of moderately deep, well drained, moderately permeable soils on mountain slopes, plateaus, and ridges. These soils formed in residuum and alluvium derived dominantly from sandstone and shale. Slope is 1 to 50 percent. Elevation is 8,000 to 10,100 feet. Average annual precipitation is 20 to 30 inches, and average annual air temperature is 36 to 38 degrees F.

These soils are fine-loamy, mixed Argic Pachic Cryoborolls.

Reference pedon of Senchert family, 3 to 15 percent slopes, about 150 feet south and 1,000 feet east of the northwest corner of sec. 10, T. 16 S., R. 16 E.

A11—0 to 1 inch; dark grayish brown (10YR 4/2) loam, very dark gray (10YR 3/1) moist; weak fine granular structure; slightly hard, friable; common very fine and fine roots; neutral (pH 7.2); abrupt smooth boundary.

A12—1 to 11 inches; dark grayish brown (10YR 4/2) loam, very dark gray (10YR 3/2) moist; weak medium subangular blocky structure; hard, friable, slightly plastic; many very fine and fine roots; common very fine and fine pores; neutral (pH 7.2); clear smooth boundary.

A13—11 to 23 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, friable; slightly sticky and slightly plastic; common very fine and fine roots; many fine pores; mildly alkaline (pH 7.4); clear smooth boundary.

B2t—23 to 35 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; very hard, firm, sticky and plastic; few very fine and fine roots; few very fine and fine pores; mildly alkaline (pH 7.4); clear smooth boundary.

R—35 inches; sandstone.

Bedrock is at a depth of 20 to 40 inches. Clay content in the particle-size control section ranges from 18 to 35 percent.

Sheepcan Series

The Sheepcan series consists of very deep, well drained, moderately slowly permeable soils on mountain slopes. These soils formed in colluvium derived from sandstone, shale, and siltstone of the Green River Formation. Slope is 40 to 70 percent. Elevation is 7,000 to 8,500 feet. Average annual precipitation is 15 to 18 inches, and average annual air temperature is 37 to 45 degrees F.

These soils are fine-loamy, mixed (calcareous), frigid Typic Ustorthents.

Typical pedon of a Sheepcan stony loam in an area of Sheepcan-Podo-Rock outcrop complex, about 20 miles north of Wellington, about 1,500 feet east and 1,700 feet south of the northwest corner of sec. 4, T. 12 S., R. 12 E.

A1—0 to 9 inches; light brownish gray (10YR 6/2) stony loam, dark grayish brown (2.5Y 4/2) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; few very fine and many fine random tubular pores; 10 percent pebbles, 10 percent cobbles, and 10 percent stones; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

C1—9 to 18 inches; light gray (10YR 7/2) gravelly clay loam, pale brown (10YR 6/3) moist; moderate medium and fine subangular blocky structure; slightly hard, firm, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and few fine random tubular pores; 20 percent pebbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.5); clear wavy boundary.

C2—18 to 28 inches; pale yellow (2.5Y 8/3) cobbly clay loam, pale brown (10YR 6/3) moist; moderate medium and fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots and few medium roots; common very fine and few fine random tubular pores; 10 percent pebbles and 20 percent cobbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); clear wavy boundary.

C3—28 to 43 inches; white (10YR 8/1) very cobbly clay loam, very pale brown (10YR 7/3) moist; weak medium and fine subangular blocky structure; hard, friable, sticky and plastic; common very fine roots and few fine and medium roots; common very fine and few fine random tubular pores; 20 percent pebbles and 20 percent cobbles; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

C4—43 to 60 inches; white (2.5Y 8/2) very cobbly clay loam, light yellowish brown (2.5Y 6/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; few very fine and fine random tubular pores; 20 percent pebbles and 20 percent cobbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4).

Bedrock is at a depth of 60 inches or more. The particle-size control section is 20 to 35 percent rock fragments.

C horizon: Value is 6 or 8 when dry and 4 to 7 when moist. Texture is gravelly clay loam or cobbly clay loam to a depth of 28 inches and is very cobbly clay loam below this depth.

Shupert Series

The Shupert series consists of very deep, well drained, slowly permeable soils on narrow valley and canyon floors. These soils formed in alluvium derived from sandstone and shale. Slope is 1 to 8 percent. Elevation ranges from 4,600 to 7,200 feet but commonly is 5,200 to 6,400 feet. Average annual precipitation is 12 to 16 inches, and average annual air temperature is 43 to 45 degrees F.

These soils are fine-loamy, mixed (calcareous), frigid Typic Ustifluvents.

Typical pedon of a Shupert gravelly loam in an area of Shupert-Winetti complex, about 4 miles north of Whitmore Park, about 1,000 feet south and 2,000 feet west of the southeast corner of sec. 32, T. 12 S., R. 12 E.

A1—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, olive brown (2.5Y 4/3) moist; weak thin platy structure parting to moderate very fine subangular blocky; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots and few coarse roots; common very fine and fine random tubular pores; 30 percent pebbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear smooth boundary.

C1—3 to 9 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine random tubular pores; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

IIC2—9 to 21 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) 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 and coarse roots; common very fine and fine and few medium random tubular pores; 15 percent pebbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

IIC3—21 to 34 inches; light yellowish brown (10YR 6/4) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium and coarse roots; common very fine and fine and few medium random tubular pores; 10 percent pebbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

IIC4—34 to 49 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, friable, sticky and slightly plastic; common very fine and fine and few medium random tubular pores; 10 percent pebbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

IIC5—49 to 60 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine, fine, and medium random tubular pores; 5 percent pebbles; slightly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4).

The particle-size control section is 0 to 15 percent rock fragments.

A horizon: Hue is 10YR or 2.5Y, value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 or 3.

C horizon: Hue is 10YR or 2.5Y, value is 5 to 7 when dry and 4 or 5 when moist, and chroma is 2 to 4. Texture is clay loam, but in some pedons there are thin lenses of gravelly clay loam and gravelly loam.

Silas Series

The Silas series consists of very deep, somewhat poorly drained, moderately permeable soils on narrow alluvial valleys. These soils formed in alluvium derived from shale and sandstone. Slope is 0 to 3 percent. Elevation is 7,200 to 8,600 feet. Average annual precipitation is 16 to 20 inches, and average annual air temperature is 38 to 45 degrees F.

These soils are fine-loamy, mixed Cumulic Cryoborolls.

Typical pedon of Silas loam, about 2 miles north of the town of Scofield, about 500 feet north and 1,100 feet east of the southwest corner of sec. 20, T. 12 S., R. 7 E.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) loam, very dark gray (10YR 3/1) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; mildly alkaline (pH 7.6); abrupt smooth boundary.

A12—2 to 17 inches; dark grayish brown (10YR 4/2) loam, very dark gray (10YR 3/1) moist; weak moderate subangular blocky structure parting to moderate coarse granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine pores; neutral (pH 7.2); abrupt wavy boundary.

A13—17 to 28 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine pores; neutral (pH 7.2); abrupt wavy boundary.

C1—28 to 43 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; common medium faint yellowish brown (10YR 5/4) mottles; weak coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; mildly alkaline (pH 7.4); clear smooth boundary.

C2—43 to 60 inches; light brownish gray (10YR 6/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; common medium faint yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; neutral (pH 7.2).

The mollic epipedon is 20 to 34 inches thick. The water table is at a depth of 20 to 40 inches.

A horizon: Value is 3 to 5 when dry and 2 or 3 when moist, and chroma is 1 to 3. Reaction is neutral or mildly alkaline.

C horizon: Value is 5 to 7 when dry and 4 or 5 when moist, and chroma is 2 or 3. Texture is loam or sandy clay loam with thin layers of silt loam and fine sandy loam.

Stormitt Series

The Stormitt series consists of very deep, well drained, moderately permeable soils on hillslopes, benches, and mesas. These soils formed in colluvium and glacial outwash derived from sandstone, shale, and quartzite. Slope is 3 to 30 percent. Elevation is 5,400 to 6,800 feet. Average annual precipitation is 8 to 10 inches, and average annual air temperature is 47 to 49 degrees F.

These soils are loamy-skeletal, carbonatic, mesic Ustollic Calciorthids.

Typical pedon of Stormitt gravelly sandy clay loam, 3 to 10 percent slopes, about 200 feet south and 800 feet west of the northeast corner of sec. 26, T. 14 S., R. 11 E.

A1—0 to 1 inch; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 5/3) moist; weak thin platy structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; few fine roots; common very fine vesicular pores; 20 percent pebbles; moderately calcareous; mildly alkaline (pH 7.8); abrupt smooth boundary.

B21—1 to 5 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common medium roots; common fine discontinuous pores; 20 percent pebbles; moderately calcareous; moderately alkaline (pH 8.0); clear smooth boundary.

B22—5 to 9 inches; brownish yellow (10YR 6/5) gravelly sandy clay loam, yellowish brown (10YR 5/5) moist; moderate coarse angular blocky structure parting to moderate fine angular and subangular blocky; slightly hard, friable, slightly sticky and plastic; few fine and common medium roots; few fine discontinuous pores; 15 percent pebbles and 5 percent cobbles; strongly calcareous; mildly alkaline (pH 7.8); clear wavy boundary.

C1ca—9 to 14 inches; very pale brown (10YR 7/4) very cobbly sandy clay loam, light yellowish brown (10YR 6/4) moist; moderate coarse angular blocky structure parting to moderate fine angular and subangular blocky; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine discontinuous pores; 15 percent pebbles and 35 percent cobbles; very strongly calcareous; moderately alkaline (pH 8.1); gradual wavy boundary.

C2ca—14 to 30 inches; very pale brown (10YR 8/4) very cobbly sandy clay loam, very pale brown (10YR 7/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; 15 percent pebbles and 35 percent cobbles; very strongly calcareous; moderately alkaline (pH 8.0); gradual wavy boundary.

C3—30 to 60 inches; very pale brown (10YR 7/3) very cobbly sandy clay loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; 15 percent pebbles and 35 percent cobbles; very strongly calcareous; strongly alkaline (pH 8.8).

Secondary calcium carbonate is at a depth of 7 to 15 inches.

A horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry and 3 to 5 when moist, and chroma is 2 to 4.

Cca horizon: Value is 6 to 8 when dry and 4 to 7 when moist, and chroma is 4 or 5. The horizon is 15 to 20 percent pebbles and 30 to 45 percent cobbles. Calcium carbonate equivalent is 40 to 70 percent.

Strych Series

The Strych series consists of very deep, well drained, moderately rapidly permeable soils on outwash plains, alluvial fans, toe slopes, fan terraces, and the sides of benches. These soils formed in colluvium, alluvium, and glacial outwash derived dominantly from sandstone and shale. Slope is 3 to 70 percent. Elevation is 5,300 to 7,500 feet. Average annual precipitation ranges from 8 to 14 inches, and average annual air temperature ranges from 45 to 47 degrees F.

These soils are loamy-skeletal, mixed, mesic Ustollic Calciorthids.

Typical pedon of Strych very stony loam, 3 to 15 percent slopes, about 2.5 miles southeast of Hiawatha, about 1,900 feet south and 2,300 feet west of the northeast corner of sec. 1, T. 16 S., R. 8 E.

A1—0 to 5 inches; pinkish gray (7.5YR 6/2) very stony loam, dark brown (7.5YR 4/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and many coarse roots; common very fine and few fine pores; 20 percent pebbles, 10 percent cobbles, and 15 percent stones; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

C1ca—5 to 17 inches; light gray (10YR 7/2) very stony loam, grayish brown (10YR 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; common fine and many coarse roots; few very fine pores; 10 percent pebbles, 15 percent cobbles, and 10 percent stones; strongly calcareous; veins of calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

C2ca—17 to 47 inches; very pale brown (10YR 7/3) very stony loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine and few fine pores; 15 percent pebbles, 25 percent cobbles, and 20 percent stones; strongly calcareous; powdery soft masses of calcium carbonate; strongly alkaline (pH 8.8); gradual wavy boundary.

C3—47 to 60 inches; very pale brown (10YR 8/4) very cobbly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable; few fine roots; few fine pores; 20 percent pebbles, 20 percent cobbles, and 5 percent stones; strongly calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8).

Secondary calcium carbonate is at a depth of 5 to 15 inches.

A horizon: Hue is 10YR or 7.5YR, and chroma is 2 to 4. Texture is very bouldery fine sandy loam, gravelly loam, or very stony loam. Calcium carbonate equivalent is 15 to 20 percent. Reaction is moderately alkaline or strongly alkaline.

Cca horizon: Value is 6 or 7 when dry, and chroma is 2 to 4. Texture is very stony sandy loam or very stony loam. Calcium carbonate equivalent is 25 to 40 percent.

C horizon: Hue is 7.5YR or 10YR, value is 6 to 8 when dry and 4 to 6 when moist, and chroma is 2 to 4. Texture is very cobbly sandy loam or very stony sandy loam. Calcium carbonate equivalent is 16 to 20 percent. Reaction is moderately alkaline or strongly alkaline.

Toze Family

The Toze family consists of very deep, well drained, moderately permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from sandstone, shale, and siltstone. Slope is 15 to 90 percent. Elevation is 6,700 to 9,600 feet. Average annual precipitation is 16 to 30 inches, and average annual air temperature is 36 to 45 degrees F.

These soils are fine-loamy, mixed Calcic Pachic Cryoborolls.

Reference pedon of a Toze family loam in an area of Doney-Toze families complex, about 2 miles west of Wattis, about 1,800 feet south and 1,500 feet east of the northwest corner of sec. 16, T. 5 S., R. 8 E.

O1—2 inches to 0; twigs and needles.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky; common very fine and few fine roots; common very fine and few fine pores; 10 percent cobbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

A12—2 to 9 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; strong coarse subangular blocky structure; slightly hard, friable, slightly sticky; common very fine and few fine roots; common very fine and few fine pores; 10 percent cobbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

A13—9 to 17 inches; dark grayish brown (10YR 4/2) cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; hard, friable, sticky and plastic; common very fine roots; common very fine and few fine pores; 5 percent pebbles and 10 percent cobbles and stones; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

A14—17 to 31 inches; dark grayish brown (10YR 4/2) cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots and many medium and coarse roots; few very fine pores; 5 percent pebbles and 10 percent cobbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C1ca—31 to 44 inches; pale brown (10YR 6/3) cobbly silt loam, grayish brown (10YR 5/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots and many medium and coarse roots; few very fine pores; 10 percent pebbles, 10 percent cobbles, and 5 percent stones; strongly calcareous: soft masses of calcium carbonate; moderately alkaline (pH 8.4); clear smooth boundary.

C2—44 to 60 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; 20 percent pebbles and 5 percent cobbles; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2).

The mollic epipedon is 24 to 31 inches thick. The particle-size control section is 20 to 30 percent rock fragments. Secondary calcium carbonate is at a depth of 24 to 31 inches.

A horizon: Texture is loam or fine sandy loam in the upper part and is loam, gravelly silt loam, or cobbly silt loam in the lower part. Reaction is mildly alkaline or moderately alkaline.

C1ca horizon: Value is 5 or 6 when dry, and chroma is 2 or 3. Texture is gravelly silt loam or cobbly silt loam. Clay content is 18 to 27 percent. Rock fragment content is 15 to 25 percent. Calcium carbonate equivalent is 20 to 30 percent.

C2 horizon: Value is 5 or 6 when dry, and chroma is 2 or 3. Texture is very gravelly fine sandy loam or gravelly very fine sandy loam. Clay content is 15 to 20 percent. Rock fragment content is 25 to 45 percent.

Trag Series

The Trag series consists of very deep, well drained, moderately permeable soils on mountain slopes, plateaus, canyonsides, valley floors, ridges, and toe slopes. These soils formed in colluvium and alluvium derived from sandstone and shale. Slope is 3 to 60 percent. Elevation is 7,000 to 9,700 feet. Average annual precipitation is 16 to 20 inches, and average annual air temperature is 36 to 45 degrees F.

These soils are fine-loamy, mixed Typic Argiborolls.

Typical pedon of a Trag loam in an area of Beje-Trag complex, in Whitmore Park, about 10 miles northeast of Price, about 1,100 feet south and 100 feet west of the northeast corner of sec. 25, T. 12 S., R. 11 E.

A1—0 to 5 inches; dark brown (7.5YR 4/2) loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; neutral (pH 6.6); abrupt smooth boundary.

B1—5 to 13 inches; brown (7.5YR 5/3) clay loam, dark brown (7.5YR 3/3) moist; moderate medium and strong fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine pores; neutral (pH 6.8); clear smooth boundary.

B21t—13 to 25 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; moderate fine prismatic structure parting to strong medium subangular blocky; very hard, very firm, sticky and very plastic; few very fine and fine roots; many very fine and fine pores; many moderately thick clay films on faces of peds; neutral (pH 6.6); clear smooth boundary.

B22t—25 to 39 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 4/4) moist; moderate fine prismatic structure parting to strong medium subangular blocky; very hard, very firm, sticky and plastic; few very fine and fine roots; many very fine and fine pores; thin clay films on faces of peds; neutral (pH 6.6); abrupt wavy boundary.

C—39 to 60 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine and fine roots; common fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2).

Bedrock is at a depth of 60 inches or more. The solum is 39 to 44 inches thick. The particle-size control section is 0 to 15 percent rock fragments. The mollic epipedon is 7 to 13 inches thick.

A horizon: Hue is 7.5YR or 10YR, value is 2 or 3 when moist, and chroma is 2 or 3. Texture is loam, clay loam, or stony loam.

B horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry and 3 or 4 when moist, and chroma is 3 or 4. Clay content is 30 to 35 percent.

C horizon: Clay content is 27 to 30 percent. Rock fragment content is 0 to 10 percent. Reaction is mildly alkaline or moderately alkaline.

Travessilla Series

The Travessilla series consists of shallow, well drained, moderately permeable and moderately rapidly permeable soils on mesas, benches, canyonsides, mountain slopes, and foot slopes. These soils formed in residuum and colluvium derived dominantly from sandstone and interbedded shale. Slope is 1 to 80 percent. Elevation is 5,000 to 8,700 feet but is dominantly 5,500 to 6,500 feet. Average annual precipitation is 10 to 14 inches, and average annual air temperature is 45 to 50 degrees F.

These soils are loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents.

Typical pedon of a Travessilla fine sandy loam in an area of Travessilla-Rock outcrop complex, about 5 miles west of Price, about 2,400 feet north and 2,500 feet east of the southwest corner of sec. 15, T. 14 S., R. 9 E.

A1—0 to 2 inches; brown (10YR 5/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak thick platy structure; soft, very friable; few fine and medium roots; few fine pores; slightly calcareous; mildly alkaline (pH 7.6); clear smooth boundary.

C1—2 to 5 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; soft, very friable; few fine and medium roots; few fine pores; 15 percent channers; mildly alkaline (pH 7.5); clear smooth boundary.

C2—5 to 10 inches; brown (10YR 5/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable; few fine and medium roots; few fine and medium pores; 15 percent channers; moderately calcareous; mildly alkaline (pH 7.6); abrupt wavy boundary.

R—10 inches; sandstone.

Bedrock is at a depth of 7 to 20 inches.

A horizon: Hue is 7.5YR or 10YR, value is 5 or 6 when dry and 3 or 4 when moist, and chroma is 3 or 4. Texture is sandy loam, very gravelly fine sandy loam, fine sandy loam, or extremely bouldery loam. Reaction is mildly alkaline or moderately alkaline.

C horizon: Hue is 7.5YR or 10YR, value is 5 to 7 when dry and 4 to 6 when moist, and chroma is 3 or 4. Texture is sandy loam, fine sandy loam, very fine sandy loam, or loam. Rock fragment content is 0 to 15 percent. Reaction is mildly alkaline or moderately alkaline.

Travessilla Family

The Travessilla family consists of shallow, well drained, moderately rapidly permeable soil on benches and canyonsides. These soils formed in residuum derived dominantly from sandstone. Slope is 1 to 50 percent. Elevation is 5,600 to 5,800 feet. Average annual precipitation is 8 to 10 inches, and average annual air temperature is 48 to 50 degrees F.

These soils are loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents.

Reference pedon of Travessilla family, 1 to 8 percent slopes, 1,500 feet north and 500 feet west of the southeast corner of sec. 1, T. 11 S., R. 17 E.

A—0 to 4 inches; light yellowish brown (10YR 6/4) channery sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky; common very fine and fine roots and few medium and coarse roots; few very fine pores; slightly calcareous; moderately alkaline (pH 8.4); abrupt wavy boundary.

C1—4 to 11 inches; light yellowish brown (10YR 6/4) sandy 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; few very fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

C2—11 to 13 inches; very pale brown (10YR 7/4) sandy loam, light yellowish brown (10YR 6/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; moderately calcareous; disseminated calcium carbonate; strongly alkaline (pH 8.8); abrupt wavy boundary.

R—13 inches; sandstone.

Bedrock is at a depth of 7 to 20 inches. Clay content in the particle-size control section ranges from 8 to 18 percent.

Uinta Family

The Uinta family consists of deep, well drained, moderately slowly permeable soils on mountain slopes. These soils formed in colluvium derived dominantly from sandstone and siltstone. Slope is 40 to 70 percent. Elevation is 7,800 to 9,600 feet. Average annual precipitation is 20 to 30 inches, and average annual air temperature is 34 to 38 degrees F.

These soils are fine-loamy, mixed Typic Cryoboralfs.

Reference pedon of a Uinta family loam in an area of Uinta-Toze families complex, about 0.8 mile southeast of Clear Creek, about 1,500 feet east and 2,250 feet south of the northwest corner of sec. 4, T. 14 S., R. 7 E.

O1—1 inch to 0; leaves and fir needles.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate coarse granular structure; soft, friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse roots; 5 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt wavy boundary.

A2—3 to 11 inches; light yellowish brown (10YR 6/4) stony sandy loam, yellowish brown (10YR 5/4) moist; moderate thick platy structure; slightly hard, friable; common very fine, fine, and medium roots; 10 percent pebbles, 5 percent cobbles, and 5 percent stones; neutral (pH 6.6); clear smooth boundary.

B21t—11 to 24 inches; pale brown (10YR 6/3) stony clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; extremely hard, very firm, sticky and plastic; common very fine, fine, medium, and coarse roots; common moderately thick clay films on ped faces; 5 percent pebbles, 5 percent cobbles, and 10 percent stones; neutral (pH 6.6); abrupt irregular boundary.

B22t—24 to 42 inches; light brownish gray (10YR 6/2) stony clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine, fine, medium, and coarse roots; common moderately thick clay films on ped faces; 10 percent pebbles, 15 percent cobbles, and 10 percent stones; mildly alkaline (pH 7.8); abrupt irregular boundary.

R—42 inches; sandstone.

Depth to bedrock and thickness of the solum are 40 to 60 inches. The particle-size control section is 15 to 35 percent rock fragments.

Winetti Series

The Winetti series consists of very deep, well drained, moderately rapidly permeable soils on narrow valley and canyon floors. These soils formed in alluvium derived from sandstone and shale. Slope is 1 to 8 percent. Elevation is 4,600 to 7,200 feet but commonly is 5,200 to 6,400 feet. Average annual precipitation is 12 to 16 inches, and average annual air temperature is 43 to 45 degrees F.

These soils are loamy-skeletal, mixed (calcareous), frigid Typic Ustifluvents.

Typical pedon of a Winetti bouldery sandy loam in an area of Shupert-Winetti complex, about 2.5 miles north of Sunnyside Mine, about 1,800 feet south and 2,500 feet west of the northeast corner of sec. 20, T. 14 S., R. 14 E.

A1—0 to 6 inches; grayish brown (10YR 5/2) bouldery sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium granular structure; soft, very friable; common very fine, fine, and medium roots and few coarse roots; 4 percent cobbles, 15 percent stones, and 10 percent boulders; slightly calcareous; disseminated calcium carbonate; mildly alkaline (pH 7.6); abrupt smooth boundary.

C1—6 to 11 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine pores; 10 percent pebbles; strongly calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.

C2—11 to 26 inches; pale brown (10YR 6/3) very bouldery loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine pores; 10 percent pebbles, 5 percent cobbles, 10 percent stones, and 15 percent boulders; strongly calcareous; coatings of calcium carbonate on the underside of rock fragments; moderately alkaline (pH 8.4); abrupt smooth boundary.

C3—26 to 34 inches; brown (10YR 5/3) very bouldery loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine pores; 10 percent pebbles, 5 percent cobbles, 10 percent stones, and 15 percent boulders; strongly calcareous; coatings of calcium carbonate on the underside of rock fragments; moderately alkaline (pH 8.4); abrupt smooth boundary.

C4—34 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; single grain; loose, very friable, slightly sticky; few very fine and fine roots; 40 percent pebbles, 5 percent cobbles, and 5 percent boulders; strongly calcareous; coatings of calcium carbonate on the underside of rock fragments; moderately alkaline (pH 8.4).

The particle-size control section is 35 to 50 percent rock fragments.

C horizon: Value is 5 or 6 when dry and 4 or 5 when moist, and chroma is 2 or 3. Texture is mainly very bouldery loam or very gravelly sandy loam, but there are thin layers of very bouldery sandy clay loam in some pedons. Clay content is 14 to 17 percent.

Winetti Variant

The Winetti Variant consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans. These soils formed in alluvium derived dominantly from mixed sedimentary rock. Slope is 0 to 8 percent. Elevation is 4,300 to 5,200 feet. Average annual precipitation ranges from 8 to 10 inches, and average annual air temperature ranges from 47 to 49 degrees F.

These soils are sandy-skeletal, mixed, mesic Ustic Torriorthents.

Typical pedon of Winetti Variant cobbly fine sandy loam, 0 to 8 percent slopes, at the mouth of Jack Creek on the Green River. (No general land office survey has been made.)

A1—0 to 3 inches; pale brown (10YR 6/3) cobbly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine pores; 10 percent pebbles and 5 percent cobbles; moderately calcareous; disseminated calcium carbonate; very strongly alkaline (pH 9.4); abrupt smooth boundary.

C1—3 to 8 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable; few very fine roots; few very fine and fine pores; moderately calcareous; disseminated calcium carbonate; very strongly alkaline (pH 9.6); abrupt smooth boundary.

C2—8 to 13 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; massive; soft, very friable; few very fine roots; few very fine and medium pores; moderately calcareous; disseminated calcium carbonate; very strongly alkaline (pH 9.2); abrupt smooth boundary.

C3—13 to 18 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 5/3) moist; massive; soft, very friable; few very fine and fine roots; few very fine, fine, and medium pores; moderately calcareous; disseminated calcium carbonate; very strongly alkaline (pH 9.0); clear smooth boundary.

C4—18 to 53 inches; pale brown (10YR 6/3) extremely gravelly sand, brown (10YR 4/3) moist; massive; soft; few very fine and many very coarse roots; 50 percent pebbles, 10 percent cobbles, and 5 percent stones; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.4); abrupt smooth boundary.

C5—53 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable; few very fine roots; few very fine pores; moderately calcareous; disseminated calcium carbonate; moderately alkaline (pH 8.2).

Depth to a layer that is more than 35 percent coarse fragments is 10 to 20 inches.

Formation of the Soils

This section describes how the five factors of soil formation have affected the development of the soils in the survey area. These factors are (1) parent material, (2) climate, (3) plant and animal life, (4) relief, and (5) time.

Parent Material

Parent material is the material from which soil forms. It can be material that has weathered in place or that has been transported by wind, water, and gravity. Parent material affects soil formation in many ways. It largely determines the texture, structure, color, and (in some soils) the arrangement of the horizons. The mineralogy of soils is influenced by the mineralogy of the rock from which the parent material has weathered.

There are three main kinds of parent material in the Carbon Area: (1) Residuum that has weathered from sandstone, shale, and siltstone; (2) glacial outwash; and (3) alluvium. The glacial deposits are mixtures of rock and soil material derived largely from sandstone, shale, siltstone, and quartzite. Alluvial deposits have been sorted. The coarser textured sediment is carried only a short distance and thus remains near the source. The fine particles are deposited as the velocity of the stream decreases.

Soils that formed in material derived from shale generally contain more clay than soils that formed in material derived from siltstone or sandstone. Killpack, Libbings, Chipeta, and Persayo soils formed in shale dominantly of the Mancos Formation. These soils are also affected somewhat by sodic material, gypsum, and other soluble salts. Doney family, Gerst, and Casmos soils also formed in residuum derived from shale and siltstone, mainly of the Blackhawk, Green River, and Price River Formations.

Soils that formed in sandstone commonly are medium and coarse textured. Beje and Senchert soils formed in residuum derived from sandstone and have a moderate to strongly developed subsoil. Travessilla, Podo, and Falcon soils also formed in sandstone, but they have a weakly developed subsoil.

During Pleistocene time, glacial outwash of variable thickness was deposited along the northern and western edges of Castle Valley. Stormitt and Strych soils formed in this mixed material that was derived from sandstone, quartzite, and shale. Both of these soils are characterized by a high percentage of rock fragments throughout the profile.

On the floor of Castle Valley are deposits of fine textured alluvium. Billings soils formed in these deposits and are fine textured throughout.

Climate

The climate in the survey area ranges from arid at the lower elevations to humid at the higher elevations. The effects of temperature and moisture are influenced by aspect, elevation, and wind. In places the available moisture at a lower elevation on northerly aspects is similar to that on southerly aspects at 1,000 to 2,000 feet greater elevation.

In general, the soils that have received the most precipitation formed under a thicker plant cover, which has contributed organic matter to form a thicker and darker colored surface layer. This is especially apparent in soils at higher elevations. Also, additional water has moved minerals and clay in the soils to form distinct soil horizons. In contrast, soils that formed in an arid climate, where the annual precipitation is 6 to 8 inches and vegetation is sparse, have low organic matter content and have a thin surface layer.

The western part of the survey area has a climate in which a higher percentage of the precipitation occurs in fall, winter, and spring. This tends to cause a heavy snowpack to build up so that a higher percentage of the moisture passes through the soil. This movement of water leaches calcium carbonate and clay deeper into the soil, which creates a thick surface layer and a prominent subsoil. The calcium carbonate is leached to depth of 60 inches or more in the Trag, Croydon, and Uinta family soils.

The eastern part of the survey area receives a higher percentage of precipitation in summer. This moisture is used mostly by plants in summer or is lost through evaporation, which leaves only a small amount to pass through the soil. Because of the limited amount of water that passes through the soil, the soils in this part of the survey area do not have a prominent subsoil.

Plant and Animal Life

The natural vegetation in the survey area varies from a sparse stand of desert shrubs and some grasses at lower elevations to a dense stand of aspen, spruce, and fir at the higher elevations. The accumulation of organic matter in the surface layer is closely related to the density and volume of vegetation produced on the soil.

Because plant growth is sparse on soils such as those of the Minchey, Stormitt, and Moffat series, they have less than 1 percent organic matter in the surface layer. Soils such as those of the Silas series have a high water table and support sedges and grasses. The organic matter content of these soils is 3 to 10 percent to a depth of 16 inches or more. Soils that formed under heavy stands of forest or grass have 2 to 10 percent organic matter in the surface layer. Uinta and Toze family soils are examples of soils that are at higher and cooler elevations and that formed under forest. These soils have 5 to 10 percent organic matter in the surface layer.

Deep rooted grasses are important to soil development, not only for their contribution of organic water, but for their recycling of plant nutrients. As the nutrients are moved by water down through the soils, the plant uses them to produce foliage growth. When the plant dies or the leaves fall off and decompose, the nutrients are returned to the soil.

Greasewood, mat saltbush, and shadscale are common salt-tolerant plants that exert a considerable recycling influence on soils that are affected by salts. This is especially true of the salt and alkali phases of the Haverdad, Ravola, and Juva Variant soils, and, to a lesser extent, the Billings soils. Chipeta soils formed under mat saltbush. The leaves of greasewood, shadscale, and mat saltbush contain salts that have been assimilated from the soil. As the dropped leaves decompose, the mineral residue is again incorporated into the soil. Some of the salts are leached away, but sodium salts react with the soil to increase the amount of exchangeable sodium.

Pinyon and juniper affect the soil by reducing the amount and kind of understory plants. Much of the soil surface has sparse or no understory plants. In these soils the organic matter content is lower and the soil is more susceptible to erosion. Examples of these are Travessilla, Podo, and Strych soils.

The soils in the mountains formed under various kinds of vegetation. Soils of the Uinta family formed under spruce and fir. These soils are slightly acid or neutral. The decomposition of spruce and fir needles produces acids that lower the soil reaction. These soils also have a thin, dark-colored surface layer overlying an A2 horizon. Senchert and Croydon soils formed under aspen. These soils have a thick, dark-colored surface layer and are neutral to mildly alkaline. Other soils formed under shrubs, fescue, and wheatgrasses. Senchert soils are high in organic matter content. Doney family, Podo, and Pathead soils formed under Salina wildrye and have only a moderate organic matter content.

Burrowing animals, cicadas, earthworms, and other insects influence the soil forming process. They mix the soil and thus retard horizon formation in places. Living organisms influence the soil structure and porosity and thus influence the rate of air and water movement through the soil.

Farmers influence soil formation processes through tillage and irrigation. The crops grown on irrigated land often produce large amounts of organic matter that is returned to the soil, as is the case with the Penoyer Variant, Ravola, and Billings soils. In irrigated parts of the survey area, most of the soils apparently were well drained before they were irrigated. Since irrigation was started, a high water table has developed in places and salts have accumulated.

Relief

Drainage, elevation, aeration, aspect, steepness of slope, and susceptibility to erosion are factors of relief that affect the soil-forming processes.

The dominant landforms, or topographic features, in the survey area are valley floors, alluvial fans, fan terraces, shale hills, outwash plains, benches, mountain slopes, canyon sides, and plateaus.

Ferron, Green River, Hunting, Libbings, Saltair, and Silas soils are on valley floors. These soils have a high water table. They are mottled with gray and yellow colors throughout the profile. The mottles, especially the gray ones, are evidence of long periods of wetness. A fluctuating water table causes air to oxidize the iron and produces yellowish mottles. If the oxygen is severely restricted by the water, the iron is reduced by microorganisms and the soil material is gray.

The areas between the base of the mountain plateaus and the mountaintops are very steep and in many places are dissected by very deep canyons. These areas rise abruptly from about 5,000 feet on the Green River to 10,000 feet at Bruin Point. Associated steep mountain slopes are in different climatic zones. The steep south- and west-facing slopes are warmer and dryer than the north- and east-facing slopes. On the south- and west-facing slopes, snow melts more rapidly and runs off readily and evaporation losses are higher. On the north- and east-facing slopes, temperatures are cooler, evaporation is less, and more of the precipitation enters the soil. This water percolates deeply into these soils, leaching soluble salts and clay from the A horizon and transferring them to deeper horizons. The plant cover consists of different kinds of plants and is more dense on the north- and east-facing slopes than on the south- and west-facing slopes at the same elevation. Examples of this are the Guben soils on the north-facing slopes and Podo soils on the south-facing slopes.

Time

The kinds of soil horizons and the degree of their expression depend on the length of time soil-forming processes have been active on the parent material. The amount of time ranges from a few years to centuries.

The younger soils on valley floors and alluvial fans and those on very steep mountain slopes that have southerly aspect exhibit the least horizon differentiation. These constitute the largest group of soils in the survey area and include soils such as those of the Ravola, Haverdad, Shupert, Hunting, Greybull, Casmos, Gerst, and Pathead series. The soils on outwash plains and fan terraces are of intermediate age and have a weakly developed subsoil and a layer of calcium carbonate accumulation. These are soils of the Strych, and Minchey, and Atrac series, the Hernandez family, and the Mivida series.

The older soils on mesas, benches, plateaus, and mountain slopes, such as the Trag, Senchert, Croydon, Beje, and Uinta family soils, exhibit the greatest degree of horizon differentiation. These soils have more organic matter in the surface layer and have a layer of clay accumulation in the subsoil.

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Glossary

Alluvial fan. Deposit of alluvium where a stream leaves a canyon or water-course and enters a plain or valley.

Alluvium. Material, such as rocks, sand, silt, or clay, deposited on land by streams.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water 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 geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce (fizz) visibly when treated with cold, dilute hydrochloric acid. In this survey the following terms are used:

Slightly calcareous	1 to 3 percent calcium carbonate equivalent
Moderately calcareous	3 to 15 percent calcium carbonate equivalent
Strongly calcareous	15 to 40 percent calcium carbonate equivalent
Very strongly calcareous	more than 40 percent calcium carbonate equivalent

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

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.

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 (7.5 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 area 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.

Cuesta. An asymmetric, homoclinal ridge capped by resistant rock layers of slight to moderate dip.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Depth, soil.

Very deep	more than 60 inches
Deep	40 to 60 inches
Moderately deep	20 to 40 inches
Shallow	10 to 20 inches

Desert pavement. A layer of gravel or coarser fragments on a desert soil surface that was emplaced by upward movement of fragments from underlying sediment or remains after finer particles have been removed by running water or wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming with the dip of underlying bedded rock.

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.

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.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings, and other structures and plant roots.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

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 upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

A horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the number 2 precedes the letter C.

Cr horizon.—A layer of soft geologic material commonly sandstone, siltstone, or shale. These materials have rock structure, but are soft enough for roots to penetrate and they hold a little water for plants.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

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.

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).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color in 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.)

Outwash, glacial. Stratified sand and gravel produced by glaciers and carried, sorted, and deposited by glacial melt water.

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

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.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

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 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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.

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. This increases the vigor and reproduction of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

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 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.

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 degree of acidity or alkalinity is expressed as—

	pH
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

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 (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts 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.

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.

Sandstone. Sedimentary rock containing dominantly sand-size 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 (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

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 underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

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.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

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.

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.

Slope (in tables). Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
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 underlying material. 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.

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 grained* (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. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial melt water. In nonglaciated regions, alluvium deposited by heavily loaded streams.

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.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded during the period 1951-57 at Clear Creek, UT; elevation 8,300 feet]

Month	Temperature			Precipitation	
	Mean daily maximum	Mean daily minimum	Mean	Mean	Mean snowfall
	°F	°F	°F	In	In
January----	32.4	7.6	20.1	2.29	46.1
February---	34.1	8.7	21.4	2.10	39.4
March------	38.1	12.5	25.3	2.29	43.2
April------	47.2	21.5	34.4	1.90	25.6
May--------	58.4	28.7	43.5	1.38	9.4
June-------	69.3	35.4	52.4	1.12	.6
July-------	77.0	42.2	59.6	1.49	0
August-----	74.1	41.4	57.8	2.15	0
September--	66.9	33.9	50.4	1.60	2.0
October----	56.7	26.9	41.9	1.49	7.8
November---	41.3	16.6	28.9	1.58	27.2
December---	34.4	10.1	22.3	2.59	40.0
Year-----	52.5	23.8	38.2	21.98	241.3

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

[Recorded during the period 1951-80 at Hiawatha, UT; elevation 7,230 feet]

Month	Temperature			Precipitation	
	Mean daily maximum	Mean daily minimum	Mean	Mean	Mean snowfall
	°F	°F	°F	In	In
January----	32.4	13.7	23.1	1.05	12.9
February---	37.0	17.6	27.3	1.03	13.0
March------	43.9	22.1	33.0	1.04	10.6
April------	54.2	30.3	42.3	1.01	2.9
May--------	64.6	39.2	51.9	1.19	2.5
June-------	75.5	49.1	62.3	.95	0
July-------	83.3	56.1	69.7	1.07	0
August-----	79.3	54.2	66.8	1.72	0
September--	71.6	46.4	59.0	1.26	.4
October----	59.7	36.4	48.1	1.12	1.0
November---	43.3	23.8	33.6	.89	7.6
December---	34.7	16.1	25.4	1.18	12.6
Year-----	56.6	33.8	45.2	13.51	63.50

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

[Recorded during the period 1948-80 at Scofield Dam, UT; elevation 7,720 feet]

Month	Temperature			Precipitation	
	Mean daily maximum	Mean daily minimum	Mean	Mean	Mean snowfall
	°F	°F	°F	In	In
January----	28.0	.1	14.0	2.00	24.8
February---	32.2	2.8	17.5	1.64	20.7
March------	37.9	11.1	24.5	1.33	20.3
April------	47.9	21.4	34.7	1.09	8.8
May--------	59.8	30.7	45.3	1.07	1.5
June-------	70.1	37.6	53.9	.92	0
July-------	78.0	44.2	61.1	1.02	0
August-----	75.2	42.7	59.0	1.39	0
September--	67.6	34.7	51.2	1.04	.4
October----	56.5	26.2	41.4	1.14	3.4
November---	40.1	15.6	27.9	1.12	10.6
December---	31.0	3.9	17.5	1.49	17.0
Year-----	52.0	22.6	37.3	15.25	107.5

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

[Recorded during the period 1958-80 at Sunnyside, UT; elevation 6,780 feet]

Month	Temperature			Precipitation	
	Mean daily maximum	Mean daily minimum	Mean	Mean	Mean snowfall
	°F	°F	°F	In	In
January----	34.3	13.1	23.7	.80	11.3
February---	41.3	19.3	30.3	.90	11.3
March------	45.4	22.1	33.8	1.08	6.8
April------	55.0	29.7	42.4	.94	2.6
May--------	65.7	39.6	52.7	1.07	0.2
June-------	77.6	48.4	63.0	.84	0
July-------	85.5	56.3	70.9	1.08	0
August-----	82.7	53.6	68.2	1.27	0
September--	73.5	45.7	59.6	1.34	0
October----	60.9	35.6	48.3	1.26	0.6
November---	47.0	24.6	35.8	.76	2.0
December---	37.3	16.2	26.8	.64	5.3
Year-----	58.9	33.7	46.3	11.98	40.1

TABLE 2.--ESTIMATED PAN EVAPORATION

Month	Reporting Station			
	Clear Creek	Hiawatha	Scofield Dam	Sunnyside
	In	In	In	In
May	6.53	7.96	7.59	8.36
June	7.41	8.10	7.24	8.95
July	7.93	9.38	8.06	10.11
August	6.33	9.03	6.57	7.99
September	4.67	5.20	4.83	5.78
October	3.34	5.46	3.24	5.92
Total	36.21	45.13	37.53	47.11

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Carbon County	Emery County	Total--	
				Area	Extent
		Acres	Acres	Acres	Pct
1	Atrac very fine sandy loam, 1 to 6 percent slopes	5,060	0	5,060	0.6
2	Badland	2,370	298	2,668	0.3
3	Badland-Rubbleland-Rock outcrop complex	4,234	423	4,657	0.5
4	Beje very gravelly fine sandy loam, 1 to 8 percent slopes	2,288	0	2,288	0.3
5	Beje complex	15,928	0	15,928	1.8
6	Beje-Comodore,complex	447	0	447	*
7	Beje-Trag complex	33,321	0	33,321	3.7
8	Billings silty clay loam, 1 to 3 percent slopes	3,216	0	3,216	0.4
9	Billings-Gullied land complex	4,471	0	4,471	0.5
10	Cabba family, 20 to 40 percent slopes	7,595	0	7,595	0.8
11	Cabba family, 40 to 70 percent slopes	4,801	0	4,801	0.5
12	Cabba famiily-Badland-Rock outcrop complex	3,983	0	3,983	0.4
13	Cabba family-Guben-Rock outcrop complex	36,869	0	36,869	4.1
14	Casmos-Rock outcrop complex, 2 to 25 percent slopes	1,164	0	1,164	0.1
15	Casmos-Rock outcrop complex, 40 to 70 percent slopes	10,413	0	10,413	1.2
16	Chipeta silty clay loam, 8 to 15 percent slopes	1,076	0	1,076	0.1
17	Chipeta-Badland complex	6,155	377	6,532	0.7
18	Chipeta-Persayo complex	406	0	406	*
19	Chupadera fine sandy loam, 1 to 8 percent slopes	3,822	0	3,822	0.4
20	Comodore-Datino Variant complex	4,697	72	4,769	0.5
21	Croydon loam, 8 to 30 percent slopes	969	0	969	0.1
22	Croydon loam, 30 to 50 percent slopes	10,101	0	10,101	1.1
23	Curecanti family-Pathead complex	9,291	0	9,291	1.0
24	Datino Variant very stony loam, 50 to 80 percent slopes	1,312	0	1,312	0.1
25	Doney family, 3 to 15 percent slopes	2,239	0	2,239	0.2
26	Doney family, 50 to 70 percent slopes	5,208	0	5,208	0.6
27	Doney family-Podo complex	9,662	0	9,662	1.1
28	Doney-Toze families complex	3,103	0	3,103	0.3
29	Dumps, mine	497	0	497	0.1
30	Falcon-Rock outcrop complex	1,733	0	1,733	0.2
31	Ferron silt loam	284	0	284	*
32	Frandsen-Gullied land complex	4,623	0	4,623	0.5
33	Gerst-Badland-Rubbleland complex, 15 to 50 percent slopes	6,558	2,520	9,078	1.0
34	Gerst-Badland-Rubbleland complex, 50 to 70 percent slopes	4,615	55	4,670	0.5
35	Gerst-Badland-Stormitt complex	18,929	230	19,159	2.1
36	Gerst-Strych-Badland complex, 3 to 50 percent slopes	4,683	0	4,683	0.5
37	Gerst-Strych-Badland complex, 50 to 70 percent slopes	11,113	816	11,929	1.3
38	Gerst-Travessilla complex	4,467	877	5,344	0.6
39	Glenberg family, 1 to 3 percent slopes	2,086	0	2,086	0.2
40	Glenberg family, 3 to 6 percent slopes	958	1,355	2,313	0.3
41	Green River-Juva Variant complex	3,328	0	3,328	0.4
42	Greybull loam, 3 to 8 percent slopes	1,603	0	1,603	0.2
43	Grobutte-Cabba families association	5,754	0	5,754	0.6
44	Guben-Doney family-Datino Variant complex, 15 to 40 percent slopes	712	0	712	0.1
45	Guben-Doney family-Datino Variant complex, 40 to 70 percent slopes	2,632	0	2,632	0.3
46	Guben-Pathead extremely stony loams	4,757	135	4,892	0.5
47	Guben-Rock outcrop complex	26,602	247	26,849	3.0
48	Haverdad loam, 1 to 8 percent slopes	6,434	0	6,434	0.7
49	Haverdad loam, alkali, 0 to 3 percent slopes	8,787	479	9,266	1.0
50	Haverdad loam, moist, 1 to 5 percent slopes	8,958	117	9,075	1.0
51	Hernandez family, 1 to 3 percent slopes	7,786	0	7,786	0.9
52	Hernandez family, 3 to 8 percent slopes	6,817	0	6,817	0.8
53	Hernandez family, moist, 1 to 6 percent slopes	1,959	130	2,089	0.2
54	Hernandez family-Atrac complex	192	0	192	*
55	Hunting loam, 1 to 3 percent slopes	2,437	0	2,437	0.3
56	Hunting loam, moderately saline, 1 to 3 percent slopes	535	0	535	0.1
57	Hunting silty clay loam, 1 to 3 percent slopes	253	0	253	*
58	Juva Variant fine sandy loam	783	0	783	0.1
59	Killpack clay loam, 1 to 3 percent slopes	1,515	0	1,515	0.2
60	Killpack clay loam, 3 to 6 percent slopes	2,289	0	2,289	0.3
61	Libbings silty clay loam	392	0	392	*
62	Midfork family-Comodore complex	42,159	0	42,159	4.8
63	Midfork family-Podo association	4,152	0	4,152	0.5
64	Minchey loam, 1 to 3 percent slopes	603	0	603	0.1
65	Mivida very fine sandy loam, 1 to 6 percent slopes	6,189	1,123	7,312	0.8

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Carbon County	Emery County	Total-- Area	Total-- Extent
		Acres	Acres	Acres	Pct
66	Mivida gravelly fine sandy loam, 3 to 8 percent slopes	740	0	740	0.1
67	Mivida very stony fine sandy loam, 1 to 3 percent slopes	2,081	0	2,081	0.2
68	Moffat fine sandy loam, 3 to 6 percent slopes	3,889	0	3,889	0.4
69	Moffat-Persayo complex	917	0	917	0.1
70	Nelman-Travessilla-Rock outcrop complex	5,418	0	5,418	0.6
71	Pathead extremely bouldery fine sandy loam, 40 to 70 percent slopes	13,898	0	13,898	1.6
72	Pathead-Curecanti family association	24,131	0	24,131	2.7
73	Penoyer Variant loam, 1 to 3 percent slopes	818	0	818	0.1
74	Penoyer Variant loam, 3 to 6 percent slopes	399	0	399	*
75	Perma family, 15 to 40 percent slopes	2,622	0	2,622	0.3
76	Perma family-Datino complex	8,250	0	8,250	0.9
77	Persayo loam, 3 to 8 percent slopes	8,743	0	8,743	1.0
78	Persayo very cobbly clay loam, 3 to 15 percent slopes	1,824	0	1,824	0.2
79	Persayo-Badland complex	3,452	0	3,452	0.4
80	Persayo-Chipeta complex	18,571	0	18,571	2.1
81	Persayo-Greybull complex	4,454	0	4,454	0.5
82	Podo gravelly sandy loam, 1 to 8 percent slopes	8,263	0	8,263	0.9
83	Podo-Cabba family complex	30,654	0	30,654	3.5
84	Podo-Rock outcrop complex	19,319	0	19,319	2.1
85	Rabbitex silt loam, 15 to 50 percent slopes	4,071	0	4,071	0.5
86	Rabbitex-Doney family-Midfork family complex	5,085	0	5,085	0.6
87	Rabbitex-Pathead complex	6,148	0	6,148	0.7
88	Rabbitex family-Datino Variant complex	1,797	0	1,797	0.2
89	Rafael silty clay loam	345	0	345	*
90	Ravola loam, 1 to 3 percent slopes	11,131	0	11,131	1.2
91	Ravola loam, 1 to 6 percent slopes, eroded	11,756	0	11,756	1.3
92	Ravola-Gullied land complex	4,947	326	5,273	0.6
93	Ravola-Slickspots complex	8,143	0	8,143	0.9
94	Riverwash	853	0	853	0.1
95	Rock outcrop	2,079	69	2,148	0.2
96	Rock outcrop-Rubbleland-Travessilla complex	10,045	2,422	12,467	1.4
97	Rottulee family-Trag complex	16,580	0	16,580	1.8
98	Sagers silty clay loam	587	0	587	0.1
99	Saltair silty clay loam	710	0	710	0.1
100	Senchert loam, 3 to 15 percent slopes	13,639	0	13,639	1.5
101	Senchert loam, 30 to 50 percent slopes	12,972	0	12,972	1.4
102	Senchert-Senchert family complex	2,527	103	2,630	0.3
103	Senchert-Toze family complex	11,594	0	11,594	1.3
104	Senchert family, 3 to 15 percent slopes	8,253	0	8,253	0.9
105	Senchert family-Senchert complex	3,552	0	3,552	0.4
106	Sheepcan-Podo-Rock outcrop complex	2,225	0	2,225	0.2
107	Shupert-Winetti complex	7,080	0	7,080	0.8
108	Silas loam	1,214	0	1,214	0.1
109	Silas-Brycan loams	1,759	0	1,759	0.2
110	Stormitt gravelly sandy clay loam, 3 to 10 percent slopes	4,675	0	4,675	0.5
111	Stormitt-Minchey complex	1,575	0	1,575	0.2
112	Strych very bouldery fine sandy loam, 3 to 20 percent slopes	1,159	0	1,159	0.1
113	Strych very stony loam, 3 to 15 percent slopes	27,505	9,526	37,031	4.2
114	Strych very stony loam, dry, 3 to 30 percent slopes	11,395	263	11,658	1.3
115	Trag stony loam, 30 to 60 percent slopes	6,532	0	6,532	0.7
116	Trag-Beje-Rottulee family complex	3,948	0	3,948	0.4
117	Trag-Beje-Senchert complex	10,033	0	10,033	1.1
118	Trag-Croydon complex	7,144	0	7,144	0.8
119	Travessilla sandy loam, 1 to 8 percent slopes	4,975	211	5,186	0.6
120	Travessilla-Rock outcrop complex	5,547	0	5,547	0.6
121	Travessilla-Rock outcrop-Gerst complex	40,483	0	40,483	4.5
122	Travessilla-Travessilla family-Rock outcrop complex	8,103	0	8,103	0.9
123	Travessilla family, 1 to 8 percent slopes	3,915	0	3,915	0.4
124	Uinta family-Podo association	7,388	0	7,388	0.8
125	Uinta-Toze families complex	22,138	0	22,138	2.6
126	Winetti Variant cobbly fine sandy loam, 0 to 8 percent slopes	1,401	0	1,401	0.2
	Total	877,826	22,174	900,000	100.0

* Less than 0.1 percent.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES

[Only the soils that support rangeland vegetation suitable for grazing are listed. Two asterisks identifies a woodland site that supports grazeable understory]

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
1 Atrac	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5
4 Beje	Mountain Shallow Loam (Black Sagebrush).	Favorable	1,000	Bluegrass	20
		Normal	750	Black sagebrush	20
		Unfavorable	500	Bluebunch wheatgrass	10
				Salina wildrye	10
5*:					
Beje	Mountain Shallow Loam (Black Sagebrush).	Favorable	1,000	Bluegrass	20
		Normal	750	Black sagebrush	20
		Unfavorable	500	Bluebunch wheatgrass	10
				Salina wildrye	10
Beje	Mountain Stony Loam (Browse)	Favorable	1,600	Birchleaf mountainmahogany	25
		Normal	1,200	Serviceberry	20
		Unfavorable	900	Salina wildrye	5
				Bluegrass	5
				Elk sedge	5
				Gambel oak	5
				Snowberry	5
				Mountain big sagebrush	5
6*:					
Beje	Mountain Shallow Loam (Mountain Big Sagebrush).	Favorable	1,500	Mountain big sagebrush	20
		Normal	1,200	Bluegrass	10
		Unfavorable	850	Slender wheatgrass	10
				Salina wildrye	10
				Letterman needlegrass	5
				Needleandthread	5
				Prairie junegrass	5
				Snowberry	5
Comodore	Mountain Very Steep Stony Loam (Douglas-fir)**.	Favorable	700	Sedge	15
		Normal	500	Snowberry	15
		Unfavorable	400	Salina wildrye	15
				Slender wheatgrass	10
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5
7*:					
Beje	Mountain Shallow Loam (Mountain Big Sagebrush).	Favorable	1,500	Mountain big sagebrush	20
		Normal	1,200	Bluegrass	10
		Unfavorable	850	Slender wheatgrass	10
				Salina wildrye	10
				Letterman needlegrass	5
				Needleandthread	5
				Prairie junegrass	5
				Snowberry	5
Trag	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Mountain big sagebrush	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Indian ricegrass	5
				Letterman needlegrass	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
8 Billings	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Winterfat	5
				Bud sagebrush	5
9*:					
Billings	Alkali Flat	Favorable	1,000	Black greasewood	30
		Normal	700	Bottlebrush squirreltail	10
		Unfavorable	500	Alkali sacaton	10
				Shadscale	10
				Galleta	5
				Indian ricegrass	5
				Seepweed	5
Gullied land.					
10* Cabba	Upland Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	500	Birchleaf mountainmahogany	15
		Normal	400	Mexican cliffrose	15
		Unfavorable	300	Salina wildrye	10
				Indian ricegrass	10
				Mormon-tea	10
11* Cabba	Upland Very Steep Stony Loam (Pinyon-Utah Juniper)**.	Favorable	800	Birchleaf mountainmahogany	15
		Normal	600	Salina wildrye	10
		Unfavorable	500	Needleandthread	10
				Black sagebrush	10
				Indian ricegrass	5
				Bluegrass	5
				Bluebunch wheatgrass	5
				Utah serviceberry	5
				Mormon-tea	5
12*:					
Cabba	Upland Shallow Clay Loam (Utah Juniper-Pinyon)**.	Favorable	400	Salina wildrye	15
		Normal	300	Indian ricegrass	10
		Unfavorable	200	Blue grama	5
				Western wheatgrass	5
				Birchleaf mountainmahogany	5
				Utah serviceberry	5
				Douglas rabbitbrush	5
Badland.					
Rock outcrop.					
13*:					
Cabba	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Birchleaf mountainmahogany	10
				Utah serviceberry	10
				Bluegrass	5
				Needleandthread	5
				Bluebunch wheatgrass	5
				Antelope bitterbrush	5
				Mormon-tea	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
13*:					
Guben	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Utah serviceberry	10
				Birchleaf mountainmahogany	10
				Bluegrass	5
				Bluebunch wheatgrass	5
				Antelope bitterbrush	5
				Needleandthread	5
				Mormon-tea	5
Rock outcrop.					
14*:					
Casmos	Desert Shallow Loam (Black Sagebrush).	Favorable	450	Black sagebrush	40
		Normal	350	Shadscale	15
		Unfavorable	200	Galleta	10
				Bottlebrush squirreltail	5
				Salina wildrye	5
Rock outcrop.					
15*:					
Casmos	Desert Very Steep Shallow Loam (Shadscale).	Favorable	400	Shadscale	30
		Normal	250	Galleta	15
		Unfavorable	150	Fourwing saltbush	15
				Salina wildrye	5
				Bud sagebrush	5
Rock outcrop.					
16 Chipeta	Desert Shallow Clay	Favorable	300	Mat saltbush	60
		Normal	200	Galleta	10
		Unfavorable	100	Deserttrumpet	5
				Bud sagebrush	5
17*:					
Chipeta	Desert Shallow Clay	Favorable	300	Mat saltbush	60
		Normal	200	Galleta	10
		Unfavorable	100	Deserttrumpet	5
				Bud sagebrush	5
Badland.					
18*:					
Chipeta	Desert Shallow Clay	Favorable	300	Mat saltbush	60
		Normal	200	Galleta	10
		Unfavorable	100	Deserttrumpet	5
				Bud sagebrush	5
Persayo	Desert Loamy Clay	Favorable	400	Shadscale	25
		Normal	300	Galleta	15
		Unfavorable	150	Indian ricegrass	10
				Deserttrumpet	5
				Bud sagebrush	5
19 Chupadera	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
20*:					
Comodore	Mountain Very Steep Stony Loam (Douglas-fir)**.	Favorable	700	Salina wildrye	15
		Normal	500	Snowberry	15
		Unfavorable	400	Slender wheatgrass	10
				Elk sedge	5
				Indian ricegrass	5
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5
Datino Variant	Mountain Very Steep Stony Loam (Douglas-fir)**.	Favorable	700	Salina wildrye	15
		Normal	500	Snowberry	15
		Unfavorable	400	Slender wheatgrass	10
				Elk sedge	5
				Indian ricegrass	5
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5
21, 22 Croydon	High Mountain Loam (Aspen)**	Favorable	2,000	Slender wheatgrass	15
		Normal	1,500	Thurber fescue	10
		Unfavorable	1,000	Columbia needlegrass	10
				Blue wildrye	10
				Brome	10
				Quaking aspen	10
				Bluegrass	5
23*:					
Curecanti	Mountain Very Steep Loam (Oak).	Favorable	1,400	Gambel oak	30
		Normal	1,000	Bluegrass	10
		Unfavorable	600	Snowberry	10
				Wheatgrass	5
				Serviceberry	5
				Mountain big sagebrush	5
Pathead	Mountain Very Steep Stony Loam (Curlleaf Mountainmahogany).	Favorable	1,100	Curlleaf mountainmahogany	30
		Normal	800	Salina wildrye	20
		Unfavorable	600	Utah serviceberry	5
				Snowberry	5
				Indian ricegrass	5
				Wheatgrass	5
Pathead	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye	35
		Normal	1,200	Snowberry	10
		Unfavorable	1,000	Bluegrass	5
				Bluebunch wheatgrass	5
				Needlegrass	5
				Prairie junegrass	5
				Birchleaf mountainmahogany	5
				Antelope bitterbrush	5
				Utah serviceberry	5
				Indian ricegrass	5
24 Datino Variant	Mountain Very Steep Loam (Oak).	Favorable	1,400	Gambel oak	30
		Normal	1,000	Bluegrass	10
		Unfavorable	600	Snowberry	10
				Wheatgrass	5
				Serviceberry	5
				Mountain big sagebrush	5
25* Doney	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
26*-----Doney	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye-----	35
		Normal	1,200	Snowberry-----	10
		Unfavorable	1,000	Bluebunch wheatgrass-----	5
				Prairie junegrass-----	5
				Bluegrass-----	5
				Birchleaf mountainmahogany-----	5
				Antelope bitterbrush-----	5
				Utah serviceberry-----	5
27*:					
Doney-----	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye-----	35
		Normal	1,200	Snowberry-----	10
		Unfavorable	1,000	Bluebunch wheatgrass-----	5
				Prairie junegrass-----	5
				Bluegrass-----	5
				Birchleaf mountainmahogany-----	5
				Antelope bitterbrush-----	5
				Utah serviceberry-----	5
Podo-----	Mountain Very Steep Stony Loam (Browse).	Favorable	1,300	Birchleaf mountainmahogany-----	25
		Normal	1,000	Utah serviceberry-----	20
		Unfavorable	800	Salina wildrye-----	5
				Bluegrass-----	5
				Elk sedge-----	5
				Mountain big sagebrush-----	5
				Gambel oak-----	5
				Snowberry-----	5
28*:					
Doney-----	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye-----	35
		Normal	1,200	Snowberry-----	10
		Unfavorable	1,000	Bluebunch wheatgrass-----	5
				Prairie junegrass-----	5
				Bluegrass-----	5
				Birchleaf mountainmahogany-----	5
				Antelope bitterbrush-----	5
				Utah serviceberry-----	5
Toze-----	Mountain Very Steep Loam (Douglas-fir)**.	Favorable	400	Sedge-----	15
		Normal	250	Snowberry-----	15
		Unfavorable	100	Gambel oak-----	15
				Bluegrass-----	5
				Utah serviceberry-----	5
				Birchleaf mountainmahogany-----	5
				Rocky Mountain juniper-----	5
30*:					
Falcon-----	Mountain Shallow Loam (Mountain Big Sagebrush).	Favorable	1,500	Mountain big sagebrush-----	20
		Normal	1,200	Slender wheatgrass-----	10
		Unfavorable	850	Bluegrass-----	10
				Salina wildrye-----	10
				Letterman needlegrass-----	5
				Needleandthread-----	5
				Prairie junegrass-----	5
				Snowberry-----	5
Rock outcrop.					
31-----Ferron	Salt Meadow-----	Favorable	2,000	Inland saltgrass-----	30
		Normal	1,500	Alkali sacaton-----	15
		Unfavorable	1,000	Tufted hairgrass-----	5
				Sedge-----	5
				Baltic rush-----	5
				Western wheatgrass-----	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight		
			Lb/acre		Pct
32*:					
Frandsen	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Indian ricegrass	5
				Letterman needlegrass	5
				Utah serviceberry	5
				Mountain big sagebrush	5
				Antelope bitterbrush	5
Gullied land.					
33*:					
Gerst	Upland Shallow Clay Loam (Utah Juniper-Pinyon)**.	Favorable	500	Salina wildrye	15
		Normal	400	Indian ricegrass	10
		Unfavorable	250	Blue grama	5
				Western wheatgrass	5
				Hood phlox	5
				Rock goldenrod	5
				Utah juniper	5
				Pinyon	5
				Birchleaf mountainmahogany	5
				Douglas rabbitbrush	5
				Utah serviceberry	5
Badland.					
Rubbleland.					
34*:					
Gerst	Upland Very Steep Shallow Clay Loam (Utah Juniper-Pinyon)**.	Favorable	400	Salina wildrye	15
		Normal	300	Indian ricegrass	10
		Unfavorable	200	Blue grama	5
				Western wheatgrass	5
				Hood phlox	5
				Rock goldenrod	5
				Utah juniper	5
				Pinyon	5
				Birchleaf mountainmahogany	5
				Douglas rabbitbrush	5
				Utah serviceberry	5
Badland.					
Rubbleland.					
35*:					
Gerst	Semidesert Shallow Loam (Black Sagebrush).	Favorable	700	Black sagebrush	30
		Normal	400	Indian ricegrass	15
		Unfavorable	300	Galleta	10
				Shadscale	10
				Blue grama	5
				Bud sagebrush	5
				Slenderbush eriogonum	5
Badland.					
Stormitt	Semidesert Gravelly Loam (Wyoming Big Sagebrush).	Favorable	600	Wyoming big sagebrush	30
		Normal	400	Galleta	15
		Unfavorable	300	Indian ricegrass	10
				Needleandthread	10
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
36*:					
Gerst	Upland Shallow Clay Loam (Utah Juniper-Pinyon)**.	Favorable	500	Salina wildrye	15
		Normal	400	Indian ricegrass	10
		Unfavorable	250	Blue grama	5
				Western wheatgrass	5
				Hood phlox	5
				Rock goldenrod	5
				Utah juniper	5
				Pinyon	5
				Birchleaf mountainmahogany	5
				Douglas rabbitbrush	5
				Utah serviceberry	5
Strych	Upland Stony Loam (Pinyon-Utah Juniper)**.	Favorable	1,000	Birchleaf mountainmahogany	15
		Normal	850	Salina wildrye	10
		Unfavorable	600	Needleandthread	10
				Black sagebrush	10
				Indian ricegrass	5
				Mormon-tea	5
Badland.					
37*:					
Gerst	Upland Very Steep Shallow Clay Loam (Utah Juniper)**.	Favorable	400	Salina wildrye	15
		Normal	300	Indian ricegrass	10
		Unfavorable	200	Blue grama	5
				Western wheatgrass	5
				Hood phlox	5
				Rock goldenrod	5
				Utah juniper	5
				Pinyon	5
				Birchleaf mountainmahogany	5
				Douglas rabbitbrush	5
				Utah serviceberry	5
Strych	Upland Very Steep Stony Loam (Pinyon-Utah Juniper)**.	Favorable	800	Birchleaf mountainmahogany	15
		Normal	600	Salina wildrye	10
		Unfavorable	500	Needleandthread	10
				Black sagebrush	10
				Bluegrass	5
				Bluebunch wheatgrass	5
				Indian ricegrass	5
				Green Mormon-tea	5
				Utah serviceberry	5
Badland.					
38*:					
Gerst	Semidesert Shallow Clay (Utah Juniper)**.	Favorable	700	Shadscale	30
		Normal	550	Salina wildrye	20
		Unfavorable	400	Galleta	10
				Western wheatgrass	10
Travessilla	Semidesert Shallow Loam (Utah Juniper-Pinyon)**.	Favorable	350	Salina wildrye	20
		Normal	250	Black sagebrush	20
		Unfavorable	150	Mormon-tea	10
				Bluebunch wheatgrass	10
				Galleta	5
39* Glenberg	Semidesert Sandy Loam	Favorable	800	Indian ricegrass	20
		Normal	650	Needleandthread	15
		Unfavorable	450	Galleta	10
				Fourwing saltbush	10
				Torrey Mormon-tea	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
40*: Glenberg	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	900	Indian ricegrass	20
		Normal	700	Wyoming big sagebrush	20
		Unfavorable	500	Galleta	10
				Needleandthread	10
				Bottlebrush squirreltail	10
				Globemallow	5
				Winterfat	5
41*:					
Green River	Wet Salt Streambank	Favorable	2,000	Inland saltgrass	25
		Normal	1,500	Alkali sacaton	20
		Unfavorable	1,000	Skunkbush sumac	15
				Fremont cottonwood	10
				Coyote willow	5
				Scratchgrass	5
Juva Variant	Alkali Flat	Favorable	1,000	Black greasewood	30
		Normal	700	Bottlebrush squirreltail	10
		Unfavorable	500	Alkali sacaton	10
				Shadscale	10
				Galleta	5
				Indian ricegrass	5
				Seepweed	5
42: Greybull	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
43*:					
Grobutte	Upland Stony Loam (Pinyon-Utah Juniper)**.	Favorable	1,000	Birchleaf mountainmahogany	15
		Normal	850	Salina wildrye	10
		Unfavorable	600	Needleandthread	10
				Black sagebrush	10
				Bluegrass	5
				Bluebunch wheatgrass	5
				Indian ricegrass	5
				Utah serviceberry	5
				Green Mormon-tea	5
Cabba	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Birchleaf mountainmahogany	10
				Utah serviceberry	10
				Bluegrass	5
				Needleandthread	5
				Bluebunch wheatgrass	5
				Antelope bitterbrush	5
				Mormon-tea	5
44*:					
Guben	Mountain Stony Loam (Douglas-fir-Pinyon)**.	Favorable	900	Salina wildrye	15
		Normal	700	Snowberry	15
		Unfavorable	500	Wheatgrass	10
				Elk sedge	5
				Indian ricegrass	5
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
44*:					
Doney	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Indian ricegrass	5
				Letterman needlegrass	5
				Bluegrass	5
				Antelope bitterbrush	5
				Utah serviceberry	5
				Mountain big sagebrush	5
Datino Variant	Mountain Stony Loam (Browse)	Favorable	1,600	Birchleaf mountainmahogany	25
		Normal	1,200	Serviceberry	20
		Unfavorable	900	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Gambel oak	5
				Snowberry	5
				Mountain big sagebrush	5
45*:					
Guben	Mountain Very Steep Stony Loam (Douglas-fir)**.	Favorable	700	Salina wildrye	15
		Normal	500	Snowberry	15
		Unfavorable	400	Wheatgrass	10
				Elk sedge	5
				Indian ricegrass	5
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5
Doney	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye	35
		Normal	1,200	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Prairie junegrass	5
				Bluegrass	5
				Birchleaf mountainmahogany	5
				Antelope bitterbrush	5
				Utah serviceberry	5
Datino Variant	Mountain Very Steep Stony Loam (Browse).	Favorable	1,300	Birchleaf mountainmahogany	25
		Normal	1,000	Serviceberry	20
		Unfavorable	800	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Gambel oak	5
				Snowberry	5
				Mountain big sagebrush	5
46*:					
Guben	Mountain Stony Loam (Browse)	Favorable	1,600	Birchleaf mountainmahogany	25
		Normal	1,200	Serviceberry	20
		Unfavorable	900	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Mountain big sagebrush	5
				Gambel oak	5
				Snowberry	5
Pathead	Mountain Shallow Loam (Saline Wildrye).	Favorable	800	Salina wildrye	30
		Normal	600	Snowberry	5
		Unfavorable	400	Bluegrass	5
				Needlegrass	5
				Birchleaf mountainmahogany	5
				Antelope bitterbrush	5
				Utah serviceberry	5
				Indian ricegrass	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
47*:					
Guben	Mountain Very Steep Stony Loam (Douglas-fir)**.	Favorable	700	Salina wildrye	15
		Normal	500	Snowberry	15
		Unfavorable	400	Wheatgrass	10
				Elk sedge	5
				Indian ricegrass	5
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5
Rock outcrop.					
48 Haverdad	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	900	Indian ricegrass	20
		Normal	700	Wyoming big sagebrush	20
		Unfavorable	500	Needleandthread	10
				Galleta	10
				Bottlebrush squirreltail	10
				Globemallow	5
				Winterfat	5
49 Haverdad	Alkali Flat	Favorable	1,000	Black greasewood	30
		Normal	700	Bottlebrush squirreltail	10
		Unfavorable	500	Alkali sacaton	10
				Shadscale	10
				Galleta	5
				Indian ricegrass	5
				Seepweed	5
50 Haverdad	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Basin big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Galleta	10
				Winterfat	5
51*, 52* Hernandez	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	900	Indian ricegrass	20
		Normal	700	Wyoming big sagebrush	20
		Unfavorable	500	Galleta	10
				Bottlebrush squirreltail	10
				Needleandthread	10
				Globemallow	5
				Winterfat	5
53* Hernandez	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Basin big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5
54*:					
Hernandez	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Basin big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5
Atrac	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Basin big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
58: Juva Variant	Alkali Flat	Favorable	1,000	Black greasewood	30
		Normal	700	Bottlebrush squirreltail	10
		Unfavorable	500	Alkali sacaton	10
				Shadscale	10
				Galleta	5
				Indian ricegrass	5
				Seepweed	5
59, 60: Killpack	Desert Loam	Favorable	700	Galleta	20
		Normal	500	Shadscale	20
		Unfavorable	300	Indian ricegrass	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
61: Libbings	Salt Meadow	Favorable	2,000	Inland saltgrass	30
		Normal	1,500	Alkali sacaton	15
		Unfavorable	1,000	Baltic rush	5
				Sedge	5
				Tufted hairgrass	5
				Western wheatgrass	5
				Black greasewood	5
62*:					
Midfork	High Mountain Very Steep Loam (Douglas-fir)**.	Favorable	100	Snowberry	10
		Normal	75	Oregon-grape	10
		Unfavorable	50	Mountainlover	10
				Quaking aspen	10
				Sedge	5
				Bluegrass	5
				Needlegrass	5
				Wheatgrass	5
Comodore	High Mountain Very Steep Loam (Douglas-fir)**.	Favorable	100	Snowberry	10
		Normal	75	Oregon-grape	10
		Unfavorable	50	Mountainlover	10
				Quaking aspen	10
				Sedge	5
				Bluegrass	5
				Needlegrass	5
				Wheatgrass	5
63*:					
Midfork	High Mountain Very Steep Loam (Douglas-fir)**.	Favorable	100	Snowberry	10
		Normal	75	Oregon-grape	10
		Unfavorable	50	Mountainlover	10
				Quaking aspen	10
				Sedge	5
				Bluegrass	5
				Needlegrass	5
				Wheatgrass	5
Podo	Mountain Shallow Loam (Saline Wildrye).	Favorable	800	Salina wildrye	30
		Normal	600	Indian ricegrass	5
		Unfavorable	400	Needlegrass	5
				Bluegrass	5
				Utah serviceberry	5
				Birchleaf mountainmahogany	5
				Snowberry	5
				Antelope bitterbrush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
64 Minchey	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	3,000	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
65 Mivida	Semidesert Sandy Loam	Favorable	800	Indian ricegrass	20
		Normal	650	Needleandthread	15
		Unfavorable	450	Galleta	10
				Fourwing saltbush	10
				Torrey Mormon-tea	5
66 Mivida	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Basin big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5
67 Mivida	Semidesert Sandy Loam	Favorable	800	Indian ricegrass	20
		Normal	650	Needleandthread	15
		Unfavorable	450	Galleta	10
				Fourwing saltbush	10
				Torrey Mormon-tea	5
68 Moffat	Desert Sandy Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	10
		Unfavorable	300	Fourwing saltbush	10
				Galleta	10
				Sand dropseed	5
				Globemallow	5
				Winterfat	5
				Bud sagebrush	5
				Torrey Mormon-tea	5
69*:					
Moffat	Desert Sandy Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	10
		Unfavorable	300	Fourwing saltbush	10
				Galleta	10
				Sand dropseed	5
				Globemallow	5
				Winterfat	5
				Bud sagebrush	5
				Torrey Mormon-tea	5
Persayo	Desert Loamy Clay	Favorable	400	Shadscale	25
		Normal	300	Galleta	15
		Unfavorable	150	Indian ricegrass	10
				Deserttrumpet	5
				Bud sagebrush	5
70*:					
Nelman	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Western wheatgrass	15
		Normal	1,100	Big sagebrush	15
		Unfavorable	800	Indian ricegrass	10
				Needleandthread	10
				Muttongrass	10
				Fourwing saltbush	5
Travessilla	Upland Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	500	Birchleaf mountainmahogany	15
		Normal	400	Mexican cliffrose	15
		Unfavorable	300	Salina wildrye	10
				Indian ricegrass	10
				Mormon-tea	10

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
70*:					
Rock outcrop.					
71 Pathead	Mountain Very Steep Stony Loam (Curlleaf Mountainmahogany).	Favorable	1,100	Curlleaf mountainmahogany	30
		Normal	800	Salina wildrye	20
		Unfavorable	600	Utah serviceberry	5
				Snowberry	5
				Indian ricegrass	5
				Wheatgrass	5
72*:					
Pathead	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye	35
		Normal	1,200	Snowberry	10
		Unfavorable	1,000	Bluegrass	5
				Bluebunch wheatgrass	5
				Needlegrass	5
				Prairie junegrass	5
				Birchleaf mountainmahogany	5
				Antelope bitterbrush	5
				Utah serviceberry	5
				Indian ricegrass	5
Curecanti	Mountain Very Steep Loam (Oak).	Favorable	1,400	Gambel oak	30
		Normal	1,000	Bluegrass	10
		Unfavorable	600	Snowberry	10
				Wheatgrass	5
				Serviceberry	5
				Mountain big sagebrush	5
73, 74 Penoyer Variant	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
75* Perma	Mountain Stony Loam (Browse)	Favorable	1,600	Birchleaf mountainmahogany	25
		Normal	1,200	Serviceberry	20
		Unfavorable	900	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Mountain big sagebrush	5
				Gambel oak	5
				Snowberry	5
76*:					
Perma	Mountain Very Steep Stony Loam (Browse).	Favorable	1,300	Birchleaf mountainmahogany	25
		Normal	1,000	Serviceberry	20
		Unfavorable	800	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Mountain big sagebrush	5
				Gambel oak	5
				Snowberry	5
Datino	Mountain Very Steep Stony Loam (Douglas-fir)**.	Favorable	700	Salina wildrye	15
		Normal	500	Snowberry	15
		Unfavorable	400	Slender wheatgrass	10
				Elk sedge	5
				Indian ricegrass	5
				Birchleaf mountainmahogany	5
				Rocky Mountain juniper	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
77, 78 Persayo	Desert Loamy Clay	Favorable	400	Shadscale	25
		Normal	300	Galleta	15
		Unfavorable	150	Indian ricegrass	10
				Deserttrumpet	5
				Bud sagebrush	5
79*:					
Persayo	Desert Loamy Clay	Favorable	400	Shadscale	25
		Normal	300	Galleta	15
		Unfavorable	150	Indian ricegrass	10
				Deserttrumpet	5
				Bud sagebrush	5
Badland.					
80*:					
Persayo	Desert Loamy Clay	Favorable	400	Shadscale	25
		Normal	300	Galleta	15
		Unfavorable	150	Indian ricegrass	10
				Deserttrumpet	5
				Bud sagebrush	5
Chipeta	Desert Shallow Clay	Favorable	300	Mat saltbush	60
		Normal	200	Galleta	10
		Unfavorable	100	Deserttrumpet	5
				Bud sagebrush	5
81*:					
Persayo	Desert Shallow Loam (Black Sagebrush).	Favorable	450	Black sagebrush	40
		Normal	350	Shadscale	15
		Unfavorable	200	Galleta	10
				Bottlebrush squirreltail	5
				Salina wildrye	5
Greybull	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
82 Podo	Upland Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	500	Birchleaf mountainmahogany	15
		Normal	400	Mexican cliffrose	15
		Unfavorable	300	Salina wildrye	10
				Indian ricegrass	10
83*:					
Podo	Upland Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	500	Birchleaf mountainmahogany	15
		Normal	400	Mexican cliffrose	15
		Unfavorable	300	Salina wildrye	10
				Indian ricegrass	10
				Mormon-tea	10
Cabba	Upland Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	500	Birchleaf mountainmahogany	15
		Normal	400	Mexican cliffrose	15
		Unfavorable	300	Salina wildrye	10
				Indian ricegrass	10
				Mormon-tea	10

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
84*:					
Podo	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Utah serviceberry	10
				Birchleaf mountainmahogany	10
				Needlegrass	5
				Bluegrass	5
				Antelope bitterbrush	5
Rock outcrop.					
85 Rabbitex	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluegrass	5
				Wheatgrass	5
				Indian ricegrass	5
				Needlegrass	5
				Serviceberry	5
				Mountain big sagebrush	5
				Antelope bitterbrush	5
86*:					
Rabbitex	Mountain Very Steep Loam (Oak).	Favorable	1,400	Gambel oak	30
		Normal	1,000	Bluegrass	10
		Unfavorable	600	Snowberry	10
				Wheatgrass	5
				Serviceberry	5
				Mountain big sagebrush	5
Doney	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye	35
		Normal	1,200	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Prairie junegrass	5
				Bluegrass	5
				Birchleaf mountainmahogany	5
				Antelope bitterbrush	5
				Utah serviceberry	5
Midfork	High Mountain Very Steep Loam (Douglas-fir)**.	Favorable	100	Snowberry	10
		Normal	75	Oregon-grape	10
		Unfavorable	50	Mountainlover	10
				Quaking aspen	10
				Sedge	5
				Bluegrass	5
				Needlegrass	5
				Wheatgrass	5
87*:					
Rabbitex	Mountain Stony Loam (Browse)	Favorable	1,600	Birchleaf mountainmahogany	25
		Normal	1,200	Serviceberry	20
		Unfavorable	900	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Gambel oak	5
				Snowberry	5
				Mountain big sagebrush	5
Pathead	Mountain Shallow Loam (Black Sagebrush).	Favorable	1,000	Bluegrass	20
		Normal	750	Black sagebrush	20
		Unfavorable	500	Bluebunch wheatgrass	10
				Salina wildrye	10

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
88*:					
Rabbitex	Mountain Stony Loam (Ponderosa Pine)**.	Favorable	600	Salina wildrye	15
		Normal	500	Gambel oak	15
		Unfavorable	450	Letterman needlegrass	5
				Snowberry	5
				Mountain big sagebrush	5
Datino Variant	Mountain Loam (Oak)	Favorable	1,750	Gambel oak	30
		Normal	1,200	Bluegrass	10
		Unfavorable	650	Snowberry	10
				Wheatgrass	5
				Serviceberry	5
				Mountain big sagebrush	5
89 Rafael	Salt Meadow	Favorable	2,000	Inland saltgrass	30
		Normal	1,500	Alkali sacaton	15
		Unfavorable	1,000	Tufted hairgrass	5
				Sedge	5
				Western wheatgrass	5
				Baltic rush	5
90, 91 Ravola	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
92*:					
Ravola	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5
Gullied land.					
93*:					
Ravola	Alkali Flat	Favorable	1,000	Black greasewood	30
		Normal	700	Alkali sacaton	10
		Unfavorable	500	Bottlebrush squirreltail	10
				Shadscale	10
				Indian ricegrass	5
				Galleta	5
				Seepweed	5
Slickspots.					
96*:					
Rock outcrop.					
Rubbleland.					
Travessilla	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Birchleaf mountainmahogany	10
				Utah serviceberry	10
				Bluegrass	5
				Needleandthread	5
				Bluebunch wheatgrass	5
				Mormon-tea	5
				Antelope bitterbrush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Compo- sition
			Lb/acre		Pct
97*:					
Rottulee	Mountain Very Steep Stony Loam (Browse).	Favorable	1,300	Birchleaf mountainmahogany	25
		Normal	1,000	Serviceberry	20
		Unfavorable	800	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Mountain big sagebrush	5
				Gambel oak	5
				Snowberry	5
Trag	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Mountain big sagebrush	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Indian ricegrass	5
				Letterman needlegrass	5
98 Sagers	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Winterfat	5
99 Saltair	Salt Meadow	Favorable	2,000	Inland saltgrass	30
		Normal	1,500	Alkali sacaton	15
		Unfavorable	1,000	Baltic rush	5
				Tufted hairgrass	5
				Western wheatgrass	5
				Sedge	5
100, 101 Senchert	High Mountain Loam (Aspen)**	Favorable	2,000	Slender wheatgrass	15
		Normal	1,500	Thurber fescue	10
		Unfavorable	1,000	Columbia needlegrass	10
				Blue wildrye	10
				Brome	10
				Bluegrass	5
102*:					
Senchert	High Mountain Stony Loam (Engelmann Spruce)**.	Favorable	110	Blueberry	50
		Normal	100	Oregon-grape	15
		Unfavorable	90	Sedge	10
				Pinegrass	10
Senchert family	High Mountain Loam (Thurber Fescue).	Favorable	3,000	Thurber fescue	25
		Normal	2,500	Mountain brome	10
		Unfavorable	2,000	Slender wheatgrass	10
				Aspen peavine	5
				Lupine	5
				Mountain big sagebrush	5
				Snowberry	5
103*:					
Senchert	High Mountain Loam (Douglas-fir)**.	Favorable	200	Snowberry	10
		Normal	100	Oregon-grape	10
		Unfavorable	50	Mountainlover	10
				Quaking aspen	10
				Sedge	5
				Bluegrass	5
				Needlegrass	5
				Wheatgrass	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
103*:					
Toze	High Mountain Loam (Douglas-fir)**.	Favorable	200	Snowberry	10
		Normal	100	Oregon-grape	10
		Unfavorable	50	Mountainlover	10
				Quaking aspen	10
				Sedge	5
				Bluegrass	5
				Needlegrass	5
				Wheatgrass	5
104* Senchert	High Mountain Loam (Thurber Fescue).	Favorable	3,000	Thurber fescue	25
		Normal	2,500	Mountain brome	10
		Unfavorable	2,000	Slender wheatgrass	10
				Aspen peavine	5
				Lupine	5
				Mountian big sagebrush	5
				Snowberry	5
105*:					
Senchert family	High Mountain Loam (Thurber Fescue).	Favorable	3,000	Thurber fescue	25
		Normal	2,500	Mountain brome	10
		Unfavorable	2,000	Slender wheatgrass	10
				Aspen peavine	5
				Lupine	5
				Mountain big sagebrush	5
				Snowberry	5
Senchert	High Mountain Loam (Aspen)**	Favorable	2,000	Slender wheatgrass	15
		Normal	1,500	Thurber fescue	10
		Unfavorable	1,000	Columbia needlegrass	10
				Blue wildrye	10
				Brome	10
				Bluegrass	5
106*:					
Sheepcan	Mountain Very Steep Loam (Saline Wildrye).	Favorable	1,400	Salina wildrye	35
		Normal	1,200	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Prairie junegrass	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Birchleaf mountainmahogany	5
Podo	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Birchleaf mountainmahogany	10
				Utah serviceberry	10
				Bluegrass	5
				Needleandthread	5
				Bluebunch wheatgrass	5
				Mormon-tea	5
				Antelope bitterbrush	5
Rock outcrop.					
107*:					
Shupert	Loamy Bottom	Favorable	2,000	Basin wildrye	25
		Normal	1,500	Basin big sagebrush	15
		Unfavorable	1,000	Needleandthread	10
				Western wheatgrass	10
				Muttongrass	10
				Indian ricegrass	5
				Indian ricegrass	5
				Rubber rabbitbrush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
107*:					
Winetti	Loamy Bottom	Favorable	2,000	Basin wildrye	25
		Normal	1,500	Basin big sagebrush	15
		Unfavorable	1,000	Needleandthread	10
				Western wheatgrass	10
				Muttongrass	10
				Indian ricegrass	5
				Rubber rabbitbrush	5
108	Mountain Meadow	Favorable	3,500	Sedge	20
Silas		Normal	3,000	Tufted hairgrass	10
		Unfavorable	2,500	Common spikerush	5
				Kentucky bluegrass	5
				Western wheatgrass	5
				Clover	5
				Shrubby cinquefoil	5
				Willow	5
109*:					
Silas	Mountain Meadow	Favorable	3,500	Sedge	20
		Normal	3,000	Tufted hairgrass	10
		Unfavorable	2,500	Common spikerush	5
				Kentucky bluegrass	5
				Western wheatgrass	5
				Clover	5
				Shrubby cinquefoil	5
				Willow	5
Brycan	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Indian ricegrass	5
				Letterman needlegrass	5
				Bluegrass	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Mountain big sagebrush	5
110	Semidesert Gravelly Loam (Wyoming Big Sagebrush).	Favorable	600	Wyoming big sagebrush	30
Stormitt		Normal	400	Galleta	15
		Unfavorable	300	Indian ricegrass	10
				Needleandthread	10
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
111*:					
Stormitt	Semidesert Gravelly Loam (Wyoming Big Sagebrush).	Favorable	600	Wyoming big sagebrush	30
		Normal	400	Galleta	15
		Unfavorable	300	Indian ricegrass	10
				Needleandthread	10
				Bud sagebrush	5
				Shadscale	5
				Winterfat	5
Minchey	Desert Loam	Favorable	700	Indian ricegrass	20
		Normal	500	Shadscale	20
		Unfavorable	300	Galleta	10
				Globemallow	5
				Bud sagebrush	5
				Winterfat	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
			Lb/acre		Pct
112 Strych	Semidesert Bouldery Loam	Favorable	900	Indian ricegrass	25
		Normal	700	Shadscale	15
		Unfavorable	400	Salina wildrye	10
				Galleta	10
				Needleandthread	5
				Mormon-tea	5
				Douglas rabbitbrush	5
				Winterfat	5
113 Strych	Upland Stony Loam (Pinyon-Utah Juniper)**.	Favorable	1,000	Birchleaf mountainmahogany	15
		Normal	850	Salina wildrye	10
		Unfavorable	600	Needleandthread	10
				Black sagebrush	10
				Indian ricegrass	5
				Mormon-tea	5
				Bluegrass	5
				Bluebunch wheatgrass	5
				Utah serviceberry	5
114 Strych	Semidesert Stony Loam (Utah Juniper-Pinyon)**.	Favorable	650	Galleta	10
		Normal	500	Needleandthread	10
		Unfavorable	350	Birchleaf mountainmahogany	10
				Mormon-tea	10
				Black sagebrush	10
				Salina wildrye	5
				Bottlebrush squirreltail	5
				Indian ricegrass	5
115 Trag	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Mountain big sagebrush	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Indian ricegrass	5
				Letterman needlegrass	5
116*:					
Trag	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Mountain big sagebrush	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Indian ricegrass	5
				Letterman needlegrass	5
Beje	Mountain Shallow Loam (Mountain Big Sagebrush).	Favorable	1,500	Mountain big sagebrush	20
		Normal	1,200	Bluegrass	10
		Unfavorable	850	Slender wheatgrass	10
				Salina wildrye	10
				Letterman needlegrass	5
				Needleandthread	5
				Prairie junegrass	5
				Snowberry	5
Rottulee	Mountain Stony Loam (Browse)	Favorable	1,600	Birchleaf mountainmahogany	25
		Normal	1,200	Utah serviceberry	20
		Unfavorable	900	Bluegrass	5
				Salina wildrye	5
				Elk sedge	5
				Mountain big sagebrush	5
				Gambel oak	5
				Snowberry	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production		Characteristic vegetation	Compo-sition
		Kind of year	Dry weight		
			Lb/acre		Pct
117*:					
Trag	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Mountain big sagebrush	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Indian ricegrass	5
				Letterman needlegrass	5
Beje	Mountain Shallow Loam (Mountain Big Sagebrush).	Favorable	1,500	Mountain big sagebrush	20
		Normal	1,200	Bluegrass	10
		Unfavorable	850	Slender wheatgrass	10
				Salina wildrye	10
				Letterman needlegrass	5
				Needleandthread	5
				Prairie junegrass	5
				Snowberry	5
Senchert	High Mountain Loam (Aspen)**	Favorable	2,000	Slender wheatgrass	15
		Normal	1,500	Thurber fescue	10
		Unfavorable	1,000	Columbia needlegrass	10
				Blue wildrye	10
				Brome	10
				Bluegrass	5
118*:					
Trag	Mountain Loam (Saline Wildrye).	Favorable	2,000	Salina wildrye	35
		Normal	1,500	Snowberry	10
		Unfavorable	1,000	Bluebunch wheatgrass	5
				Bluegrass	5
				Mountain big sagebrush	5
				Utah serviceberry	5
				Antelope bitterbrush	5
				Indian ricegrass	5
				Letterman needlegrass	5
Croydon	High Mountain Loam (Aspen)**	Favorable	2,000	Slender wheatgrass	15
		Normal	1,500	Thurber fescue	10
		Unfavorable	1,000	Columbia needlegrass	10
				Blue wildrye	10
				Brome	10
				Bluegrass	5
119 Travessilla	Upland Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	500	Birchleaf mountainmahogany	15
		Normal	400	Mexican cliffrose	15
		Unfavorable	300	Salina wildrye	10
				Indian ricegrass	10
				Mormon-tea	10
120*:					
Travessilla	Semidesert Shallow Loam (Utah Juniper-Pinyon)**.	Favorable	350	Salina wildrye	20
		Normal	250	Black sagebrush	20
		Unfavorable	150	Bluebunch wheatgrass	10
				Mormon-tea	10
				Galleta	5
Rock outcrop.					

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
121*:					
Travessilla	Upland Very Steep Shallow Loam (Pinyon-Utah Juniper)**.	Favorable	700	Salina wildrye	20
		Normal	500	Indian ricegrass	10
		Unfavorable	300	Birchleaf mountainmahogany	10
				Utah serviceberry	10
				Bluegrass	5
				Needleandthread	5
				Bluebunch wheatgrass	5
				Mormon-tea	5
				Antelope bitterbrush	5
Rock outcrop.					
Gerst	Semidesert Very Steep Shallow Clay (Utah Juniper)**.	Favorable	600	Shadscale	30
		Normal	500	Salina wildrye	25
		Unfavorable	350	Galleta	10
				Bluebunch wheatgrass	10
				Western wheatgrass	5
122*:					
Travessilla	Semidesert Very Steep Shallow Loam (Utah Juniper-Pinyon)**.	Favorable	250	Salina wildrye	20
		Normal	200	Black sagebrush	20
		Unfavorable	100	Bluebunch wheatgrass	10
				Blue grama	10
				Galleta	5
Travessilla family	Semidesert Shallow Loam (Black Sagebrush).	Favorable	700	Black sagebrush	30
		Normal	400	Indian ricegrass	15
		Unfavorable	300	Galleta	10
				Shadscale	10
				Blue grama	5
				Bud sagebrush	5
				Slenderbush eriogonum	5
Rock outcrop.					
123* Travessilla	Semidesert Shallow Loam (Black Sagebrush).	Favorable	700	Black sagebrush	30
		Normal	400	Indian ricegrass	15
		Unfavorable	300	Galleta	10
				Shadscale	10
				Blue grama	5
				Bud sagebrush	5
				Slenderbush eriogonum	5
124*:					
Uinta	High Mountain Very Steep Stony Loam (Engelmann Spruce)**.	Favorable	100	Blueberry	50
		Normal	75	Oregon-grape	15
		Unfavorable	50	Sedge	10
				Pinegrass	10
				Currant	10
Podo	Mountain Shallow Loam (Saline Wildrye).	Favorable	800	Salina wildrye	30
		Normal	600	Indian ricegrass	5
		Unfavorable	400	Needlegrass	5
				Bluegrass	5
				Utah serviceberry	5
				Birchleaf mountainmahogany	5
				Snowberry	5
				Antelope bitterbrush	5

See footnote at end of table.

TABLE 4.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Grazing site	Total production		Characteristic vegetation	Compo-sition
		Kind of year	Dry weight		
			Lb/acre		Pct
125*:					
Uinta	High Mountain Very Steep Stony Loam (Engelmann Spruce)**.	Favorable	100	Blueberry	50
		Normal	75	Oregon-grape	15
		Unfavorable	50	Sedge	10
				Pinegrass	10
				Currant	10
Toze	High Mountain Very Steep Stony Loam (Engelmann Spruce)**.	Favorable	100	Blueberry	50
		Normal	75	Oregon-grape	15
		Unfavorable	50	Sedge	10
				Pinegrass	10
				Currant	10
126 Winetti Variant	Loamy Bottom	Favorable	2,000	Basin wildrye	25
		Normal	1,500	Basin big sagebrush	15
		Unfavorable	1,000	Needleandthread	10
				Western wheatgrass	10
				Muttongrass	10
				Indian ricegrass	5
				Rubber rabbitbrush	5

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 5.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
1----------------------- Atrac	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Moderate: dusty.
2*. Badland				
3*: Badland.				
Rubbleland.				
Rock outcrop.				
4----------------------- Beje	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: small stones.
5*: Beje-----------------	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: small stones.
Beje-----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.
6*: Beje-----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.
Comodore-------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
7*: Beje-----------------	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight.
Trag-----------------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
8----------------------- Billings	Moderate: excess salt.	Moderate: excess salt.	Moderate: slope, excess salt.	Severe: erodes easily.
9*: Billings-------------	Severe: flooding, excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: excess sodium, excess salt.	Severe: erodes easily.
Gullied land.				
10*------------------- Cabba	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
11*-------------------- Cabba	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slopes, depth to rock.	Severe: slope, small stones.
12*:				
Cabba-----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope, small stones.
Badland.				
Rock outcrop.				
13*:				
Cabba-----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Severe: slope.
Guben-----------------	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Rock outcrop.				
14*:				
Casmos----------------	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, small stones.	Slight.
Rock outcrop.				
15*:				
Casmos----------------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: slope.
Rock outcrop.				
16-------------------- Chipeta	Severe: depth to rock, excess salt.	Severe: excess salt, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
17*:				
Chipeta---------------	Severe: depth to rock, excess salt.	Severe: excess salt, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
Badland.				
18*:				
Chipeta---------------	Severe: depth to rock, excess salt.	Severe: excess salt, depth to rock.	Severe: depth to rock.	Severe: erodes easily.
Persayo---------------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.
19-------------------- Chupadera	Slight----------------	Slight----------------	Moderate: slope, depth to rock.	Slight.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
20*:				
Comodore	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Datino Variant	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.
21 Croydon	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
22 Croydon	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
23*:				
Curecanti	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pathead	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Pathead	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
24 Datino Variant	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: large stones, slope.
25* Doney	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.
26* Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
27*:				
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Podo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: slope.
28*:				
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Toze	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
29*. Dumps				
30*:				
Falcon	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.
Rock outcrop.				

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
31: Ferron	Severe: flooding, wetness.	Moderate: wetness, excess salt.	Severe: wetness.	Severe: erodes easily.
32*:				
Frandsen	Slight	Slight	Moderate: slope, small stones.	Slight.
Gullied land.				
33*, 34*:				
Gerst	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.
Badland.				
Rubbleland.				
35*:				
Gerst	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: slope.
Badland.				
Stormitt	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.
36*:				
Gerst	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.
Strych	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: large stones.
Badland.				
37*:				
Gerst	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.
Strych	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Badland.				
38*:				
Gerst	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: slope.
Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight.
39*: Glenberg	Severe: flooding.	Slight	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
40*: Glenberg	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Severe: erodes easily.
41*:				
Green River	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Severe: erodes easily.
Juva Variant	Slight	Slight	Moderate: slope.	Severe: erodes easily.
42: Greybull	Moderate: dusty.	Moderate: dusty.	Moderate: slope, depth to rock, dusty.	Severe: erodes easily.
43*:				
Grobutte	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.
Cabba	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.
44*, 45*:				
Guben	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Doney	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
Datino Variant	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
46*:				
Guben	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Pathead	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
47*:				
Guben	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Rock outcrop.				
48: Haverdad	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Severe: erodes easily.
49: Haverdad	Severe: excess sodium.	Severe: excess sodium.	Severe: excess sodium.	Moderate: dusty.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
50 Haverdad	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Severe: erodes easily.
51*, 52*, 53* Hernandez	Slight	Slight	Moderate: slope.	Slight.
54*:				
Hernandez	Slight	Slight	Moderate: slope.	Slight.
Atrac	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Moderate: dusty.
55 Hunting	Moderate: excess salt.	Moderate: excess salt.	Moderate: slope, excess salt.	Severe: erodes easily.
56 Hunting	Severe: flooding, excess salt.	Severe: excess salt.	Severe: excess salt.	Severe: erodes easily.
57 Hunting	Moderate: excess salt.	Moderate: excess salt.	Moderate: slope, excess salt.	Severe: erodes easily.
58 Juva Variant	Slight	Slight	Moderate: slope.	Severe: erodes easily.
59, 60 Killpack	Moderate: excess salt.	Moderate: excess salt.	Moderate: slope, depth to rock, excess salt.	Severe: erodes easily.
61 Libbings	Severe: wetness, excess salt.	Severe: excess salt.	Severe: wetness, excess salt.	Severe: erodes easily.
62*:				
Midfork	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.
Comodore	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: slope.
63*:				
Midfork	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.
Podo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: slope.
64 Minchey	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Severe: erodes easily.
65, 66 Mivida	Slight	Slight	Moderate: slope.	Slight.
67 Mivida	Moderate: large stones.	Moderate: large stones.	Moderate: slope.	Severe: large stones.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
68 Moffat	Slight	Slight	Moderate: slope.	Slight.
69*:				
Moffat	Slight	Slight	Moderate: slope.	Slight.
Persayo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope, depth to rock.	Moderate: slope.
70*:				
Nelman	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.
Travessilla	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.
Rock outcrop.				
71 Pathead	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
72*:				
Pathead	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope.
Curecanti	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
73, 74 Penoyer Variant	Slight	Slight	Moderate: slope, dusty.	Severe: erodes easily.
75* Perma	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.
76*:				
Perma	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.
Datino	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: large stones, slope, small stones.
77 Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.
78 Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Slight.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
79*:				
Persayo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: large stones, slope, depth to rock.	Slight.
Badland.				
80*:				
Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
Chipeta	Severe: depth to rock, excess salt.	Severe: excess salt, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.
81*:				
Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight.
Greybull	Moderate: dusty.	Moderate: dusty.	Moderate: slope, depth to rock, dusty.	Severe: erodes easily.
82 Podo	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones.	Slight.
83*:				
Podo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Moderate: slope.
Cabba	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.
84*:				
Podo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: slope.
Rock outcrop.				
85 Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
86*:				
Rabbitex	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Midfork	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
87*:				
Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pathead	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
88*:				
Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Datino Variant	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: large stones, slope.
89 Rafael	Severe: flooding, wetness, excess salt.	Severe: excess salt, wetness.	Severe: wetness, excess salt.	Severe: wetness.
90, 91 Ravola	Moderate: dusty, excess salt.	Moderate: excess salt, dusty.	Moderate: slope, dusty, excess salt.	Severe: erodes easily.
92*:				
Ravola	Moderate: dusty, excess salt.	Moderate: excess salt, dusty.	Moderate: slope, dusty, excess salt.	Severe: erodes easily.
Gullied land.				
93*:				
Ravola	Moderate: dusty, excess salt.	Moderate: excess salt, dusty.	Moderate: slope, dusty, excess salt.	Severe: erodes easily.
Slickspots.				
94*. Riverwash				
95*. Rock outcrop				
96*:				
Rock outcrop.				
Rubbleland.				
Travessilla	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: slope.
97*:				
Rottulee	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
98 Sagers	Moderate: excess salt.	Moderate: excess salt.	Moderate: slope, excess salt.	Severe: erodes easily.
99 Saltair	Severe: excess salt.	Severe: excess salt.	Severe: excess salt.	Severe: erodes easily.
100 Senchert	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
101 Senchert	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
102*:				
Senchert	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Senchert family	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight.
103*:				
Senchert	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Toze	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
104* Senchert	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight.
105*:				
Senchert family	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Senchert	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
106*:				
Sheepcan	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.
Podo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: slope.
Rock outcrop.				
107*:				
Shupert	Severe: flooding.	Moderate: small stones.	Severe: small stones.	Slight.
Winetti	Severe: flooding.	Slight	Severe: large stones.	Moderate: large stones.
108 Silas	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
109*:				
Silas	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Brycan	Slight	Slight	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
110 Stormitt	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight.
111*:				
Stormitt	Moderate: small stones.	Moderate: small stones.	Severe: slope, small stones.	Slight.
Minchey	Moderate: dusty.	Moderate: dusty.	Moderate: slope, dusty.	Severe: erodes easily.
112, 113 Strych	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: large stones.
114 Strych	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: large stones, slope.
115 Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
116*:				
Trag	Slight	Slight	Moderate: slope.	Slight.
Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight.
Rottulee	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
117*:				
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight.
Senchert	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
118*:				
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Croydon	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
119 Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight.
120*:				
Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight.
Rock outcrop.				

See footnote at end of table.

TABLE 5.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
121*:				
Travessilla	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: large stones, slope.
Rock outcrop.				
Gerst	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones.	Severe: slope.
122*:				
Travessilla	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.
Travessilla family	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.
Rock outcrop.				
123* Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, depth to rock.	Slight.
124*:				
Uinta	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Podo	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: large stones, slope.	Severe: slope.
125*:				
Uinta	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Toze	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
126 Winetti Variant	Severe: flooding.	Moderate: large stones.	Severe: large stones.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
1------------------ Atrac	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
2*. Badland											
3*: Badland.											
Rubbleland.											
Rock outcrop.											
4------------------ Beje	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
5*: Beje--------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Beje--------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
6*: Beje--------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Comodore----------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Fair	Very poor.	Poor.
7*: Beje--------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Trag--------------	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
8------------------ Billings	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
9*: Billings----------	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Gullied land.											
10*, 11*----------- Cabba	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
12*: Cabba-------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Badland.											
Rock outcrop.											
13*: Cabba-------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
13*: Guben	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Rock outcrop.											
14*, 15*: Casmos	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Rock outcrop.											
16 Chipeta	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
17*: Chipeta	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Badland.											
18*: Chipeta	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
19 Chupadera	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
20*: Comodore	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Fair	Very poor.	Poor.
Datino Variant	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
21, 22 Croydon	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
23*: Curecanti	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Pathead	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Pathead	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
24 Datino Variant	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
25* Doney	Poor	Poor	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
26* Doney	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
27*: Doney	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
27*:											
Podo	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
28*:											
Doney	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Toze	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
29*. Dumps											
30*:											
Falcon	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rock outcrop.											
31 Ferron	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair	Poor.
32*:											
Frandsen	Poor	Poor	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	Good.
Gullied land.											
33*, 34*:											
Gerst	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Badland.											
Rubbleland.											
35*:											
Gerst	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Badland.											
Stormitt	Very poor.	Very poor.	Very poor.	---	Poor	Very poor.	Very poor.	Very poor.	---	Very poor.	Poor.
36*, 37*:											
Gerst.											
Strych	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Badland.											
38*:											
Gerst	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Travessilla	Very poor.	Very poor.	Poor	---	Poor	Very poor.	Very poor.	Poor	---	Very poor.	Poor.
39*, 40* Glenberg	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
41*:											
Green River	Poor	Poor	Fair	Good	Poor	Fair	Fair	Poor	Poor	Good	Poor.
Juva Variant	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
42 Greybull	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
43*:											
Grobutte	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Cabba	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
44*, 45*:											
Guben	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Doney	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Datino Variant	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
46*:											
Guben	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Pathead	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
47*:											
Guben	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Rock outcrop.											
48 Haverdad	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
49 Haverdad	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
50 Haverdad	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
51*, 52*, 53* Hernandez	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
54*:											
Hernandez	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
Atrac	Poor	Poor	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
55 Hunting	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
56 Hunting	Poor	Poor	Poor	Very poor.	Poor	Fair	Fair	Poor	Poor	Very poor.	Poor.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
57----------------- Hunting	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
58. Juva Variant------	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
59, 60------------- Killpack	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
61----------------- Libbings	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Good	Very poor.	Very poor.	Fair	Very poor.
62*: Midfork-----------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
Comodore----------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Fair	Very poor.	Poor.
63*: Midfork-----------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
Podo--------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
64----------------- Minchey	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Good.
65----------------- Mivida	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
66----------------- Mivida	Very poor.	Very poor.	Fair	Poor	Fair	Poor	Very poor.	Poor	Fair	Very poor.	Fair.
67----------------- Mivida	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
68----------------- Moffat	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
69*: Moffat------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Persayo-----------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
70*: Nelman------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Travessilla--------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rock outcrop.											
71----------------- Pathead	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
72*: Pathead-----------	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
72*:											
Curecanti	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
73 Penoyer Variant	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
74 Penoyer Variant	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
75* Perma	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
76*:											
Perma	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Datino	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
77 Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
78 Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
79*:											
Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Badland.											
80*:											
Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Chipeta	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
81*:											
Persayo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
Greybull	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
82 Podo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
83*:											
Podo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Cabba	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
84*:											
Podo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Rock outcrop.											

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
85----------------- Rabbitex	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
86*:											
Rabbitex----------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Doney-------------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Midfork-----------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
87*:											
Rabbitex----------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Pathead-----------	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
88*:											
Rabbitex----------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Datino Variant----	Very poor.	Very poor.	Fair	Poor	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
89----------------- Rafael	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Good	Very poor.	Very poor.	Fair	Very poor.
90, 91------------- Ravola	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
92*:											
Ravola------------	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Gullied land.											
93*:											
Ravola------------	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
Slickspots.											
94*. Riverwash											
95*. Rock outcrop											
96*:											
Rock outcrop.											
Rubbleland.											
Travessilla-------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
97*:											
Rottulee----------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Trag--------------	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
98 Sagers	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
99 Saltair	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Good	Very poor.	Very poor.	Fair	Very poor.
100, 101 Senchert	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
102*:											
Senchert	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
Senchert family	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
103*:											
Senchert	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
Toze	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.	Good.
104* Senchert	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
105*:											
Senchert family	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
Senchert	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
106*:											
Sheepcan	Very poor.	Very poor.	Very poor.	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Podo	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Rock outcrop.											
107*:											
Shupert	Poor	Fair	Fair	Poor	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
Winetti	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
108 Silas	Very poor.	Very poor.	Good	Good	Good	Fair	Poor	Poor	Good	Poor	Good.
109*:											
Silas	Very poor.	Very poor.	Good	Good	Good	Fair	Poor	Poor	Good	Poor	Good.
Brycan	Poor	Poor	Fair	Good	Fair	Poor	Very poor.	Poor	Good	Very poor.	Fair.
110 Stormitt	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
111*:											
Stormitt	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
111*:											
Minchey	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Good.
112, 113, 114 Strych	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor.
115 Trag	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
116*:											
Trag	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
Beje	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rottulee	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
117*:											
Trag	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
Beje	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Senchert	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
118*:											
Trag	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.	Fair.
Croydon	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
119 Travessilla	Very poor.	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor	Very poor.	Poor.
120*:											
Travessilla	Very poor.	Very poor.	Poor	---	Poor	Very poor.	Very poor.	Poor	---	Very poor.	Poor.
Rock outcrop.											
121*:											
Travessilla	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rock outcrop.											
Gerst	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
122*:											
Travessilla	Very poor.	Very poor.	Poor	---	Poor	Very poor.	Very poor.	Poor	---	Very poor.	Poor.
Travessilla family	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
Rock outcrop.											

See footnote at end of table.

TABLE 6.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
123*----------------Travessilla	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
124*:											
Uinta--------------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Podo---------------	Very poor.	Very poor.	Poor	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor.
125*:											
Uinta--------------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.	Fair.
Toze---------------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.	Good.
126----------------Winetti Variant	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1: Atrac	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.	Slight.
2*. Badland						
3*: Badland.						
Rubbleland.						
Rock outcrop.						
4: Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones, thin layer.
5*: Beje	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: small stones, slope, thin layer.
Beje	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
6*: Beje	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Comodore	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: large stones, slope, thin layer.
7*: Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
8: Billings	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Moderate: excess salt.
9*: Billings	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, frost action.	Severe: excess salt, excess sodium.
Gullied land.						

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
10*----------------Cabba	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope, thin layer.
11*----------------Cabba	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: thin layer.
12*:						
Cabba------------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope, thin layer.
Badland.						
Rock outcrop.						
13*:						
Cabba------------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope, thin layer.
Guben------------	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
Rock outcrop.						
14*:						
Casmos-----------	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
Rock outcrop.						
15*:						
Casmos-----------	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Rock outcrop.						
16----------------Chipeta	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: slope.	Severe: excess salt, thin layer.
17*:						
Chipeta----------	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: slope.	Severe: excess salt, thin layer.
Badland.						
18*:						
Chipeta----------	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: low strength.	Severe: excess salt, thin layer.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
18*:						
Persayo	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: depth to rock, low strength.	Severe: thin layer.
19 Chupadera	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock, frost action.	Moderate: thin layer.
20*:						
Comodore	Severe: depth to rock, large stones, slope.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, large stones.	Severe: large stones, slope, thin layer.
Datino Variant	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
21, 22 Croydon	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
23*:						
Curecanti	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pathead	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, slope.
Pathead	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, slope.
24 Datino Variant	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.
25* Doney	Moderate: depth to rock, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.	Moderate: slope, thin layer.
26* Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
27*:						
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Podo	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, slope, thin layer.
28*:						
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Toze	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
29*. Dumps						
30*: Falcon	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Rock outcrop.						
31 Ferron	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: frost action.	Moderate: excess salt, wetness.
32*: Frandsen	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, frost action.	Slight.
Gullied land.						
33*, 34*: Gerst	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones, slope.
Badland.						
Rubbleland.						
35*: Gerst	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope, thin layer.
Badland.						
Stormitt	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
36*: Gerst	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones, slope.
Strych	Moderate: large stones, slope.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.	Severe: large stones.
Badland.						
37*: Gerst	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones, slope.
Strych	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Badland.						

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
38*:						
Gerst	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope, thin layer.
Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
39* Glenberg	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
40* Glenberg	Slight	Slight	Slight	Moderate: slope.	Moderate: frost action.	Slight.
41*:						
Green River	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
Juva Variant	Slight	Slight	Slight	Slight	Moderate: frost action.	Slight.
42 Greybull	Moderate: depth to rock.	Slight	Moderate: depth to rock.	Moderate: slope.	Slight	Moderate: thin layer.
43*:						
Grobutte	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, slope.
Cabba	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: thin layer.
44*, 45*:						
Guben	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Datino Variant	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
46*:						
Guben	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
Pathead	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, slope.
47*:						
Guben	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
Rock outcrop.						

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
48----------------- Haverdad	Slight---------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, frost action, shrink-swell.	Slight.
49----------------- Haverdad	Slight---------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.	Severe: excess sodium.
50----------------- Haverdad	Slight---------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: low strength, frost action, shrink-swell.	Slight.
51*---------------- Hernandez	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: frost action.	Slight.
52*---------------- Hernandez	Slight---------	Slight---------	Slight---------	Moderate: slope.	Moderate: frost action.	Slight.
53*---------------- Hernandez	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: frost action.	Slight.
54*:						
Hernandez---------	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: frost action.	Slight.
Atrac-------------	Slight---------	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.	Slight.
55----------------- Hunting	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Severe: frost action.	Moderate: excess salt.
56----------------- Hunting	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.	Severe: excess salt.
57----------------- Hunting	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Severe: frost action.	Moderate: excess salt.
58----------------- Juva Variant	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: frost action.	Slight.
59----------------- Killpack	Moderate: depth to rock.	Moderate: shrink-swell.	Moderate: depth to rock, shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Moderate: excess salt, thin layer.
60----------------- Killpack	Moderate: depth to rock.	Moderate: shrink-swell.	Moderate: depth to rock, shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength, frost action.	Moderate: excess salt, thin layer.
61----------------- Libbings	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, frost action, shrink-swell.	Severe: excess salt, droughty.
62*:						
Midfork-----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Comodore----------	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, slope, thin layer.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
63*:						
Midfork	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Podo	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
64 Minchey	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
65 Mivida	Slight	Slight	Slight	Slight	Moderate: frost action.	Slight.
66 Mivida	Slight	Slight	Slight	Moderate: slope.	Moderate: frost action.	Moderate: large stones.
67 Mivida	Slight	Slight	Slight	Slight	Moderate: frost action.	Severe: large stones.
68 Moffat	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Slight.
69*:						
Moffat	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Slight.
Persayo	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: thin layer.
70*:						
Nelman	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Travessilla	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: thin layer.
Rock outcrop.						
71 Pathead	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, slope.
72*:						
Pathead	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, slope.
Curecanti	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
73 Penoyer Variant	Slight	Slight	Slight	Slight	Moderate: frost action.	Slight.
74 Penoyer Variant	Slight	Slight	Slight	Moderate: slope.	Moderate: frost action.	Slight.
75* Perma	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
76*:						
Perma	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Datino	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: small stones, large stones, slope.
77 Persayo	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: depth to rock, low strength.	Severe: thin layer.
78 Persayo	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Severe: thin layer.
79*:						
Persayo	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: thin layer.
Persayo	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Severe: thin layer.
Badland.						
80*:						
Persayo	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Severe: thin layer.
Chipeta	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: slope.	Severe: excess salt, thin layer.
81*:						
Persayo	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: depth to rock, low strength.	Severe: small stones, thin layer.
Greybull	Moderate: depth to rock.	Slight	Moderate: depth to rock.	Moderate: slope.	Slight	Moderate: thin layer.
82 Podo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: thin layer.
83*:						
Podo	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Cabba	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope, thin layer.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
84*:						
Podo	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, slope, thin layer.
Rock outcrop.						
85 Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
86*:						
Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Doney	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Midfork	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
87*:						
Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pathead	Severe: depth to rock, large stones, slope.	Severe: slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.
88*:						
Rabbitex	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Datino Variant	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.
89 Rafael	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, frost action, wetness.	Severe: excess salt, wetness.
90, 91 Ravola	Slight	Slight	Slight	Slight	Severe: frost action.	Moderate: excess salt.
92*:						
Ravola	Slight	Slight	Slight	Slight	Severe: frost action.	Moderate: excess salt.
Gullied land.						
93*:						
Ravola	Slight	Slight	Slight	Slight	Severe: frost action.	Moderate: excess salt.
Slickspots.						
94*. Riverwash						
95*. Rock outcrop						

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
96*:						
Rock outcrop.						
Rubbleland.						
Travessilla	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: thin layer.
97*:						
Rottulee	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
98 Sagers	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Moderate: excess salt.
99 Saltair	Moderate: wetness.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.	Severe: low strength, frost action.	Severe: excess salt, droughty.
100 Senchert	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Moderate: slope, thin layer.
101 Senchert	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
102*:						
Senchert	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Moderate: slope, thin layer.
Senchert family	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Moderate: slope, thin layer.
103*:						
Senchert	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Toze	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
104* Senchert	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Moderate: slope, thin layer.
105*:						
Senchert family	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Senchert	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
106*:						
Sheepcan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Podo	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Rock outcrop.						
107*:						
Shupert	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength.	Moderate: small stones.
Winetti	Moderate: large stones.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action, large stones.	Severe: large stones.
108 Silas	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: frost action.	Moderate: wetness.
109*:						
Silas	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: frost action.	Moderate: wetness.
Brycan	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: frost action, shrink-swell.	Slight.
110 Stormitt	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action, large stones.	Moderate: small stones, large stones.
111*:						
Stormitt	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action, large stones.	Moderate: small stones, large stones.
Minchey	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
112, 113 Strych	Moderate: large stones, slope.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.	Severe: large stones.
114 Strych	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
115 Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
116*:						
Trag	Moderate: depth to rock.	Moderate: shrink-swell.	Moderate: depth to rock, shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, frost action.	Slight.
Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
116*:						
Rottulee	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
117*:						
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
Senchert	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Moderate: slope, thin layer.
118*:						
Trag	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Croydon	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
119 Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: thin layer.
120*:						
Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: thin layer.
Rock outcrop.						
121*:						
Travessilla	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, thin layer.
Rock outcrop.						
Gerst	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope, thin layer.
122*:						
Travessilla	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Travessilla family	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
Rock outcrop.						
123* Travessilla	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: thin layer.
124*:						
Uinta	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

See footnote at end of table.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
124*:						
Podo	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, thin layer.
125*:						
Uinta	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Toze	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
126 Winetti Variant	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Severe: droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1 Atrac	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
2*. Badland					
3*:					
Badland.					
Rubbleland.					
Rock outcrop.					
4 Beje	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
5*:					
Beje	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Beje	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
6*:					
Beje	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Comodore	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.
7*:					
Beje	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Trag	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
8 Billings	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
9*:					
Billings	Severe: percs slowly.	Moderate: slope.	Severe: excess salt.	Moderate: flooding.	Good.
Gullied land.					
10*, 11* Cabba	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
12*:					
Cabba	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Badland.					
Rock outcrop.					
13*:					
Cabba	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Guben	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Rock outcrop.					
14*:					
Casmos	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Rock outcrop.					
15*:					
Casmos	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					
16 Chipeta	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
17*:					
Chipeta	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Badland.					
18*:					
Chipeta	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
19 Chupadera	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
20*:					
Comodore	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
20*:					
Datino Variant	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: large stones, slope.
21, 22 Croydon	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
23*:					
Curecanti	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Poor: large stones, slope.
Pathead	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Pathead	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
24 Datino Variant	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
25* Doney	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
26* Doney	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
27*:					
Doney	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Podo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
28*:					
Doney	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Toze	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
29*. Dumps					
30*:					
Falcon	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
30*:					
Rock outcrop.					
31------------------ Ferron	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
32*:					
Frandsen-----------	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----------	Severe: seepage.	Fair: too clayey.
Gullied land.					
33*, 34*:					
Gerst--------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Badland.					
Rubbleland.					
35*:					
Gerst--------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Badland.					
Stormitt-----------	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Poor: large stones, slope.
36*:					
Gerst--------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Strych-------------	Moderate: slope, large stones.	Severe: seepage, slope, large stones.	Moderate: slope, large stones.	Moderate: slope.	Poor: small stones.
Badland.					
37*:					
Gerst--------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Strych-------------	Severe: slope.	Severe: seepage, slope, large stones.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Badland.					
38*:					
Gerst--------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
38*:					
Travessilla	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
39* Glenberg	Moderate: flooding.	Severe: seepage, flooding.	Moderate: flooding.	Moderate: flooding.	Good.
40* Glenberg	Slight	Severe: seepage.	Slight	Slight	Good.
41*:					
Green River	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too sandy, wetness.
Juva Variant	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
42 Greybull	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
43*:					
Grobutte	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Poor: large stones, slope.
Cabba	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
44*, 45*:					
Guben	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Doney	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Datino Variant	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
46*:					
Guben	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Pathead	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
47*:					
Guben	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
Rock outcrop.					

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
48 Haverdad	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
49 Haverdad	Moderate: percs slowly.	Moderate: seepage.	Slight	Slight	Good.
50 Haverdad	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
51*, 52*, 53* Hernandez	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
54*:					
Hernandez	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
Atrac	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
55 Hunting	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
56 Hunting	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
57 Hunting	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
58 Juva Variant	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
59, 60 Killpack	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
61 Libbings	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, wetness.	Severe: depth to rock, wetness, excess salt.	Severe: depth to rock, wetness.	Poor: area reclaim, wetness.
62*:					
Midfork	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
Comodore	Severe: depth to rock, slope.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, large stones, slope.
63*:					
Midfork	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
63*:					
Podo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
64 Minchey	Moderate: percs slowly.	Severe: seepage.	Slight	Slight	Good.
65, 66, 67 Mivida	Slight	Severe: seepage.	Slight	Slight	Good.
68 Moffat	Slight	Severe: seepage.	Slight	Slight	Poor: thin layer.
69*:					
Moffat	Slight	Severe: seepage.	Slight	Slight	Poor: thin layer.
Persayo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
70*:					
Nelman	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Travessilla	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					
71 Pathead	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
72*:					
Pathead	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
Curecanti	Severe: slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Poor: large stones, slope.
73, 74 Penoyer Variant	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
75* Perma	Severe: slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
76*:					
Perma	Severe: slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
76*:					
Datino	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: large stones, slope.
77 Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
78 Persayo	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
79*:					
Persayo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Persayo	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Badland.					
80*:					
Persayo	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Chipeta	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
81*:					
Persayo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Greybull	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
82 Podo	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim, small stones.
83*:					
Podo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Cabba	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
84*:					
Podo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Rock outcrop.					
85 Rabbitex	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
86*:					
Rabbitex	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Doney	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Midfork	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
87*:					
Rabbitex	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Pathead	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
88*:					
Rabbitex	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Datino Variant	Severe: slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, slope.	Poor: small stones, slope.
89 Rafael	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
90, 91 Ravola	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
92*:					
Ravola	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
Gullied land.					
93*:					
Ravola	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
Slickspots.					
94*. Riverwash					
95*. Rock outcrop					
96*:					
Rock outcrop.					
Rubbleland.					

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
96*:					
Travessilla	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
97*:					
Rottulee	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Trag	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
98 Sagers	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
99 Saltair	Severe: wetness, percs slowly.	Moderate: wetness.	Severe: wetness, excess salt.	Moderate: wetness.	Good.
100 Senchert	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
101 Senchert	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
102*:					
Senchert	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Senchert family	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
103*:					
Senchert	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Toze	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
104* Senchert	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
105*:					
Senchert family	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Senchert	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
106*:					
Sheepcan	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, large stones.	Severe: slope.	Poor: small stones, slope.
Podo	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
Rock outcrop.					
107*:					
Shupert	Severe: percs slowly.	Severe: flooding.	Moderate: flooding, too clayey.	Moderate: flooding.	Fair: too clayey.
Winetti	Moderate: flooding, large stones.	Severe: seepage, flooding.	Severe: seepage.	Severe: seepage.	Poor: small stones.
108 Silas	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
109*:					
Silas	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Brycan	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
110 Stormitt	Moderate: percs slowly, large stones.	Moderate: seepage, slope, large stones.	Severe: large stones.	Slight	Poor: small stones.
111*:					
Stormitt	Moderate: percs slowly, large stones.	Moderate: seepage, slope, large stones.	Severe: large stones.	Slight	Poor: small stones.
Minchey	Moderate: percs slowly.	Severe: seepage.	Slight	Slight	Good.
112, 113 Strych	Moderate: slope, large stones.	Severe: seepage, slope, large stones.	Moderate: slope, large stones.	Moderate: slope.	Poor: small stones.
114 Strych	Severe: slope.	Severe: seepage, slope, large stones.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
115 Trag	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
116*:					
Trag	Moderate: depth to rock, percs slowly.	Severe: seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Fair: area reclaim, too clayey.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
116*:					
Beje	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Rottulee	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
117*:					
Trag	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
Beje	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Senchert	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
118*:					
Trag	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
Croydon	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
119 Travessilla	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
120*:					
Travessilla	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim.
Rock outcrop.					
121*:					
Travessilla	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Rock outcrop.					
Gerst	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, small stones, slope.
122*:					
Travessilla	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
Travessilla family	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, slope.

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
122*: Rock outcrop.					
123*----------------- Travessilla	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: area reclaim.
124*: Uinta---------------	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: large stones, slope.
Podo----------------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: area reclaim, small stones, slope.
125*: Uinta---------------	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: seepage, slope.	Poor: large stones, slope.
Toze----------------	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
126----------------- Winetti Variant	Severe: poor filter.	Severe: seepage, flooding.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1 Atrac	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
2*. Badland				
3*:				
Badland.				
Rubbleland.				
Rock outcrop.				
4 Beje	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
5*:				
Beje	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Beje	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
6*:				
Beje	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Comodore	Poor: area reclaim, large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
7*:				
Beje	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Trag	Fair: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
8 Billings	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, excess salt.
9*:				
Billings	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, excess sodium.
Gullied land.				

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
10*, 11*: Cabba	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
12*:				
Cabba	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Badland.				
Rock outcrop.				
13*:				
Cabba	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Guben	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rock outcrop.				
14*:				
Casmos	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Rock outcrop.				
15*:				
Casmos	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
16: Chipeta	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, excess salt.
17*:				
Chipeta	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, excess salt.
Badland.				
18*:				
Chipeta	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, excess salt.
Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
19: Chupadera	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
20*:				
Comodore	Poor: area reclaim, large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
Datino Variant	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
21 Croydon	Fair: area reclaim, thin layer, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
22 Croydon	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
23*:				
Curecanti	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim, slope.
Pathead	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
Pathead	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
24 Datino Variant	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
25* Doney	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
26* Doney	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
27*:				
Doney	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Podo	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
28*:				
Doney	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
28*:				
Toze	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
29*. Dumps				
30*:				
Falcon	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Rock outcrop.				
31 Ferron	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
32*:				
Frandsen	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Gullied land.				
33*, 34*:				
Gerst	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Badland.				
Rubbleland.				
35*:				
Gerst	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Badland.				
Stormitt	Poor: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
36*:				
Gerst	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Strych	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Badland.				
37*:				
Gerst	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
37*:				
Strych	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Badland.				
38*:				
Gerst	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Travessilla	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
39* Glenberg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
40* Glenberg	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
41*:				
Green River	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Juva Variant	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
42 Greybull	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer.
43*:				
Grobutte	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: area reclaim, small stones, slope.
Cabba	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
44*, 45*:				
Guben	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Doney	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Datino Variant	Poor: slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
46*:				
Guben	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
46*:				
Pathead	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
47*:				
Guben	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rock outcrop.				
48 Haverdad	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
49 Haverdad	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess sodium.
50 Haverdad	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
51*, 52*, 53* Hernandez	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
54*:				
Hernandez	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Atrac	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
55 Hunting	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
56 Hunting	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
57 Hunting	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, excess salt.
58 Juva Variant	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
59, 60 Killpack	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey, excess salt.
61 Libbings	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
62*:				
Midfork	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
62*:				
Comodore	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, large stones, slope.
63*:				
Midfork	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Podo	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
64 Minchey	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
65 Mivida	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
66, 67 Mivida	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
68 Moffat	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
69*:				
Moffat	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
70*:				
Nelman	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Travessilla	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Rock outcrop.				
71 Pathead	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
72*:				
Pathead	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
Curecanti	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
73, 74: Penoyer Variant	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
75*: Perma	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
76*:				
Perma	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Datino	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
77: Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
78: Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
79*:				
Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Badland.				
80*:				
Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Chipeta	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, excess salt.
81*:				
Persayo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Greybull	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer.
82: Podo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
83*:				
Podo	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
83*:				
Cabba	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
84*:				
Podo	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
85 Rabbitex	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
86*:				
Rabbitex	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Doney	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Midfork	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
87*:				
Rabbitex	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Pathead	Poor: area reclaim, large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
88*:				
Rabbitex	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, slope.
Datino Variant	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
89 Rafael	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.
90, 91 Ravola	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
92*:				
Ravola	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
92*: Gullied land.				
93*: Ravola	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
Slickspots.				
94*. Riverwash				
95*. Rock outcrop				
96*: Rock outcrop.				
Rubbleland.				
Travessilla	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
97*: Rottulee	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Trag	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
98 Sagers	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, excess salt.
99 Saltair	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
100 Senchert	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
101 Senchert	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
102*: Senchert	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
Senchert family	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer, slope.
103*: Senchert	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
103*:				
Toze	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
104* Senchert	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer, slope.
105*:				
Senchert family	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Senchert	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
106*:				
Sheepcan	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Podo	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
107*:				
Shupert	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Winetti	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim.
108 Silas	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
109*:				
Silas	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Brycan	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
110 Stormitt	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
111*:				
Stormitt	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Minchey	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
112, 113: Strych	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
114: Strych	Fair: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
115: Trag	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
116*:				
Trag	Fair: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Beje	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Rottulee	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
117*:				
Trag	Fair: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Beje	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Senchert	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones, slope.
118*:				
Trag	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Croydon	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
119: Travessilla	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
120*:				
Travessilla	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Rock outcrop.				
121*:				
Travessilla	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Rock outcrop.				
Gerst	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.

See footnote at end of table.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
122*:				
Travessilla	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
Travessilla family	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Rock outcrop.				
123* Travessilla	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
124*:				
Uinta	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim, slope.
Podo	Poor: area reclaim, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
125*:				
Uinta	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, area reclaim, slope.
Toze	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
126 Winetti Variant	Good	Improbable: thin layer.	Improbable: thin layer.	Poor: small stones, area reclaim.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
1 Atrac	Moderate: seepage, slope.	Severe: piping.	Deep to water	Soil blowing, slope.
2*. Badland				
3*: Badland.				
Rubbleland.				
Rock outcrop.				
4 Beje	Severe: depth to rock.	Severe: piping.	Deep to water	Depth to rock, slope.
5*: Beje	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Beje	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.
6*: Beje	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Comodore	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.
7*: Beje	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Trag	Severe: seepage, slope.	Moderate: thin layer, piping.	Deep to water	Slope.
8 Billings	Slight	Moderate: piping.	Deep to water	Percs slowly, erodes easily.
9*: Billings	Moderate: slope.	Severe: excess sodium, excess salt.	Deep to water	Droughty, percs slowly, slope.
Gullied land.				
10*, 11* Cabba	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
12*:				
Cabba	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Badland.				
Rock outcrop.				
13*:				
Cabba	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Guben	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
Rock outcrop.				
14*, 15*:				
Casmos	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.
Rock outcrop.				
16 Chipeta	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock.
17*:				
Chipeta	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock.
Badland.				
18*:				
Chipeta	Severe: depth to rock.	Severe: thin layer.	Deep to water	Percs slowly, depth to rock.
Persayo	Severe: depth to rock.	Severe: piping.	Deep to water	Depth to rock, erodes easily.
19 Chupadera	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing, depth to rock, slope.
20*:				
Comodore	Severe: depth to rock, slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.
Datino Variant	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
21, 22 Croydon	Severe: slope.	Severe: piping.	Deep to water	Slope.
23*:				
Curecanti	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
23*:				
Pathead	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.
Pathead	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.
24 Datino Variant	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
25* Doney	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope, erodes easily.
26* Doney	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
27*:				
Doney	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Podo	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
28*:				
Doney	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Toze	Severe: slope.	Moderate: piping, large stones.	Deep to water	Slope.
29*. Dumps				
30*:				
Falcon	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Droughty, depth to rock, slope.
Rock outcrop.				
31 Ferron	Moderate: seepage.	Severe: piping, wetness.	Frost action	Wetness, erodes easily, excess salt.
32*:				
Frandsen	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope.
Gullied land.				
33*, 34*:				
Gerst	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Badland.				
Rubbleland.				

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
35*:				
Gerst	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.
Badland.				
Stormitt	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
36*, 37*:				
Gerst	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Strych	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty.
Badland.				
38*:				
Gerst	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.
Travessilla	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Soil blowing, depth to rock, slope.
39* Glenberg	Severe: seepage.	Severe: piping.	Deep to water	Fast intake, soil blowing.
40* Glenberg	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing, slope.
41*:				
Green River	Moderate: seepage.	Severe: piping.	Flooding, cutbanks cave.	Wetness, droughty, erodes easily.
Juva Variant	Severe: seepage.	Severe: piping.	Deep to water	Soil blowing, slope, erodes easily.
42 Greybull	Moderate: seepage, depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope, erodes easily.
43*:				
Grobutte	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
Cabba	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
44*, 45*:				
Guben	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation
44*, 45*:				
Doney	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Datino Variant	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
46*:				
Guben	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
Pathead	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.
47*:				
Guben	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
Rock outcrop.				
48 Haverdad	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, erodes easily.
49 Haverdad	Moderate: seepage.	Severe: piping, excess sodium.	Deep to water	Excess sodium.
50 Haverdad	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, erodes easily.
51* Hernandez	Moderate: seepage.	Severe: piping.	Deep to water	Favorable.
52* Hernandez	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope.
53* Hernandez	Moderate: seepage, slope.	Severe: piping.	Deep to water	Soil blowing, slope.
54*:				
Hernandez	Moderate: seepage, slope.	Severe: piping.	Deep to water	Soil blowing, slope.
Atrac	Moderate: seepage, slope.	Severe: piping.	Deep to water	Soil blowing, slope.
55 Hunting	Moderate: seepage.	Severe: piping.	Frost action	Wetness, erodes easily, excess salt.
56 Hunting	Moderate: seepage.	Severe: piping.	Frost action, excess salt.	Wetness, erodes easily, excess salt.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation
57----------------- Hunting	Moderate: seepage.	Severe: piping.	Frost action-----------	Wetness, erodes easily, excess salt.
58----------------- Juva Variant	Severe: seepage.	Severe: piping.	Deep to water----------	Soil blowing, slope, erodes easily.
59----------------- Killpack	Moderate: depth to rock.	Severe: thin layer.	Deep to water----------	Percs slowly, depth to rock.
60----------------- Killpack	Moderate: depth to rock, slope.	Severe: thin layer.	Deep to water----------	Percs slowly, depth to rock, slope.
61----------------- Libbings	Moderate: depth to rock.	Severe: excess salt.	Percs slowly, depth to rock, frost action.	Wetness, droughty, percs slowly.
62*:				
Midfork-----------	Severe: slope.	Slight-----------------	Deep to water----------	Droughty, slope.
Comodore----------	Severe: depth to rock, slope.	Severe: large stones.	Deep to water----------	Large stones, droughty, depth to rock.
63*:				
Midfork-----------	Severe: slope.	Slight-----------------	Deep to water----------	Droughty, slope.
Podo--------------	Severe: depth to rock, slope.	Severe: piping.	Deep to water----------	Depth to rock, slope.
64----------------- Minchey	Severe: seepage.	Moderate: thin layer, piping.	Deep to water----------	Erodes easily.
65, 66------------- Mivida	Severe: seepage.	Slight-----------------	Deep to water----------	Soil blowing, slope.
67----------------- Mivida	Severe: seepage.	Slight-----------------	Deep to water----------	Favorable.
68----------------- Moffat	Severe: seepage.	Severe: piping.	Deep to water----------	Slope.
69*:				
Moffat------------	Severe: seepage.	Severe: piping.	Deep to water----------	Slope.
Persayo-----------	Severe: depth to rock, slope.	Severe: piping.	Deep to water----------	Depth to rock, slope.
70*:				
Nelman------------	Severe: seepage, slope.	Severe: piping.	Deep to water----------	Droughty, depth to rock, slope.
Travessilla-------	Severe: depth to rock, slope.	Severe: piping.	Deep to water----------	Soil blowing, depth to rock, slope.
Rock outcrop.				

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
71----------------- Pathead	Severe: slope.	Severe: large stones.	Deep to water---------	Large stones, droughty, depth to rock.
72*:				
Pathead----------	Severe: slope.	Severe: large stones.	Deep to water---------	Large stones, droughty, depth to rock.
Curecanti--------	Severe: slope.	Severe: large stones.	Deep to water---------	Large stones, droughty, slope.
73----------------- Penoyer Variant	Moderate: seepage.	Severe: piping.	Deep to water---------	Erodes easily.
74----------------- Penoyer Variant	Moderate: seepage, slope.	Severe: piping.	Deep to water---------	Slope, erodes easily.
75*---------------- Perma	Severe: seepage, slope.	Severe: large stones.	Deep to water---------	Large stones, droughty, slope.
76*:				
Perma------------	Severe: seepage, slope.	Severe: large stones.	Deep to water---------	Large stones, droughty, slope.
Datino-----------	Severe: seepage, slope.	Severe: large stones.	Deep to water---------	Large stones, droughty, slope.
77----------------- Persayo	Severe: depth to rock.	Severe: piping.	Deep to water---------	Depth to rock, slope, erodes easily.
78----------------- Persayo	Severe: depth to rock, slope.	Severe: piping.	Deep to water---------	Depth to rock, slope.
79*:				
Persayo----------	Severe: depth to rock, slope.	Severe: piping.	Deep to water---------	Depth to rock, slope, erodes easily.
Persayo----------	Severe: depth to rock, slope.	Severe: piping.	Deep to water---------	Depth to rock, slope.
Badland.				
80*:				
Persayo----------	Severe: depth to rock, slope.	Severe: piping.	Deep to water---------	Depth to rock, slope, erodes easily.
Chipeta----------	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water---------	Percs slowly, depth to rock.
81*:				
Persayo----------	Severe: depth to rock.	Severe: piping.	Deep to water---------	Depth to rock, slope.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Features affecting-- Drainage	Irrigation
81*:				
Greybull	Moderate: seepage, depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope, erodes easily.
82 Podo	Severe: depth to rock.	Severe: piping.	Deep to water	Depth to rock, slope.
83*:				
Podo	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Cabba	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
84*:				
Podo	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Rock outcrop.				
85 Rabbitex	Severe: slope.	Moderate: thin layer, large stones.	Deep to water	Large stones, slope.
86*:				
Rabbitex	Severe: slope.	Moderate: thin layer, large stones.	Deep to water	Large stones, slope.
Doney	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Midfork	Severe: slope.	Slight	Deep to water	Droughty, slope.
87*:				
Rabbitex	Severe: slope.	Moderate: thin layer, large stones.	Deep to water	Large stones, slope.
Pathead	Severe: slope.	Severe: large stones.	Deep to water	Large stones, droughty, depth to rock.
88*:				
Rabbitex	Severe: slope.	Severe: piping.	Deep to water	Slope.
Datino Variant	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
89 Rafael	Slight	Severe: piping, wetness.	Percs slowly, frost action, excess salt.	Wetness, percs slowly, excess salt.
90 Ravola	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, excess salt.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation
91: Ravola	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, erodes easily, excess salt.
92*: Ravola	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, erodes easily, excess salt.
Gullied land.				
93*: Ravola	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, excess salt.
Slickspots.				
94*. Riverwash				
95*. Rock outcrop				
96*: Rock outcrop.				
Rubbleland.				
Travessilla	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
97*: Rottulee	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.
Trag	Severe: seepage, slope.	Moderate: thin layer, piping.	Deep to water	Slope.
98: Sagers	Slight	Moderate: piping.	Deep to water	Erodes easily, excess salt.
99: Saltair	Slight	Severe: piping, excess salt.	Deep to water	Droughty, percs slowly, erodes easily.
100, 101: Senchert	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
102*: Senchert	Severe: slope.	Severe: piping.	Deep to water	Soil blowing, depth to rock, slope.
Senchert family	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
103*: Senchert	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.
Toze	Severe: slope.	Moderate: piping, large stones.	Deep to water	Slope.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
104*: Senchert	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
105*:				
Senchert family	Severe: slope.	Severe: piping.	Deep to water	Soil blowing, depth to rock, slope.
Senchert	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
106*:				
Sheepcan	Severe: slope.	Moderate: large stones.	Deep to water	Large stones, slope.
Podo	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Rock outcrop.				
107*:				
Shupert	Moderate: slope.	Moderate: thin layer, piping.	Deep to water	Percs slowly, slope.
Winetti	Severe: seepage.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.
108: Silas	Moderate: seepage.	Severe: piping, wetness.	Frost action	Wetness.
109*:				
Silas	Moderate: seepage.	Severe: piping, wetness.	Frost action	Wetness.
Brycan	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope.
110: Stormitt	Moderate: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
111*:				
Stormitt	Moderate: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty, slope.
Minchey	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Erodes easily.
112, 113, 114: Strych	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, droughty.
115: Trag	Severe: seepage, slope.	Moderate: thin layer, piping.	Deep to water	Slope.

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation
116*:				
Trag	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Soil blowing, slope.
Beje	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Rottulee	Severe: slope.	Severe: thin layer.	Deep to water	Depth to rock, slope.
117*:				
Trag	Severe: seepage, slope.	Moderate: thin layer, piping.	Deep to water	Slope.
Beje	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Senchert	Severe: slope.	Severe: piping.	Deep to water	Depth to rock, slope.
118*:				
Trag	Severe: seepage, slope.	Moderate: thin layer, piping.	Deep to water	Slope.
Croydon	Severe: slope.	Severe: piping.	Deep to water	Slope.
119 Travessilla	Severe: depth to rock.	Severe: piping.	Deep to water	Soil blowing, depth to rock, slope.
120*:				
Travessilla	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Soil blowing, depth to rock, slope.
Rock outcrop.				
121*:				
Travessilla	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
Rock outcrop.				
Gerst	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock, slope.
122*:				
Travessilla	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Soil blowing, depth to rock, slope.
Travessilla family	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Droughty, depth to rock, slope.
Rock outcrop.				

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Features affecting-- Drainage	Features affecting-- Irrigation
123*: Travessilla	Severe: depth to rock.	Severe: piping.	Deep to water	Droughty, depth to rock, slope.
124*:				
Uinta	Severe: slope.	Moderate: thin layer, large stones.	Deep to water	Large stones, slope.
Podo	Severe: depth to rock, slope.	Severe: piping.	Deep to water	Depth to rock, slope.
125*:				
Uinta	Severe: slope.	Moderate: thin layer, large stones.	Deep to water	Large stones, slope.
Toze	Severe: slope.	Moderate: piping, large stones.	Deep to water	Soil blowing, slope.
126: Winetti Variant	Severe: seepage.	Severe: seepage.	Deep to water	Droughty, slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1----------------- Atrac	0-4	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-95	50-65	20-30	NP-10
	4-20	Loam-------------	CL-ML, ML	A-4	0	100	100	85-95	60-75	25-35	5-10
	20-60	Loam-------------	CL-ML, ML	A-4	0-5	85-100	80-100	65-95	50-75	25-35	5-10
2*. Badland											
3*: Badland.											
Rubbleland.											
Rock outcrop.											
4----------------- Beje	0-2	Very gravelly fine sandy loam.	GM	A-1	0-10	35-45	30-40	20-35	15-25	---	NP
	2-10	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-95	50-80	25-35	5-15
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
5*: Beje------------	0-2	Very gravelly fine sandy loam.	GM	A-1	0-10	35-45	30-40	20-35	15-25	---	NP
	2-10	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-95	50-80	25-35	5-15
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Beje------------	0-2	Fine sandy loam	SM, ML	A-4	0-10	90-100	85-95	75-85	40-55	20-25	NP-5
	2-8	Loam-------------	CL-ML	A-4	0-10	90-100	85-95	75-85	60-70	25-30	5-10
	8-12	Gravelly sandy clay loam, cobbly loam, cobbly sandy clay loam.	SM-SC, GM-GC	A-2, A-4	0-30	65-80	60-70	50-65	25-45	25-30	5-10
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
6*: Beje------------	0-6	Loam-------------	CL-ML	A-4	0-10	90-100	85-100	75-95	55-75	20-35	5-10
	6-14	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-95	50-80	25-35	5-15
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Comodore--------	0-6	Very stony fine sandy loam.	SM, SM-SC, GM, GM-GC	A-2, A-4	50-60	65-80	60-75	45-55	30-40	20-25	NP-5
	6-14	Very stony loam	GM-GC	A-4	40-45	65-75	60-70	50-60	40-50	25-30	5-10
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
7*: Beje------------	0-6	Loam-------------	CL-ML	A-4	0-10	90-100	85-100	75-95	55-75	20-35	5-10
	6-14	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-95	50-80	25-35	5-15
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
7*:											
Trag	0-5	Clay loam	CL	A-6	0-5	95-100	90-100	80-90	65-80	30-35	10-15
	5-60	Sandy clay loam, silty clay loam, clay loam.	CL, SC	A-6	0	100	95-100	85-100	45-85	30-40	10-20
8 Billings	0-11	Silty clay loam	CL	A-6	0	100	100	95-100	90-95	30-40	10-20
	11-60	Silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	90-95	30-40	10-20
9*:											
Billings	0-11	Silty clay loam	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
	11-60	Silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	75-90	25-40	10-20
Gullied land.											
10* Cabba	0-3	Bouldery loam	CL-ML	A-4	30-40	95-100	90-100	75-85	55-70	25-30	5-10
	3-15	Loam, gravelly loam, clay loam.	CL-ML, GM-GC, CL	A-4, A-6	0-10	60-100	55-100	50-95	35-75	25-40	5-15
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---
11* Cabba	0-3	Extremely stony fine sandy loam.	SM-SC,	A-2	10-40	70-90	35-65	30-60	15-35	25-30	5-10
	3-15	Loam, gravelly loam, clay loam.	CL-ML, GM-GC, CL	A-4, A-6	0-10	60-100	55-100	50-95	35-75	25-40	5-15
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---
12*:											
Cabba	0-2	Extremely channery clay loam.	GC	A-2	15-45	30-40	25-35	20-30	15-25	30-35	10-15
	2-8	Loam, gravelly loam, clay loam.	CL-ML, GM-GC, CL	A-4, A-6	0-10	60-100	55-100	50-95	35-75	25-40	5-15
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Badland.											
Rock outcrop.											
13*:											
Cabba	0-3	Bouldery loam	CL-ML	A-4	30-40	95-100	90-100	75-85	55-70	25-30	5-10
	3-15	Loam, gravelly loam, clay loam.	CL-ML, GM-GC, CL	A-4, A-6	0-10	60-100	55-100	50-95	35-75	25-40	5-15
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---
Guben	0-7	Extremely bouldery loam.	GM-GC, SM-SC	A-2, A-4	40-70	45-75	35-70	30-65	20-50	20-35	5-10
	7-15	Very stony loam, very cobbly loam.	GM-GC, CL-ML	A-4	25-50	60-80	55-75	45-70	35-55	20-25	5-10
	15-60	Very stony loam, very cobbly fine sandy loam.	GM-GC	A-2	40-50	50-60	45-55	30-45	15-35	20-30	5-10
Rock outcrop.											
14*, 15*:											
Casmos	0-2	Channery loam	GM-GC, GM	A-2, A-4	0-15	60-70	50-65	45-60	30-45	25-35	5-10
	2-6	Loam, clay loam, channery loam.	SC, SM-SC, CL, CL-ML	A-4, A-6	0	75-100	70-95	60-90	40-70	25-40	5-15
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
14*, 15*: Rock outcrop.											
16---------------- Chipeta	0-2	Silty clay loam	CL, ML	A-6, A-7	0	100	100	95-100	90-95	35-45	10-20
	2-17	Silty clay loam, silty clay, clay.	CL	A-6, A-7	0	100	100	95-100	90-95	35-45	15-20
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
17*: Chipeta---------	0-5	Silty clay loam	CL, ML	A-6, A-7	0	100	100	95-100	90-95	35-45	10-20
	5-17	Silty clay loam, silty clay, clay.	CL	A-6, A-7	0	100	100	95-100	90-95	35-45	15-20
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Badland.											
18*: Chipeta---------	0-5	Silty clay loam	CL, ML	A-6, A-7	0	100	100	95-100	90-95	35-45	10-20
	5-17	Silty clay loam, silty clay, clay.	CL	A-6, A-7	0	100	100	95-100	90-95	35-45	15-20
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Persayo---------	0-3	Loam-------------	CL, CL-ML	A-4, A-6	0	100	100	85-95	60-75	25-35	5-15
	3-12	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
19---------------- Chupadera	0-6	Fine sandy loam	SM, ML	A-4	0	100	100	70-85	40-55	20-25	NP-5
	6-28	Loam-------------	CL-ML	A-4	0	100	95-100	80-90	60-70	20-30	5-10
	28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
20*: Comodore--------	0-6	Very stony fine sandy loam.	SM, SM-SC, GM, GM-GC	A-2, A-4	50-60	65-80	60-75	45-55	30-40	20-25	NP-5
	6-14	Very stony loam	GM-GC	A-4	40-45	65-75	60-70	50-60	40-50	25-30	5-10
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Datino Variant--	0-9	Extremely stony fine sandy loam.	GM-GC, SM-SC	A-1, A-2	45-60	50-70	30-50	20-40	10-25	20-30	5-10
	9-16	Very stony loam	GM-GC	A-4	40-45	65-75	60-70	50-60	40-50	20-30	5-10
	16-60	Very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	50-60	65-80	60-75	45-55	30-40	20-30	5-10
21, 22------------ Croydon	0-23	Loam-------------	CL	A-6	0	85-100	80-100	55-100	50-80	20-30	10-15
	23-48	Clay loam--------	CL	A-6	0	85-100	80-100	70-100	55-80	20-40	10-15
	48	Weathered bedrock	---	---	---	---	---	---	---	---	---
23*: Curecanti-------	0-7	Loam-------------	CL-ML	A-4	0	85-95	80-90	65-75	50-60	20-30	5-10
	7-60	Very stony loam, very cobbly loam very cobbly sandy clay loam.	SC, SM-SC, GC, GM-GC	A-6, A-4	45-50	60-80	55-75	50-60	35-45	25-35	5-15

See footnote at end of table.

TABLE 11.--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	
23*:											
Pathead---------	0-4	Extremely bouldery fine sandy loam.	GM-GC, GM, GP-GM	A-2, A-1	65-80	40-55	35-50	25-45	10-35	20-30	NP-10
	4-38	Extremely cobbly loam, very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-65	35-80	30-75	25-50	15-40	20-35	5-10
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pathead---------	0-3	Extremely stony loam.	GM-GC, GM, GP-GM	A-2, A-1	65-80	40-55	35-50	25-45	10-35	20-30	NP-10
	3-26	Extremely cobbly loam, very cobbly loam, very stony loam. sandy loam.	GM-GC, SM-SC	A-2, A-4	40-65	35-80	30-75	25-50	15-40	20-35	5-10
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
24--------------- Datino Variant	0-4	Very stony loam	GM-GC, SM-SC	A-2, A-4	15-75	60-80	55-75	40-70	20-55	20-30	5-10
	4-22	Very stony loam, very cobbly loam.	GM-GC	A-4	25-40	60-70	55-65	50-60	35-50	20-30	5-10
	22-60	Very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	30-60	40-80	35-75	25-60	15-40	20-30	5-10
25*-------------- Doney	0-4	Silt loam--------	CL-ML	A-4	0	100	100	90-100	70-90	25-30	5-10
	4-36	Loam, clay loam	ML, CL-ML	A-4, A-6	0	85-95	80-90	70-80	55-65	25-35	5-15
	36	Weathered bedrock	---	---	---	---	---	---	---	---	---
26*-------------- Doney	0-4	Stony loam-------	CL-ML	A-4	10-25	85-95	80-90	65-75	50-60	25-30	5-10
	4-35	Loam-------------	CL-ML	A-4	0	85-95	80-90	65-75	50-60	25-30	5-10
	35	Weathered bedrock	---	---	---	---	---	---	---	---	---
27*:											
Doney-----------	0-4	Stony loam-------	CL-ML	A-4	10-25	85-95	80-90	65-75	50-60	25-30	5-10
	4-35	Loam-------------	CL-ML	A-4	0	85-95	80-90	65-75	50-60	25-30	5-10
	35	Weathered bedrock	---	---	---	---	---	---	---	---	---
Podo------------	0-5	Very stony loam	SM-SC, SM	A-2, A-4	30-40	60-75	55-65	35-60	20-40	20-30	NP-10
	5-16	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
28*:											
Doney-----------	0-4	Stony loam-------	CL-ML	A-4	10-25	85-95	80-90	65-75	50-60	25-30	5-10
	4-35	Loam-------------	CL-ML	A-4	0	85-95	80-90	65-75	50-60	25-30	5-10
	35	Weathered bedrock	---	---	---	---	---	---	---	---	---
Toze------------	0-9	Loam-------------	CL	A-6	0	95-100	90-100	80-95	60-75	25-30	10-15
	9-44	Cobbly silt loam, gravelly silt loam, loam.	CL	A-6	0-20	75-90	70-85	65-85	50-70	25-35	10-15
	44-60	Very gravelly fine sandy loam, gravelly very fine sandy loam.	GM-GC, SM-SC	A-2	5-15	50-70	45-65	30-60	20-35	20-30	5-10

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
29*. Dumps											
30*: Falcon----------	0-5	Stony sandy loam	SM	A-2, A-4	15-20	90-100	85-100	55-65	30-40	20-25	NP-5
	5-12	Sandy loam-------	SM, SM-SC	A-2, A-4	0-10	100	95-100	55-65	30-40	20-30	NP-10
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
31--------------- Ferron	0-3	Silt loam--------	CL-ML	A-4	0	100	100	100	75-90	20-30	5-10
	3-60	Loam, very fine sandy loam.	CL-ML	A-4	0	100	100	100	70-85	20-30	5-10
32*: Frandsen--------	0-4	Loam-------------	CL-ML	A-4	0-5	90-100	85-100	70-95	55-75	25-30	5-10
	4-40	Loam, clay loam	CL-ML, CL	A-4, A-6	0-5	90-100	85-100	70-95	55-80	25-40	5-15
	40-60	Fine sandy loam	SM, ML, CL-ML	A-4	0	100	100	70-85	40-55	20-30	NP-10
Gullied land.											
33*, 34*: Gerst-----------	0-7	Extremely stony loam.	GM-GC	A-2	50-65	35-40	30-35	25-30	20-25	25-30	5-10
	7-19	Channery silt loam.	CL, CL-ML	A-4, A-6	0	75-80	70-75	65-75	50-65	25-35	5-15
	19	Weathered bedrock	---	---	---	---	---	---	---	---	---
Badland.											
Rubbleland.											
35*: Gerst-----------	0-2	Cobbly loam------	GM, GM-GC, SM-SC, SM	A-2, A-4	0-25	60-90	55-85	40-65	30-50	25-35	NP-10
	2-17	Channery loam, channery clay loam, channery silt loam.	GM, GC, SM SC	A-2, A-4, A-6, A-7	0-10	60-80	55-75	40-70	30-50	30-45	5-20
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Badland.											
Stormitt--------	0-1	Gravelly sandy clay loam.	SM-SC,	A-2	0-10	65-80	60-75	50-70	25-35	25-35	5-10
	1-9	Gravelly sandy clay loam.	JM-JC	A-2	0-10	60-80	55-75	45-70	25-35	25-35	5-10
	9-60	Very cobbly sandy clay loam.	GM-GC, SM-SC	A-2	30-45	55-65	50-60	40-50	20-30	25-35	5-10
36*, 37*: Gerst-----------	0-7	Extremely stony loam.	GM-GC	A-2	50-65	35-40	30-35	25-30	20-25	25-30	5-10
	7-19	Channery silt loam.	CL, CL-ML	A-4, A-6	0	75-80	70-75	65-75	50-65	25-35	5-15
	19	Weathered bedrock	---	---	---	---	---	---	---	---	---
Strych----------	0-5	Very stony loam	SM, SM-SC	A-4, A-2	30-45	85-100	75-95	55-80	30-50	20-25	NP-10
	5-60	Very stony loam, very stony sandy loam, very cobbly sandy loam.	SM-SC, GM-GC	A-4, A-2	20-40	60-85	50-80	40-65	20-45	25-30	5-10

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
36*,37*: Badland.											
38*: Gerst	0-5	Very channery loam.	GM, GM-GC, SM-SC, SM	A-2, A-4	0-25	60-90	55-85	40-65	30-50	25-35	NP-10
	5-19	Channery loam, channery clay loam, channery silt loam.	GM, GC, SM SC	A-2, A-4, A-6, A-7	0-10	60-80	55-75	40-70	30-50	30-45	5-20
	19	Weathered bedrock	---	---	---	---	---	---	---	---	---
Travessilla	0-2	Fine sandy loam	SM	A-2, A-4	0-5	90-100	90-100	60-80	30-50	15-25	NP-5
	2-10	Fine sandy loam, sandy loam, loam.	SM-SC, SM, CL-ML, ML	A-2, A-4	0-10	85-100	80-100	60-90	30-60	15-30	NP-10
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
39* Glenberg	0-4	Loamy fine sand	SM	A-4, A-2	0	100	100	85-95	30-40	---	NP
	4-60	Very fine sandy loam, loam, fine sandy loam.	SM, ML	A-4	0	100	100	70-95	45-70	20-25	NP-5
40* Glenberg	0-4	Very fine sandy loam.	ML	A-4	0	100	100	85-95	50-65	20-25	NP-5
	4-60	Very fine sandy loam, loam, fine sandy loam.	SM, ML	A-4	0	100	100	70-95	45-70	20-25	NP-5
41*: Green River	0-16	Silt loam	CL-ML	A-4	0	100	100	90-100	70-90	25-30	5-10
	16-60	Stratified loamy fine sand to very fine sandy loam.	SM, ML	A-2, A-4	0	100	100	85-95	30-55	20-25	NP-5
Juva Variant	0-6	Fine sandy loam	SM	A-4	0	100	100	70-85	40-55	20-25	NP-5
	6-60	Stratified sandy loam to gravelly loam.	ML, CL-ML, SM, SM-SC	A-4	0	80-100	75-100	60-90	40-70	20-30	NP-10
42 Greybull	0-3	Loam	CL-ML	A-4	0	100	95-100	85-95	60-75	25-30	5-10
	3-34	Loam	CL-ML	A-4	0	100	95-100	85-95	60-75	25-30	5-10
	34	Weathered bedrock	---	---	---	---	---	---	---	---	---
43*: Grobutte	0-9	Very gravelly loam.	GM-GC, GC	A-2	20-30	35-45	30-40	25-40	20-30	25-35	5-15
	9-60	Extremely cobbly loam, extremely stony sandy clay loam.	GM-GC	A-2	50-75	35-40	30-35	25-35	15-25	25-30	5-10
Cabba	0-3	Gravelly loam	GM-GC, SM-SC	A-4	0-10	60-75	55-70	50-65	40-50	25-30	5-10
	3-15	Loam, gravelly loam, clay loam.	CL-ML, GM-GC, CL	A-4, A-6	0-10	60-100	55-100	50-95	35-75	25-40	5-15
	15	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
44*, 45*:											
Guben-----------	0-7	Extremely bouldery fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-70	45-75	35-70	30-65	20-50	20-35	5-10
	7-24	Very stony loam, very cobbly loam.	GM-GC, CL-ML	A-4	25-50	60-80	55-75	45-70	35-55	20-25	5-10
	24-60	Very stony loam, very cobbly fine sandy loam.	GM-GC	A-2	40-50	50-60	45-55	30-45	15-35	20-30	5-10
Doney-----------	0-7	Gravelly sandy loam.	SM-SC, GM-GC	A-2	0-10	60-70	55-65	35-45	20-30	20-30	5-10
	7-39	Loam-------------	CL-ML	A-4	0	85-95	80-90	65-75	50-60	25-30	5-10
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Datino Variant--	0-7	Loam-------------	CL-ML	A-4	0	100	100	85-95	60-75	25-30	5-10
	7-15	Very stony loam, very cobbly loam.	GM-GC	A-4	25-40	60-70	55-65	50-60	35-50	20-30	5-10
	15-60	Very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	30-60	40-80	35-75	25-60	15-40	20-30	5-10
46*:											
Guben-----------	0-8	Extremely stony loam.	GM-GC, SM-SC	A-2, A-4	40-70	45-75	35-70	30-65	20-50	20-35	5-10
	8-23	Very stony loam, very cobbly loam.	GM-GC, CL-ML	A-4	25-50	60-80	55-75	45-70	35-55	20-25	5-10
	23-60	Very stony loam, very cobbly fine sandy loam.	GM-GC	A-2	40-50	50-60	45-55	30-45	15-35	20-30	5-10
Pathead---------	0-3	Extremely stony loam.	GM-GC, GM, GP-GM	A-2, A-1	65-80	40-55	35-50	25-45	10-35	20-30	NP-10
	3-26	Extremely cobbly loam, very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-65	35-80	30-75	25-50	15-40	20-35	5-10
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
47*:											
Guben-----------	0-7	Extremely bouldery fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-70	45-75	35-70	30-65	20-50	20-35	5-10
	7-24	Very stony loam, very cobbly loam.	GM-GC, CL-ML	A-4	25-50	60-80	55-75	45-70	35-55	20-25	5-10
	24-60	Very stony loam, very cobbly fine sandy loam.	GM-GC	A-2	40-50	50-60	45-55	30-45	15-35	20-30	5-10
Rock outcrop.											
48--------------- Haverdad	0-3	Loam-------------	CL-ML	A-4	0	95-100	90-100	75-95	55-75	20-30	5-10
	3-60	Loam, clay loam	CL-ML, CL	A-4, A-6	0	100	100	75-100	65-80	20-35	5-15
49--------------- Haverdad	0-7	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	55-75	25-30	5-10
	7-60	Stratified fine sandy loam to sandy clay loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	100	70-95	35-75	20-35	5-15

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
50----- Haverdad	0-6	Loam-----	CL-ML	A-4	0	95-100	90-100	75-95	55-75	20-30	5-10
	6-36	Loam, clay loam	CL-ML, CL	A-4, A-6	0	100	100	75-100	65-80	20-35	5-15
	36-60	Fine sandy loam, loam.	CL-ML, SM-SC	A-4	0	100	100	70-95	40-75	20-30	5-10
51*, 52*----- Hernandez	0-3	Loam-----	CL-ML	A-4	0	100	100	85-95	60-75	25-35	5-10
	3-60	Loam-----	CL-ML	A-4	0	100	100	85-95	60-75	25-35	5-10
53*----- Hernandez	0-3	Very fine sandy loam.	ML, SM	A-4	0	100	100	85-95	45-65	20-25	NP-5
	3-60	Loam-----	CL-ML	A-4	0	100	100	85-95	60-75	25-35	5-10
54*:											
Hernandez-----	0-3	Very fine sandy loam.	ML, SM	A-4	0	100	100	85-95	45-65	20-25	NP-5
	3-60	Loam-----	CL-ML	A-4	0	100	100	85-95	60-75	25-35	5-10
Atrac-----	0-4	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-95	50-65	20-30	NP-10
	4-20	Loam-----	CL-ML, ML	A-4	0	100	100	85-95	60-75	25-35	5-10
	20-60	Loam-----	CL-ML, ML	A-4	0-5	85-100	80-100	65-95	50-75	25-35	5-10
55----- Hunting	0-9	Loam-----	CL-ML, CL	A-4, A-6	0	100	100	80-90	70-80	20-30	5-15
	9-60	Loam, silt loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	75-90	25-40	5-15
56----- Hunting	0-9	Loam-----	CL-ML	A-4	0	100	100	80-90	70-80	20-30	5-10
	9-60	Loam, silt loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	100	80-95	75-90	20-40	5-15
57----- Hunting	0-9	Silty clay loam	CL	A-6	0	100	100	95-100	80-90	30-40	10-20
	9-60	Loam, silt loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	75-90	25-40	5-15
58----- Juva Variant	0-6	Fine sandy loam	SM	A-4	0	100	100	70-85	40-55	20-25	NP-5
	6-60	Stratified sandy loam to gravelly loam.	ML, CL-ML, SM, SM-SC	A-4	0	80-100	75-100	60-90	40-70	20-30	NP-10
59, 60----- Killpack	0-9	Clay loam-----	CL	A-6, A-7	0	100	100	95-100	85-95	35-45	15-25
	9-29	Silty clay loam, clay loam.	CL	A-6, A-7	0	100	95-100	95-100	85-95	35-45	15-25
	29	Weathered bedrock	---	---	---	---	---	---	---	---	---
61----- Libbings	0-9	Silty clay loam	CL	A-6	0	100	100	90-100	80-90	30-40	10-20
	9-34	Silty clay, clay	CL	A-6, A-7	0	100	100	90-100	85-95	35-50	15-25
	34	Weathered bedrock	---	---	---	---	---	---	---	---	---
62*:											
Midfork-----	0-7	Bouldery loam-----	CL, CL-ML	A-4, A-6	15-35	80-90	75-85	70-80	55-65	25-35	5-15
	7-60	Very channery loam, very gravelly loam.	GM-GC	A-2	0-10	40-50	35-45	30-40	20-30	25-30	5-10
Comodore-----	0-6	Bouldery loam-----	CL-ML	A-4	30-40	90-100	85-95	75-85	60-70	20-25	NP-5
	6-19	Very stony loam	GM-GC	A-4	40-45	65-75	60-70	50-60	40-50	25-30	5-10
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
63*:											
Midfork-----	0-7	Bouldery loam-----	CL, CL-ML	A-4, A-6	15-35	80-90	75-85	70-80	55-65	25-35	5-15
	7-60	Very channery loam, very gravelly loam.	GM-GC	A-2	0-10	40-50	35-45	30-40	20-30	25-30	5-10

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification Unified	Classification AASHTO	Frag-ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
63*:											
Podo	0-5	Cobbly loam	SM-SC	A-2, A-4	5-20	60-80	55-70	35-70	20-45	20-30	5-10
	5-11	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
64 Minchey	0-3	Loam	CL-ML, CL	A-4, A-6	0	95-100	90-95	80-90	60-80	20-35	5-15
	3-32	Clay loam, sandy clay loam.	CL	A-6	0	95-100	90-95	70-95	55-80	30-40	10-20
	32-48	Gravelly sandy loam.	GM, SM	A-2, A-4	0-5	60-85	50-80	40-60	30-40	15-25	NP-5
	48-60	Very gravelly sandy loam.	GM	A-1	0-5	35-50	30-45	15-35	10-20	15-25	NP-5
65 Mivida	0-3	Very fine sandy loam.	ML	A-4	0	100	100	85-95	50-65	20-25	NP-5
	3-45	Fine sandy loam	SM-SC	A-4	0-5	85-95	80-90	60-70	35-45	20-30	5-10
	45-60	Very cobbly fine sandy loam.	SM, GM	A-1, A-2	20-30	60-70	50-65	35-55	20-30	20-35	NP-5
66 Mivida	0-4	Gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	75-85	70-80	60-70	30-45	20-25	5-10
	4-44	Fine sandy loam	SM-SC	A-4	0-5	85-95	80-90	60-70	35-45	20-30	5-10
	44-60	Very cobbly fine sandy loam.	SM, GM	A-1, A-2	20-30	60-70	50-65	35-55	20-30	20-35	NP-5
67 Mivida	0-4	Very stony fine sandy loam.	SM	A-4	60-70	90-100	85-95	70-85	35-50	20-25	NP-5
	4-47	Fine sandy loam	SM-SC	A-4	0-5	85-95	80-90	60-70	35-45	20-30	5-10
	47-60	Very cobbly fine sandy loam.	SM, GM	A-1, A-2	20-30	60-70	50-65	35-55	20-30	20-35	NP-5
68 Moffat	0-2	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	70-85	35-55	---	NP
	2-60	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0	95-100	90-100	65-85	25-45	20-30	NP-10
69*:											
Moffat	0-2	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	70-85	35-55	---	NP
	2-60	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0	95-100	90-100	65-85	25-45	20-30	NP-10
Persayo	0-4	Very cobbly clay loam.	GC	A-6, A-7	30-35	55-65	50-60	45-55	35-45	35-45	15-25
	4-11	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
70*:											
Nelman	0-4	Very gravelly loam.	GM, GM-GC	A-2, A-4	10-20	50-60	45-55	40-50	30-40	20-25	NP-10
	4-27	Fine sandy loam	SM, SM-SC	A-4	0-5	90-100	90-100	70-85	40-50	20-25	NP-10
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Travessilla	0-3	Sandy loam	SM-SC, SM	A-2, A-4	0-10	90-100	85-100	55-80	30-40	20-25	NP-10
	3-17	Loam, very fine sandy loam.	CL-ML	A-4	0-5	90-100	85-100	75-95	50-75	20-30	5-10
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 11.--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	
71---------------- Pathead	0-4	Extremely bouldery fine sandy loam.	GM-GC, GM, GP-GM	A-2, A-1	65-80	40-55	35-50	25-45	10-35	20-30	NP-10
	4-38	Extremely cobbly loam, very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-65	35-80	30-75	25-50	15-40	20-35	5-10
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
72*:											
Pathead----------	0-3	Extremely stony loam.	GM-GC, GM, GP-GM	A-2, A-1	65-80	40-55	35-50	25-45	10-35	20-30	NP-10
	3-26	Extremely cobbly loam, very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-65	35-80	30-75	25-50	15-40	20-35	5-10
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Curecanti--------	0-7	Loam--------------	CL-ML	A-4	0	85-95	80-90	65-75	50-60	20-30	5-10
	7-60	Very stony loam, very cobbly loam very cobbly sandy clay loam.	SC, SM-SC, GC, GM-GC	A-6, A-4	45-50	60-80	55-75	50-60	35-45	25-35	5-15
73, 74----------- Penoyer Variant	0-9	Loam--------------	CL-ML	A-4	0	100	100	85-95	60-75	25-30	5-10
	9-60	Stratified very fine sandy loam to silt loam.	ML, CL-ML	A-4	0	100	100	95-100	75-90	20-30	NP-10
75*--------------- Perma	0-7	Very stony sandy loam.	SM	A-2	40-45	75-85	70-80	45-55	25-30	---	NP
	7-35	Cobbly sandy loam very cobbly sandy loam.	SM-SC, GM-GC	A-2	25-30	60-80	55-75	35-50	20-30	20-30	5-10
	35-60	Very stony sandy loam.	SM-SC, GM-GC	A-2	45-50	60-70	55-65	35-45	20-25	25-30	5-10
76*:											
Perma------------	0-7	Very stony sandy loam.	SM	A-2	40-45	75-85	70-80	45-55	25-30	---	NP
	7-35	Cobbly sandy loam very cobbly sandy loam.	SM-SC, GM-GC	A-2	25-30	60-80	55-75	35-50	20-30	20-30	5-10
	35-60	Very stony sandy loam.	SM-SC, GM-GC	A-2	45-50	60-70	55-65	35-45	20-25	25-30	5-10
Datino-----------	0-9	Extremely stony fine sandy loam.	GM-GC, SM-SC	A-1, A-2	45-60	50-70	30-50	20-40	10-25	20-30	5-10
	9-16	Very stony loam	GM-GC	A-4	40-45	65-75	60-70	50-60	40-50	20-30	5-10
	16-60	Very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	50-60	65-80	60-75	45-55	30-40	20-30	5-10
77---------------- Persayo	0-5	Loam--------------	CL, CL-ML	A-4, A-6	0	100	100	85-95	60-75	25-35	5-15
	5-12	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
78---------------- Persayo	0-4	Very cobbly clay loam.	GC	A-6, A-7	30-35	55-65	50-60	45-55	35-45	35-45	15-25
	4-11	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--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	
79*:											
Persayo	0-5	Loam	CL, CL-ML	A-4, A-6	0	100	100	85-95	60-75	25-35	5-15
	5-12	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
Persayo	0-4	Very cobbly clay loam.	GC	A-6, A-7	30-35	55-65	50-60	45-55	35-45	35-45	15-25
	4-11	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Badland.											
80*:											
Persayo	0-3	Loam	CL, CL-ML	A-4, A-6	0	100	100	85-95	60-75	25-35	5-15
	3-12	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
Chipeta	0-5	Silty clay loam	CL, ML	A-6, A-7	0	100	100	95-100	90-95	35-45	10-20
	5-17	Silty clay loam, silty clay, clay.	CL	A-6, A-7	0	100	100	95-100	90-95	35-45	15-20
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
81*:											
Persayo	0-2	Very channery loam.	GC, GM-GC	A-2	0	40-50	35-45	30-40	20-30	25-35	5-15
	2-11	Loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	70-90	25-35	5-15
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Greybull	0-3	Loam	CL-ML	A-4	0	100	95-100	85-95	60-75	25-30	5-10
	3-34	Loam	CL-ML	A-4	0	100	95-100	85-95	60-75	25-30	5-10
	34	Weathered bedrock	---	---	---	---	---	---	---	---	---
82 Podo	0-2	Gravelly sandy loam.	SM-SC	A-2, A-4	5-20	60-80	55-70	35-70	20-45	20-30	5-10
	2-11	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
83*:											
Podo	0-2	Gravelly sandy loam.	SM-SC	A-2, A-4	5-20	60-80	55-70	35-70	20-45	20-30	5-10
	2-11	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cabba	0-2	Gravelly loam	GM-GC, SM-SC	A-4	0-10	60-75	55-70	50-65	40-50	25-30	5-10
	2-13	Loam, gravelly loam, clay loam.	CL-ML, GM-GC, CL	A-4, A-6	0-10	60-100	55-100	50-95	35-75	25-40	5-15
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--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	
84*:											
Podo	0-5	Very bouldery sandy loam.	SM-SC, SM	A-2, A-4	30-40	60-75	55-65	35-60	20-40	20-30	NP-10
	5-12	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
85 Rabbitex	0-10	Silt loam	CL-ML	A-4	0	95-100	90-95	85-95	70-90	20-30	5-10
	10-44	Gravelly loam, channery loam, cobbly loam.	GM-GC, SM-SC	A-4	0-30	65-80	60-75	50-70	35-50	20-30	5-10
	44-59	Loam	CL-ML	A-4	0-5	85-95	80-90	70-85	55-70	20-30	5-10
	59	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
86*:											
Rabbitex	0-11	Bouldery loam	CL-ML	A-4	15-30	85-95	80-90	65-85	50-70	20-30	5-10
	11-43	Gravelly loam, channery loam, cobbly loam.	GM-GC, SM-SC	A-4	0-30	65-80	60-75	50-70	35-50	20-30	5-10
	43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Doney	0-4	Stony loam	CL-ML	A-4	10-25	85-95	80-90	65-75	50-60	25-30	5-10
	4-35	Loam	CL-ML	A-4	0	85-95	80-90	65-75	50-60	25-30	5-10
	35	Weathered bedrock	---	---	---	---	---	---	---	---	---
Midfork	0-7	Bouldery loam	CL, CL-ML	A-4, A-6	15-35	80-90	75-85	70-80	55-65	25-35	5-15
	7-60	Very channery loam, very gravelly loam.	GM-GC	A-2	0-10	40-50	35-45	30-40	20-30	25-30	5-10
87*:											
Rabbitex	0-5	Loam	CL-ML	A-4	0	85-95	80-90	65-85	50-70	20-30	5-10
	5-37	Gravelly loam, channery loam, cobbly loam.	GM-GC, SM-SC	A-4	0-30	65-80	60-75	50-70	35-50	20-30	5-10
	37-59	Loam	CL-ML	A-4	0-5	85-95	80-90	70-85	55-70	20-30	5-10
	59	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pathead	0-4	Gravelly loam	GM-GC, SM-SC	A-4	0-5	65-75	60-70	50-65	35-50	25-35	5-10
	4-39	Extremely cobbly loam, very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	40-65	35-80	30-75	25-50	15-40	20-35	5-10
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
88*:											
Rabbitex	0-4	Stony loam	CL-ML	A-4	15-30	85-95	80-90	65-85	50-70	20-30	5-10
	4-45	Cobbly loam	CL-ML	A-4	15-30	85-95	80-90	65-80	50-70	25-35	5-10
	45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
88*:											
Datino Variant--	0-4	Very stony loam	GM-GC, SM-SC	A-2, A-4	15-75	60-80	55-75	40-70	20-55	20-30	5-10
	4-22	Very stony loam, very cobbly loam.	GM-GC	A-4	25-40	60-70	55-65	50-60	35-50	20-30	5-10
	22-60	Very cobbly loam, very stony fine sandy loam.	GM-GC, SM-SC	A-2, A-4	30-60	40-80	35-75	25-60	15-40	20-30	5-10
89--------------- Rafael	0-3	Silty clay loam	CL	A-6	0	100	100	95-100	75-90	30-40	10-20
	3-60	Loam, silty clay loam, clay loam.	CL-ML, CL	A-4, A-6	0	100	95-100	95-100	75-90	25-40	5-20
90--------------- Ravola	0-6	Loam-------------	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
	6-60	Loam, silt loam	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
91--------------- Ravola	0-2	Loam-------------	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
	2-60	Loam, silt loam	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
92*:											
Ravola----------	0-2	Loam-------------	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
	2-60	Loam, silt loam	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
Gullied land.											
93*:											
Ravola----------	0-8	Loam-------------	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
	8-60	Loam, silt loam	CL-ML, CL	A-4	0	100	100	90-100	75-85	20-30	5-10
Slickspots.											
94*. Riverwash											
95*. Rock outcrop											
96*:											
Rock outcrop.											
Rubbleland.											
Travessilla-----	0-3	Very gravelly fine sandy loam.	GM-GC, GM	A-1, A-2	0-5	35-45	30-40	25-35	10-20	20-30	NP-10
	3-17	Loam, very fine sandy loam.	CL-ML	A-4	0-5	90-100	85-100	75-95	50-75	20-30	5-10
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
97*:											
Rottulee--------	0-2	Loam-------------	CL-ML	A-4	0	95-100	90-95	75-85	55-70	25-30	5-10
	2-15	Loam, clay loam	CL, CL-ML	A-4, A-6	0	95-100	90-95	75-90	60-75	25-35	5-15
	15-34	Gravelly silty clay loam, gravelly silt loam.	CL	A-6	0	70-80	65-75	60-70	55-65	30-35	10-15
	34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Trag------------	0-10	Stony loam-------	CL-ML	A-4	30-40	95-100	90-100	75-85	55-70	25-30	5-10
	10-60	Sandy clay loam, silty clay loam, clay loam.	CL, SC	A-6	0	100	95-100	85-100	45-85	30-40	10-20

See footnote at end of table.

TABLE 11.--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	
98---------------- Sagers	0-7	Silty clay loam	CL	A-6	0	95-100	95-100	95-100	80-90	30-35	10-15
	7-60	Silty clay loam, clay loam.	CL	A-6	0	95-100	95-100	95-100	75-95	30-40	10-20
99---------------- Saltair	0-7	Silty clay loam	CL-ML	A-4	0	100	100	95-100	75-90	20-30	5-10
	7-60	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	100	100	95-100	75-90	20-40	5-20
100, 101--------- Senchert	0-4	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	4-16	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	16-35	Clay loam, loam	ML	A-4, A-6	0-10	95-100	90-100	80-100	60-80	30-40	5-15
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
102*:											
Senchert--------	0-3	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	100	95-100	70-85	40-55	20-30	NP-10
	3-21	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Senchert family-	0-11	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	11-23	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	23-35	Clay loam--------	CL	A-6	0	100	95-100	85-100	70-80	30-40	15-25
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
103*:											
Senchert--------	0-4	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	4-18	Clay loam--------	CL	A-6	0	100	95-100	85-100	70-80	30-40	15-25
	18-25	Silty clay-------	CL	A-6, A-7	0	100	100	95-100	90-95	35-50	20-35
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Toze------------	0-3	Loam-------------	CL	A-6	0	95-100	90-100	80-95	60-75	25-30	10-15
	3-33	Cobbly silt loam, gravelly silt loam, loam.	CL	A-6	0-20	75-90	70-85	65-85	50-70	25-35	10-15
	33-60	Very gravelly fine sandy loam, gravelly very fine sandy loam.	GM-GC, SM-SC	A-2	5-15	50-70	45-65	30-60	20-35	20-30	5-10
104*-------------- Senchert	0-11	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	11-23	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	23-35	Clay loam--------	CL	A-6	0	100	95-100	85-100	70-80	30-40	15-25
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
105*:											
Senchert family-	0-8	Very fine sandy loam.	CL-ML, ML	A-4	0	100	95-100	85-95	50-65	20-30	NP-10
	8-27	Clay loam--------	CL	A-6	0	100	95-100	85-100	70-80	30-40	15-25
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Senchert--------	0-4	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	4-16	Loam-------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	16-35	Clay loam, loam	ML	A-4, A-6	0-10	95-100	90-100	80-100	60-80	30-40	5-15
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--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	
106*:											
Sheepcan	0-9	Stony loam	CL-ML, SM-SC	A-4	15-30	75-85	70-80	60-75	40-60	25-35	5-10
	9-28	Gravelly clay loam, cobbly clay loam.	CL	A-6	5-30	70-80	65-75	60-70	50-55	30-40	10-20
	28-60	Very cobbly clay loam.	GC	A-6	20-40	55-65	50-65	45-60	35-50	30-40	10-20
Podo	0-1	Gravelly loam	SM-SC	A-2, A-4	5-20	60-80	55-70	35-70	20-45	20-30	5-10
	1-8	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	8	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
107*:											
Shupert	0-3	Gravelly loam	GM-GC	A-4	0	60-70	55-65	45-55	35-45	20-30	5-10
	3-60	Loam, clay loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-95	70-85	25-40	5-15
Winetti	0-6	Bouldery sandy loam.	SM	A-2, A-4	35-45	95-100	90-100	55-70	30-40	20-25	NP-5
	6-11	Loam	CL-ML, ML	A-4	0	90-100	85-95	70-90	55-70	20-30	NP-10
	11-34	Very bouldery loam.	CL-ML, ML	A-4	40-45	75-85	70-80	60-70	45-55	20-30	NP-10
	34-60	Very gravelly sandy loam.	GM-GC, GM	A-2	15-20	40-50	35-45	20-30	15-20	20-30	NP-10
108 Silas	0-28	Loam	CL-ML, ML	A-4	0	95-100	90-100	85-95	60-75	25-35	5-10
	28-60	Loam, sandy clay loam.	CL-ML	A-4	0	95-100	90-100	75-85	50-60	25-30	5-10
109*:											
Silas	0-28	Loam	CL-ML, ML	A-4	0	95-100	90-100	85-95	60-75	25-35	5-10
	28-60	Loam, sandy clay loam.	CL-ML	A-4	0	95-100	90-100	75-85	50-60	25-30	5-10
Brycan	0-12	Loam	CL-ML, ML	A-4	0	100	100	85-95	60-75	25-35	5-10
	12-32	Loam	CL-ML, ML	A-4	0	95-100	90-100	75-95	65-75	25-35	5-10
	32-60	Silt loam	CL-ML, ML	A-4	0	90-100	85-100	75-100	70-90	25-35	5-10
110 Stormitt	0-1	Gravelly sandy clay loam.	SM-SC, SM	A-2	0-10	65-80	60-75	50-70	25-35	25-35	5-10
	1-9	Gravelly sandy clay loam.	SM-SC, SM	A-2	0-10	60-80	55-75	45-70	25-35	25-35	5-10
	9-60	Very cobbly sandy clay loam.	GM-GC, GM, SM-SC, SM	A-2	30-45	55-65	50-60	40-50	20-30	25-35	5-10
111*:											
Stormitt	0-1	Gravelly sandy clay loam.	SM-SC, SM	A-2	0-10	65-80	60-75	50-70	25-35	25-35	5-10
	1-9	Gravelly sandy clay loam.	SM-SC, SM	A-2	0-10	60-80	55-75	45-70	25-35	25-35	5-10
	9-60	Very cobbly sandy clay loam.	GM-GC, GM, SM-SC, SM	A-2	30-45	55-65	50-60	40-50	20-30	25-35	5-10
Minchey	0-3	Loam	CL-ML, CL	A-4, A-6	0	95-100	90-95	80-90	60-80	20-35	5-15
	3-32	Clay loam, sandy clay loam.	CL	A-6	0	95-100	90-95	70-95	55-80	30-40	10-20
	32-48	Gravelly sandy loam.	GM, SM	A-2, A-4	0-5	60-85	50-80	40-60	30-40	15-25	NP-5
	48-60	Very gravelly sandy loam.	GM	A-1	0-5	35-50	30-45	15-35	10-20	15-25	NP-5

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
112----------- Strych	0-3	Very bouldery fine sandy loam.	SM, SM-SC	A-4, A-2	30-45	85-100	75-95	55-80	30-50	20-25	NP-10
	3-60	Very stony loam, very stony sandy loam, very cobbly sandy loam.	SM-SC, GM-GC	A-4, A-2	20-40	60-85	50-80	40-65	20-45	25-30	5-10
113----------- Strych	0-5	Very stony loam	SM, SM-SC	A-4, A-2	30-45	85-100	75-95	55-80	30-50	20-25	NP-10
	5-60	Very stony loam, very stony sandy loam, very cobbly sandy loam.	SM-SC GM-GC	A-2, A-4	20-40	60-85	50-80	40-65	20-45	25-30	5-10
114----------- Strych	0-3	Very stony loam	SM, SM-SC	A-4, A-2	30-45	85-100	75-95	55-80	30-50	20-25	NP-10
	3-60	Very stony loam, very stony sandy loam, very cobbly sandy loam.	SM-SC, GM-GC	A-4, A-2	20-40	60-85	50-80	40-65	20-45	25-30	5-10
115----------- Trag	0-10	Stony loam-------	CL-ML	A-4	30-40	95-100	90-100	75-85	55-70	25-30	5-10
	10-60	Sandy clay loam, silty clay loam, clay loam.	CL, SC	A-6	0	100	95-100	85-100	45-85	30-40	10-20
116*:											
Trag-----------	0-5	Loam------------	ML, CL-ML, SM, SM-SC	A-4	0-5	95-100	90-100	75-90	40-60	20-30	NP-10
	5-60	Sandy clay loam, silty clay loam, clay loam.	CL, SC	A-6	0	100	95-100	85-100	45-85	30-40	10-20
Beje-----------	0-6	Loam------------	CL-ML	A-4	0-10	90-100	85-100	75-95	55-75	20-35	5-10
	6-14	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-95	50-80	25-35	5-15
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rottulee--------	0-2	Loam------------	CL-ML	A-4	0	95-100	90-95	75-85	55-70	25-30	5-10
	2-15	Loam, clay loam	CL, CL-ML	A-4, A-6	0	95-100	90-95	75-90	60-75	25-35	5-15
	15-34	Gravelly silty clay loam, gravelly silt loam.	CL	A-6	0	70-80	65-75	60-70	55-65	30-35	10-15
	34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
117*:											
Trag-----------	0-5	Clay loam--------	CL	A-6	0-5	95-100	90-100	80-90	65-80	30-35	10-15
	5-60	Sandy clay loam, silty clay loam, clay loam.	CL, SC	A-6	0	100	95-100	85-100	45-85	30-40	10-20
Beje-----------	0-6	Loam------------	CL-ML	A-4	0-10	90-100	85-100	75-95	55-75	20-35	5-10
	6-14	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-95	50-80	25-35	5-15
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Senchert--------	0-4	Loam------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	4-16	Loam------------	CL-ML	A-4	0	100	95-100	80-95	60-75	20-30	5-10
	16-35	Clay loam, loam	ML	A-4, A-6	0-10	95-100	90-100	80-100	60-80	30-40	5-15
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
118*:											
Trag	0-10	Stony loam	CL-ML	A-4	30-40	95-100	90-100	75-85	55-70	25-30	5-10
	10-60	Sandy clay loam, silty clay loam, clay loam.	CL, SC	A-6	0	100	95-100	85-100	45-85	30-40	10-20
Croydon	0-23	Loam	CL	A-6	0	85-100	80-100	55-100	50-80	20-30	10-15
	23-48	Clay loam	CL	A-6	0	85-100	80-100	70-100	55-80	20-40	10-15
	48	Weathered bedrock	---	---	---	---	---	---	---	---	---
119 Travessilla	0-3	Sandy loam	SM-SC, SM	A-2, A-4	0-10	90-100	85-100	55-80	30-40	20-25	NP-10
	3-17	Loam, very fine sandy loam.	CL-ML	A-4	0-5	90-100	85-100	75-95	50-75	20-30	5-10
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
120*:											
Travessilla	0-2	Fine sandy loam	SM	A-2, A-4	0-5	90-100	90-100	60-80	30-50	15-25	NP-5
	2-10	Fine sandy loam, sandy loam, loam.	SM-SC, SM, CL-ML, ML	A-2, A-4	0-10	85-100	80-100	60-90	30-60	15-30	NP-10
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
121*:											
Travessilla	0-2	Extremely bouldery loam.	GM-GC	A-2	55-65	40-50	35-45	30-40	25-30	20-30	5-10
	2-12	Loam, very fine sandy loam.	CL-ML	A-4	0-5	90-100	85-100	75-95	50-75	20-30	5-10
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
Gerst	0-5	Very channery loam.	GM, GM-GC, SM-SC, SM	A-2, A-4	0-25	60-90	55-85	40-65	30-50	25-35	NP-10
	5-19	Channery loam, channery clay loam, channery silt loam.	GM, GC, SM SC	A-2, A-4, A-6, A-7	0-10	60-80	55-75	40-70	30-50	30-45	5-20
	19	Weathered bedrock	---	---	---	---	---	---	---	---	---
122*:											
Travessilla	0-2	Fine sandy loam	SM	A-2, A-4	0-5	90-100	90-100	60-80	30-50	15-25	NP-5
	2-10	Fine sandy loam, sandy loam, loam.	SM-SC, SM, CL-ML, ML	A-2, A-4	0-10	85-100	80-100	60-90	30-60	15-30	NP-10
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Travessilla family	0-4	Channery sandy loam.	SM	A-2, A-4	5-15	85-100	60-80	45-60	25-40	15-25	NP-5
	4-13	Sandy loam	SM-SC, SM	A-2, A-4	0	90-100	90-100	45-70	25-40	20-30	NP-10
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
123* Travessilla	0-4	Channery sandy loam.	SM	A-2, A-4	5-15	85-100	60-80	45-60	25-40	15-25	NP-5
	4-13	Sandy loam	SM-SC, SM	A-2, A-4	0	90-100	90-100	45-70	25-40	20-30	NP-10
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 11.--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	
124*:											
Uinta	0-3	Loam	CL-ML	A-4	0-15	100	95-100	80-95	60-75	25-30	5-10
	3-11	Stony sandy loam	SM	A-2, A-4	15-25	85-90	75-85	50-60	25-40	20-25	NP-5
	11-42	Stony clay loam	CL	A-6	25-35	75-85	70-80	65-80	50-65	30-40	15-25
	42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Podo	0-5	Cobbly loam	SM-SC	A-2, A-4	5-20	60-80	55-70	35-70	20-45	20-30	5-10
	5-11	Gravelly sandy loam, loam, gravelly loam.	CL-ML, CL, GM, GC	A-2, A-4, A-6	0-10	60-95	55-90	40-75	20-70	20-35	NP-15
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
125*:											
Uinta	0-3	Loam	CL-ML	A-4	0-15	100	95-100	80-95	60-75	25-30	5-10
	3-11	Stony sandy loam	SM	A-2, A-4	15-25	85-90	75-85	50-60	25-40	20-25	NP-5
	11-42	Stony clay loam	CL	A-6	25-35	75-85	70-80	65-80	50-65	30-40	15-25
	42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Toze	0-3	Fine sandy loam	SM-SC, CL-ML, SM ML	A-4	0-5	95-100	90-100	65-85	35-55	20-30	NP-10
	3-32	Cobbly silt loam, gravelly silt loam, loam.	CL	A-6	0-20	75-90	70-85	65-85	50-70	25-35	10-15
	32-60	Very gravelly fine sandy loam, gravelly very fine sandy loam.	GM-GC, SM-SC	A-2	5-15	50-70	45-65	30-60	20-35	20-30	5-10
126 Winetti Variant	0-3	Cobbly fine sandy loam.	SM	A-2, A-4	20-25	85-90	80-85	55-75	30-50	---	NP
	3-18	Stratified sand to fine sandy loam.	SM	A-2	0	100	100	50-85	15-30	---	NP
	18-53	Extremely gravelly sand.	GP	A-1	20-30	25-35	20-30	10-20	0-5	---	NP
	53-60	Fine sandy loam	SM, ML	A-4	0	100	100	70-85	40-55	---	NP

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
1----------------- Atrac	0-4	8-18	1.25-1.25	2.0-6.0	0.13-0.18	6.6-7.3	<2	Low--------	0.32	5	3	1-3
	4-20	20-26	1.30-1.35	0.6-2.0	0.15-0.17	6.6-7.3	<2	Moderate	0.37			
	20-60	18-26	1.30-1.35	0.6-2.0	0.15-0.17	7.9-9.0	<2	Moderate	0.37			
2*. Badland												
3*: Badland.												
Rubbleland.												
Rock outcrop.												
4----------------- Beje	0-2	7-13	1.30-1.40	2.0-6.0	0.06-0.08	6.6-8.4	<2	Low--------	0.15	1	8	3-5
	2-10	18-35	1.30-1.40	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.37			
	10	---	---	---	---	---	---	----------	----			
5*: Beje------------	0-2	7-13	1.30-1.40	2.0-6.0	0.06-0.08	6.6-8.4	<2	Low--------	0.15	1	8	3-5
	2-10	18-35	1.30-1.40	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.37			
	10	---	---	---	---	---	---	----------	----			
Beje------------	0-2	10-13	1.30-1.40	2.0-6.0	0.12-0.16	6.6-7.8	<2	Low--------	0.24	2	3	3-5
	2-8	18-24	1.35-1.45	0.6-2.0	0.12-0.14	7.4-7.8	<2	Low--------	0.32			
	8-12	19-24	1.40-1.50	0.6-2.0	0.10-0.13	7.4-8.4	<2	Low--------	0.17			
	12	---	---	---	---	---	---	----------	----			
6*: Beje------------	0-6	24-27	1.20-1.30	0.6-2.0	0.15-0.17	6.6-8.4	<2	Moderate	0.28	1	6	3-5
	6-14	18-35	1.30-1.40	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.37			
	14	---	---	---	---	---	---	----------	----			
Comodore--------	0-6	10-15	1.30-1.40	2.0-6.0	0.08-0.09	7.4-7.8	<2	Low--------	0.10	1	8	3-5
	6-14	19-24	1.20-1.30	0.6-2.0	0.09-0.10	7.4-7.8	<2	Low--------	0.10			
	14	---	---	---	---	---	---	----------	----			
7*: Beje------------	0-6	24-27	1.20-1.30	0.6-2.0	0.15-0.17	6.6-8.4	<2	Moderate	0.28	1	6	3-5
	6-14	18-35	1.30-1.40	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.37			
	14	---	---	---	---	---	---	----------	----			
Trag------------	0-5	28-35	1.25-1.35	0.6-2.0	0.18-0.20	7.4-7.8	<2	Moderate	0.32	3	6	3-5
	5-60	24-35	1.30-1.45	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
8----------------- Billings	0-11	27-35	1.30-1.40	0.06-0.2	0.15-0.18	7.4-9.0	2-8	Moderate	0.43	5	4L	<.5
	11-60	27-35	1.30-1.40	0.06-0.2	0.15-0.18	7.4-9.0	2-8	Moderate	0.43			
9*: Billings--------	0-11	27-35	1.15-1.25	0.06-0.2	0.08-0.15	>8.4	>8	Moderate	0.43	5	4L	1-2
	11-60	27-35	1.15-1.25	0.06-0.2	0.08-0.15	>8.4	>8	Moderate	0.49			
Gullied land.												
10*--------------- Cabba	0-3	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low--------	0.17	1	8	1-3
	3-15	18-35	1.25-1.35	0.6-2.0	0.12-0.18	7.4-8.4	<2	Low--------	0.43			
	15	---	---	---	---	---	---	----------	----			
11*--------------- Cabba	0-3	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low--------	0.17	1	8	1-3
	3-15	18-35	1.25-1.35	0.6-2.0	0.12-0.18	7.4-8.4	<2	Low--------	0.43			
	15	---	---	---	---	---	---	----------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cm^3	In/hr	In/in	pH	mmhos/cm					Pct
12*:												
Cabba-----------	0-2	28-33	1.20-1.30	0.6-2.0	0.09-0.11	7.4-7.8	<2	Low-------	0.10	1	8	1-3
	2-8	18-35	1.25-1.35	0.6-2.0	0.12-0.18	7.4-8.4	<2	Low-------	0.43			
	8	---	---	---	---	---	---	----------	----			
Badland.												
Rock outcrop.												
13*:												
Cabba-----------	0-3	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low-------	0.17	1	8	1-3
	3-15	18-35	1.25-1.35	0.6-2.0	0.12-0.18	7.4-8.4	<2	Low-------	0.43			
	15	---	---	---	---	---	---	----------	----			
Guben-----------	0-7	15-20	1.20-1.30	0.6-6.0	0.04-0.06	7.4-8.4	<2	Low-------	0.10	1	8	3-5
	7-15	17-22	1.30-1.40	0.6-2.0	0.08-0.10	7.4-8.4	<2	Low-------	0.15			
	15-60	17-25	1.25-1.45	0.6-6.0	0.06-0.08	7.9-9.0	<2	Low-------	0.10			
Rock outcrop.												
14*, 15*:												
Casmos----------	0-2	18-27	1.25-1.35	0.6-2.0	0.11-0.13	7.9-9.0	2-4	Low-------	0.20	1	8	<1
	2-6	18-35	1.40-1.50	0.6-2.0	0.14-0.18	8.5-9.0	2-4	Low-------	0.32			
	6	---	---	---	---	---	---	----------	----			
Rock outcrop.												
16--------------- Chipeta	0-2	28-47	1.15-1.25	0.06-0.2	0.11-0.16	7.4-8.4	8-16	Moderate	0.43	1	4L	<2
	2-17	35-45	1.15-1.25	0.06-0.2	0.11-0.16	7.4-9.0	8-16	Moderate	0.43			
	17	---	---	---	---	---	---	----------	----			
17*:												
Chipeta---------	0-5	28-47	1.15-1.25	0.06-0.2	0.11-0.16	7.4-8.4	8-16	Moderate	0.43	1	4L	<2
	5-17	35-45	1.15-1.25	0.06-0.2	0.11-0.16	7.4-9.0	8-16	Moderate	0.43			
	17	---	---	---	---	---	---	----------	----			
Badland.												
18*:												
Chipeta---------	0-5	28-47	1.15-1.25	0.06-0.2	0.11-0.16	7.4-8.4	8-16	Moderate	0.43	1	4L	<2
	5-17	35-45	1.15-1.25	0.06-0.2	0.11-0.16	7.4-9.0	8-16	Moderate	0.43			
	17	---	---	---	---	---	---	----------	----			
Persayo---------	0-3	18-27	1.20-1.30	0.6-2.0	0.15-0.17	8.5-9.0	<8	Moderate	0.37	1	4L	.5-1
	3-12	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	12	---	---	---	---	---	---	----------	----			
19--------------- Chupadera	0-6	10-12	1.30-1.35	2.0-6.0	0.11-0.13	7.9-8.4	<2	Low-------	0.32	2	3	1-3
	6-28	14-17	1.25-1.35	2.0-6.0	0.15-0.18	7.9-8.4	<2	Low-------	0.49			
	28	---	---	---	---	---	---	----------	----			
20*:												
Comodore--------	0-6	10-15	1.30-1.40	2.0-6.0	0.08-0.09	7.4-7.8	<2	Low-------	0.10	1	8	3-5
	6-14	19-24	1.20-1.30	0.6-2.0	0.09-0.10	7.4-7.8	<2	Low-------	0.10			
	14	---	---	---	---	---	---	----------	----			
Datino Variant--	0-9	12-18	1.25-1.35	0.6-2.0	0.06-0.09	7.4-7.8	<2	Low-------	0.02	1	8	3-5
	9-16	18-26	1.20-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low-------	----			
	16-60	16-25	1.30-1.40	2.0-6.0	0.06-0.10	7.4-8.4	<2	Low-------	----			
21, 22----------- Croydon	0-23	18-27	1.30-1.40	0.6-2.0	0.13-0.18	5.6-6.5	<2	Moderate	0.24	3	5	5-10
	23-48	27-35	1.40-1.50	0.2-0.6	0.16-0.18	6.1-6.5	<2	Moderate	0.32			
	48	---	---	---	---	---	---	----------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
23*:												
Curecanti-------	0-7	15-18	1.25-1.30	0.6-2.0	0.14-0.16	6.6-7.3	<2	Low--------	0.28	1	5	3-5
	7-60	18-27	1.25-1.30	0.6-2.0	0.08-0.10	6.1-7.3	<2	Low--------	0.10			
Pathead---------	0-4	13-21	1.20-1.35	0.6-6.0	0.04-0.06	7.9-8.4	<2	Low--------	0.05	1	8	1-3
	4-38	18-27	1.35-1.45	0.6-2.0	0.05-0.08	7.9-9.0	<2	Low--------	0.10			
	38	---	---	---	---	---	---	-----------	----			
Pathead---------	0-3	13-21	1.20-1.35	0.6-6.0	0.04-0.06	7.9-8.4	<2	Low--------	0.05	1	8	1-3
	3-26	18-27	1.35-1.45	0.6-2.0	0.05-0.08	7.9-9.0	<2	Low--------	0.10			
	26	---	---	---	---	---	---	-----------	----			
24--------------- Datino Variant	0-4	15-20	1.25-1.35	0.6-6.0	0.06-0.09	7.4-7.8	<2	Low--------	0.02	1	8	3-5
	4-22	18-26	1.20-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low--------	0.05			
	22-60	16-25	1.30-1.45	0.6-6.0	0.06-0.10	7.4-8.4	<2	Low--------	0.05			
25*--------------- Doney	0-4	18-22	1.10-1.20	0.2-0.6	0.17-0.19	7.9-8.4	<2	Low--------	0.37	2	4L	1-2
	4-36	18-30	1.20-1.30	0.6-2.0	0.16-0.18	8.5-9.0	<2	Moderate	0.37			
	36	---	---	---	---	---	---	-----------	----			
26*--------------- Doney	0-4	15-17	1.20-1.30	0.6-2.0	0.12-0.14	7.9-8.4	<2	Low--------	0.20	2	8	1-3
	4-35	22-24	1.20-1.30	0.6-2.0	0.14-0.16	8.5-9.0	<2	Low--------	0.37			
	35	---	---	---	---	---	---	-----------	----			
27*:												
Doney-----------	0-4	15-17	1.20-1.30	0.6-2.0	0.12-0.14	7.9-8.4	<2	Low--------	0.20	2	8	1-3
	4-35	22-24	1.20-1.30	0.6-2.0	0.14-0.16	8.5-9.0	<2	Low--------	0.37			
	35	---	---	---	---	---	---	-----------	----			
Podo------------	0-5	12-22	1.15-1.25	2.0-6.0	0.06-0.10	7.9-8.4	<2	Low--------	0.10	1	8	1-3
	5-16	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low--------	0.17			
	16	---	---	---	---	---	---	-----------	----			
28*:												
Doney-----------	0-4	15-17	1.20-1.30	0.6-2.0	0.12-0.14	7.9-8.4	<2	Low--------	0.20	2	8	1-3
	4-35	22-24	1.20-1.30	0.6-2.0	0.14-0.16	8.5-9.0	<2	Low--------	0.37			
	35	---	---	---	---	---	---	-----------	----			
Toze------------	0-9	18-25	1.20-1.30	0.6-2.0	0.14-0.20	7.9-8.4	<2	Moderate	0.24	5	4L	3-5
	9-44	18-27	1.25-1.35	0.6-2.0	0.12-0.20	7.4-8.4	<2	Moderate	0.24			
	44-60	15-20	1.40-1.50	2.0-6.0	0.08-0.10	7.9-8.4	<2	Low--------	0.10			
29*. Dumps												
30*:												
Falcon----------	0-5	8-15	1.30-1.35	6.0-20	0.08-0.10	6.6-7.3	<2	Low--------	0.10	1	8	3-5
	5-12	10-17	1.30-1.35	6.0-20	0.10-0.12	6.6-7.3	<2	Low--------	0.10			
	12	---	---	---	---	---	---	-----------	----			
Rock outcrop.												
31--------------- Ferron	0-3	20-25	1.20-1.25	0.6-2.0	0.13-0.16	7.4-8.4	2-8	Low--------	0.49	5	8	2-4
	3-60	12-18	1.30-1.35	0.6-2.0	0.13-0.16	7.4-8.4	2-8	Low--------	0.49			
32*:												
Frandsen--------	0-4	20-27	1.30-1.40	0.6-2.0	0.15-0.17	7.9-9.0	<4	Low--------	0.32	5	4L	1-3
	4-40	20-35	1.30-1.40	0.6-2.0	0.15-0.18	7.9-9.0	<4	Moderate	0.32			
	40-60	10-18	1.40-1.50	2.0-6.0	0.11-0.13	7.9-9.0	<2	Low--------	0.37			
Gullied land.												
33*, 34*:												
Gerst-----------	0-7	18-24	1.20-1.30	0.6-2.0	0.08-0.10	7.9-8.4	<2	Low--------	0.05	1	8	1-3
	7-19	18-27	1.20-1.30	0.2-0.6	0.13-0.15	8.5-9.0	<2	Low--------	0.24			
	19	---	---	---	---	---	---	-----------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
33*, 34*:												
Badland.												
Rubbleland.												
35*:												
Gerst-----------	0-2	15-27	1.30-1.40	0.2-0.6	0.08-0.14	7.9-9.0	<2	Low-------	0.24	1	8	<1
	2-17	18-35	1.30-1.40	0.2-0.6	0.11-0.14	7.9-9.0	<2	Moderate	0.24			
	17	---	---	---	---	---	---	---------	----			
Badland.												
Stormitt--------	0-1	20-27	1.30-1.40	0.6-2.0	0.12-0.15	7.4-7.8	---	Low-------	0.15	2	8	1-3
	1-9	20-27	1.30-1.40	0.6-2.0	0.12-1.15	7.4-8.4	---	Low-------	0.15			
	9-60	20-27	1.30-1.40	0.6-2.0	0.08-0.11	7.9-9.0	<2	Low-------	0.10			
36*, 37*:												
Gerst-----------	0-7	18-24	1.20-1.30	0.6-2.0	0.08-0.10	7.9-8.4	<2	Low-------	0.05	1	8	1-3
	7-19	18-27	1.20-1.30	0.2-0.6	0.13-0.15	8.5-9.0	<2	Low-------	0.24			
	19	---	---	---	---	---	---	---------	----			
Strych----------	0-5	9-14	1.35-1.45	2.0-6.0	0.08-0.10	7.4-8.4	<2	Low-------	0.20	2	8	.5-3
	5-60	14-18	1.45-1.60	2.0-6.0	0.06-0.11	7.9-9.0	<2	Low-------	0.20			
Badland.												
38*:												
Gerst-----------	0-5	15-27	1.30-1.40	0.2-0.6	0.08-0.14	7.9-9.0	<2	Low-------	0.24	1	8	<1
	5-19	18-35	1.30-1.40	0.2-0.6	0.11-0.14	7.9-9.0	<2	Moderate	0.24			
	19	---	---	---	---	---	---	---------	----			
Travessilla-----	0-2	3-13	1.45-1.60	2.0-6.0	0.09-0.13	7.4-8.4	<2	Low-------	0.28	2	3	.5-1
	2-10	8-18	1.30-1.45	0.6-6.0	0.12-0.16	7.4-9.0	<2	Low-------	0.32			
	10	---	---	---	---	---	---	---------	----			
39*-------------- Glenberg	0-4	3-6	1.30-1.45	6.0-20	0.08-0.10	7.9-8.4	<2	Low-------	0.32	5	2	1-2
	4-60	8-15	1.30-1.45	2.0-6.0	0.12-0.17	7.9-9.0	<2	Low-------	0.43			
40*-------------- Glenberg	0-4	10-15	1.30-1.45	2.0-6.0	0.15-0.17	7.9-8.4	<2	Low-------	0.43	5	3	1-2
	4-60	8-15	1.30-1.45	2.0-6.0	0.12-0.17	7.9-9.0	<2	Low-------	0.43			
41*:												
Green River-----	0-16	18-25	1.05-1.15	0.2-0.6	0.14-0.20	7.9-8.4	<2	Low-------	0.43	5	4L	2-3
	16-60	4-15	1.30-1.40	0.6-2.0	0.05-0.18	7.9-9.0	2-8	Low-------	0.17			
Juva Variant----	0-6	13-15	1.40-1.50	2.0-6.0	0.10-0.15	7.9-9.0	<2	Low-------	0.37	5	3	.5-1
	6-60	13-18	1.30-1.40	2.0-6.0	0.10-0.15	7.9-9.0	<8	Low-------	0.49			
42--------------- Greybull	0-3	19-22	1.20-1.30	0.6-2.0	0.14-0.17	7.9-8.4	<2	Low-------	0.37	3	4L	.5-1
	3-34	19-24	1.20-1.30	0.6-2.0	0.14-0.17	7.9-9.0	<2	Low-------	0.43			
	34	---	---	---	---	---	---	---------	----			
43*:												
Grobutte--------	0-9	23-27	1.30-1.40	0.6-2.0	0.08-0.09	8.5-9.0	<2	Low-------	0.15	1	8	1-2
	9-60	20-24	1.30-1.40	0.6-2.0	0.05-0.08	8.5-9.0	<2	Low-------	0.10			
Cabba-----------	0-3	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low-------	0.17	1	8	1-3
	3-15	18-35	1.25-1.35	0.6-2.0	0.12-0.18	7.4-8.4	<2	Low-------	0.43			
	15	---	---	---	---	---	---	---------	----			
44*, 45*:												
Guben-----------	0-7	15-20	1.20-1.30	0.6-6.0	0.04-0.06	7.4-8.4	<2	Low-------	0.10	1	8	3-5
	7-24	17-22	1.30-1.40	0.6-2.0	0.08-0.10	7.4-8.4	<2	Low-------	0.15			
	24-60	17-25	1.25-1.45	0.6-6.0	0.06-0.08	7.9-9.0	<2	Low-------	0.10			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
44*, 45*:												
Doney-----------	0-7	15-19	1.30-1.35	2.0-6.0	0.08-0.10	7.9-8.4	<2	Low-------	0.15	2	8	1-3
	7-39	22-24	1.20-1.30	0.6-2.0	0.14-0.16	8.5-9.0	<2	Low-------	0.37			
	39	---	---	---	---	---	---	---------	----			
Datino Variant--	0-7	22-25	1.20-1.30	0.6-2.0	0.16-0.18	7.4-7.8	<2	Low-------	0.28	1	4L	3-5
	7-15	18-26	1.20-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low-------	0.05			
	15-60	16-25	1.30-1.45	0.6-6.0	0.06-0.10	7.4-8.4	<2	Low-------	0.05			
46*:												
Guben-----------	0-8	15-20	1.20-1.30	0.6-6.0	0.04-0.06	7.4-8.4	<2	Low-------	0.10	1	8	3-5
	8-23	17-22	1.30-1.40	0.6-2.0	0.08-0.10	7.4-8.4	<2	Low-------	0.15			
	23-60	17-25	1.25-1.45	0.6-6.0	0.06-0.08	7.9-9.0	<2	Low-------	0.10			
Pathead---------	0-3	13-21	1.20-1.35	0.6-6.0	0.04-0.06	7.9-8.4	<2	Low-------	0.05	1	8	1-3
	3-26	18-27	1.35-1.45	0.6-2.0	0.05-0.08	7.9-9.0	<2	Low-------	0.10			
	26	---	---	---	---	---	---	---------	----			
47*:												
Guben-----------	0-7	15-20	1.20-1.30	0.6-6.0	0.04-0.06	7.4-8.4	<2	Low-------	0.10	1	8	3-5
	7-24	17-22	1.30-1.40	0.6-2.0	0.08-0.10	7.4-8.4	<2	Low-------	0.15			
	24-60	17-25	1.25-1.45	0.6-6.0	0.06-0.08	7.9-9.0	<2	Low-------	0.10			
Rock outcrop.												
48--------------- Haverdad	0-3	15-24	1.25-1.35	0.6-2.0	0.15-0.17	7.9-8.4	<2	Low-------	0.37	5	4L	1-3
	3-60	18-30	1.25-1.35	0.6-2.0	0.15-0.18	7.9-8.4	<2	Moderate	0.37			
49--------------- Haverdad	0-7	17-20	1.25-1.35	0.6-2.0	0.15-0.17	7.9-8.4	<2	Low-------	0.32	5	4L	1-2
	7-60	15-28	1.30-1.50	0.6-2.0	0.12-0.18	>8.4	<4	Moderate	0.28			
50--------------- Haverdad	0-6	15-24	1.25-1.35	0.6-2.0	0.15-0.17	7.9-8.4	<2	Low-------	0.37	5	4L	1-3
	6-36	18-30	1.25-1.35	0.6-2.0	0.15-0.18	7.9-8.4	<2	Moderate	0.37			
	36-60	14-25	1.30-1.40	0.6-2.0	0.12-0.17	7.9-8.4	<2	Low-------	0.37			
51*, 52*--------- Hernandez	0-3	18-25	1.25-1.40	0.6-2.0	0.15-0.17	7.9-8.4	<2	Low-------	0.28	5	4L	1-3
	3-60	20-27	1.25-1.40	0.6-2.0	0.15-0.17	7.9-9.0	<4	Low-------	0.28			
53*-------------- Hernandez	0-3	10-15	1.35-1.45	2.0-6.0	0.11-0.16	7.9-8.4	<2	Low-------	0.32	5	3	1-3
	3-60	20-27	1.25-1.40	0.6-2.0	0.15-0.17	7.9-9.0	<4	Low-------	0.28			
54*:												
Hernandez-------	0-3	10-15	1.35-1.45	2.0-6.0	0.11-0.16	7.9-8.4	<2	Low-------	0.32	5	3	1-3
	3-60	20-27	1.25-1.40	0.6-2.0	0.15-0.17	7.9-9.0	<4	Low-------	0.28			
Atrac-----------	0-4	8-18	1.25-1.25	2.0-6.0	0.13-0.18	6.6-7.3	<2	Low-------	0.32	5	3	1-3
	4-20	20-26	1.30-1.35	0.6-2.0	0.15-0.17	6.6-7.3	<2	Moderate	0.37			
	20-60	18-26	1.30-1.35	0.6-2.0	0.15-0.17	7.9-9.0	<2	Moderate	0.37			
55--------------- Hunting	0-9	20-25	1.25-1.35	0.6-2.0	0.13-0.16	7.9-8.4	2-8	Low-------	0.43	5	4L	1-2
	9-60	15-30	1.25-1.30	0.6-2.0	0.13-0.16	7.9-8.4	2-8	Low-------	0.49			
56--------------- Hunting	0-9	20-25	1.25-1.35	0.6-2.0	0.10-0.13	7.9-8.4	8-16	Low-------	0.43	5	4L	1-2
	9-60	20-30	1.25-1.30	0.6-2.0	0.10-0.13	7.9-8.4	8-16	Moderate	0.49			
57--------------- Hunting	0-9	25-35	1.15-1.25	0.2-0.6	0.13-0.16	7.9-8.4	2-8	Moderate	0.43	5	4L	1-2
	9-60	15-30	1.25-1.30	0.6-2.0	0.13-0.16	7.9-8.4	2-8	Low-------	0.49			
58--------------- Juva Variant	0-6	13-15	1.40-1.50	2.0-6.0	0.10-0.15	7.9-9.0	<2	Low-------	0.37	5	3	.5-1
	6-60	13-18	1.30-1.40	2.0-6.0	0.10-0.15	7.9-9.0	<8	Low-------	0.49			
59, 60----------- Killpack	0-9	27-35	1.15-1.20	0.2-0.6	0.15-0.19	7.4-8.4	2-8	Moderate	0.43	2	4L	.5-1
	9-29	27-35	1.10-1.15	0.06-0.2	0.15-0.19	7.4-8.4	2-8	Moderate	0.43			
	29	---	---	---	---	---	---	---------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
61---------------- Libbings	0-9	27-35	1.20-1.25	0.06-0.2	0.04-0.06	7.9-9.0	>16	Moderate	0.43	1	4L	1-2
	9-34	40-45	1.20-1.25	0.06-0.2	0.04-0.06	7.9-9.0	>16	High------	0.43			
	34	---	---	---	---	---	---	----------	----			
62*:												
Midfork----------	0-7	18-27	1.25-1.30	0.6-2.0	0.12-0.14	6.6-7.8	<2	Moderate	0.10	1	8	5-10
	7-60	18-24	1.25-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low-------	0.10			
Comodore---------	0-6	10-16	1.20-1.30	0.6-2.0	0.11-0.13	7.4-7.8	<2	Low-------	0.15	1	8	3-5
	6-19	19-24	1.20-1.30	0.6-2.0	0.09-0.10	7.4-7.8	<2	Low-------	0.10			
	19	---	---	---	---	---	---	----------	----			
63*:												
Midfork----------	0-7	18-27	1.25-1.30	0.6-2.0	0.12-0.14	6.6-7.8	<2	Moderate	0.10	1	8	5-10
	7-60	18-24	1.25-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low-------	0.10			
Podo-------------	0-5	15-24	1.15-1.25	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low-------	0.15	1	8	1-3
	5-11	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low-------	0.17			
	11	---	---	---	---	---	---	----------	----			
64---------------- Minchey	0-3	20-35	1.30-1.35	0.6-2.0	0.16-0.18	7.9-8.4	<4	Low-------	0.37	3	4L	.5-1
	3-32	30-35	1.30-1.35	0.6-2.0	0.17-0.19	7.9-8.4	<4	Moderate	0.32			
	32-48	10-15	1.40-1.45	2.0-6.0	0.07-0.09	7.9-8.4	<4	Low-------	0.15			
	48-60	10-15	1.40-1.45	2.0-6.0	0.06-0.08	7.9-8.4	<4	Low-------	0.10			
65---------------- Mivida	0-3	8-12	1.35-1.40	2.0-6.0	0.15-0.17	7.9-8.4	<2	Low-------	0.49	5	3	1-2
	3-45	13-17	1.35-1.40	2.0-6.0	0.12-0.13	7.9-9.0	<2	Low-------	0.43			
	45-60	10-13	1.35-1.40	2.0-6.0	0.06-0.08	8.5-9.0	<2	Low-------	0.15			
66---------------- Mivida	0-4	13-16	1.35-1.40	2.0-6.0	0.08-0.10	7.9-8.4	<2	Low-------	0.24	5	3	1-2
	4-44	13-17	1.35-1.40	2.0-6.0	0.12-0.13	7.9-9.0	<2	Low-------	0.43			
	44-60	10-13	1.35-1.40	2.0-6.0	0.06-0.08	8.5-9.0	<2	Low-------	0.15			
67---------------- Mivida	0-4	8-12	1.35-1.40	2.0-20	0.06-0.08	7.9-8.4	<2	Low-------	0.15	5	8	1-2
	4-47	13-17	1.35-1.40	2.0-6.0	0.12-0.13	7.9-9.0	<2	Low-------	0.43			
	47-60	10-13	1.35-1.40	2.0-6.0	0.06-0.08	8.5-9.0	<2	Low-------	0.15			
68---------------- Moffat	0-2	6-12	1.45-1.55	2.0-6.0	0.11-0.13	7.9-8.4	<2	Low-------	0.24	5	3	<1
	2-60	7-18	1.30-1.45	2.0-6.0	0.11-0.14	7.9-9.0	<2	Low-------	0.24			
69*:												
Moffat-----------	0-2	6-12	1.45-1.55	2.0-6.0	0.11-0.13	7.9-8.4	<2	Low-------	0.24	5	3	<1
	2-60	7-18	1.30-1.45	2.0-6.0	0.11-0.14	7.9-9.0	<2	Low-------	0.24			
Persayo----------	0-4	27-35	1.20-1.30	0.2-0.6	0.09-0.11	8.5-9.0	<8	Low-------	0.10	1	8	.5-1
	4-11	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	11	---	---	---	---	---	---	----------	----			
70*:												
Nelman-----------	0-4	8-15	1.25-1.30	2.0-6.0	0.09-0.11	7.9-9.0	<2	Low-------	0.15	2	8	1-3
	4-27	10-15	1.35-1.40	2.0-6.0	0.11-0.13	7.9-9.0	<2	Low-------	0.37			
	27	---	---	---	---	---	---	----------	----			
Travessilla------	0-3	10-16	1.30-1.40	2.0-6.0	0.11-0.15	7.4-7.8	<2	Low-------	0.20	2	3	1-2
	3-17	13-18	1.30-1.40	0.6-6.0	0.13-0.16	7.4-8.4	<2	Low-------	0.37			
	17	---	---	---	---	---	---	----------	----			
Rock outcrop.												
71---------------- Pathead	0-4	13-21	1.20-1.35	0.6-6.0	0.04-0.06	7.9-8.4	<2	Low-------	0.05	1	8	1-3
	4-38	18-27	1.35-1.45	0.6-2.0	0.05-0.08	7.9-9.0	<2	Low-------	0.10			
	38	---	---	---	---	---	---	----------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
72*:												
Pathead---------	0-3	13-21	1.20-1.35	0.6-6.0	0.04-0.06	7.9-8.4	<2	Low-------	0.05	1	8	1-3
	3-26	18-27	1.35-1.45	0.6-2.0	0.05-0.08	7.9-9.0	<2	Low-------	0.10			
	26	---	---	---	---	---	---	----------	----			
Curecanti-------	0-7	15-18	1.25-1.30	0.6-2.0	0.14-0.16	6.6-7.3	<2	Low-------	0.28	1	5	3-5
	7-60	18-27	1.25-1.30	0.6-2.0	0.08-0.10	6.1-7.3	<2	Low-------	0.10			
73, 74-----------	0-9	16-18	1.15-1.20	0.6-2.0	0.13-0.17	7.9-8.4	<2	Low-------	0.43	5	4L	1-2
Penoyer Variant	9-60	13-18	1.15-1.20	0.6-2.0	0.18-0.20	7.9-8.4	<2	Low-------	0.49			
75*--------------	0-7	5-10	1.30-1.35	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low-------	0.10	5	8	3-5
Perma	7-35	13-18	1.30-1.35	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low-------	0.10			
	35-60	13-18	1.30-1.35	2.0-6.0	0.05-0.07	6.6-7.3	<2	Low-------	0.10			
76*:												
Perma-----------	0-7	5-10	1.30-1.35	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low-------	0.10	5	8	3-5
	7-35	13-18	1.30-1.35	2.0-6.0	0.06-0.08	6.6-7.3	<2	Low-------	0.10			
	35-60	13-18	1.30-1.35	2.0-6.0	0.05-0.07	6.6-7.3	<2	Low-------	0.10			
Datino----------	0-9	12-18	1.25-1.35	0.6-2.0	0.06-0.09	7.4-7.8	<2	Low-------	0.02	1	8	3-5
	9-16	18-26	1.20-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low-------	----			
	16-60	16-25	1.30-1.40	2.0-6.0	0.06-0.10	7.4-8.4	<2	Low-------	----			
77---------------	0-5	18-27	1.20-1.30	0.6-2.0	0.15-0.17	8.5-9.0	<8	Moderate	0.37	1	4L	.5-1
Persayo	5-12	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	12	---	---	---	---	---	---	----------	----			
78---------------	0-4	27-35	1.20-1.30	0.2-0.6	0.09-0.11	8.5-9.0	<8	Low-------	0.10	1	8	.5-1
Persayo	4-11	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	11	---	---	---	---	---	---	----------	----			
79*:												
Persayo---------	0-5	18-27	1.20-1.30	0.6-2.0	0.15-0.17	8.5-9.0	<8	Moderate	0.37	1	4L	.5-1
	5-12	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	12	---	---	---	---	---	---	----------	----			
Persayo---------	0-4	27-35	1.20-1.30	0.2-0.6	0.09-0.11	8.5-9.0	<8	Low-------	0.10	1	8	.5-1
	4-11	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	11	---	---	---	---	---	---	----------	----			
Badland.												
80*:												
Persayo---------	0-3	18-27	1.20-1.30	0.6-2.0	0.15-0.17	8.5-9.0	<8	Moderate	0.37	1	4L	.5-1
	3-12	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	12	---	---	---	---	---	---	----------	----			
Chipeta---------	0-5	28-47	1.15-1.25	0.06-0.2	0.11-0.16	7.4-8.4	8-16	Moderate	0.43	1	4L	<2
	5-17	35-45	1.15-1.25	0.06-0.2	0.11-0.16	7.4-9.0	8-16	Moderate	0.43			
	17	---	---	---	---	---	---	----------	----			
81*:												
Persayo---------	0-2	20-27	1.20-1.30	0.6-2.0	0.08-0.10	8.5-9.0	<8	Low-------	0.10	1	8	.5-1
	2-11	20-30	1.10-1.20	0.2-0.6	0.16-0.18	8.5-9.0	<8	Moderate	0.49			
	11	---	---	---	---	---	---	----------	----			
Greybull--------	0-3	19-22	1.20-1.30	0.6-2.0	0.14-0.17	7.9-8.4	<2	Low-------	0.37	3	4L	.5-1
	3-34	19-24	1.20-1.30	0.6-2.0	0.14-0.17	7.9-9.0	<2	Low-------	0.43			
	34	---	---	---	---	---	---	----------	----			
82---------------	0-2	15-24	1.15-1.25	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low-------	0.15	1	8	1-3
Podo	2-11	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low-------	0.17			
	11	---	---	---	---	---	---	----------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
83*:												
Podo------------	0-2	15-24	1.15-1.25	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low--------	0.15	1	8	1-3
	2-11	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low--------	0.17			
	11	---	---	---	---	---	---	-----------	-----			
Cabba-----------	0-2	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low--------	0.17	1	8	1-3
	2-13	18-35	1.25-1.35	0.6-2.0	0.12-0.18	7.4-8.4	<2	Low--------	0.43			
	13	---	---	---	---	---	---	-----------	-----			
84*:												
Podo------------	0-5	12-22	1.15-1.25	2.0-6.0	0.06-0.10	7.9-8.4	<2	Low--------	0.10	1	8	1-3
	5-12	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low--------	0.17			
	12	---	---	---	---	---	---	-----------	-----			
Rock outcrop.												
85--------------- Rabbitex	0-10	17-25	1.10-1.20	0.2-0.6	0.16-0.18	7.9-8.4	<2	Low--------	0.28	5	5	3-5
	10-44	18-25	1.30-1.40	0.6-2.0	0.11-0.14	7.9-9.0	<2	Low--------	0.20			
	44-59	18-25	1.30-1.40	0.6-2.0	0.11-0.18	7.9-9.0	<2	Low--------	0.37			
	59	---	---	---	---	---	---	-----------	-----			
86*:												
Rabbitex--------	0-11	17-25	1.20-1.30	0.6-2.0	0.11-0.14	7.9-8.4	<2	Low--------	0.15	5	8	3-5
	11-43	18-25	1.30-1.40	0.6-2.0	0.11-0.14	7.9-9.0	<2	Low--------	0.20			
	43	---	---	---	---	---	---	-----------	-----			
Doney-----------	0-4	15-17	1.20-1.30	0.6-2.0	0.12-0.14	7.9-8.4	<2	Low--------	0.20	2	8	1-3
	4-35	22-24	1.20-1.30	0.6-2.0	0.14-0.16	8.5-9.0	<2	Low--------	0.37			
	35	---	---	---	---	---	---	-----------	-----			
Midfork---------	0-7	18-27	1.25-1.30	0.6-2.0	0.12-0.14	6.6-7.8	<2	Moderate	0.10	1	8	5-10
	7-60	18-24	1.25-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low--------	0.10			
87*:												
Rabbitex--------	0-5	17-25	1.20-1.30	0.6-2.0	0.13-0.19	7.9-8.4	<2	Low--------	0.24	5	4L	3-5
	5-37	18-25	1.30-1.40	0.6-2.0	0.11-0.14	7.9-9.0	<2	Low--------	0.20			
	37-59	18-25	1.30-1.40	0.6-2.0	0.11-0.18	7.9-9.0	<2	Low--------	0.37			
	59	---	---	---	---	---	---	-----------	-----			
Pathead---------	0-4	18-25	1.20-1.30	0.6-2.0	0.12-0.14	7.9-8.4	<2	Low--------	0.17	1	8	1-3
	4-39	18-27	1.35-1.45	0.6-2.0	0.05-0.08	7.9-9.0	<2	Low--------	0.10			
	39	---	---	---	---	---	---	-----------	-----			
88*:												
Rabbitex--------	0-4	18-27	1.20-1.30	0.6-2.0	0.11-0.14	7.9-8.4	<2	Low--------	0.15	5	8	3-5
	4-45	18-27	1.25-1.30	0.6-2.0	0.13-0.15	7.9-9.0	<2	Low--------	0.20			
	45	---	---	---	---	---	---	-----------	-----			
Datino Variant--	0-4	15-20	1.25-1.35	0.6-6.0	0.06-0.09	7.4-7.8	<2	Low--------	0.02	1	8	3-5
	4-22	18-26	1.20-1.30	0.6-2.0	0.09-0.11	7.4-8.4	<2	Low--------	0.05			
	22-60	16-25	1.30-1.45	0.6-6.0	0.06-0.10	7.4-8.4	<2	Low--------	0.05			
89--------------- Rafael	0-3	28-35	1.20-1.25	0.06-0.2	0.11-0.17	7.4-8.4	4-16	Moderate	0.28	2	8	3-5
	3-60	20-35	1.25-1.30	0.06-0.2	0.11-0.17	7.4-8.4	4-16	Moderate	0.49			
90--------------- Ravola	0-6	15-25	1.30-1.35	0.6-2.0	0.13-0.17	7.4-8.4	2-8	Low--------	0.49	5	4L	1-3
	6-60	18-25	1.25-1.30	0.6-2.0	0.13-0.17	7.4-9.0	2-8	Low--------	0.49			
91--------------- Ravola	0-2	15-25	1.30-1.35	0.6-2.0	0.13-0.17	7.4-8.4	2-8	Low--------	0.49	5	4L	1-3
	2-60	18-25	1.25-1.30	0.6-2.0	0.13-0.17	7.4-9.0	2-8	Low--------	0.49			
92*:												
Ravola----------	0-2	15-25	1.30-1.35	0.6-2.0	0.13-0.17	7.4-8.4	2-8	Low--------	0.49	5	4L	1-3
	2-60	18-25	1.25-1.30	0.6-2.0	0.13-0.17	7.4-9.0	2-8	Low--------	0.49			
Gullied land.												

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
93*:												
Ravola----------	0-8	15-25	1.30-1.35	0.6-2.0	0.13-0.17	7.4-8.4	2-8	Low-------	0.49	5	4L	1-3
	8-60	18-25	1.25-1.30	0.6-2.0	0.13-0.17	7.4-9.0	2-8	Low-------	0.49			
Slickspots.												
94*. Riverwash												
95*. Rock outcrop												
96*:												
Rock outcrop.												
Rubbleland.												
Travessilla-----	0-3	12-18	1.30-1.40	2.0-6.0	0.06-0.08	7.4-7.8	<2	Low-------	0.10	2	8	1-2
	3-17	13-18	1.30-1.40	0.6-6.0	0.13-0.16	7.4-8.4	<2	Low-------	0.37			
	17	---	---	---	---	---	---	----------	----			
97*:												
Rottulee--------	0-2	17-23	1.20-1.30	0.6-2.0	0.15-0.17	7.9-8.4	<2	Low-------	0.20	2	4L	3-5
	2-15	24-30	1.20-1.30	0.6-2.0	0.16-0.18	7.9-8.4	<2	Moderate	0.24			
	15-34	26-32	1.10-1.20	0.6-2.0	0.14-0.16	8.5-9.0	<2	Moderate	0.20			
	34	---	---	---	---	---	---	----------	----			
Trag------------	0-10	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low-------	0.17	1	8	3-5
	10-60	24-35	1.30-1.45	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
98--------------- Sagers	0-7	27-30	1.15-1.25	0.2-0.6	0.16-0.18	7.4-9.0	2-8	Moderate	0.43	5	6	<1
	7-60	27-35	1.15-1.25	0.2-0.6	0.15-0.18	7.9-9.0	2-8	Moderate	0.43			
99--------------- Saltair	0-7	25-40	1.20-1.25	0.2-0.6	0.01-0.08	7.9-9.0	>16	Low-------	0.49	5	4L	1-3
	7-60	25-35	1.20-1.25	0.06-0.2	0.01-0.08	7.9-9.0	>16	Moderate	0.49			
100, 101--------- Senchert	0-4	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low-------	0.24	3	5	5-10
	4-16	18-27	1.25-1.35	0.6-2.0	0.14-0.16	6.6-7.8	<2	Low-------	0.37			
	16-35	24-35	1.30-1.50	0.6-2.0	0.15-0.18	6.6-7.8	<2	Moderate	0.37			
	35	---	---	---	---	---	---	----------	----			
102*:												
Senchert--------	0-3	10-20	1.25-1.40	0.6-2.0	0.10-0.13	6.6-7.3	<2	Low-------	0.28	3	3	5-10
	3-21	18-27	1.25-1.35	0.6-2.0	0.14-0.16	6.6-7.8	<2	Low-------	0.37			
	21	---	---	---	---	---	---	----------	----			
Senchert family-	0-11	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low-------	0.24	3	5	5-10
	11-23	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.8	<2	Low-------	0.24			
	23-35	28-35	1.25-1.35	0.2-0.6	0.15-0.20	6.6-7.8	<2	Moderate	0.32			
	35	---	---	---	---	---	---	----------	----			
103*:												
Senchert--------	0-4	14-20	1.25-1.35	0.6-2.0	0.16-0.19	6.6-7.3	<2	Low-------	0.24	3	5	5-10
	4-18	28-35	1.25-1.35	0.2-0.6	0.15-0.20	6.6-7.3	<2	Moderate	0.32			
	18-25	40-45	1.20-1.25	0.2-0.6	0.16-0.20	6.6-7.8	<2	High------	0.37			
	25	---	---	---	---	---	---	----------	----			
Toze------------	0-3	18-25	1.20-1.30	0.6-2.0	0.14-0.20	7.9-8.4	<2	Moderate	0.24	5	4L	3-5
	3-33	18-27	1.25-1.35	0.6-2.0	0.12-0.20	7.4-8.4	<2	Moderate	0.24			
	33-60	15-20	1.40-1.50	2.0-6.0	0.08-0.10	7.9-8.4	<2	Low-------	0.10			
104*------------ Senchert	0-11	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low-------	0.24	3	5	5-10
	11-23	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.8	<2	Low-------	0.24			
	23-35	28-35	1.25-1.35	0.2-0.6	0.15-0.20	6.6-7.8	<2	Moderate	0.32			
	35	---	---	---	---	---	---	----------	----			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
105*:												
Senchert family	0-8	10-20	1.25-1.40	0.6-2.0	0.14-0.16	6.6-7.3	<2	Low	0.32	3	3	5-10
	8-27	28-35	1.25-1.35	0.2-0.6	0.15-0.20	6.6-7.8	<2	Moderate	0.32			
	27	---	---	---	---	---	---	---	---			
Senchert	0-4	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low	0.24	3	5	5-10
	4-16	18-27	1.25-1.35	0.6-2.0	0.14-0.16	6.6-7.8	<2	Low	0.37			
	16-35	24-35	1.30-1.50	0.6-2.0	0.15-0.18	6.6-7.8	<2	Moderate	0.37			
	35	---	---	---	---	---	---	---	---			
106*:												
Sheepcan	0-9	23-25	1.35-1.45	0.2-0.6	0.11-0.13	7.9-8.4	<2	Low	0.15	5	8	1-3
	9-28	28-35	1.30-1.40	0.2-0.6	0.12-0.14	8.5-9.0	<2	Moderate	0.17			
	28-60	28-35	1.30-1.40	0.2-0.6	0.09-0.11	7.9-9.0	<2	Low	0.10			
Podo	0-1	15-24	1.15-1.25	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low	0.15	1	8	1-3
	1-8	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low	0.17			
	8	---	---	---	---	---	---	---	---			
Rock outcrop.												
107*:												
Shupert	0-3	15-20	1.20-1.30	0.6-2.0	0.11-0.13	7.9-8.4	<2	Low	0.24	5	8	1-2
	3-60	20-30	1.20-1.30	0.2-0.6	0.17-0.19	7.9-8.4	<2	Moderate	0.49			
Winetti	0-6	8-13	1.30-1.40	2.0-6.0	0.06-0.08	7.4-7.8	<2	Low	0.15	2	8	1-3
	6-11	10-17	1.20-1.30	2.0-6.0	0.15-0.17	7.9-8.4	<2	Low	0.37			
	11-34	10-17	1.20-1.30	2.0-6.0	0.08-0.10	7.9-8.4	<2	Low	0.10			
	34-60	10-16	1.30-1.40	2.0-6.0	0.05-0.07	7.9-8.4	<2	Low	0.10			
108 Silas	0-28	20-25	1.20-1.25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low	0.32	5	6	5-10
	28-60	18-25	1.20-1.25	0.6-2.0	0.16-0.18	6.6-7.3	<2	Low	----			
109*:												
Silas	0-28	20-25	1.20-1.25	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low	0.32	5	6	5-10
	28-60	18-25	1.20-1.25	0.6-2.0	0.16-0.18	6.6-7.3	<2	Low	----			
Brycan	0-12	18-27	1.20-1.30	0.6-2.0	0.15-0.17	7.4-8.4	<2	Moderate	0.28	5	5	2-4
	12-32	18-27	1.30-1.40	0.6-2.0	0.14-0.16	7.4-8.4	<2	Moderate	0.32			
	32-60	18-27	1.30-1.40	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.49			
110 Stormitt	0-1	20-27	1.30-1.40	0.6-2.0	0.12-0.15	7.4-7.8	<2	Low	0.15	2	8	1-3
	1-9	20-27	1.30-1.40	0.6-2.0	0.12-0.15	7.4-8.4	<2	Low	0.15			
	9-60	20-27	1.30-1.40	0.6-2.0	0.08-0.11	7.9-9.0	<2	Low	0.10			
111*:												
Stormitt	0-1	20-27	1.30-1.40	0.6-2.0	0.12-0.15	7.4-7.8	<2	Low	0.15	2	8	1-3
	1-9	20-27	1.30-1.40	0.6-2.0	0.12-0.15	7.4-8.4	<2	Low	0.15			
	9-60	20-27	1.30-1.40	0.6-2.0	0.08-0.11	7.9-9.0	<2	Low	0.10			
Minchey	0-3	20-35	1.30-1.35	0.6-2.0	0.16-0.18	7.9-8.4	<4	Low	0.37	3	4L	.5-1
	3-32	30-35	1.30-1.35	0.6-2.0	0.17-0.19	7.9-8.4	<4	Moderate	0.32			
	32-48	10-15	1.40-1.45	2.0-6.0	0.07-0.09	7.9-8.4	<4	Low	0.15			
	48-60	10-15	1.40-1.45	2.0-6.0	0.06-0.08	7.9-8.4	<4	Low	0.10			
112 Strych	0-3	9-14	1.35-1.45	2.0-6.0	0.08-0.10	7.4-8.4	<2	Low	0.20	2	8	.5-3
	3-60	14-18	1.45-1.60	2.0-6.0	0.06-0.11	7.9-9.0	<2	Low	0.20			
113 Strych	0-5	9-14	1.35-1.45	2.0-6.0	0.08-0.10	7.4-8.4	<2	Low	0.20	2	8	.5-3
	5-47	14-18	1.40-1.65	6.0-20	0.09-0.16	7.9-9.0	<2	Low	0.17			
114 Strych	0-3	9-14	1.35-1.45	2.0-6.0	0.08-0.10	7.4-8.4	<2	Low	0.20	2	8	.5-3
	3-60	14-18	1.45-1.60	2.0-6.0	0.06-0.11	7.9-9.0	<2	Low	0.20			
115 Trag	0-10	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low	0.17	1	8	3-5
	10-60	24-35	1.30-1.45	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.43			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
116*:												
Trag	0-5	11-24	1.30-1.45	0.6-6.0	0.12-0.17	7.4-7.8	<2	Moderate	0.24	4	3	3-5
	5-60	24-35	1.30-1.45	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
Beje	0-6	24-27	1.20-1.30	0.6-2.0	0.15-0.17	6.6-8.4	<2	Moderate	0.28	1	6	3-5
	6-14	18-35	1.30-1.40	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.37			
	14	---	---	---	---	---	---	---	---			
Rottulee	0-2	17-23	1.20-1.30	0.6-2.0	0.15-0.17	7.9-8.4	<2	Low	0.20	2	4L	3-5
	2-15	24-30	1.20-1.30	0.6-2.0	0.16-0.18	7.9-8.4	<2	Moderate	0.24			
	15-34	26-32	1.10-1.20	0.6-2.0	0.14-0.16	8.5-9.0	<2	Moderate	0.20			
	34	---	---	---	---	---	---	---	---			
117*:												
Trag	0-5	28-35	1.25-1.35	0.6-2.0	0.18-0.20	7.4-7.8	<2	Moderate	0.32	3	6	3-5
	5-60	24-35	1.30-1.45	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
Beje	0-6	24-27	1.20-1.30	0.6-2.0	0.15-0.17	6.6-8.4	<2	Moderate	0.28	1	6	3-5
	6-14	18-35	1.30-1.40	0.6-2.0	0.16-0.19	7.4-8.4	<2	Moderate	0.37			
	14	---	---	---	---	---	---	---	---			
Senchert	0-4	18-27	1.25-1.35	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low	0.24	3	5	5-10
	4-16	18-27	1.25-1.35	0.6-2.0	0.14-0.16	6.6-7.8	<2	Low	0.37			
	16-35	24-35	1.30-1.50	0.6-2.0	0.15-0.18	6.6-7.8	<2	Moderate	0.37			
	35	---	---	---	---	---	---	---	---			
118*:												
Trag	0-10	20-25	1.20-1.30	0.6-2.0	0.12-0.13	7.4-7.8	<2	Low	0.17	1	8	3-5
	10-60	24-35	1.30-1.45	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
Croydon	0-23	18-27	1.30-1.40	0.6-2.0	0.13-0.18	5.6-6.5	<2	Moderate	0.24	3	5	5-10
	23-48	27-35	1.40-1.50	0.2-0.6	0.16-0.18	6.1-6.5	<2	Moderate	0.32			
	48	---	---	---	---	---	---	---	---			
119 Travessilla	0-3	10-16	1.30-1.40	2.0-6.0	0.11-0.15	7.4-7.8	<2	Low	0.20	2	3	1-2
	3-17	13-18	1.30-1.40	0.6-6.0	0.13-0.16	7.4-8.4	<2	Low	0.37			
	17	---	---	---	---	---	---	---	---			
120*:												
Travessilla	0-2	3-13	1.45-1.60	2.0-6.0	0.09-0.13	7.4-8.4	<2	Low	0.28	2	3	.5-1
	2-10	8-18	1.30-1.45	0.6-6.0	0.12-0.16	7.4-9.0	<2	Low	0.32			
	10	---	---	---	---	---	---	---	---			
Rock outcrop.												
121*:												
Travessilla	0-2	15-18	1.15-1.25	0.6-2.0	0.06-0.08	7.9-8.4	<2	Low	0.05	2	8	1-2
	2-12	13-18	1.30-1.40	0.6-6.0	0.13-0.16	7.4-8.4	<2	Low	0.37			
	12	---	---	---	---	---	---	---	---			
Rock outcrop.												
Gerst	0-5	15-27	1.30-1.40	0.2-0.6	0.08-0.14	7.9-9.0	<2	Low	0.24	1	8	<1
	5-19	18-35	1.30-1.40	0.2-0.6	0.11-0.14	7.9-9.0	<2	Moderate	0.24			
	19	---	---	---	---	---	---	---	---			
122*:												
Travessilla	0-2	3-13	1.45-1.60	2.0-6.0	0.09-0.13	7.4-8.4	<2	Low	0.28	2	3	.5-1
	2-10	8-18	1.30-1.45	0.6-6.0	0.12-0.16	7.4-9.0	<2	Low	0.32			
	10	---	---	---	---	---	---	---	---			
Travessilla family	0-4	6-13	1.45-1.60	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low	0.15	2	8	.5-1
	4-13	8-18	1.35-1.45	2.0-6.0	0.09-0.12	7.4-8.4	<2	Low	0.24			
	13	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 12.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH	mmhos/cm					Pct
122*:												
Rock outcrop.												
123*------------- Travessilla	0-4	6-13	1.45-1.60	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low-------	0.15	2	8	.5-1
	4-13	8-18	1.35-1.45	2.0-6.0	0.09-0.12	7.4-8.4	<2	Low-------	0.24			
	13	---	---	---	---	---	---	----------	----			
124*:												
Uinta-----------	0-3	18-22	1.15-1.25	0.6-2.0	0.15-0.17	6.6-7.3	<2	Low-------	0.24	4	5	5-10
	3-11	7-15	1.30-1.40	2.0-6.0	0.08-0.09	6.6-7.3	<2	Low-------	0.15			
	11-42	30-35	1.40-1.50	0.2-0.6	0.12-0.15	6.6-7.8	<2	Low-------	0.10			
	42	---	---	---	---	---	---	----------	----			
Podo------------	0-5	15-24	1.15-1.25	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low-------	0.15	1	8	1-3
	5-11	13-27	1.35-1.45	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low-------	0.17			
	11	---	---	---	---	---	---	----------	----			
125*:												
Uinta-----------	0-3	18-22	1.15-1.25	0.6-2.0	0.15-0.17	6.6-7.3	<2	Low-------	0.24	4	5	5-10
	3-11	7-15	1.30-1.40	2.0-6.0	0.08-0.09	6.6-7.3	<2	Low-------	0.15			
	11-42	30-35	1.40-1.50	0.2-0.6	0.12-0.15	6.6-7.8	<2	Low-------	0.10			
	42	---	---	---	---	---	---	----------	----			
Toze------------	0-3	12-18	1.25-1.35	2.0-6.0	0.10-0.14	7.4-7.8	<2	Low-------	0.15	5	3	5-10
	3-32	18-27	1.25-1.35	0.6-2.0	0.12-0.20	7.4-8.4	<2	Moderate	0.24			
	32-60	15-20	1.40-1.50	2.0-6.0	0.08-0.10	7.9-8.4	<2	Low-------	0.10			
126-------------- Winetti Variant	0-3	7-11	1.30-1.40	2.0-6.0	0.09-0.10	>9.0	<4	Low-------	0.20	1	8	1-3
	3-18	1-5	1.45-1.55	2.0-6.0	0.06-0.10	>9.0	<4	Low-------	0.28			
	18-53	2-6	1.50-1.60	>20	0.02-0.03	7.9-8.4	<4	Low-------	0.05			
	53-60	3-7	1.40-1.50	2.0-6.0	0.10-0.13	7.9-8.4	<4	Low-------	0.28			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
1 Atrac	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
2*. Badland													
3*:													
Badland.													
Rubbleland.													
Rock outcrop.													
4 Beje	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	High	Moderate.
5*:													
Beje	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	High	Moderate.
Beje	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	Moderate	Low.
6*:													
Beje	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	High	Moderate.
Comodore	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	Moderate	Low.
7*:													
Beje	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	High	Moderate.
Trag	C	None	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High	Moderate.
8 Billings	C	None	---	>6.0	---	---	>60	---	---	---	High	High	High.
9*:													
Billings	C	None	---	>6.0	---	---	>60	---	---	---	High	High	High.
Gullied land.													

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hardness	Cemented pan: Depth	Cemented pan: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
				Ft			In		In				
10*, 11*----------- Cabba	D	None--------	---	>6.0	---	---	8-20	Soft	---	---	Moderate	High-----	Moderate.
12*:													
Cabba------------	D	None--------	---	>6.0	---	---	8-20	Soft	---	---	Moderate	High-----	Moderate.
Badland.													
Rock outcrop.													
13*:													
Cabba------------	D	None--------	---	>6.0	---	---	8-20	Soft	---	---	Moderate	High-----	Moderate.
Guben------------	B	None--------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Rock outcrop.													
14*, 15*:													
Casmos-----------	D	None--------	---	>6.0	---	---	5-20	Hard	---	---	Low------	High-----	Moderate.
Rock outcrop.													
16---------------- Chipeta	D	None--------	---	>6.0	---	---	5-20	Soft	---	---	Low------	High-----	High.
17*:													
Chipeta----------	D	None--------	---	>6.0	---	---	5-20	Soft	---	---	Low------	High-----	High.
Badland.													
18*:													
Chipeta----------	D	None--------	---	>6.0	---	---	5-20	Soft	---	---	Low------	High-----	High.
Persayo----------	D	None--------	---	>6.0	---	---	10-20	Soft	---	---	Low------	High-----	Moderate.
19---------------- Chupadera	C	None--------	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High-----	Moderate.
20*:													
Comodore---------	D	None--------	---	>6.0	---	---	10-20	Hard	---	---	Moderate	Moderate	Low.
Datino Variant---	B	None--------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
21, 22------------ Croydon	B	None--------	---	>6.0	---	---	40-60	Soft	---	---	Moderate	Moderate	Moderate.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
23*:													
Curecanti	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.
Pathead	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High	Moderate.
Pathead	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High	Moderate.
24 Datino Variant	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
25*, 26* Doney	C	None	---	>6.0	---	---	20-40	Soft	---	---	Moderate	High	Moderate.
27*:													
Doney	C	None	---	>6.0	---	---	20-40	Soft	---	---	Moderate	High	Moderate.
Podo	D	None	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
28*:													
Doney	C	None	---	>6.0	---	---	20-40	Soft	---	---	Moderate	High	Moderate.
Toze	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.
29*. Dumps													
30*:													
Falcon	D	None	---	>6.0	---	---	10-20	Hard	---	---	Low	Moderate	Low.
Rock outcrop.													
31 Ferron	D	None	---	1.0-2.5	Apparent	Jan-Dec	>60	---	---	---	High	High	High.
32*:													
Frandsen	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
Gullied land.													
33*, 34*:													
Gerst	D	None	---	>6.0	---	---	8-20	Soft	---	---	Moderate	High	Moderate.
Badland.													
Rubbleland.													

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
35*:													
Gerst------------	D	None---------	---	>6.0	---	---	6-20	Soft	---	---	Moderate	High-----	Moderate.
Badland.													
Stormitt---------	B	None---------	---	>6.0	---	---	>60	---	---	---	Low------	High-----	Moderate.
36*, 37*:													
Gerst------------	D	None---------	---	>6.0	---	---	8-20	Soft	---	---	Moderate	High-----	Moderate.
Strych-----------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Badland.													
38*:													
Gerst------------	D	None---------	---	>6.0	---	---	6-20	Soft	---	---	Moderate	High-----	Moderate.
Travessilla------	D	None---------	---	>6.0	---	---	4-20	Hard	---	---	Moderate	High-----	Moderate.
39*---------------- Glenberg	B	Rare---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
40*---------------- Glenberg	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
41*:													
Green River------	C	Occasional	May-Aug	2.0-3.0	Apparent	Jan-Dec	>60	---	---	---	Moderate	High-----	High.
Juva Variant-----	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Low.
42----------------- Greybull	C	None---------	---	>6.0	---	---	20-40	Soft	---	---	Low------	High-----	High.
43*:													
Grobutte---------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Cabba------------	D	None---------	---	>6.0	---	---	10-20	Soft	---	---	Moderate	High-----	Moderate.
44*, 45*:													
Guben------------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Doney------------	C	None---------	---	>6.0	---	---	20-40	Soft	---	---	Moderate	High-----	Moderate.
Datino Variant---	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
46*:													
Guben------------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Pathead----------	C	None---------	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High-----	Moderate.
47*:													
Guben------------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Rock outcrop.													
48---------------- Haverdad	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Low.
49---------------- Haverdad	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
50---------------- Haverdad	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Low.
51*, 52*, 53*----- Hernandez	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
54*:													
Hernandez--------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
Atrac------------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
55---------------- Hunting	C	None---------	---	2.5-5.0	Apparent	Jan-Dec	>60	---	---	---	High-----	High-----	High.
56---------------- Hunting	C	None---------	---	2.0-3.5	Apparent	Jan-Dec	>60	---	---	---	High-----	High-----	High.
57---------------- Hunting	C	None---------	---	2.5-5.0	Apparent	Jan-Dec	>60	---	---	---	High-----	High-----	High.
58---------------- Juva Variant	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Low.
59, 60------------ Killpack	C	None---------	---	>6.0	---	---	20-40	Soft	---	---	High-----	High-----	High.
61---------------- Libbings	D	None---------	---	1.5-2.5	Perched	Jan-Dec	20-40	Soft	---	---	High-----	High-----	High.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hardness		Uncoated steel	Concrete
				Ft			In		In				
62*:													
Midfork	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Low.
Comodore	D	None	---	>6.0	---	---	10-20	Hard	---	---	Moderate	Moderate	Low.
63*:													
Midfork	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Low.
Podo	D	None	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
64 Minchey	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
65, 66, 67 Mivida	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
68 Moffat	B	None	---	>6.0	---	---	>60	---	---	---	Low	High	Moderate.
69*:													
Moffat	B	None	---	>6.0	---	---	>60	---	---	---	Low	High	Moderate.
Persayo	D	None	---	>6.0	---	---	10-20	Soft	---	---	Low	High	Moderate.
70*:													
Nelman	C	None	---	>6.0	---	---	20-40	Hard	---	---	Low	High	Moderate.
Travessilla	D	None	---	>6.0	---	---	7-20	Hard	---	---	Moderate	High	Low.
Rock outcrop.													
71 Pathead	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High	Moderate.
72*:													
Pathead	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High	Moderate.
Curecanti	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.
73, 74 Penoyer Variant	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Low.
75* Perma	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hardness	Cemented pan: Depth	Cemented pan: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
				Ft			In		In				
76*:													
Perma	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.
Datino	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
77, 78 Persayo	D	None	---	>6.0	---	---	10-20	Soft	---	---	Low	High	Moderate.
79*:													
Persayo	D	None	---	>6.0	---	---	10-20	Soft	---	---	Low	High	Moderate.
Persayo	D	None	---	>6.0	---	---	10-20	Soft	---	---	Low	High	Moderate.
Badland.													
80*:													
Persayo	D	None	---	>6.0	---	---	10-20	Soft	---	---	Low	High	Moderate.
Chipeta	D	None	---	>6.0	---	---	5-20	Soft	---	---	Low	High	High.
81*:													
Persayo	D	None	---	>6.0	---	---	10-20	Soft	---	---	Low	High	Moderate.
Greybull	C	None	---	>6.0	---	---	20-40	Soft	---	---	Low	High	High.
82 Podo	D	None	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
83*:													
Podo	D	None	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
Cabba	D	None	---	>6.0	---	---	10-20	Soft	---	---	Moderate	High	Moderate.
84*:													
Podo	D	None	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.													
85 Rabbitex	B	None	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High	Moderate.
86*:													
Rabbitex	B	None	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High	Moderate.
Doney	C	None	---	>6.0	---	---	20-40	Soft	---	---	Moderate	High	Moderate.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
86*:													
Midfork----------	B	None--------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Low.
87*:													
Rabbitex---------	B	None--------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High-----	Moderate.
Pathead----------	C	None--------	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High-----	Moderate.
88*:													
Rabbitex---------	B	None--------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High-----	Moderate.
Datino Variant---	B	None--------	---	>6.0	---	---	>60	---	---	---	Moderate	High-----	Moderate.
89--------------- Rafael	D	None--------	---	0-2.0	Apparent	Jan-Dec	>60	---	---	---	High-----	High-----	High.
90, 91----------- Ravola	B	None--------	---	>6.0	---	---	>60	---	---	---	High-----	High-----	High.
92*:													
Ravola-----------	B	None--------	---	>6.0	---	---	>60	---	---	---	High-----	High-----	High.
Gullied land.													
93*:													
Ravola-----------	B	None--------	---	>6.0	---	---	>60	---	---	---	High-----	High-----	High.
Slickspots.													
94*. Riverwash													
95*. Rock outcrop													
96*:													
Rock outcrop.													
Rubbleland.													
Travessilla------	D	None--------	---	>6.0	---	---	7-20	Hard	---	---	Moderate	High-----	Low.
97*:													
Rottulee---------	C	None--------	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High-----	Moderate.
Trag-------------	C	None--------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High-----	Moderate.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Bedrock: Depth	Bedrock: Hardness	Cemented pan: Depth	Cemented pan: Hardness	Potential frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
				Ft			In		In				
98 Sagers	B	None	---	>6.0	---	---	>60	---	---	---	Low	High	Moderate.
99 Saltair	D	None	---	3.5-5.0	Apparent	Mar-Oct	>60	---	---	---	High	High	High.
100, 101 Senchert	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
102*:													
Senchert	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
Senchert family	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
103*:													
Senchert	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
Toze	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.
104* Senchert	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
105*:													
Senchert family	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
Senchert	C	None	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
106*:													
Sheepcan	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
Podo	D	None	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
Rock outcrop.													
107*:													
Shupert	C	Rare	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
Winetti	B	Rare	---	>6.0	---	---	>60	---	---	---	Moderate	High	Moderate.
108 Silas	C	None	---	1.5-3.5	Apparent	May-Jul	>60	---	---	---	High	Moderate	Low.
109*:													
Silas	C	None	---	1.5-3.5	Apparent	May-Jul	>60	---	---	---	High	Moderate	Low.
Brycan	B	None	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
110--------------- Stormitt	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High------	Moderate.
111*:													
Stormitt----------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High------	Moderate.
Minchey-----------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High------	Moderate.
112, 113, 114----- Strych	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	High------	Moderate.
115--------------- Trag	C	None---------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High------	Moderate.
116*:													
Trag--------------	C	None---------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High------	Moderate.
Beje--------------	D	None---------	---	>6.0	---	---	10-20	Hard	---	---	Moderate	High------	Moderate.
Rottulee----------	C	None---------	---	>6.0	---	---	20-40	Hard	---	---	Moderate	High------	Moderate.
117*:													
Trag--------------	C	None---------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High------	Moderate.
Beje--------------	D	None---------	---	>6.0	---	---	10-20	Hard	---	---	Moderate	High------	Moderate.
Senchert----------	C	None---------	---	>6.0	---	---	20-40	Hard	---	---	Moderate	Moderate	Low.
118*:													
Trag--------------	C	None---------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	High------	Moderate.
Croydon-----------	B	None---------	---	>6.0	---	---	40-60	Soft	---	---	Moderate	Moderate	Moderate.
119--------------- Travessilla	D	None---------	---	>6.0	---	---	7-20	Hard	---	---	Moderate	High------	Low.
120*:													
Travessilla-------	D	None---------	---	>6.0	---	---	4-20	Hard	---	---	Moderate	High------	Moderate.
Rock outcrop.													
121*:													
Travessilla-------	D	None---------	---	>6.0	---	---	7-20	Hard	---	---	Moderate	High------	Low.
Rock outcrop.													

See footnote at end of table.

TABLE 13.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding		High water table			Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
		Frequency	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hard-ness		Uncoated steel	Concrete
				Ft			In		In				
121*:													
Gerst------------	D	None---------	---	>6.0	---	---	6-20	Soft	---	---	Moderate	High-----	Moderate.
122*:													
Travessilla------	D	None---------	---	>6.0	---	---	4-20	Hard	---	---	Moderate	High-----	Moderate.
Travessilla family----------	D	None---------	---	>6.0	---	---	7-20	Hard	---	---	Moderate	High-----	Moderate.
Rock outcrop.													
123*-------------- Travessilla	D	None---------	---	>6.0	---	---	7-20	Hard	---	---	Moderate	High-----	Moderate.
124*:													
Uinta------------	B	None---------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	Moderate	Low.
Podo-------------	D	None---------	---	>6.0	---	---	8-20	Hard	---	---	Moderate	Moderate	Low.
125*:													
Uinta------------	B	None---------	---	>6.0	---	---	40-60	Hard	---	---	Moderate	Moderate	Low.
Toze-------------	B	None---------	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate	Low.
126-------------- Winetti Variant	B	Rare---------	---	>6.0	---	---	>60	---	---	---	Low------	High-----	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Atrac	Fine-loamy, mixed, mesic Ustollic Camborthids
Beje	Loamy, mixed Lithic Argiborolls
Billings	Fine-silty, mixed (calcareous), mesic Typic Torrifluvents
Brycan	Fine-loamy, mixed Cumulic Haploborolls
Cabba family	Loamy, mixed (calcareous), frigid, shallow Typic Ustorthents
Casmos	Loamy, mixed (calcareous), mesic Lithic Torriorthents
Chipeta	Clayey, mixed (calcareous), mesic, shallow Typic Torriorthents
Chupadera	Coarse-loamy, mixed, mesic Ustollic Calciorthids
Comodore	Loamy-skeletal, mixed Lithic Haploborolls
Croydon	Fine-loamy, mixed Argic Cryoborolls
Curecanti family	Loamy-skeletal, mixed Typic Argiborolls
Datino	Loamy-skeletal, mixed Typic Haploborolls
Datino Variant	Loamy-skeletal, mixed Typic Haploborolls
Doney family	Fine-loamy, mixed, frigid Typic Ustochrepts
Falcon	Loamy, mixed Lithic Haploborolls
Ferron	Coarse-silty, mixed (calcareous), mesic Typic Fluvaquents
Frandsen	Fine-loamy, mixed (calcareous), frigid Typic Ustorthents
Gerst	Loamy, mixed (calcareous), mesic, shallow Ustic Torriorthents
Glenberg family	Coarse-loamy, mixed (calcareous), mesic Ustic Torrifluvents
Green River	Coarse-loamy, mixed (calcareous), mesic Aquic Ustifluvents
Greybull	Fine-loamy, mixed (calcareous), mesic Typic Torriorthents
Grobutte family	Loamy-skeletal, mixed (calcareous), frigid Ustic Torriorthents
Guben	Loamy-skeletal, mixed Typic Calciborolls
Haverdad	Fine-loamy, mixed (calcareous), mesic Ustic Torrifluvents
Hernandez family	Fine-loamy, mixed, mesic Ustollic Calciorthids
Hunting	Fine-silty, mixed (calcareous), mesic Aquic Ustifluvents
Juva Variant	Coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents
Killpack	Fine-silty, mixed (calcareous), mesic Typic Torriorthents
Libbings	Fine, mixed, mesic Typic Salorthids
Midfork family	Loamy-skeletal, mixed Typic Cryoborolls
Minchey	Fine-loamy, mixed, mesic Typic Calciorthids
Mivida	Coarse-loamy, mixed, mesic Ustollic Calciorthids
Moffat	Coarse-loamy, mixed, mesic Typic Calciorthids
Nelman	Coarse-loamy, mixed (calcareous), mesic Ustic Torriorthents
Pathead	Loamy-skeletal, mixed (calcareous), frigid Typic Ustorthents
Penoyer Variant	Coarse-silty, mixed (calcareous), mesic Typic Torriorthents
Perma family	Loamy-skeletal, mixed Typic Haploborolls
Persayo	Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents
Podo	Loamy, mixed (calcareous), frigid Lithic Ustorthents
Rabbitex	Fine-loamy, mixed Typic Calciborolls
Rabbitex family	Fine-loamy, mixed Typic Calciborolls
Rafael	Fine-silty, mixed (calcareous), mesic Typic Haplaquepts
Ravola	Fine-silty, mixed (calcareous), mesic Typic Torrifluvents
Rottulee family	Fine-loamy, mixed Typic Haploborolls
Sagers	Fine-silty, mixed (calcareous), mesic Typic Torriorthents
Saltair	Fine-silty, mixed, mesic Typic Salorthids
Senchert	Fine-loamy, mixed Argic Pachic Cryoborolls
Senchert family	Fine-loamy, mixed Argic Pachic Cryoborolls
Sheepcan	Fine-loamy, mixed (calcareous), frigid Typic Ustorthents
Shupert	Fine-loamy, mixed (calcareous), frigid Typic Ustifluvents
Silas	Fine-loamy, mixed Cumulic Cryoborolls
Stormitt	Loamy-skeletal, carbonatic, mesic Ustollic Calciorthids
Strych	Loamy-skeletal, mixed, mesic Ustollic Calciorthids
Toze family	Fine-loamy, mixed Calcic Pachic Cryoborolls
Trag	Fine-loamy, mixed Typic Argiborolls
Travessilla	Loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents
Travessilla family	Loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents
Uinta family	Fine-loamy, mixed Typic Cryoboralfs
Winetti	Loamy-skeletal, mixed (calcareous), frigid Typic Ustifluvents
Winetti Variant	Sandy-skeletal, mixed (calcareous), mesic Ustic Torriorthents

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