Petition to Rezone Butte Creek Ranch to Timber Production Zone

For:
Cottrell Ranch LLC
P.O. Box 399
Fortuna, CA 95540

Prepared by:

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3-1-2024
Date

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Butte Creek Ranch
ZONING RECLASSIFICATION

Contents

1. Property Owner

Cottrell Ranch, LLC
P.O. Box 399
Fortuna, CA 95540

2. Project Purpose and Description

The project involves Zone Reclassification pursuant to C.G.C. 51113.5. Currently, the property is mixed zoned as Agriculture Exclusive (1,504 acres), Timber Production Zone (1,580 acres) and Unclassified (53 acres). This project proposes the rezoning of the Agriculture Exclusive (AE) and Unclassified (U) land to Timber Production Zone (TPZ) land to better reflect the actual land uses occurring on the ownership (past and present).

3. Present Plan Designation

The project area has the following plan designations: Agriculture, Grazing, Timberland.

4. Present Zoning Designation

The project area has the following zoning designations: Agriculture Exclusive (160 minimum parcel size) and Timber Production Zone (160 minimum parcel size).

5. Legal Description

The Butte Creek Ranch is located approximately 7 miles east of Bridgeville, CA in portions of Section 25 & 36, T1N, R4E, Section 19, 30, 31 & 32, T1N, R5E, Section 1, T1S, R4E, & Section 6, T1S, R5E, HB&M, Humboldt County. The project area is located on the Larabee Valley 7.5' USGS Quadrangle. The project area is approximately 3.137 acres in size and extends geographically from Butte Creek along the west to the Little Van Duzen River to the east.

6. Rezoning Justification

California Government Code Section 51113.5: This section allows a property owner with TP-zoned land to petition the County to rezone *contiguous* land not zoned TP to the TP zone. The only requirements for this type of rezoning are that the parcels must meet the definitions of Government Code Section 51104(f), (g) and (h)[1]. The County may not place any additional requirements on this petition to rezone the property to TP.

[1]Government Code Section 51104
(f) "Timberland" means privately owned land, or land acquired for state forest purposes, which devoted to and used for growing and harvesting timber, or for growing and harvesting timber, or for growing and harvesting timber and compatible uses, and which is capable of growing an average annual volume of wood fiber of at least 15 cubic feet per acre.

(g) "Timberland production zone" or "TPZ" means an area which has been zoned pursuant to Section 51112 and 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h).

(h)"Compatible use" is any use which does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber, and shall include, but not be limited to, any of the following, unless in a specific instance such a use would be contrary to the preceding definition of compatible use"

- Management for watershed
- Management for fish and wildlife habitat
- A use integrally related to the growing, harvesting and processing of forest precuts, including but not limited to roads, log landings, and log storage areas.
- The erection, construction, alteration, or maintenance of gas, electric, water, or communication transmission facilities.

- Grazing
- A residence or other structure necessary for the management of land zoned as timberland production.

Discussion of California Government Code Section 51113.5: All areas proposed to be rezoned to TPZ are contiguous lands contained within the Butte Creek Ranch and owned by the Cottrell LLC.

The project area meets the definitions of Government Code Section 51104(f), "Timberland", "Timberland Production Zone" and "Compatible Use". The property has historically been managed for timber production and grazing and compatible uses including management for watershed resources, fish and wildlife habitat, and uses integrally related to the growing, harvesting and processing of forest products. Numerous Timber Harvest Plans have been filed on the property, including over the areas zoned AE and U.

Discussion of Photo and Field Review: The basis for determining compliance with Government Code Section 51113.5 was determined by using available aerial photos, soil maps and on-site inspection of the project area. Historic aerial photos (1947, 1968, 1972, 1993, 1998, 2001, 2005, 2010, 2022) were evaluated for past management and vegetation conditions. Initial timber harvests took place in the mid 1960s. This is evidenced by the fresh cuts on the landscape, roads, skid trails and landings. Additional harvests appear to have occurred in the 1970s and 1980s. Another distinguishable feature from the historic photographs (1947, 1968) was the more open nature of the landscape as whole; larger meadows and grasslands, and apparent sparse woodlands. It is apparent that early harvests did target scattered Douglas-fir within the woodlands, and this practice likely accelerated the encroachment already occurring. At present, the majority of oak woodlands that once existed on the property have transitioned into Douglas-fir dominated conifer stands.

The project area was visited throughout 2023 and 2024 for the development of a Forest Management Plan covering the Ranch. It was noted that many of the areas zoned AE and U are stocked timberlands and woodlands. Some of them contain mature stands of timber. Areas that are grasslands, or woodlands, have significant conifer encroachment. Photographs of these areas are included below. Woodland edges contained the highest degree of Douglas-fir in-growth, with up to 600 trees per acre occupying intermediate and codominate canopy positions.

Discussion of Project Area Soils: Soils are a major factor in determining the suitability of land for timber production. The Web Soil Survey, National Cooperative Soil Survey was queried on November 9, 2023, and the results are attached below. In general, these soil types share similar characteristics—they are underlain by sandstone, mudstone, shale, or schist; occur frequently on hilly to steep topographies; have a loam or clay loam surface texture with gravelly loam or clay loam subsoil texture; are mostly moderately to well drained; and have a moderate potential for erosion hazard. Site Class ranges from Site Class III to IV. The full soil report is contained within, Appendix A.

Table 1: Butte Creek Ranch Soil Types

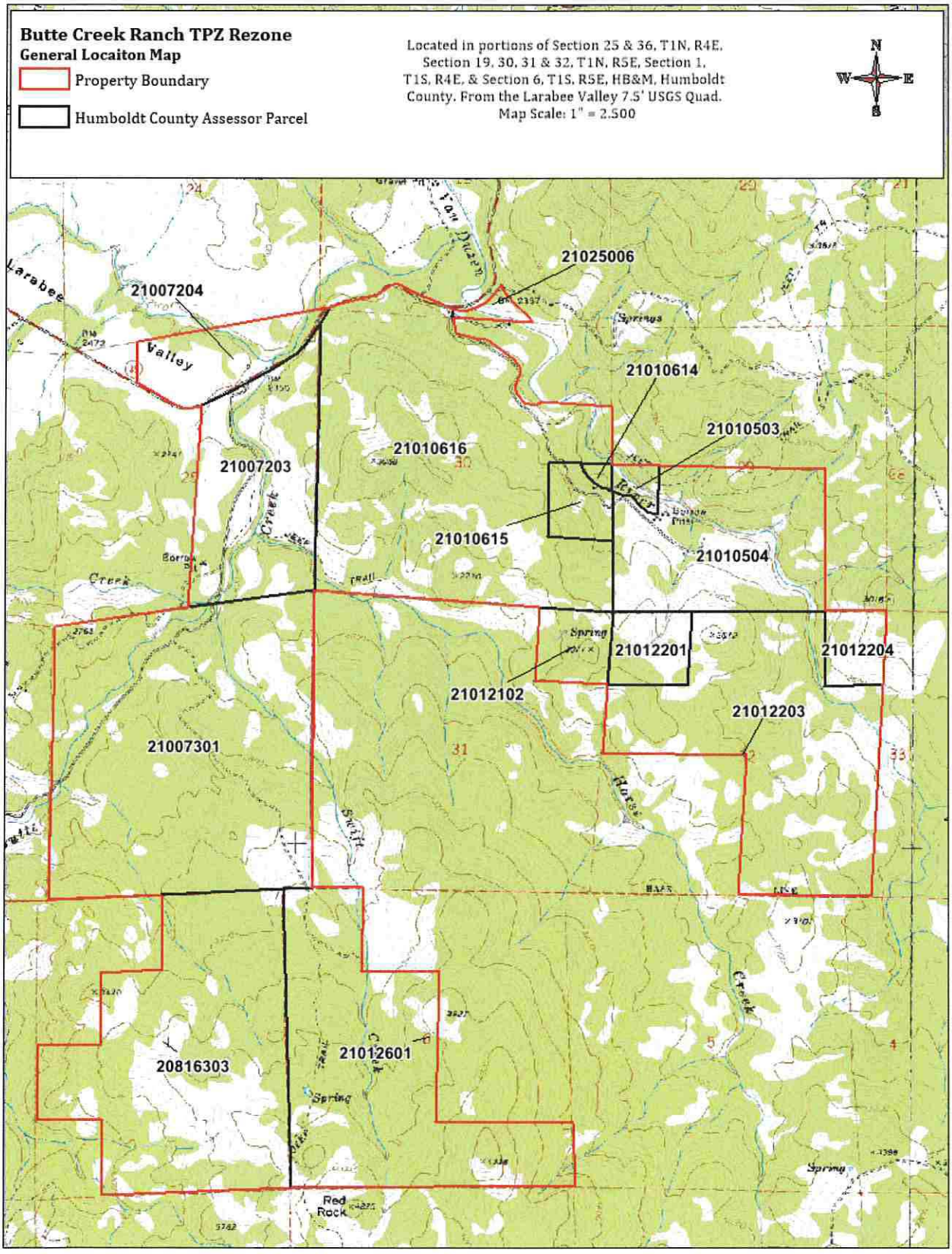
Soil Name	Acres
Chalkmountain-Tannin complex	19
Fluvents	7
Frostvalley	15
Frostvalley-Mulecreek complex	10
Highyork-Elkcamp-Airstrip complex	117
Pasturerock-Coyoterock-Maneze complex	474
Rockyglen-Hollowtree-Rock outcrop complex	1,468
Rockyglen-Tannin complex	479
Tannin-Burgsblock-Rockyglen complex	548

Current and Future Timber Management: A Forest Management Plan is in development on the property as part of a Conservation Easement that is being granted by CALFIRE. This management plan forecasts periodic harvesting within a thirty year planning horizon. These harvests are to be implemented under Timber Harvest Plans and/or various exemptions through CALFIRE. Oak woodlands where they exist are planned for oak woodland management to restore and enhance these natural habitats. Additionally, portions of the Butte Creek Ranch have been included in a CALFIRE Forest Health Grant proposal in partnership with the Bureau of Land Management and Buck Mountain Ranch, which if granted would include approximately 1,200 acres of forest stand improvement treatments, fuel breaks, and oak restoration on the property.

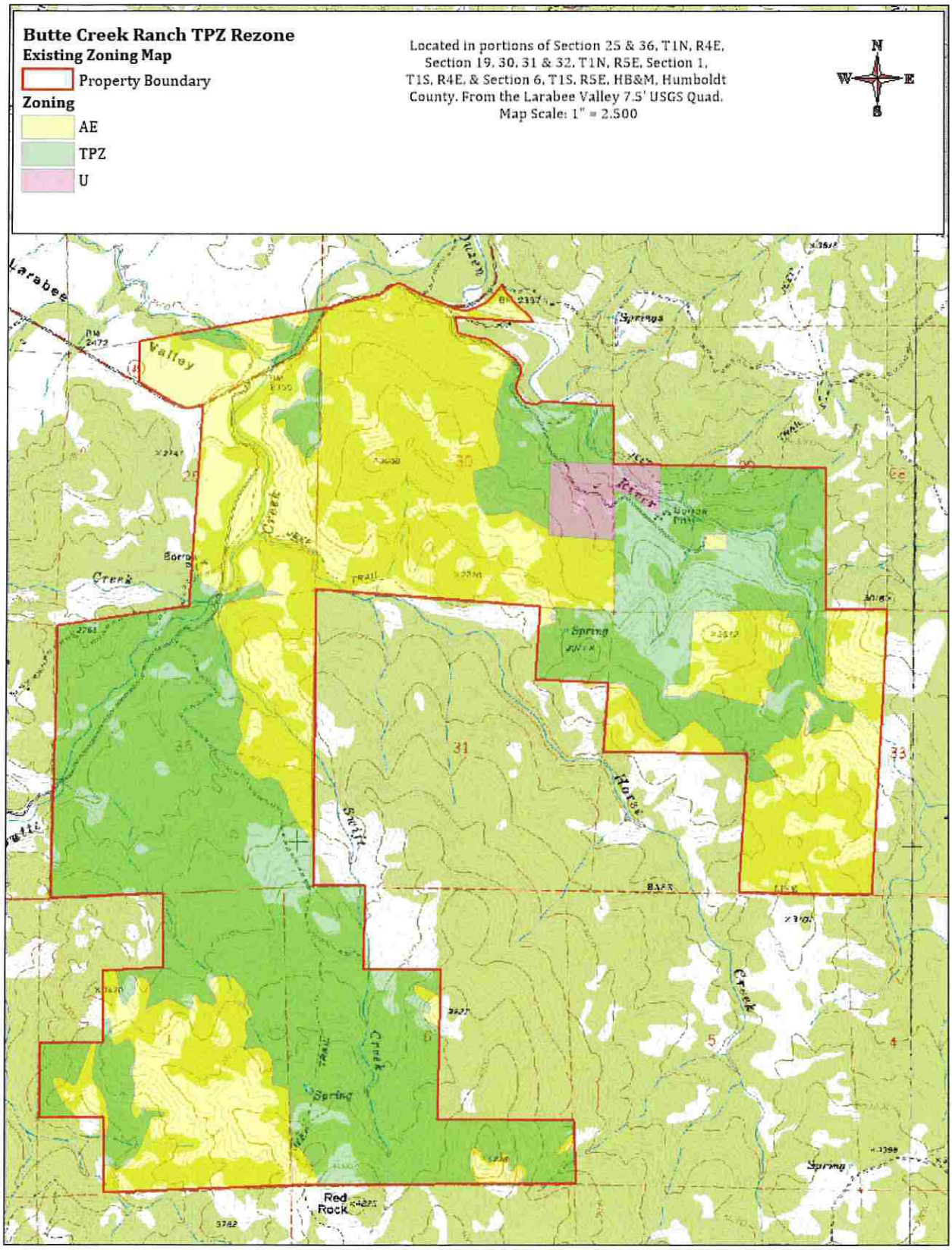
7. Conclusion

The property meets all of the requirements detailed in C.G.C. 51113.5 to be rezoned into Timber Production Zone. The non-TPZ lands that are currently forested are already stocked as per the Forest Practice Rules producing over 15 square feet of wood fiber annually. The non-TPZ lands that are currently grassland are becoming encroached upon by early and mid successional tree species and have been determined to be capable of producing at least 15 square feet of wood fiber per acre annually.

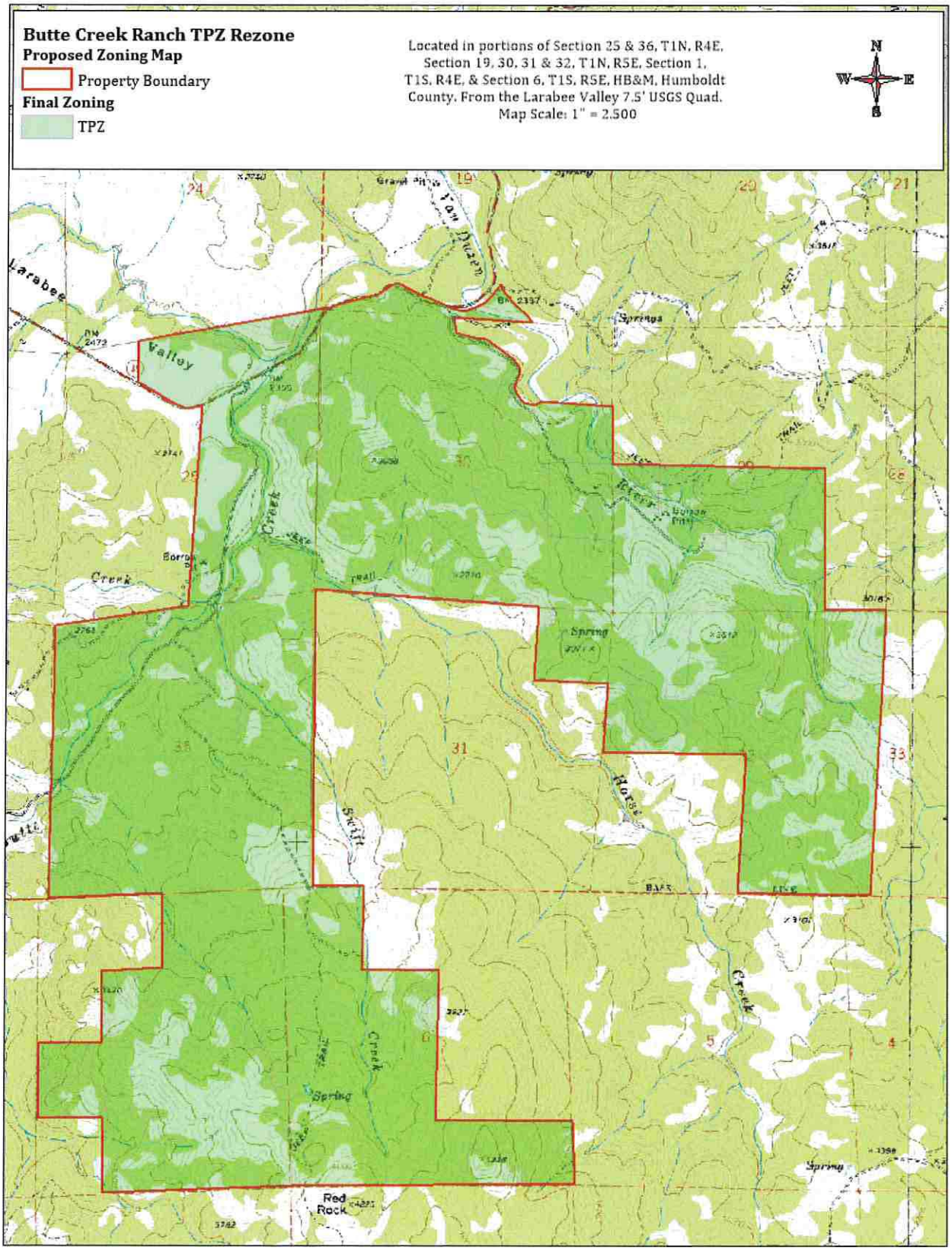
General Location Map



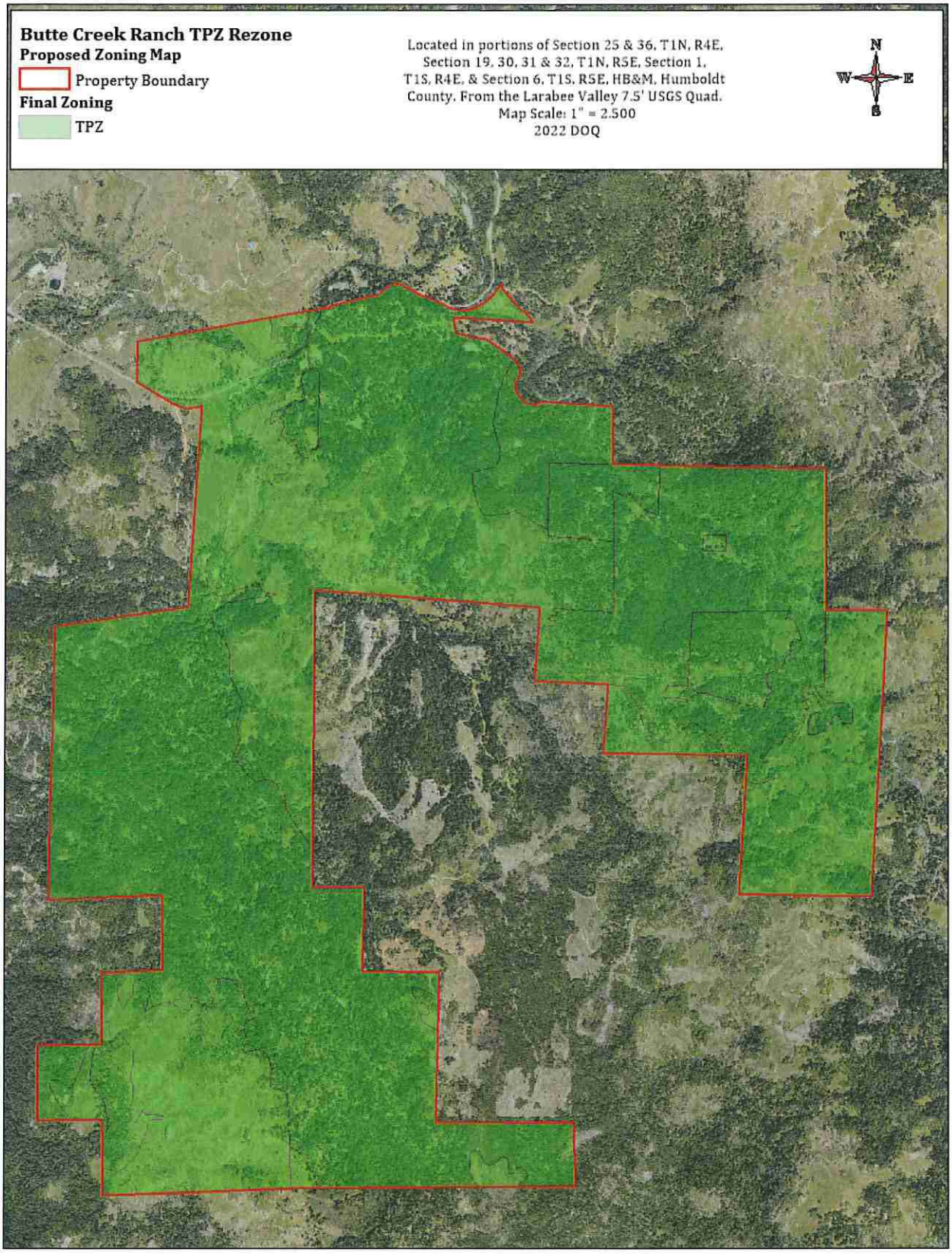
Existing Zoning Map



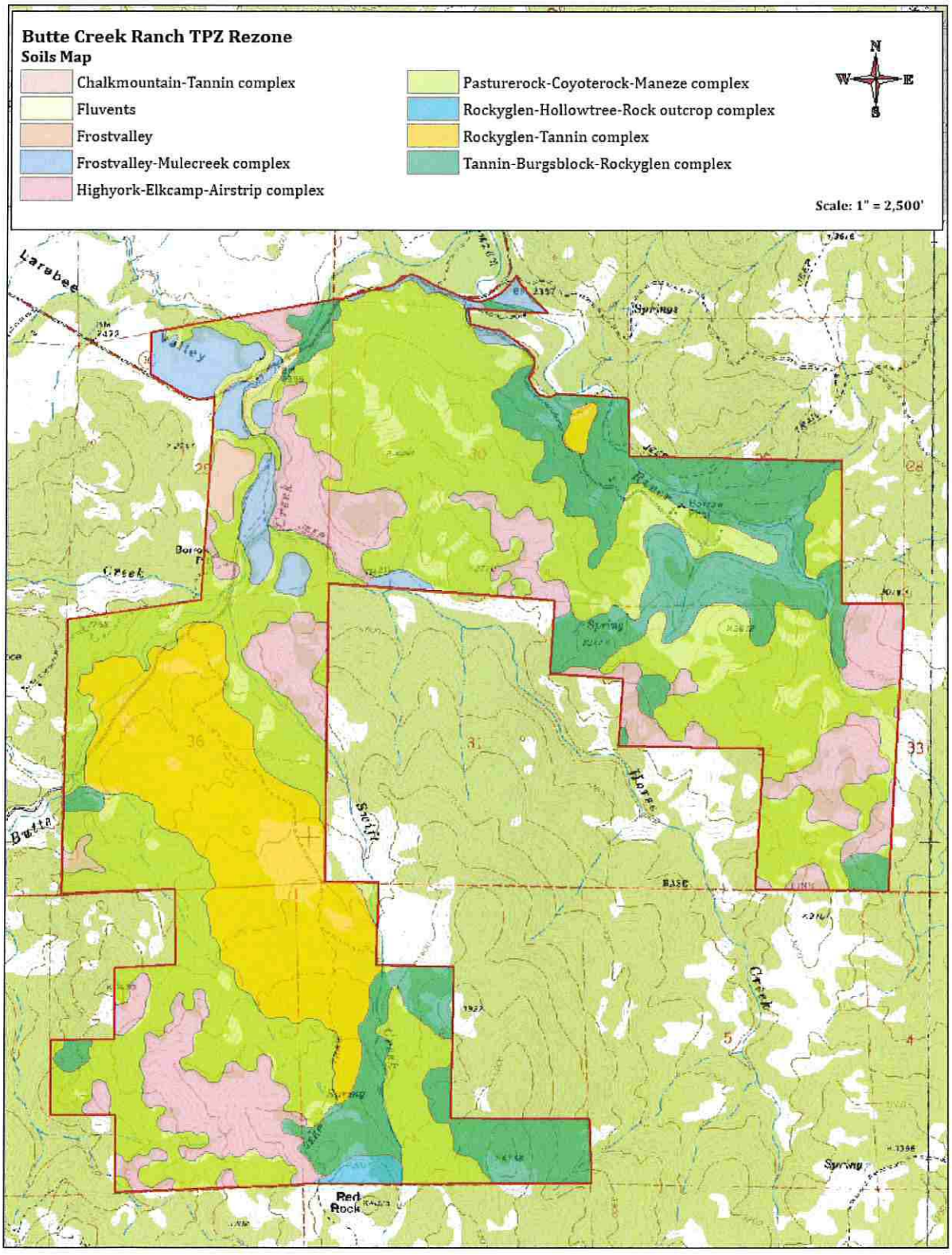
Proposed Zoning Map



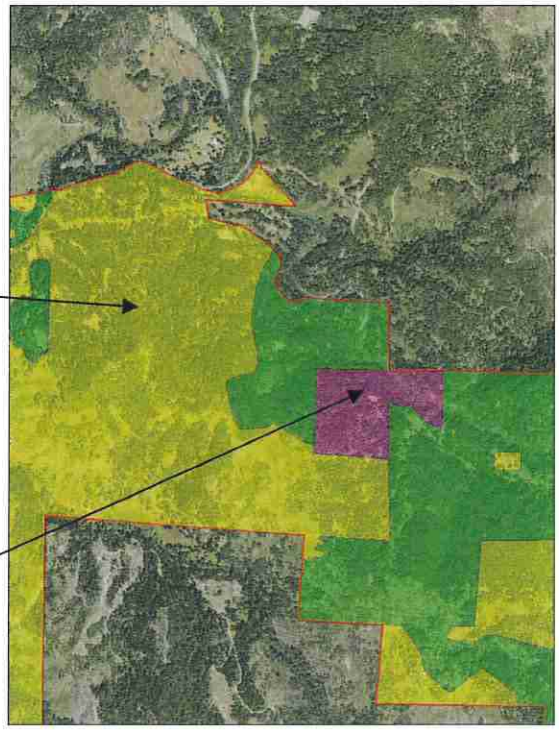
Proposed Zoning Map (DOQ)



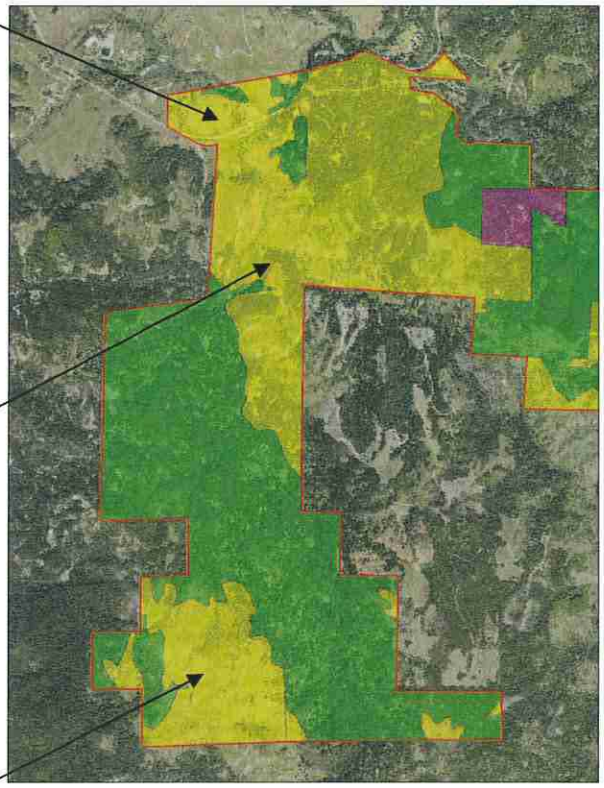
Soils Map


Butte Creek Ranch TPZ Rezone
Soils Map
Chalkmountain-Tannin complex
Fluvents
Frostvalley
Frostvalley-Mulecreek complex
Highyork-Elkcamp-Airstrip complex
Pasturerock-Coyoterock-Maneze complex
Rockyglen-Hollowtree-Rock outcrop complex
Rockyglen-Tannin complex
Tannin-Burgsblock-Rockyglen complex
N
W
E
S
Scale: 1" = 2,500'
Larabee
Red Rock

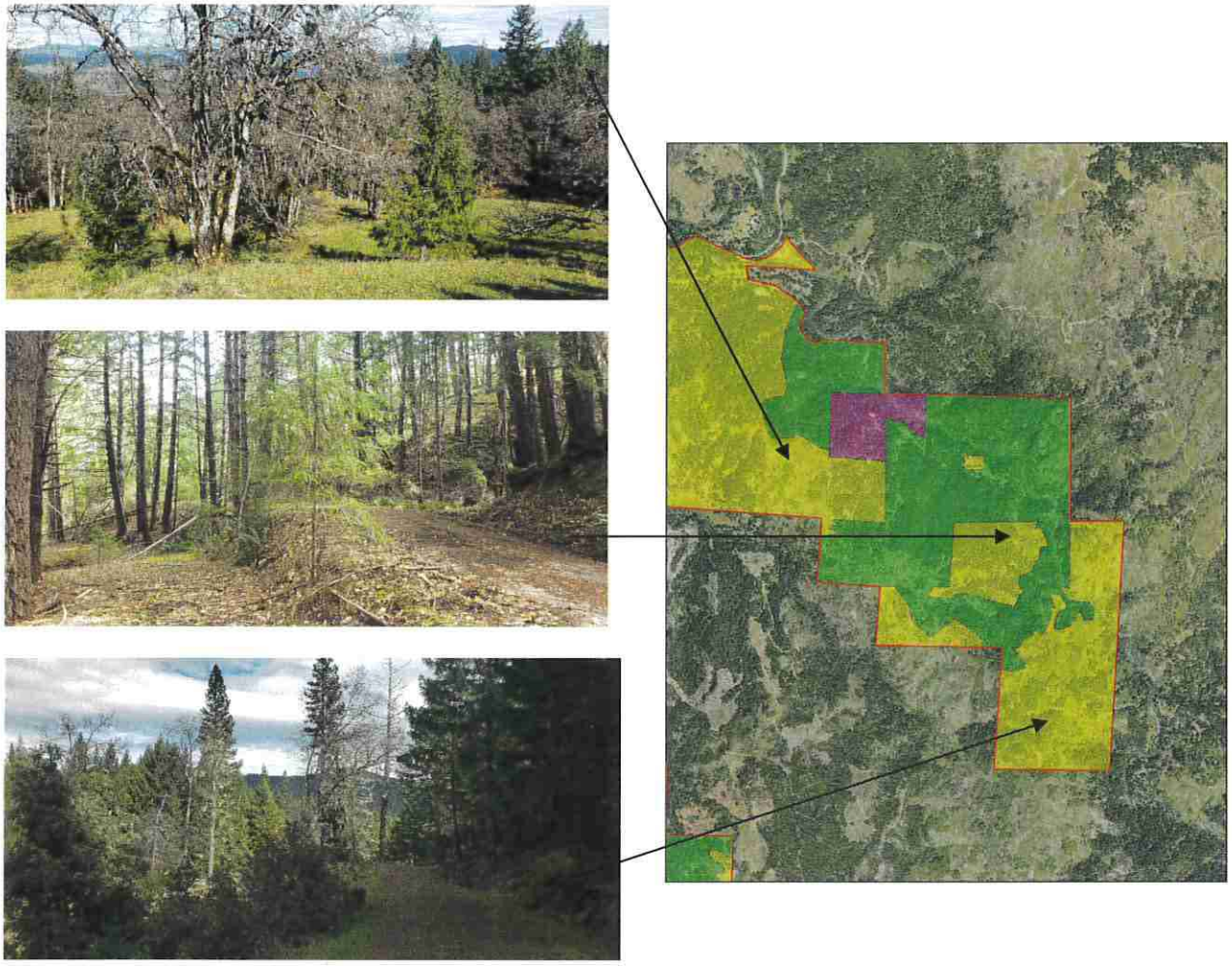
Pictures



Examples of existing timberland within the AE zoned areas of the property. Areas depicted within the photos are meeting the stocking requirements of CCR 912.7.



Examples of conifer encroachment occurring on the edges of woodlands and within the grasslands.



More examples of timberland within AE zoned areas and conifer encroachment occurring within woodlands and within the grasslands.

Appendix A - Soil Report

United States Department of Agriculture

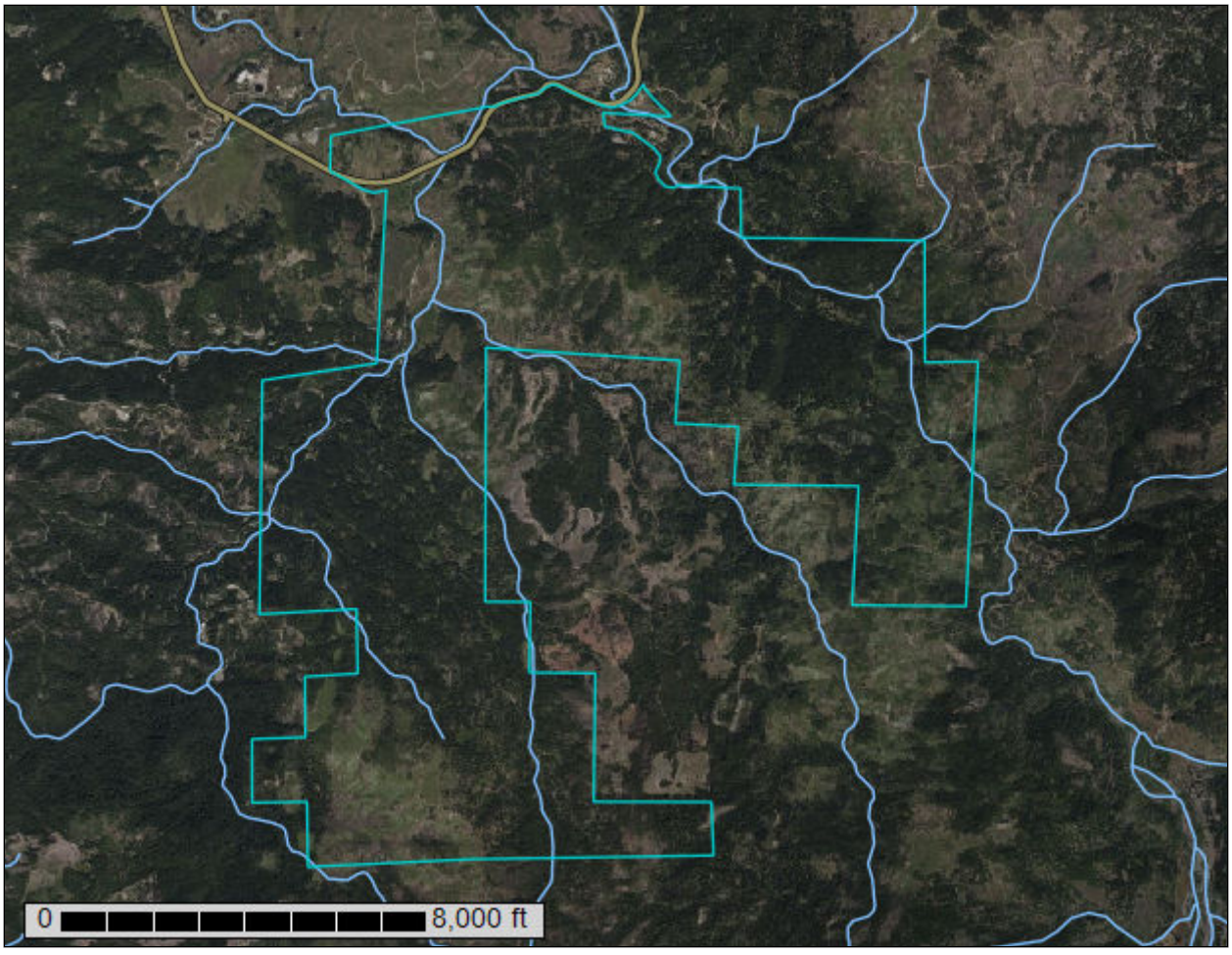
NRCS

Natural Resources Conservation Service

A product 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 participants

Custom Soil Resource Report for Humboldt County, Central Part, California

Butte Creek Ranch



November 9, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

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

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

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various 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 observed and described many soil profiles. A soil profile 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 or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

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

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

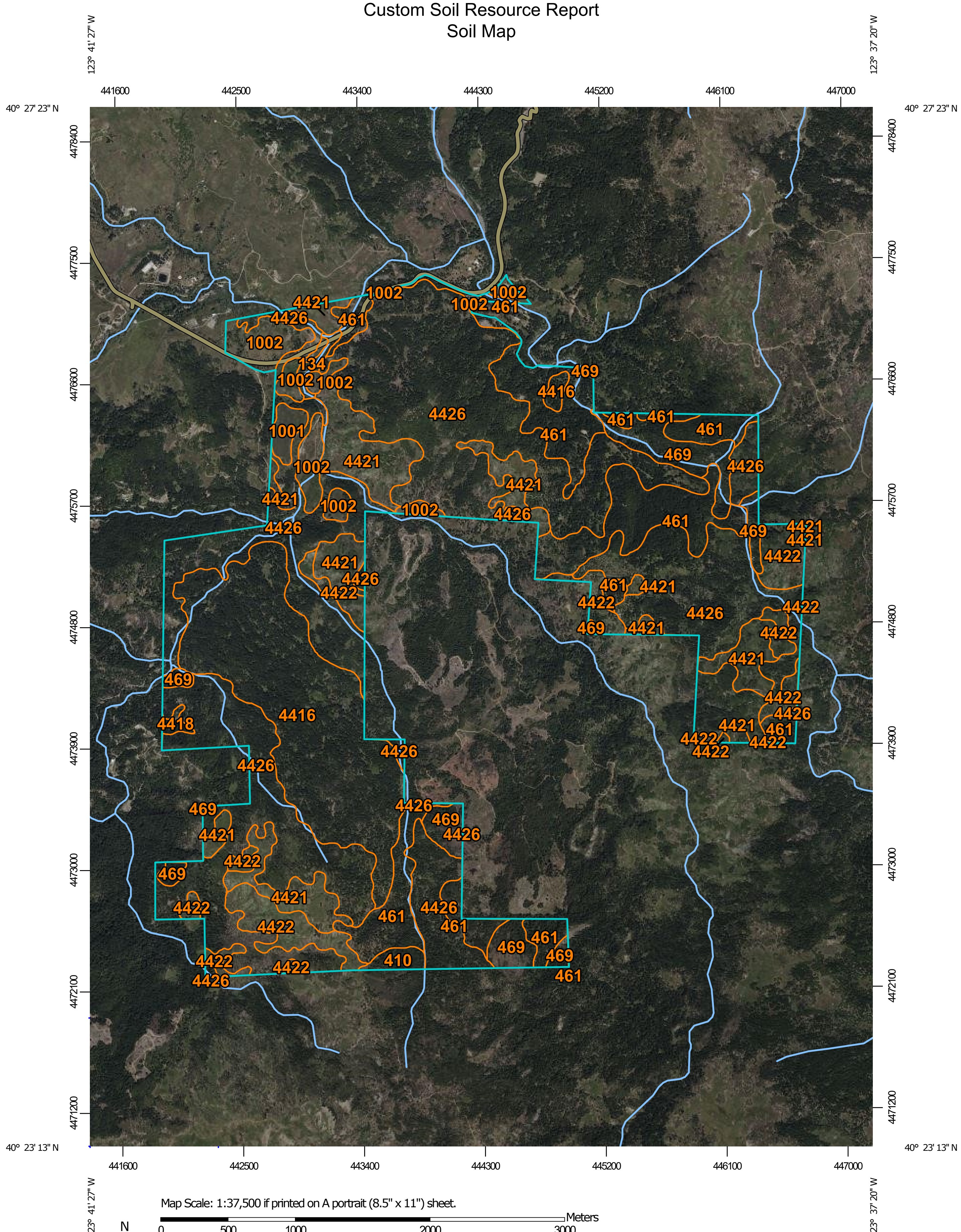
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:37,500 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 500, 1000, 2000, 3000

Feet: 0, 1500, 3000, 6000, 9000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 10, Aug 28, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 1, 2022—Jun 19, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
134	Fluvents, 0 to 2 percent slopes, occasionally flooded	10.2	0.3%
410	Rockyglen-Hollowtree-Rock outcrop complex, 50 to 100 percent slopes	15.1	0.5%
461	Tannin-Burgsblock-Rockyglen complex, 30 to 50 percent slopes	403.2	12.8%
469	Tannin-Burgsblock-Rockyglen complex, 50 to 75 percent slopes	145.8	4.6%
1001	Frostvalley, 0 to 2 percent slopes	18.5	0.6%
1002	Frostvalley-Mulecreek complex, 2 to 9 percent slopes	117.1	3.7%
4416	Rockyglen-Tannin complex, 9 to 30 percent slopes	474.4	15.1%
4418	Chalkmountain-Hoagland complex, 50 to 75 percent slopes	6.5	0.2%
4421	Highyork-Elkcamp-Airstrip complex, 9 to 30 percent slopes	292.9	9.3%
4422	Highyork-Elkcamp-Airstrip complex, 30 to 50 percent slopes	186.9	6.0%
4426	Pasturerock-Coyoterock-Maneze complex, 15 to 50 percent slopes, dry	1,469.7	46.8%
Totals for Area of Interest		**3,140.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

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

including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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

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

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Humboldt County, Central Part, California

134—Fluvents, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2mhfw
Elevation: 20 to 660 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 43 to 64 degrees F
Frost-free period: 280 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition

Fluvents, occasionally flooded, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fluvents, Occasionally Flooded

Setting

Landform: Flood-plain steps
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sedimentary sources

Typical profile

A - 0 to 7 inches: very gravelly sandy loam
C1 - 7 to 39 inches: extremely gravelly loamy sand
C2 - 39 to 79 inches: extremely gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R004BA203CA - Riparian
Hydric soil rating: No

Minor Components

Typic udifluvents

Percent of map unit: 10 percent
Landform: Meandering channels

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Water

Percent of map unit: 10 percent
Landform: Channels
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear

Gschwend

Percent of map unit: 3 percent
Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Frenchman

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

410—Rockyglen-Hollowtree-Rock outcrop complex, 50 to 100 percent slopes

Map Unit Setting

National map unit symbol: v6hm
Elevation: 330 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Rockyglen and similar soils: 40 percent
Hollowtree and similar soils: 25 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from sandstone and/or residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: very gravelly slightly decomposed plant material
A - 1 to 7 inches: extremely gravelly sandy loam
Bw1 - 7 to 11 inches: extremely gravelly sandy loam
Bw2 - 11 to 28 inches: extremely gravelly sandy loam
C1 - 28 to 35 inches: extremely gravelly sandy loam
C2 - 35 to 41 inches: extremely gravelly sandy loam
C3 - 41 to 79 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 50 to 100 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Hollowtree

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: gravelly loam
ABt - 4 to 9 inches: gravelly loam
Bt - 9 to 19 inches: very gravelly loam
CBt - 19 to 27 inches: extremely cobbly loam

R - 27 to 79 inches: bedrock

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F005XZ011CA - Mesic Hills >60"ppt
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from sandstone

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Burgsblock

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

461—Tannin-Burgsblock-Rockyglen complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: xhvy
Elevation: 200 to 4,000 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 40 percent
Burgsblock and similar soils: 25 percent
Rockyglen and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: loam
AB - 7 to 24 inches: loam
Bt1 - 24 to 43 inches: gravelly loam
Bt2 - 43 to 59 inches: gravelly clay loam
Bt3 - 59 to 79 inches: gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

Oi - 0 to 1 inches: gravelly slightly decomposed plant material
A - 1 to 8 inches: very gravelly silt loam
AB - 8 to 22 inches: very gravelly silt loam
Bt1 - 22 to 47 inches: very gravelly clay loam
Bt2 - 47 to 67 inches: very gravelly clay loam
Bt3 - 67 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex

Parent material: Colluvium derived from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: very gravelly slightly decomposed plant material
A1 - 2 to 6 inches: gravelly loam
A2 - 6 to 12 inches: very gravelly loam
Bw1 - 12 to 26 inches: extremely gravelly loam
Bw2 - 26 to 45 inches: extremely gravelly loam
C - 45 to 79 inches: extremely gravelly loam

Properties and qualities

Slope: 30 to 50 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Wohly

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Chalkmountain

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear

Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

469—Tannin-Burgsblock-Rockyglen complex, 50 to 75 percent slopes

Map Unit Setting

National map unit symbol: xhw0
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 40 percent
Burgsblock and similar soils: 25 percent
Rockyglen and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 9 inches: loam
ABt - 9 to 22 inches: loam
Bt1 - 22 to 35 inches: sandy clay loam
Bt2 - 35 to 67 inches: gravelly sandy clay loam
BCt - 67 to 79 inches: gravelly sandy clay loam

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Burgsblock

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Colluvium derived from sandstone and/or colluvium derived from mudstone and/or residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile

A - 0 to 7 inches: very gravelly loam
Bt1 - 7 to 24 inches: very gravelly loam
Bt2 - 24 to 39 inches: very gravelly clay loam
Bt3 - 39 to 55 inches: very gravelly clay loam
Bt4 - 55 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 50 to 75 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt

Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Parent material: Colluvium derived from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: gravelly slightly decomposed plant material
A - 2 to 9 inches: very gravelly loam
AB - 9 to 22 inches: very gravelly loam
Bt1 - 22 to 39 inches: very gravelly loam
Bt2 - 39 to 63 inches: extremely gravelly loam
BC - 63 to 79 inches: extremely gravelly sandy clay loam

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Wohly

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, linear

Across-slope shape: Linear, concave
Hydric soil rating: No

Chalkmountain

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

1001—Frostvalley, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2sx6b
Elevation: 2,300 to 2,540 feet
Mean annual precipitation: 66 to 70 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 60 to 120 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Frostvalley and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frostvalley

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metasedimentary rock

Typical profile

Ap - 0 to 6 inches: gravelly loam

A1 - 6 to 16 inches: gravelly loam
A2 - 16 to 24 inches: loam
Bw - 24 to 35 inches: very gravelly loam
C - 35 to 79 inches: very gravelly loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Ecological site: F005XZ003CA - Terraces
Hydric soil rating: No

Minor Components

Mulecreek

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Pasturerock, dry

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rockyglen

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

1002—Frostvalley-Mulecreek complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2sx6d
Elevation: 2,300 to 3,610 feet
Mean annual precipitation: 64 to 76 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 60 to 120 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Frostvalley and similar soils: 48 percent
Mulecreek and similar soils: 42 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frostvalley

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metasedimentary rock

Typical profile

Ap - 0 to 3 inches: loam
A - 3 to 20 inches: loam
AB - 20 to 35 inches: loam
Bw - 35 to 47 inches: gravelly loam
C - 47 to 79 inches: very gravelly loamy sand

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F005XZ003CA - Terraces

Hydric soil rating: No

Description of Mulecreek

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Alluvium derived from metasedimentary rock

Typical profile

Ap - 0 to 4 inches: loam
A - 4 to 22 inches: loam
Bt1 - 22 to 30 inches: clay loam
Bt2 - 30 to 37 inches: clay loam
Bt3 - 37 to 55 inches: clay loam
BCt - 55 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F005XZ003CA - Terraces
Hydric soil rating: No

Minor Components

Pasturerock, dry

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Rockyglen

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear

Hydric soil rating: No

4416—Rockyglen-Tannin complex, 9 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2pdbq
Elevation: 200 to 3,610 feet
Mean annual precipitation: 49 to 71 inches
Mean annual air temperature: 45 to 72 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Tannin and similar soils: 50 percent
Rockyglen and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tannin

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 8 inches: gravelly loam
Bt1 - 8 to 16 inches: loam
Bt2 - 16 to 31 inches: paragravelly clay loam
Bt3 - 31 to 47 inches: paragravelly clay loam
BCt - 47 to 79 inches: very paragravelly clay loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.16 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Rockyglen

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: very gravelly slightly decomposed plant material
A - 2 to 8 inches: gravelly loam
Bt1 - 8 to 18 inches: very gravelly loam
Bt2 - 18 to 37 inches: very gravelly loam
Bt3 - 37 to 59 inches: extremely gravelly loam
BCt - 59 to 79 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Burgsblock

Percent of map unit: 7 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, convex, concave
Hydric soil rating: No

Coolyork

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, convex, concave
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Hydric soil rating: No

4418—Chalkmountain-Hoagland complex, 50 to 75 percent slopes

Map Unit Setting

National map unit symbol: 2pdbk
Elevation: 1,480 to 3,940 feet
Mean annual precipitation: 49 to 102 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Chalkmountain and similar soils: 50 percent
Hoagland and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chalkmountain

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 4 inches: gravelly slightly decomposed plant material
A1 - 4 to 12 inches: very gravelly loam
A2 - 12 to 28 inches: very gravelly loam
A3 - 28 to 43 inches: very gravelly sandy loam
Bw - 43 to 63 inches: very gravelly loam

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Hoagland

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A1 - 2 to 10 inches: gravelly loam
A2 - 10 to 20 inches: gravelly loam
Bw1 - 20 to 45 inches: gravelly loam
Bw2 - 45 to 55 inches: gravelly loam
Bw3 - 55 to 71 inches: gravelly loam

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt

Hydric soil rating: No

Minor Components

Rockyglen

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, convex, concave
Hydric soil rating: No

Burgsblock

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Hollowtree

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, convex, concave
Hydric soil rating: No

Tannin

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

4421—Highyork-Elkcamp-Airstrip complex, 9 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2p9vk
Elevation: 1,970 to 4,000 feet
Mean annual precipitation: 60 to 90 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 200 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Highyork and similar soils: 50 percent
Elkcamp, dry, and similar soils: 25 percent
Airstrip, dry, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Highyork

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 8 inches: silt loam
A2 - 8 to 16 inches: silt loam
Bt1 - 16 to 26 inches: clay
Bt2 - 26 to 37 inches: clay
Btg1 - 37 to 43 inches: clay
Btg2 - 43 to 71 inches: gravelly clay loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C/D
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Elkcamp, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

A - 0 to 7 inches: loam
ABt - 7 to 16 inches: gravelly loam
Bt1 - 16 to 30 inches: gravelly clay loam
Bt2 - 30 to 41 inches: gravelly clay loam
Bt3 - 41 to 51 inches: gravelly clay loam
BCt - 51 to 71 inches: gravelly clay loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Airstrip, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Residuum weathered from sandstone

Typical profile

A1 - 0 to 6 inches: loam
A2 - 6 to 12 inches: loam
A3 - 12 to 22 inches: extremely cobbly loam
R - 22 to 79 inches: bedrock

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Coyoterock, dry
Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

Maneze, dry
Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

4422—Highyork-Elkcamp-Airstrip complex, 30 to 50 percent slopes

Map Unit Setting
National map unit symbol: 2p9vl
Elevation: 1,970 to 4,000 feet
Mean annual precipitation: 55 to 90 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 200 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition
Highyork and similar soils: 40 percent
Elkcamp, dry, and similar soils: 30 percent
Airstrip, dry, and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Highyork

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, convex, linear
Across-slope shape: Linear, concave
Parent material: Colluvium derived from sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 7 inches: loam
A2 - 7 to 18 inches: gravelly clay loam
Bt1 - 18 to 26 inches: gravelly clay loam
Bt2 - 26 to 37 inches: clay loam
Bt3 - 37 to 53 inches: clay loam
Bt4 - 53 to 67 inches: very gravelly clay loam
Bt5 - 67 to 79 inches: gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C/D
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Elkcamp, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Colluvium derived from mudstone and/or colluvium derived from sandstone

Typical profile

A1 - 0 to 6 inches: loam
A2 - 6 to 16 inches: loam
ABt - 16 to 28 inches: gravelly clay loam
Bt1 - 28 to 41 inches: gravelly clay loam

Bt2 - 41 to 55 inches: very gravelly clay loam
Bt3 - 55 to 71 inches: very gravelly clay loam

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Description of Airstrip, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Residuum weathered from sandstone

Typical profile

A1 - 0 to 6 inches: gravelly loam
A2 - 6 to 13 inches: gravelly loam
AC - 13 to 22 inches: very gravelly loam
R - 22 to 79 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F005XZ022CA - Mesic Mountains >60"ppt
Hydric soil rating: No

Minor Components

Maneze, dry

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

Coyoterock, dry

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

4426—Pasturerock-Coyoterock-Maneze complex, 15 to 50 percent slopes, dry

Map Unit Setting

National map unit symbol: 2pt36
Elevation: 520 to 3,160 feet
Mean annual precipitation: 56 to 80 inches
Mean annual air temperature: 50 to 59 degrees F
Frost-free period: 200 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Pasturerock, dry, and similar soils: 40 percent
Coyoterock, dry, and similar soils: 25 percent
Maneze, dry, and similar soils: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pasturerock, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and mudstone

Typical profile

A - 0 to 10 inches: gravelly loam
A2 - 10 to 24 inches: loam
Bt1 - 24 to 35 inches: clay loam
Bt2 - 35 to 47 inches: gravelly clay loam
Bt3 - 47 to 71 inches: gravelly clay loam

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

Description of Coyoterock, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from sandstone and mudstone

Typical profile

A - 0 to 14 inches: loam
ABt - 14 to 24 inches: loam
Bt1 - 24 to 31 inches: clay
Bt2 - 31 to 37 inches: clay
Cg - 37 to 71 inches: clay

Properties and qualities

Slope: 15 to 50 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 28 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

Description of Maneze, Dry

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and mudstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 11 inches: very cobbly loam
AB - 11 to 24 inches: very cobbly loam
Bw1 - 24 to 37 inches: extremely gravelly clay loam
Bw2 - 37 to 55 inches: very gravelly clay loam
Bw3 - 55 to 79 inches: very gravelly clay loam

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 39 to 63 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F004BX114CA - Oregon white oak/perrenial and annual grasses, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Oak Woodland (RNPOW001CA)
Hydric soil rating: No

Airstrip, dry

Percent of map unit: 10 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R004BX101CA - Upper prairie, mountain slopes, sandstone and mudstone, clay loam
Other vegetative classification: Prairie (RNPP001CA)
Hydric soil rating: No

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