8/31/20

Botanical Survey Report
Wetland and Waters Evaluation and Delineation

Pratt Mountain

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For
MAD RIVER PROPERTIES, INC.
MCKINLEYVILLE, CA.

Contents

Introduction

This report is intended to serve as documentation of survey and assessment of the habitat features found within the subject property and the potential of those habitats to be suitable or critical to the life history of vascular plant species considered sensitive, rare, threatened, or endangered (including candidate species) in the United States and/or The State of California. Seasonally appropriate botanical survey was completed to determine if rare, threatened, endangered, or sensitive plant species or listed sensitive vegetation communities are present in the surveyed area. This report is the result of in field survey, reviews of relevant scientific literature, and professional knowledge. This survey report is intended to satisfy any project needs for botanical survey and mitigation for rare or endangered plant species and sensitive vegetation communities under the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA), Federal Endangered Species Act (FESA), and the Native Plant Protection Act (NPPA). Additionally, the surveyed area was assessed and surveyed for the presence of jurisdictional waters of both the State of California and of the United States of America, methodologies used are described in full below.

Setting

The subject parcels (APN#s 216-133-013,216-134-009, 216-134010, 216-133-006, 216-132-004) are located in Humboldt County, California on the Harris USGS 7.5' quadrangle. This property is located off of Pratt Mountain Road, a graveled county road which leaves Alderpoint Road, a paved county road, near the intersection with Bell Springs Road all located along Mail Ridge approximately 5.5 air miles east of the City of Garberville, CA.

The biogeographic region can be described using a three-tiered hierarchy of province, region, and sub-region. This site lies within the California Floristic Province, Northwestern California region, and North Coast sub-region. Elevation ranges from 3000-3400 feet above mean sea level.

Habitat

The subject parcel is largely composed of a mosaic of open grassland, patches of mixed hardwood, and coniferous stands of timber (see attached Vegetation Map). A site visit on 15 June 2019 was conducted to assess the potential habitat on site. Using the Manual of California Vegetation (MCV, Sawyer 2009) these habitats may be described as coastal prairie (Munz) which contain sensitive grassland vegetation types such as ***Danthonia californica* (California oatgrass prairie) Herbaceous Alliance** (MCV) as well as provide suitable habitat for several plants on the attached sensitive species list. The forested portions of the parcel are composed of a mix of Douglas' fir and several oak and hardwood species which may be described as Douglas' fir forest (Munz), Coast Range Mixed Coniferous Forest (Holland), or as ***Pseudotsuga menziesii* (Douglas fir forest) Forest Alliance** (MCV), this fir forest type may also contain suitable habitat for several sensitive plant species. The remaining forest stands area composed of a mix of oak species including Oregon white oak, black oak, tan oak as well as madrone and California

bay. These stands contain vegetation communities that may be described as Northern oak woodland (Munz), Mixed north cismontane woodland (Holland), and may contain areas that could be described as ***Quercus garryana* (Oregon white oak woodland) Forest Alliance** (MCV) which is considered sensitive in California as well as provide suitable habitat for plants included on the sensitive plant list included at the end of this report.

Watercourses within the scoping area include the headwaters of Frenchman Creek and several perennial tributaries of both Frenchman and Perington Creeks (shown on Humboldt County Web GIS maps with setbacks). There are no significant wetlands mapped by the United States Fish and Wildlife Service (USFWS) wetland map, included in Attachment A, within the subject parcel. The presence of un-mapped seasonal and perennial creeks as well as associated wetlands and wet meadow areas is highly possible and should be determined through on site investigations and surveys by qualified personal.

Project area maps courtesy of the Humboldt County Web GIS web application and Google Earth are included as attachments at the end of this report.

Botanical survey and wetlands and waters evaluation are intended to map and delineate resources within and adjacent to areas of potential future development located within the project area. These zones are included on the attached map set.

Roads in the project area range from little used native ranch roads and ATV tracks to wide open, well used paved and gravel county roads.

The subject property is home to cattle and evidence of their presence is found throughout the surveyed area. Compaction on flat portions of the surveyed area may have contributed to the presence of seasonal wetlands.

Some of the available habitats may be classified into natural vegetation alliances and associations using the Manual of California Vegetation (Sawyer 2009). The vegetation on site at this time falls into several alliances including:

Danthonia californica (California oat grass prairie) Herbaceous Alliance G4, S3
This alliance occurs in small patches throughout the grass dominated portions of the project area. These areas are dominated by or have a significant cover (>30%) of California oat grass especially early in the season. In summer these sites had given way to other grasses such as slender wild oats and other non-native pasture grasses. This assortment of non-native grasses was likely introduced by past ranching and site development activities. These sites also contain a varied mix of native and non-native herbaceous species.

Quercus garryana (Oregon white oak woodland) Woodland Alliance G4, S3
This vegetation alliance, which is often characterized by a mix of white oak and other tree species such as Douglas' fir (*Pseudotsuga menziesii*), bay (*Umbellularia californica*), black oak (*Quercus kelloggii*), and California buckeye (*Aesculus californica*), exists in patches within the project area.

Pseudotsuga menziesii (Douglas' fir forest) Forest Alliance G5, S4
Areas of true fir dominance are found along the northern boundary of the surveyed area, most stands are mixed with tan oak.

Several of the vegetation types listed above are ranked S3 in the Nature Serve ranking system (S3,**Vulnerable**—Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.) and are considered sensitive vegetation alliances in California. Rank definitions are included at the end of Attachment A. At this time proposed areas of development do not contain any forested habitat and no tree removal is planned.

Methods

Wetlands and Waters

An assessment of potential impacts to adjacent watercourses or wetlands within 500 feet of the areas of potential development was conducted by interpretation of aerial photography and resource maps courtesy of Google Earth, the United States Geologic Survey (USGS) 7.5' Harris quadrangle map, Humboldt County Web GIS, and United States Fish and Wildlife Service (USFW) National Wetland Inventory. This assessment was supplemented by in field survey of the subject areas. Perennial, Intermittent, and Ephemeral watercourses as well as wetlands are located within the general project area.

Watercourses were identified using the U.S. Army Corps of Engineers (ACOE) "Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States" (Mercel, Licvar 2014).

Wetlands and wetland boundaries adjacent to potential development were assessed using guidelines outlined in the ACOE Wetland Delineation Manual Technical Report Y-87-1 (referred to as the 1987 manual) and the Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region. The 1987 manual provides technical guidelines for identifying wetlands, distinguishing them from non-wetlands, and provides methods for applying the technical guidelines. Three key provisions of the ACOE wetland definition include:

i. Inundated or saturated soil conditions resulting from permanent or periodic inundation by ground or surface water.

ii. A prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation)

iii. The presence of "normal circumstances"

Explicit in the ACOE definition is the consideration of three environmental parameters: Hydrology, Vegetation, and Soils. Positive wetland indicators of all three parameters are normally present in wetlands. The ACOE methodology requires one positive indicator from each parameter in order to make a positive wetland determination. Wetlands within the project area were most often distinguished by a prevalence of hydric vegetation, evidence of inundation or water flow, and suitable topographic position to hold water. Indicators of wetland hydrology include drainage patterns, drift lines, sediment deposits, watermarks, and visual observations of saturated soils and/or inundation. Most contained surface water and saturated soils during the spring survey dates.

Areas which were obvious wetlands and areas with at least two positive indicators of wetland setting were identified as wetlands and are included on the wetlands and waters maps in Attachment B. Watercourses were classified as either seasonal (Intermittent and Ephemeral) or Perennial.

Vegetation

The ACOE Manual (1987) directs that presence of a single individual of hydrophytic species does not mean that hydrophytic vegetation is present. However, hydrophytic vegetation is considered to be present if 50% of the dominant species have indicator status of OBL, FACW or FAC.

- Obligate (OBL)–usually occurs within a wetland (estimated probability 99%)
- Facultative-wet (FACW)–usually occurs in wetlands (estimated probability 67-99%)
- Facultative (FAC)–equally likely to occur in wetlands or non-wetlands (estimated probability 33-67%)
- Facultative-upland (FACU)–usually occurs in non-wetlands (estimated probability 1-33%)
- Upland (UPL)–occurs almost always in non-wetlands (estimated probability 99%)
- Not listed (NL)-scored as an upland plant and calculated as such on wetland determination forms

The entire parcel was assessed first to determine the location of distinct plant community types.

Not all wetlands were sampled using ACOE delineation forms but all mapped wetlands contained dominant wetland vegetation and also contained surface water and saturated soils during the period of investigation.

Dominant species were determined by estimating those having the greatest percentage of cover using the "50/20" rule. The "50/20" rule entails that for each sample point and associated plant community, dominant species are the most abundant species, when ranked in descending order of abundance and cumulatively totaled, that immediately exceed 50% of the total dominance measure for the stratum, plus any additional species comprising 20% or more of the total

dominance measure for each stratum. Absolute cover contribution was estimated for each sample plot, due to layering of species and strata percent cover values may exceed 100%. The ACOE Manual (1987) directs that presence of a single individual of hydrophytic species does not mean that hydrophytic vegetation is present. However, hydrophytic vegetation is considered to be present if 50% of the dominant species have indicator status of OBL, FACW or FAC.

The 2008 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* includes the addition of a prevalence index for determination if hydrophytic vegetation is present. The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot or other sampling unit, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (absolute percent cover). It is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species. It is particularly useful (1) in communities with only one or two dominants, (2) in highly diverse communities where many species may be present at roughly equal coverage, and (3) when strata differ greatly in total plant cover (e.g., total herb cover is 80 percent but sapling/shrub cover is only 10 percent). The prevalence index is used in this supplement to determine whether hydrophytic vegetation is present on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.

The following procedure is used to calculate a plot-based prevalence index. The method was described by Wentworth et al. (1988) and modified by Wakeley and Lichvar (1997). It uses the same field data (i.e., percent cover estimates for each plant species) that were used to select dominant species by the 50/20 rule, with the added constraint that at least 80 percent of the total vegetation cover on the plot must be of species that have been correctly identified and have an assigned indicator status (including UPL). For any species that occurs in more than one stratum, cover estimates are summed across strata. Steps for determining the prevalence index are as follows:

1. Identify and estimate the absolute percent cover of each species in each stratum of the community. Sum the cover estimates for any species that is present in more than one stratum.
2. Organize all species (across all strata) into groups according to their wetland indicator status (i.e., OBL, FACW, FAC, FACU, or UPL) and sum their cover values within groups. Do not include species that were not identified.
3. Calculate the prevalence index using the following formula:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

where:

PI = Prevalence index

A_{OBL} = Summed percent cover values of obligate (OBL) plant species;
A_{FACW} = Summed percent cover values of facultative wetland (FACW) plant species;
A_{FAC} = Summed percent cover values of facultative (FAC) plant species;
A_{FACU} = Summed percent cover values of facultative upland (FACU) plant species;
A_{UPL} = Summed percent cover values of upland (UPL) plant species.

Indicator status for each species was obtained from the WESTERN MOUNTAINS, VALLEYS, AND COAST 2016 Regional Wetland Plant List developed with the ACOE.

This wetland and waters evaluation also utilized techniques from the technical manual A Hydrogeomorphic Classification of Wetlands (Brinson 1993) wherein wetlands are classified by land position and hydrologic regime.

Soils

Current USDA soils maps were obtained from the USDA Web Soil Survey and are included in Attachment B. Soil unit descriptions for the dominant mapped soil units in the project area are included in the attached soil report.

Hydrology

Indicators of wetland hydrology include drainage patterns, drift lines, sediment deposits, watermarks, and visual observations of saturated soils and/or inundation. Visual observations of surface water or soil saturation were made throughout the 2020 season. Drainage patterns were determined by observing any signs of surface flow into or through the subject parcel throughout the year. Aerial imagery was used courtesy of Google Earth, 2019.

Botanical Survey Methods

This survey and report is intended to satisfy any project needs for botanical survey and mitigation for rare or endangered plant species and sensitive vegetation communities under the California Environmental Quality Act (CEQA). If sensitive plant species are detected within the project boundaries appropriate measures to avoid and/or mitigate impacts to those species shall be developed by a qualified professional and delivered to the appropriate agencies for review. These same measures are listed in CEQA, Section 15370.

- Avoid the impact altogether by not taking a certain action
- Minimize impacts by limiting the degree or magnitude of the action
- Rectify the impact by repairing, rehabilitating, or restoring the impacted environment
- Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the project

- Compensate for the impact by replacing or providing substitute resources or environments

Surveys for this project were conducted on 15 June 2019; 22 March, 25 April, 31 May,21 June, and 26 July 2020. The surveys were conducted by Mr. James Regan. Mr. Regan holds a bachelors' degree in botany and has experience working as professional botanist and wetland delineator in northern California. Approximately 24 field hours were spent on surveys within the project area. Maps showing survey routes are included as Attachment B. Surveys were done as an intuitive assessment of potential habitats based on personal knowledge and visible environmental features such as canopy cover, slope, soil texture, aspect, hydrologic features, and associated tree, shrub, and herbaceous plant species (if present). The botanical survey was floristic in nature and seasonally appropriate. This survey protocol is based on Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2018). A list of sensitive plant species that have the potential to occur in this area is provided in Attachment A. This list is the result of a compilation of occurrence data from the California Native Plant Society (CNPS) and California Natural Diversity Database (CNDDB). Sources were queried for the Harris USGS 7.5' quadrangle and the 8 quadrangles immediately adjacent. Plant species with potential habitat within the project area are noted. All other species listed are described as existing in habitat types that are not found within the project area. Plant species ranked by the CNPS as California Rare Plant Rank (CRPR) 1 and 2 with potential habitat within the project area are considered the primary focus of seasonal surveys. CRPR list 3 and 4 plants are recorded and reported if found within the project area and will be considered for mitigation if appropriate. A complete list of species encountered is found in Attachment C.

Results/Recommendations

Sensitive Plant Species

- ***Gilia capitata ssp. Pacifica (Pacific Gilia, GICAPA)***

Approximately 140 individuals of this sensitive plant species were detected on a steep thinly vegetated slope in the southeast portion of the surveyed area. The plants were scattered in a roughly 20 by 40 foot oval. Yellow star thistle, a noxious invasive species, was found within 50 feet of the GICAPA population. Interestingly, this species did not show up on the project scoping as there are no known occurrences in the area making this a particularly interesting find.

The retention of these sensitive plant sites and recognition of the biodiversity they could represent is important for best management of native vegetation. I recommend avoiding impacts to this site. At this time planned activities are not expected to occur within or adjacent to these sites and no impacts are expected. The site should be afforded protective measures should development or vegetation management outside of normal activities

(cattle ranching) be planned for within 100 feet of the occupied area. Normal management and maintenance of the sites for cattle ranching is acceptable and may be necessary to maintain current conditions which appear favorable to the species. Judicious treatment or removal of the yellow star thistle would likely benefit GICAPA at this location. Sensitive plant sites are included on the Sensitive Plant Location Map, Attachment D.

Sensitive Natural Vegetation Communities

Sensitive natural vegetation communities were detected during surveys for this project.

- **Danthonia californica (California oat grass prairie) Herbaceous Alliance G4, S3**

This sensitive herbaceous alliance is found in small patches throughout the open grassland habitat. The grass species is mixed with other native and non-native grasses common to pasture and grazed land in the region. *Danthonia* was seldom dominant over large areas and often gave way to taller, later blooming non-native grasses such as slender oat grass and harding grass later in the season.

In order to preserve California oat grass prairie habitat within the project area I recommend using native grass seed including *Danthonia californica* (California oat grass), *Bromus carinatus* (California brome grass), and *Elymus glaucus* (blue wild rye) in erosion control endeavors for all soils disturbed during work associated with this development. In addition, use of clean, weed free mulches and straw erosion control measures can help, along with adherence to an invasive species management plan, to reduce the influx and/or spread of non-native competitors and weedy invaders.

- **Quercus garryana (Oregon white oak woodland) Woodland Alliance G4, S3**

This sensitive vegetation type occurs in small stands within and adjacent to the open grassland portions of the project area. As previously described the Oregon white oak is mixed with bay, black oak, and others. At this time proposed development does not include the removal of any oak woodlands or individual oak trees. No impacts are expected to occur and no additional management recommendations are presented here.

Wetland and Waters Investigation

Previously unmapped wetlands and watercourses exist within the surveyed areas. All newly mapped watercourses in the subject area showed at least two of the three primary indicators of OHWM which include a break in slope, a change in sediment profile, or a change in vegetation. Seasonal (Intermittent and Ephemeral) creeks within the parcel are generally characterized by a small change in slope from upland to the seasonally active channel and a change in sediment from fines and organics outside the OHWM and loose gravels and small cobble within. Creeks classified as Perennial on attached maps were flowing water in at least some portion of their

length at the time of survey and had more developed channel morphology and suitable habitat for aquatic species. Streams identified as Intermittent had flows in the early portions of the season but were discontinuous later in the season, sometimes only small pools and saturated soils. These waters likely had a groundwater influence and were flowing well after rain events. Ephemeral streams largely did not flow during the survey period and were identified by channel morphology and connection to higher order creeks or wetlands. These watercourses likely flow during and shortly after heavy rain events. Several unconnected swales were noted and mapped, these should not be considered watercourses for development planning.

Wetland areas included on attached maps are generally associated with watercourses, road features, or cattle activity, likely a result of soil compaction due to cattle grazing and pasture maintenance.

Wetlands and watercourses located within the surveyed area may be considered jurisdictional by either CDFW, ACOE, or both. All identified features are included on the included Wetlands and Waters Maps in Attachment B. Wetland boundaries are approximate and based on observed conditions throughout the 2020 season. 2020 is a year with below average rainfall and often secondary indicators of jurisdictional wetland presence were used.

Recommend avoiding impacts to waters by adhering to all Federal, State, County, and local ordinances for permitted developments. As proposed, the areas of disturbance from this development are located outside of setbacks for wetlands and waters. Current setbacks include:

Perennial watercourses and springs – 150 feet
Intermittent watercourses and wetlands – 100 feet
Ephemeral watercourses – 50 feet

Invasive Species Management

A generalized protocol for the management of invasive plants in include as Attachment E. These methods can help maintain native and planted vegetation and reduce the amount and infestation of cover of non-native or invasive plant species. Reducing invasive plants can improve habitat for sensitive plants and animals as well as improve conditions for livestock and potentially reduce fire susceptibility. I recommend using these practices in and around any areas of development, around sensitive native plant and vegetation sites, and in any area where invasive plants occur in the project area.

Significance of wetlands and the necessity for mitigation during development is decided by regional agents of the appropriate federal, state, and local agencies if and when the site is reviewed for permitting purposes.

This report was prepared for exclusive use; consultants are not liable for any actions arising out of the reliance of any third party on the information contained in this report.

Please feel free to call with any questions.

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Attachment A
List of Potentially Occurring Sensitive Plant Species

Pratt Mountain – List of Potentially Occurring Sensitive Plant Species

Scientific Name	Common Name	CRPR	G Rank	S Rank	CESA	FESA	Blooming Period	Habitat	Habitat Present
Arabis mcdonaldiana	McDonald's rockcress	1B.1	G3	S3	CE	FE	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest	Potential
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	1B.1	G3T2	S2	None	None	Feb-Apr	Chaparral, Lower montane coniferous forest (openings)	Potential
Astragalus agnicidus	Humboldt County milk-vetch	1B.1	G2	S2	CE	None	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest	Yes
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	1B.1	G3T1	S1	None	None	Mar-May	Chaparral	Potential
Eriogonum kelloggii	Kellogg's buckwheat	1B.2	G2	S2	CE	None	(May)Jun-Aug	Lower montane coniferous forest (rocky, serpentinite)	Potential
Erythronium oregonum	giant fawn lily	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	Yes
Erythronium revolutum	coast fawn lily	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Yes
Frangula purshiana ssp. ultramafica	Caribou coffeeberry	1B.2	G4T2T3	S2S3	None	None	May-July	serpentinite, Chaparral, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Potential
Gentiana setigera	Mendocino gentian	1B.2	G2	S2	None	None	(Apr-Jul)Aug-Sep	Lower montane coniferous forest, Meadows and seeps	Potential
Howellia aquatilis	water howellia	2B.2	G3	S2	None	FT	Jun	Marshes and swamps (freshwater)	Potential
Kopsiopsis hookeri	small groundcone	2B.3	G4?	S1S2	None	None	Apr-Aug	North Coast coniferous forest	Yes

Scientific Name	Common Name	CRPR	G Rank	S Rank	CESA	FESA	Blooming Period	Habitat	Habitat Present
Montia howellii	Howell's montia	2B.2	G3G4	S2	None	None	(Jan-Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	Yes
Piperia candida	white-flowered rein orchid	1B.2	G3	S3	None	None	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	Yes
Sedum laxum ssp. eastwoodiae	Red Mountain stonecrop	1B.2	G5T2	S2	None	None	May-Jul	Lower montane coniferous forest (serpentinite)	Potential
Sidalcea malviflora ssp. Patula	Siskiyou checkerbloom	1B.2	G5T2	S2	None	None	(Apr)May-August	roadcuts, Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	Yes
Tracyina rostrata	beaked tracyina	1B.2	G2	S2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Yes
Viburnum ellipticum	oval-leaved viburnum	2B.3	G4G5	S3?	None	None	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	Potential

Rank Definitions

Global Conservation Status Definitions

Listed below are definitions for interpreting NatureServe global (range-wide) conservation status ranks. These ranks are assigned by NatureServe scientists or by a designated lead office in the NatureServe network.

G1 **Critically Imperiled**—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2 **Imperiled**—At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.

G3 **Vulnerable**—At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.

G4 **Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5 **Secure**—Common; widespread and abundant.

G#G# **Range Rank**—A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

Infraspecific Taxon Conservation Status Ranks

T# **Infraspecific Taxon** (trinomial)—The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species. For example, a G1T2 subrank should not occur. A vertebrate animal population, (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T-rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

Subnational (S) Conservation Status Ranks

S1 **Critically Imperiled**—Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.

S2 **Imperiled**—Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.

S3 **Vulnerable**—Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 **Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 **Secure**—Common, widespread, and abundant in the jurisdiction.

S#S# **Range Rank** — A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).

Rank Qualifiers

? **Inexact Numeric Rank**—Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.

Q **Questionable taxonomy that may reduce conservation priority**— Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. The "Q" modifier is only used at a global level and not at a national or subnational level.

The California Rare Plant Ranks

1A. Presumed extirpated in California and either rare or extinct elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extirpated in California, but more common elsewhere
2B. Rare or Endangered in California, but more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

1A: Plants Presumed Extirpated in California and either rare or extinct elsewhere
The plants of Rank 1A are presumed extirpated because they have not been seen or collected in the wild in California for
many years. This rank includes those plant taxa that are both presumed extinct, as well as those plants which are presumed
extirpated in California and rare elsewhere. A plant is extinct if it no longer occurs anywhere. A plant that is extirpated from
California has been eliminated from California, but may still occur elsewhere in its range.

1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
(Includes Rare Plant Ranks 1B.1, 1B.2, 1B.3)
The plants of Rank 1B are rare throughout their range with the majority of them endemic to California. Most of the plants
that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the
majority of plant taxa tracked by the CNDDB, with more than 1,000 plants assigned to this category of rarity.

2A: Plants Presumed Extirpated in California, but more common elsewhere
The plants of Rank 2A are presumed extirpated because they have not been seen or collected in the wild in California for
many years. This rank includes only those plant taxa that are presumed extirpated in California, but that are more common
elsewhere in their range. Note: Plants of both Rank 1A and 2A are presumed extirpated in California; the only difference is the

status of the plants outside of the state.

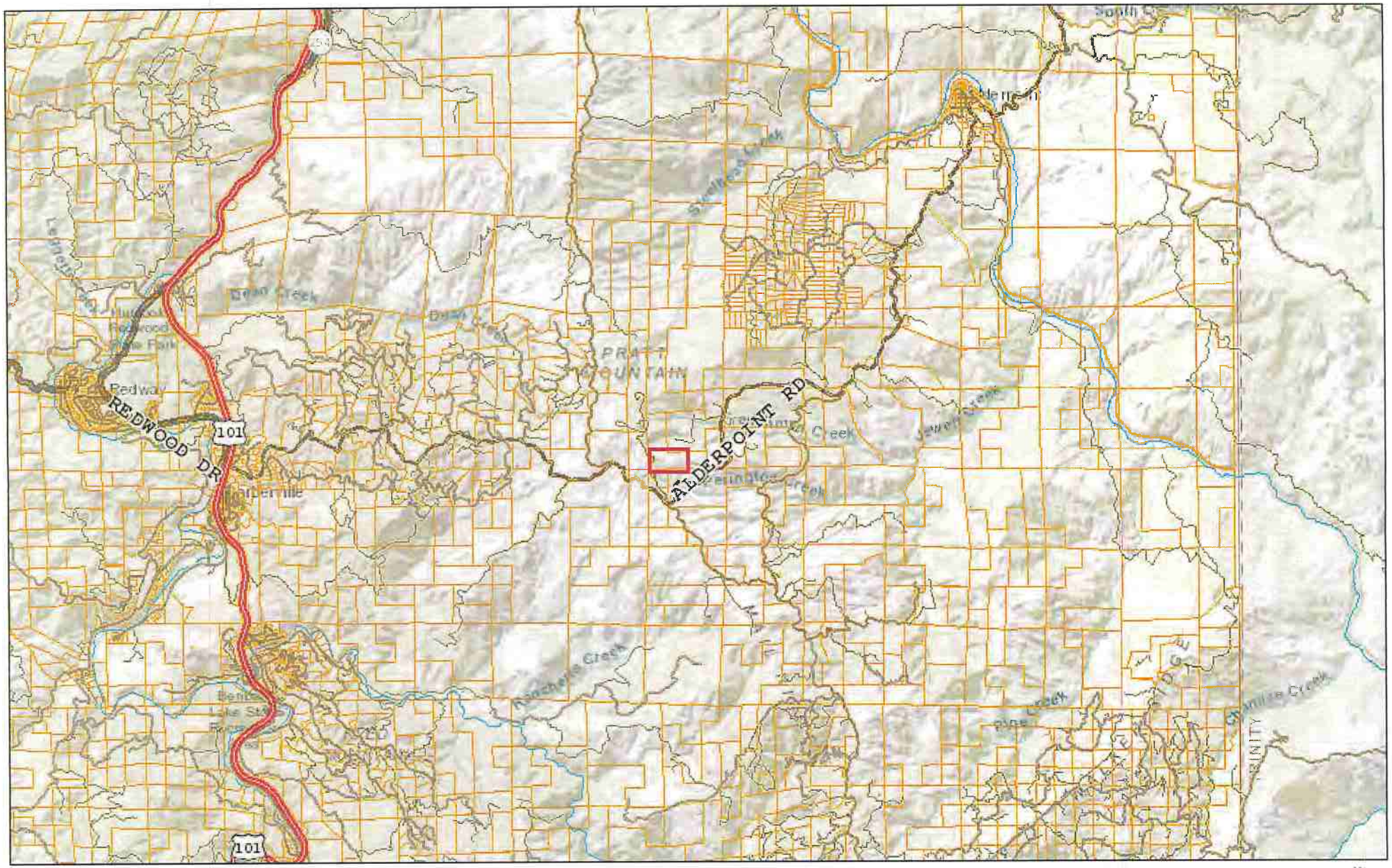
2B: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere (Includes Rare Plant Ranks 2B.1, 2B.2, 2B.3)
The plants of Rank 2B are rare, threatened or endangered in California, but more common elsewhere. Plants common in
other states or countries are not eligible for consideration under the provisions of the **Federal** Endangered Species Act;
however they are eligible for consideration under the **California** Endangered Species Act. This rank is meant to highlight the
importance of protecting the geographic range and genetic diversity of more widespread species by protecting those species
whose ranges just extend into California. Note: Plants of both Rank 1B and 2B are rare, threatened or endangered in
California; the only difference is the status of the plants outside of the state.

Threat Ranks:
The California Rare Plant Ranks (CRPR) use a decimal-style threat rank. The threat rank is an extension added onto the CRPR
and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. So
most CRPRs read as 1B.1, 1B.2, 1B.3, etc. Note that some Rank 3 plants do not have a threat code extension due to difficulty in
ascertaining threats for these species. Rank 1A and 2A plants also do not have threat code extensions since there are no known
extant populations of the plants in California.
Threat Code extensions and their meanings:
.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current
threats known)

FESA and CESA abbreviation definitions

CR – California Rare
CE – California Endangered
FE – Federally Endangered

Attachment B
General Location and Parcel Maps, Wetlands and Waters Maps, USFWS Wetland Maps, USGS Soil Report, Survey Route Maps



General Location Map

Humboldt County Planning and Building Department

Printed: August 31, 2020

Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Highways and Roads

- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads
- Private or Unclassified
- Major River or Stream
- City Boundary
- City Boundary (750K)
- Counties
- Parcels (no APN labels)

<default layer do not remove>

- Project Location

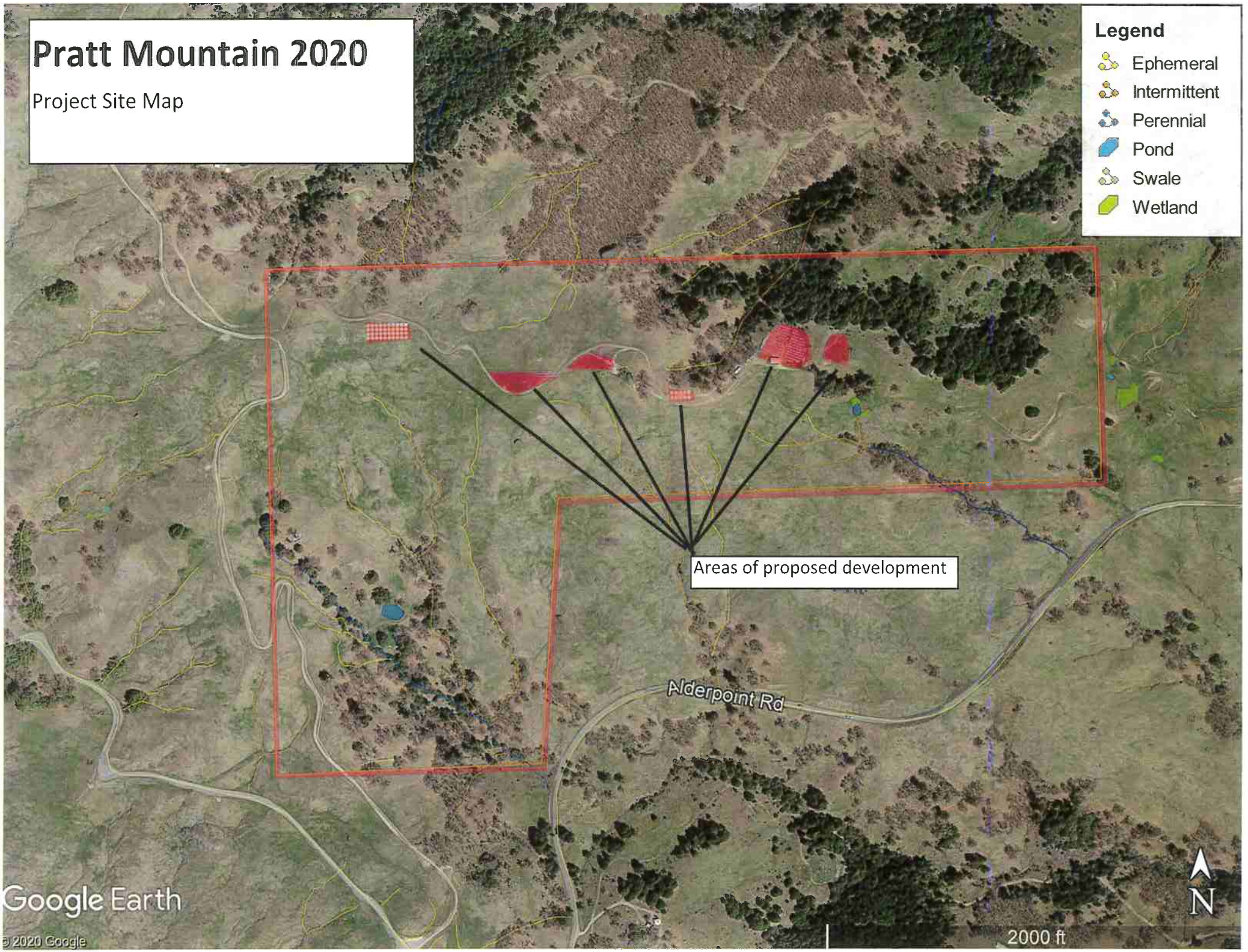
0 5,500 11,000 22,000 Feet

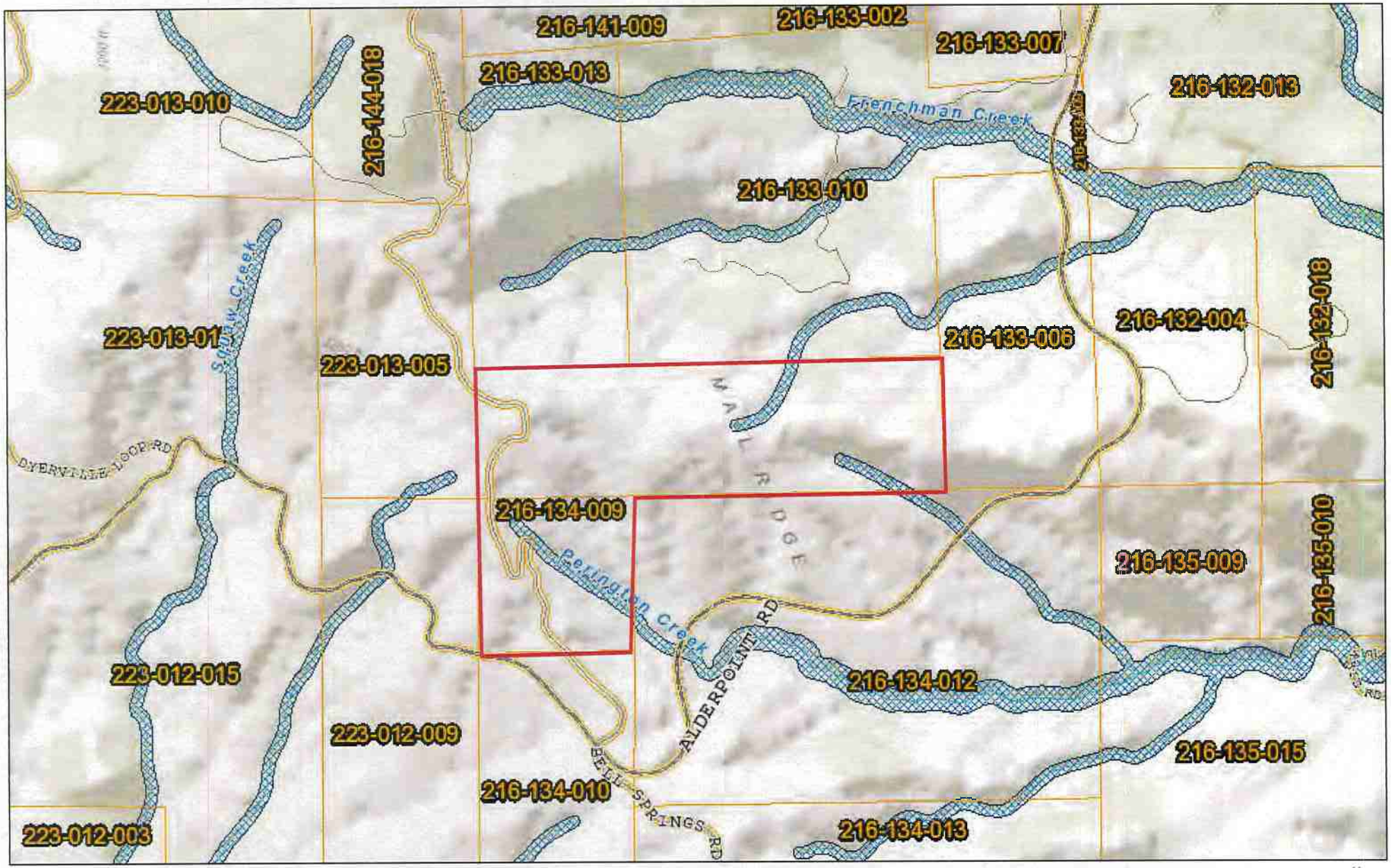
0 1 2 4 Miles

RF= 1:144,448 1 in = 12,037 ft

N W E S

Sources: NRCS
Humboldt County GIS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community


Pratt Mountain 2020
Project Site Map
Legend
Ephemeral
Intermittent
Perennial
Pond
Swale
Wetland
Areas of proposed development
Alderpoint Rd
Google Earth
© 2020 Google
2000 ft
N



County Parcels

Humboldt County Planning and Building Department

Printed: August 31, 2020

Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Highways and Roads
- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads

- Private or Unclassified
- Major River or Stream

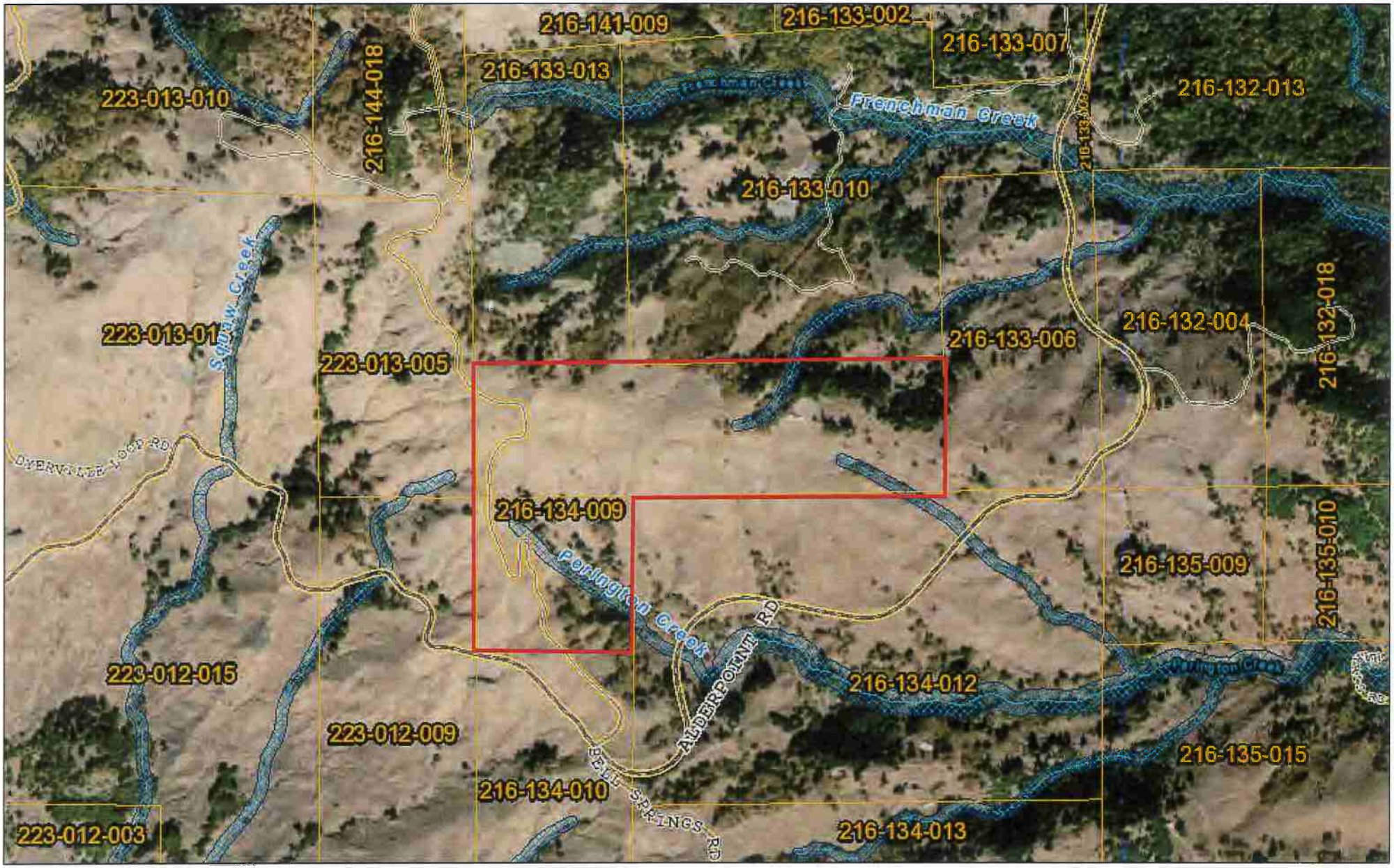
Blue Line Streams
- Perennial 1-3
- Perennial >4
- Intermittent
- Subsurface

- City Boundary
- City Boundary (750K)
- Counties
- Parcels

0 700 1,400 2,800 Feet
0 0.125 0.25 0.5 Miles
RF= 1:18,056 1 in = 1,505 ft

N W E S

Sources: NRCS
Humboldt County GIS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



County Air Photo Map

Humboldt County Planning and Building Department

Printed: August 31, 2020

Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Highways and Roads
- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads

- Private or Unclassified
- Major River or Stream

Blue Line Streams
- Perennial 1-3
- Perennial >4
- Intermittent
- Subsurface

- City Boundary
- City Boundary (750K)
- Counties
- Parcels

0 700 1,400 2,800 Feet
0 0.125 0.25 0.5 Miles
RF= 1:18,056 1 in = 1,505 ft

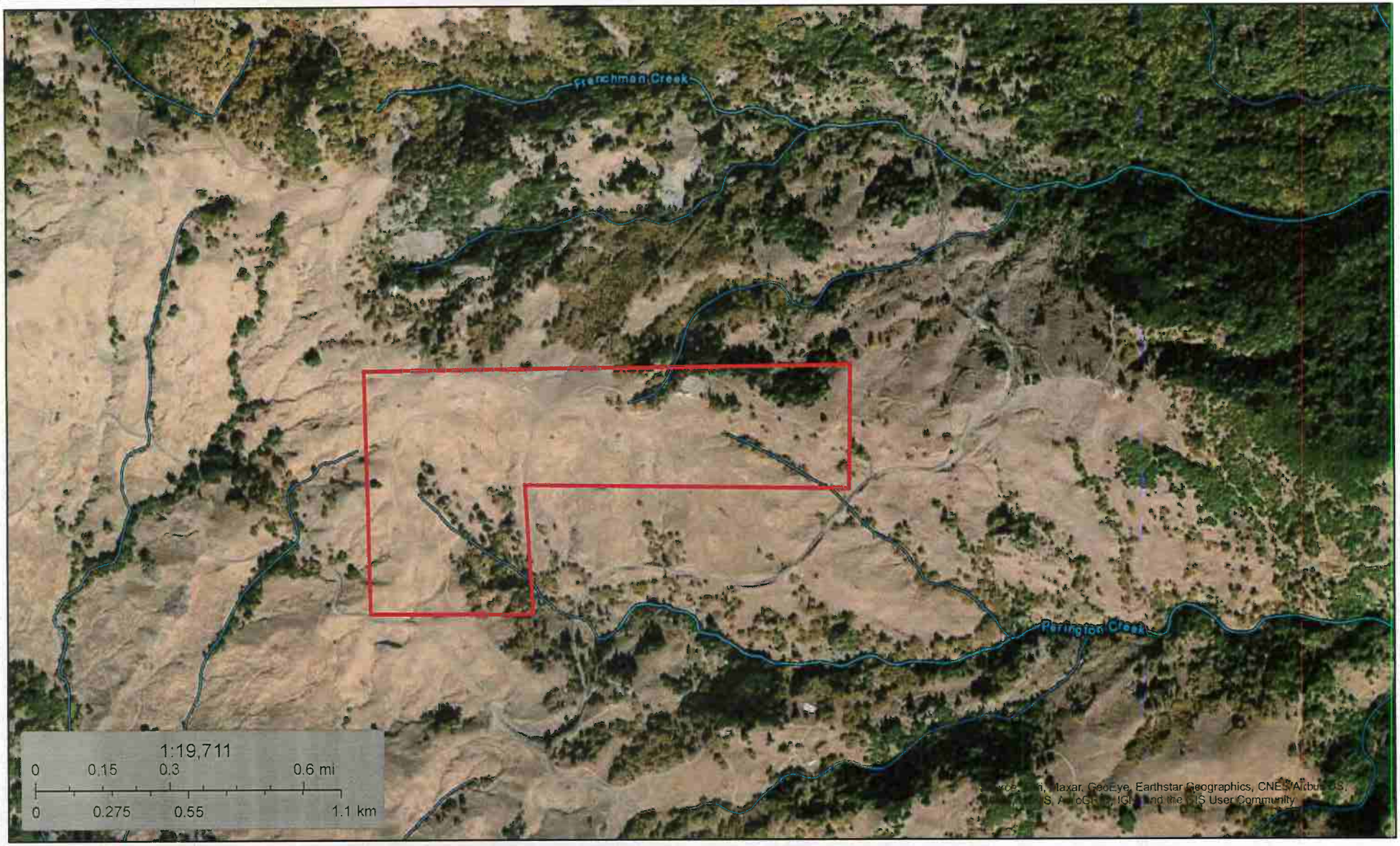
N W E S

Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
NRCS
Humboldt County GIS
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands and Waters

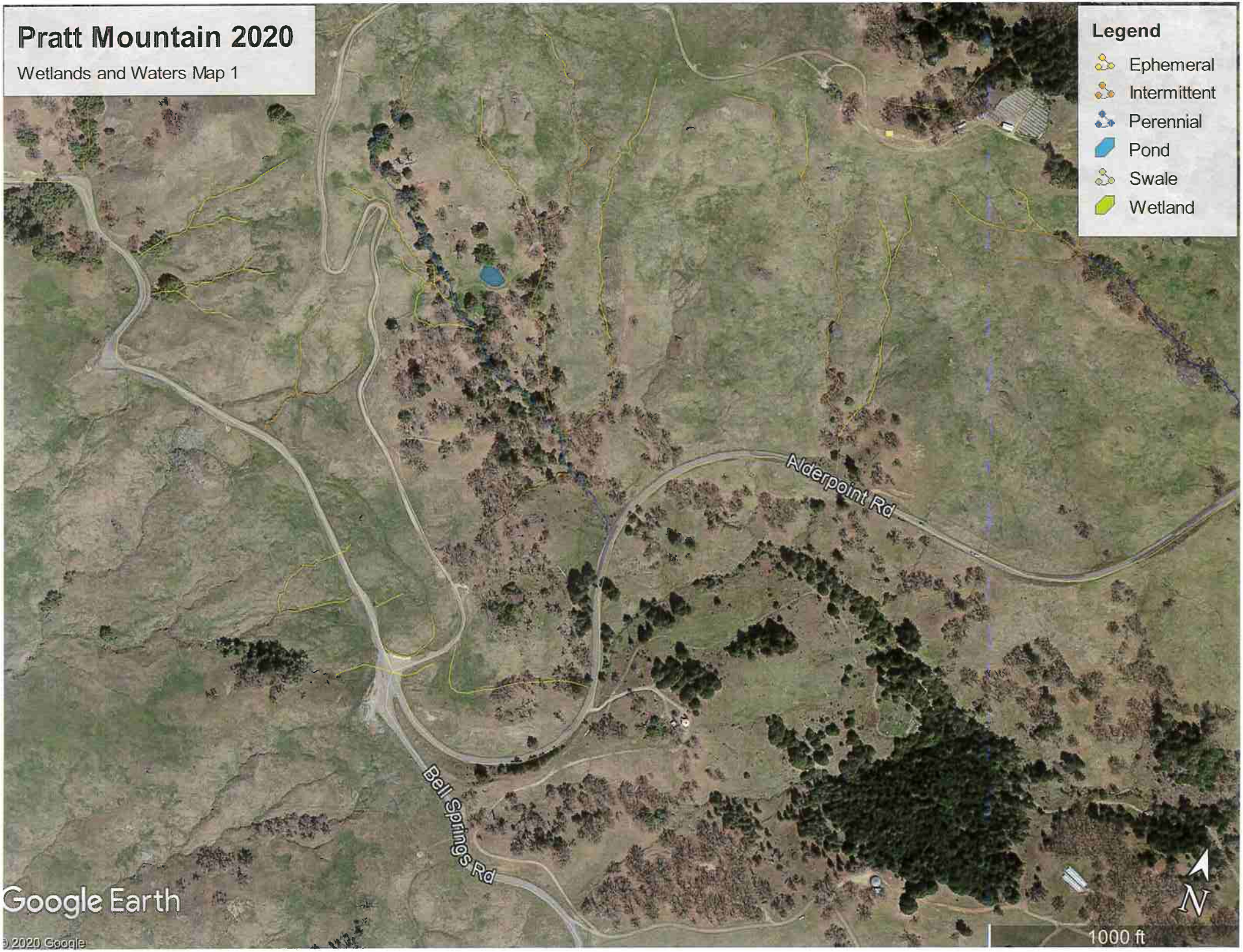


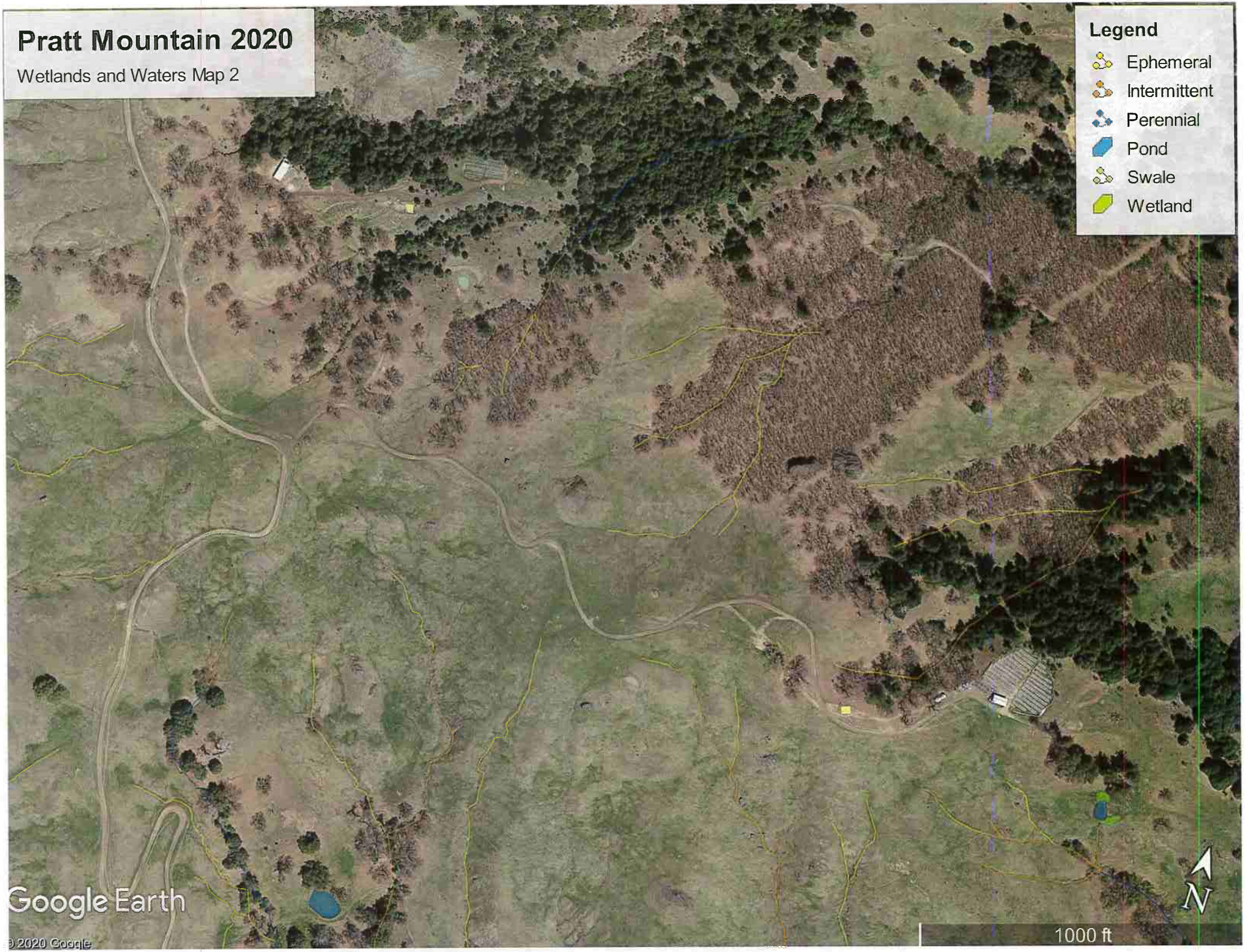
August 31, 2020

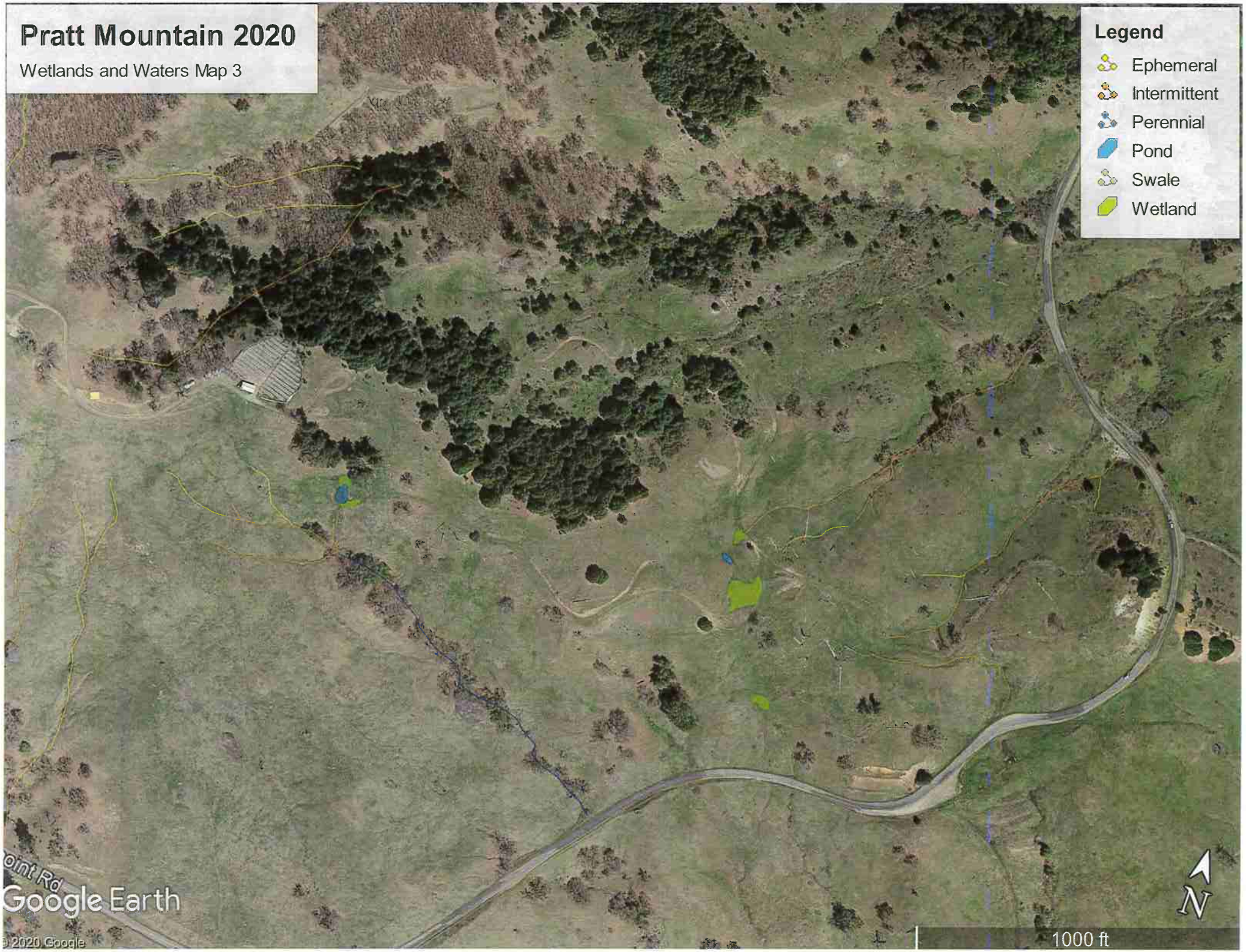
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

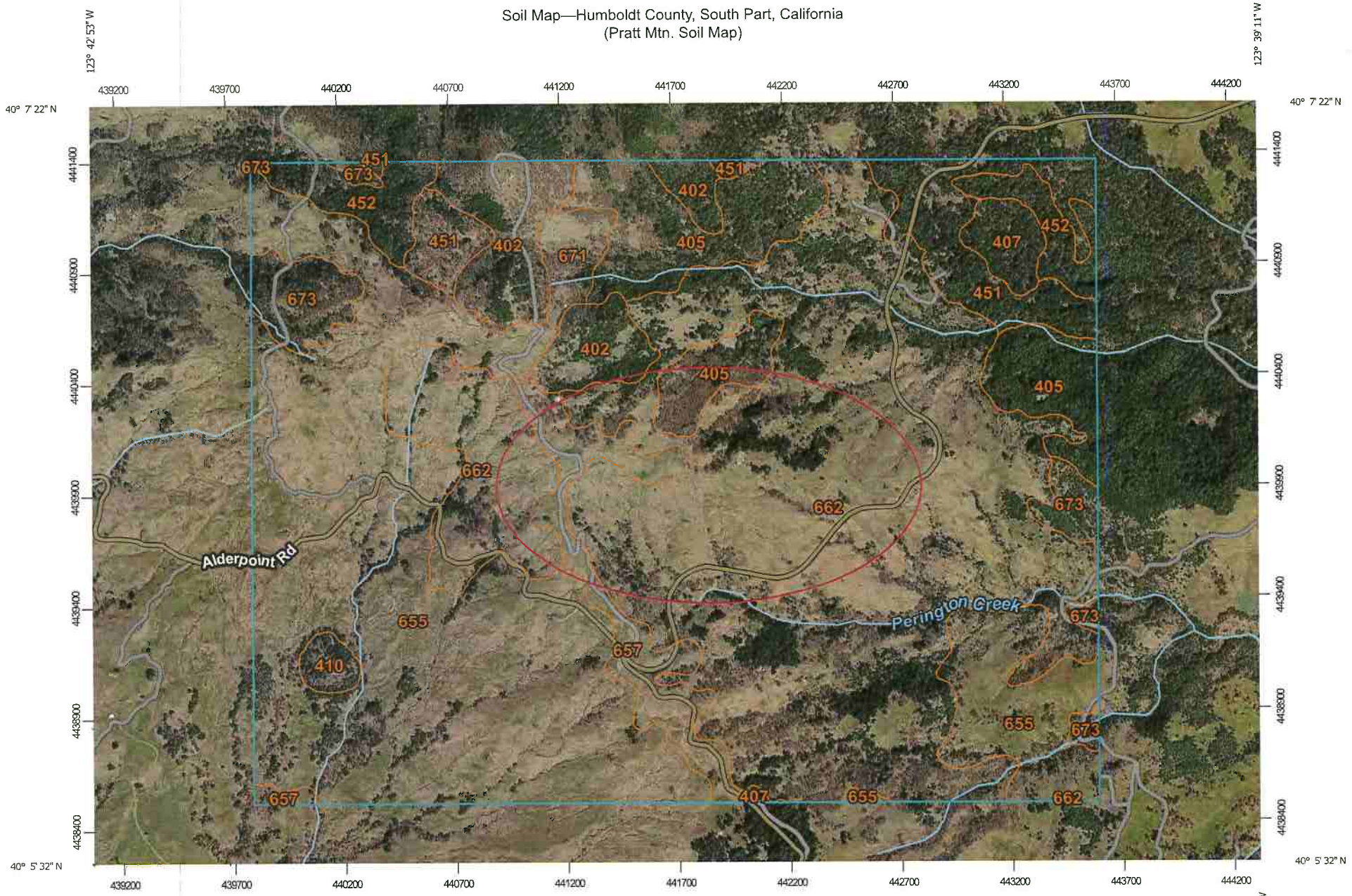
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.


Pratt Mountain 2020
Wetlands and Waters Map 1
Legend
Ephemeral
Intermittent
Perennial
Pond
Swale
Wetland
Alderpoint Rd
Bell Springs Rd
Google Earth
© 2020 Google
N
1000 ft


Pratt Mountain 2020
Wetlands and Waters Map 2
Legend
Ephemeral
Intermittent
Perennial
Pond
Swale
Wetland
Google Earth
© 2020 Google
1000 ft
N


Pratt Mountain 2020
Wetlands and Waters Map 3
Legend
Ephemeral
Intermittent
Perennial
Pond
Swale
Wetland
Google Earth
© 2020 Google
1000 ft
N

Soil Map—Humboldt County, South Part, California
(Pratt Mtn. Soil Map)



Map Scale: 1:24,000 if printed on A landscape (11" x 8.5") sheet.

Meters: 0 350 700 1400 2100

Feet: 0 1000 2000 4000 6000

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, South Part, California
Survey Area Data: Version 9, Jun 1, 2020

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

Date(s) aerial images were photographed: Jul 30, 2014—Nov 6, 2017

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
402	Tannin-Wohly-Rockyglen complex, 50 to 75 percent slopes	130.4	4.8%
405	Tannin-Wohly-Rockyglen complex, 30 to 50 percent slopes	202.6	7.4%
407	Tannin-Wohly complex, 9 to 30 percent slopes	29.8	1.1%
410	Rockyglen-Hollowtree-Rock outcrop complex, 50 to 100 percent slopes	13.9	0.5%
451	Burgsblock-Coolyork-Tannin complex, 15 to 30 percent slopes	125.9	4.6%
452	Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes	74.4	2.7%
655	Yorknorth-Witherell complex, 15 to 30 percent slopes	827.3	30.4%
657	Yorknorth-Witherell complex, 2 to 15 percent slopes	102.9	3.8%
662	Yorknorth-Witherell complex, 30 to 50 percent slopes	1,112.6	40.9%
671	Coolyork-Yorknorth complex, 5 to 30 percent slopes	29.1	1.1%
673	Coolyork-Yorknorth complex, 30 to 50 percent slopes	72.2	2.7%
Totals for Area of Interest		**2,720.9**	**100.0%**

Humboldt County, South Part, California

657—Yorknorth-Witherell complex, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: hs87
Elevation: 200 to 2,490 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 52 to 59 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Yorknorth and similar soils: 70 percent
Witherell and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yorknorth

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 sandstone and/or residuum weathered from schist and/or earthflow deposits derived from mudstone

Typical profile

A - 0 to 11 inches: loam
Bt1 - 11 to 23 inches: clay loam
Bt2 - 23 to 31 inches: clay
Bt3 - 31 to 39 inches: clay loam
Bt4 - 39 to 60 inches: clay
C - 60 to 79 inches: clay

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
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 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 capacity: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Witherell

Setting

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

Typical profile

A1 - 0 to 7 inches: loam
A2 - 7 to 10 inches: loam
Bt - 10 to 14 inches: loam
C - 14 to 79 inches: gravel

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Medium
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 capacity: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Coolyork

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: Linear, concave
Across-slope shape: Concave, linear

Hydric soil rating: No

Burgsblock

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Dryfield

Percent of map unit: 2 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
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

Data Source Information

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 9, Jun 1, 2020

Humboldt County, South Part, California

662—Yorknorth-Witherell complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: v6lg
Elevation: 200 to 3,280 feet
Mean annual precipitation: 49 to 90 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Yorknorth and similar soils: 70 percent
Witherell and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yorknorth

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 sandstone and/or earthflow deposits derived from schist

Typical profile

A1 - 0 to 4 inches: silt loam
A2 - 4 to 15 inches: silt loam
Bt1 - 15 to 28 inches: silty clay loam
Bt2 - 28 to 52 inches: clay
C1 - 52 to 63 inches: clay
C2 - 63 to 71 inches: gravelly clay loam

Properties and qualities

Slope: 30 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): Moderately low to moderately high (0.06 to 0.20 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 capacity: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Witherell

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 2 inches: loam
Bt1 - 2 to 10 inches: gravelly loam
Bt2 - 10 to 12 inches: gravelly loam
C - 12 to 79 inches: gravel

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
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 capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Briceland

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

Dryfield

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

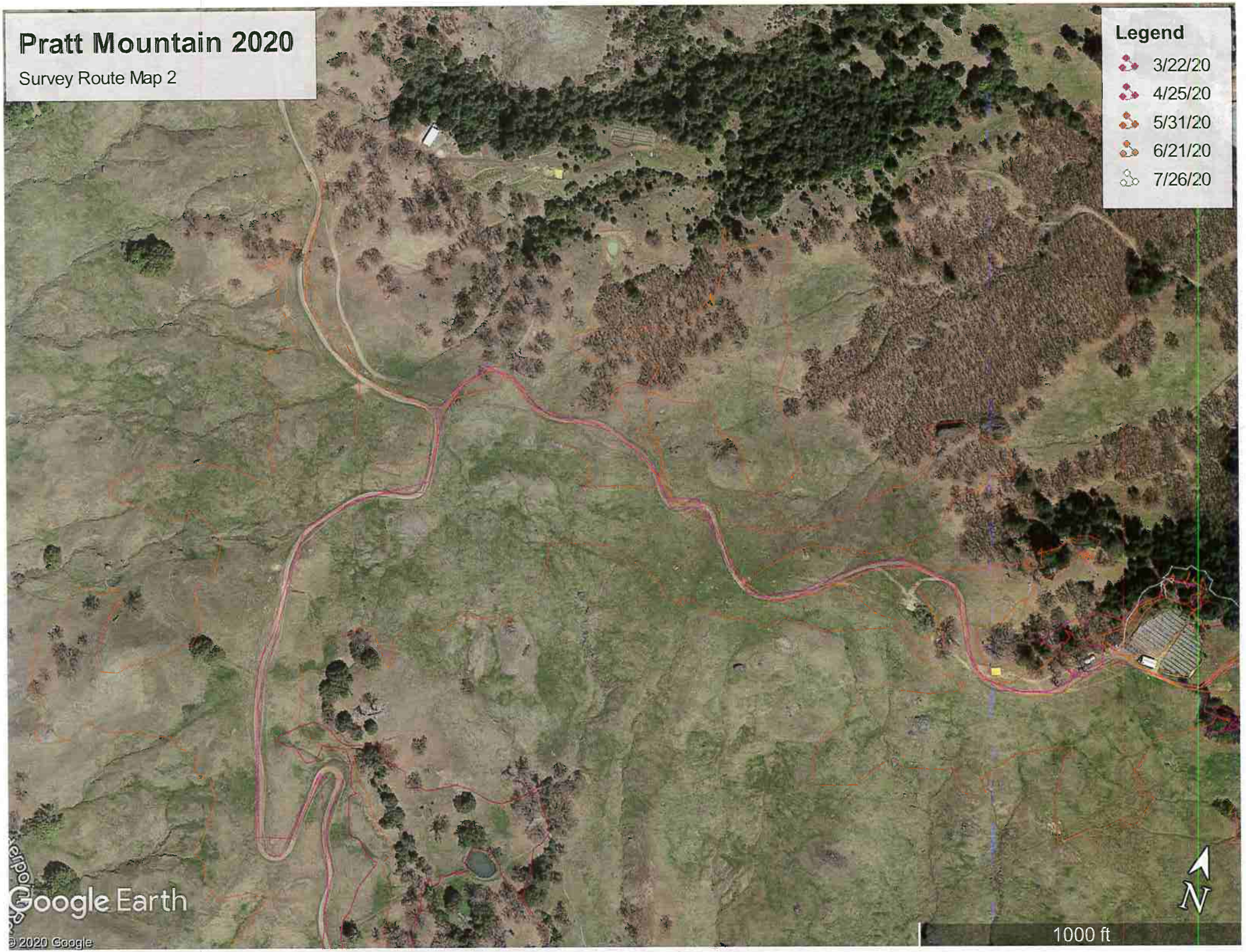
Tankridge

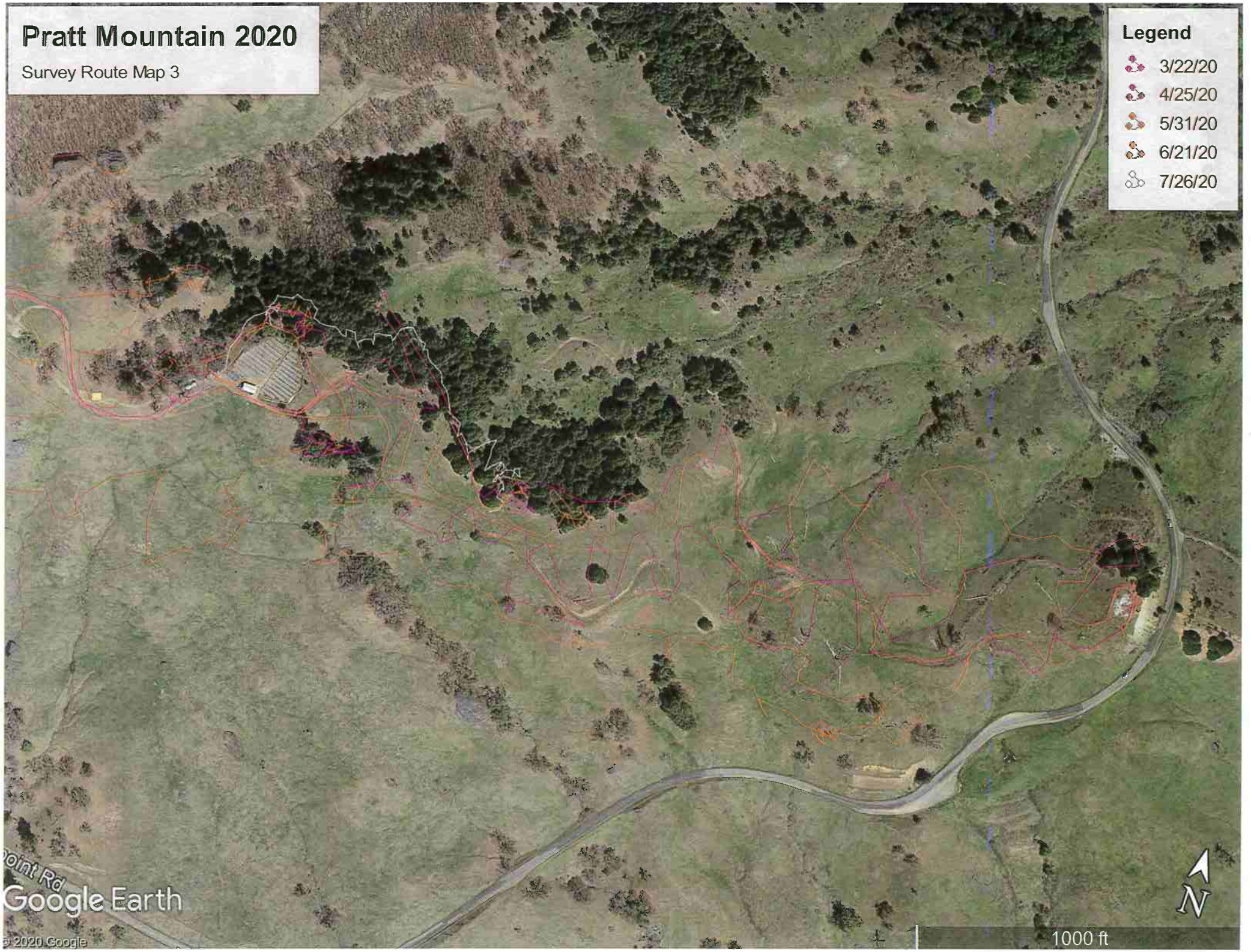
Percent of map unit: 5 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Center third of mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Concave, linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 9, Jun 1, 2020


Pratt Mountain 2020
Survey Route Map 1
Legend
3/22/20
4/25/20
5/31/20
6/21/20
7/26/20
Alderpoint Rd
Google Earth
© 2020 Google
N
1000 ft


Pratt Mountain 2020
Survey Route Map 2
Legend
3/22/20
4/25/20
5/31/20
6/21/20
7/26/20
Google Earth
© 2020 Google
N
1000 ft


Pratt Mountain 2020
Survey Route Map 3
Legend
3/22/20
4/25/20
5/31/20
6/21/20
7/26/20
Google Earth
© 2020 Google
1000 ft
N

Attachment C
Comprehensive Species List

Tree Layer	
Arbutus menziesii	Pacific madrone
Notholithocarpus densiflorus var. densiflorus	tanbark oak
Pinus jeffreyi	Jeffrey pine
Pseudotsuga menziesii var. menziesii	Douglas-fir
Quercus garryana	Oregon white oak
Quercus kelloggii	California black oak
Salix melanopsis	dusky willow
Umbellularia californica	California-bay
Shrub Layer	
Baccharis pilularis	coyote brush
Ribes roezlii var. roezlii	Sierra gooseberry
Rubus armeniacus	Himalayan blackberry
Rubus ursinus	Pacific bramble or California blackberry
Herbaceous Layer	
Achillea millefolium	common yarrow
Agoseris sp.	Agoseris
Agrostis sp.	bent grass
Anisocarpus madioides	woodland madia
Anthriscus caucalis	bur chevril
Athysanus pusillus	dwarf athysanus
Bromus diandrus	ripgut grass
Calochortus superbus	yellow mariposa
Calochortus tolmiei	pussy ears
Cardamine californica	California toothwort or milk maids
Carduus pycnocephalus	Italian thistle
Centaurea solstitialis	yellow starthistle
Cephalanthera austiniae	phantom orchid
Cerastium glomeratum	mouse ear chickweed
Chlorogalum pomeridianum var. pomeridianum	soap plant
Cirsium occidentale var. candidissimum	snowy thistle
Clarkia purpurea ssp.quadrivulnera	four-spot
Clarkia rhomboidea	Clarkia
Claytonia perfoliata	miner's lettuce
Cryptantha sp.	cryptantha
Cynoglossum grande	hound's-tongue
Cynosurus echinatus	hedgehog dogtail grass
Dactylis glomerata	orchard grass
Danthonia californica	California oatgrass
Delphinium nudicaule	canyon delphium
Draba verna	spring Whitlow grass
Elymus caput-medusae	medusa head grass
Elymus elymoides	squirrel tail grass
Elymus glaucus ssp. glaucus	blue wildrye
Epilobium brachycarpum	parched fireweed
Erigeron sp.	fleabane daisy
Erodium botrys	long-beaked storksbill
Erodium cicutarium	red-stemmed filaree or common stork's bill

Erythronium californicum	Fawn Lily
Eschscholzia californica	California poppy
Festuca californica	California fescue
Festuca idahoensis	Idaho fescue
Festuca rubra	red fescue
Filago gallica	cottonrose
Fritillaria affinis	checker lily
Galium californicum	California bedstraw
Geranium dissectum	cut-leaved geranium
Gilia capitata ssp. pacifica	Pacific gilia
Glyceria declinata	low manna grass
Hypericum perforatum	Klamath weed or common St. John's-wort
Hypochaeris glabra	smooth cat's-ear
Hypochaeris radicata	hairy cat's-ear
Iris sp.	iris
Juncus bolanderi	Bolander's rush
Juncus bufonius	common toad rush
Juncus effusus	common rush
Juncus occidentalis	western rush
Juncus patens	spreading rush
Lactuca virosa	poison wild lettuce
Lasthenia californica ssp. californica	California goldfields
Lathyrus vestitus	wood pea
Leptosiphon bicolor	baby stars
Limnanthes douglasii	Douglas' meadowfoam
Linum bienne	western blue flax
Lithophragma affine	woodland star
Lomatium macrocarpum	large-fruited biscuit root
Lupinus albifrons	silver lupine
Lupinus bicolor	miniature lupine
Luzula comosa	common wood rush
Madia exigua	small tarweed or threadstem madia
Madia sativa	coast tarweed
Marah sp.	wild cucumber
Matricaria discoidea	pineapple weed
Medicago polymorpha	bur clover
Melica bulbosa	western melica or oniongrass
Mentha pulegium	pennyroyal
Mimulus guttatus	seep-spring monkey flower
Monardella villosa ssp. villosa	coyote mint
Monotropa hypopitys	pine sap
Nasturtium officinale	water cress
Navarretia intertexta	needle-leaf navarretia
Nemophila menziesii	baby blue eyes
Osmorhiza berteroi	mountain sweet-cicely
Pentagramma triangularis ssp. triangularis	goldback fern
Phacelia californica	California phacelia
Phalaris aquatica	harding grass

Piperia transversa	royal rein orchid
Plagiobothrys nothofulvus	popcorn flower
Plectritis congesta	sea blush
Poa bulbosa	bulbous blue grass
Polypodium sp.	polypody
Potamogeton amplifolius	broad-leaved pondweed
Primula hendersonii	mosquito bill
Psilocarphus sp.	woolly-heads or woolly marbles
Pteridium aquilinum var. pubescens	western bracken fern
Ranunculus californicus	California buttercup
Ranunculus occidentalis	western buttercup
Ranunculus sardous	hairy buttercup
Rumex acetosella	sheep sorrel
Sagina sp.	pearlwort
Sanicula bipinnatifida	purple sanicle
Sanicula crassicaulis	Pacific snakeroot
Sanicula tuberosa	turkey pea
Scutellaria antirrhinoides	nose skullcap
Sherardia arvensis	field madder
Sidalcea diploscypha	fringed checkerbloom
Sisyrinchium bellum	blue-eyed-grass
Spergularia rubra	purple sand spurry
Spiranthes romanzoffiana	lady's tresses
Stellaria sp.	chickweed
Taraxacum officinale	dandelion
Thysanocarpus curvipes	lacepod
Tragopogon sp.	goat's beard or salsify
Trifolium depauperatum	bladder clover
Trifolium fucatum	sour clover
Trifolium hirtum	rosy clover
Trifolium subterraneum	subterranean clover
Triphysaria pusilla	dwarf orthocarpus
Vicia americana ssp. americana	American vetch
Vicia sativa ssp. nigra	narrow-leaved vetch
Vicia villosa ssp. villosa	hairy vetch
Viola adunca	western dog violet
Viola ocellata	two-eyed violet or western heart's ease

Attachment D
Sensitive Plant Species Location Map

Pratt Mountain 2020

Rare Plant Location Map
Gilia capitata ssp. pacifica

Attachment E
Invasive Plant Management

Invasive Plant Management Protocols

Introduction

Invasive plants are defined as plants that are not native to an environment, and once introduced, they establish, quickly reproduce and spread, and cause harm to the environment, economy, or human health (CAL-IPC 2019).

Invasive plants have different life histories, methods of reproduction and dispersal, and have different potentials for impacts to native or managed vegetation communities. The California Invasive Plant Council (CAL-IPC) has produced a ranked list of invasive species in California, all listed plants should be considered when planning for invasive plant control but those rated as "High" have been found to be the most aggressive and potentially the most difficult to control. These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically (CAL-IPC 2019). A list of CAL-IPC "High" rated plants that are a concern for Humboldt County is included as Appendix A.

Management

The control and eradication for invasive plants is necessary for several reasons. In both wildland and managed landscapes invasive plants take up space and resources that could be used by native plants or planted crops. Invasive plants may affect the physical environment creating a setting that has increased fire risk, increases disease vectors, alters the hydrology and available water supply, and out competes desired vegetation. Invasive plants may not provide the food supply and suitable habitat for native animals or livestock and the presence of invasive plants may disrupt pollinator activity by either not providing adequate supply of necessary nutrients or by pulling pollinators away from planted crops or native plants potentially reducing the viability of planted or native plant reproduction.

Early detection and rapid response (EDRR) is a management approach that capitalizes on our ability to most effectively eradicate invasive plant populations when they are small. By detecting a new invasive plant before it has a chance to spread or build a large seed bank, managers can respond early enough in the invasion process to fully eradicate the species from a given area (CAL-IPC 2019). Thorough survey of the managed areas by persons trained in invasive plant identification on a regular basis is key to early detection and documentation of invasive plant occurrences.

Invasive plant management requires a multi-faceted approach especially when plants have become established and eradication is not likely due to factors out of the landowner's control such as seed and

propagule sources outside of the lands managed by the landowner. IPM (Integrated Pest Management) is a management methodology which is defined as

"A science-based decision-making process that incorporates management goals, consensus building, pest biology, monitoring, environmental factors, and selection of the best available technology to achieve desired outcomes while minimizing effects to non-target species and the environment and preventing unacceptable levels of pest damage" (USFWS 2010)

Land managers need to be aware of the types of invasive plants, their locations, the biology and life history of those target invasive species, how they could affect planned operations or development, and the variety of methodologies for control of those species. In general, there are four management types, these may also be considered management goals and landowners are often going to use a combination of management types and a variety of management tools to achieve these goals.

Types of Management – General Categories (adapted from Humboldt WMA 2010)

1. Prevention – preventing the establishment of invasive plants through enacting BMPs to reduce or remove the potential vectors which allow the introduction of weedy plants to the specific management area. Vectors include any activity which may bring invasive plant propagules (seeds, plant parts, etc.) to the management area or create situations in which invasive plants can colonize and establish.

2. Eradication – complete removal of target invasive plants that are present in the management area. This management strategy is more effective with small populations, larger infested areas may become costly and less successful to treat.

3. Containment – control of a known population of invasive plants usually when eradication is infeasible or improbable due to extent of infested area. This management type seeks to keep the weeds where they are and prevent the infested area from expanding or spreading to other areas.

4. Asset-based Protection – limiting invasive control to specific areas in order to protect or enhance high-conservation assets such as sensitive habitats, areas occupied by sensitive species, or areas with specific management goals that include the removal of invasive species. This management technique is generally used when invasive species are widespread and there is little chance of eradication or containment.

Landowners have a variety of tools at their disposal and depending on the size of the affected area, type of invasive species to control, management goals, time, and budget constraints. They will have to choose a management technique or combination of techniques that can be employed to reach management goals. A short summary of management techniques in included in Table 1 below.

Table 1 . Summary of invasive plant control techniques (adapted from Tu and Robinson 2013 from CAL-IPC 2018).

Technique	Advantage	Disadvantage
Manual: physical removal of invasive plants using nonmechanical tools such as hands, shovels, picks, axes, hand-saws, or machetes.	Little training is needed for safe use of many tools, and they can be used in a variety of situations; hand tools are relatively low cost and can provide very specific and targeted control. Ideal for smaller infestations.	May be time and labor-intensive for moderate to large infestations. Some manual tools may be dangerous to use. Potential nontarget effects: inadvertent disturbance to or removal of non-target species.
Mechanical: physical removal of invasive plants using mechanized tools such as mowers, brush-cutters, chainsaws, or earth-moving equipment.	Many tools/equipment can be used in a variety of situations and have low implementation costs. Can provide very specific and targeted control. Ideal for small infestations.	May be time- and labor-intensive for moderate to large infestations. May require qualified individuals or training to operate some mechanized tools or equipment. Potential non-target effects: inadvertent disturbance to or removal of non-target species.
Cultural: land management practices such as grazing, prescribed fire, or irrigation/flooding	Control of moderate to large infestations may be possible. Can be low effort and cost per unit acre relative to other techniques. In some cases, may lead to positive response by native plants.	In some cases, may lead to an increase in invasive plants if not used appropriately. Often will not completely eliminate the target species from an area. Potential non-target effects: inadvertently disturbs or removes non-target species and promotes invasive plant spread.
Biological: introduction of novel predators, parasites, and pathogens such as insects, fungi, or microbes, to attack an invasive plant species	Relatively low cost per unit acre. May keep invasive plants at a low level across large landscapes. Long-term effectiveness is limited; must repeatedly treat invasive plant infestations once biocontrol agents are established.	May be expensive to develop. Often does not lead to eradication of the target invasive species. High risk of unintended consequences to native species and communities.

Technique	Advantage	Disadvantage
Chemical: application of herbicides to kill invasive plants	May be a cost-effective approach for larger infestations and lead to effective control when used appropriately. Often a variety of application mechanisms available (ground and aerial).	High risk of unintended consequences to native species and communities. Unintended consequences may include contamination of soil or water, harm to or removal of nontarget species, human exposure, and health issues for applicators. May be expensive to obtain and/or apply chemicals. Often more regulatory requirements to apply. May be controversial in some areas.
Restoration of ecosystem processes or composition	Works to bring the project site to a desired and/or native state that is more resistant to invasion over the long term.	High cost. There may be a time lag to realized benefits. May not lead to elimination of the target invasive species.

In all cases the biology of the target species and the management goals will determine which, where, and when each management technique is used.

Invasive Plant Management Plan Protocols

1. Identify Needs
    a. Reason for management
        i. Permit Requirement – the action is required by land use permit
        ii. Restoration/Revegetation Goal – attempt to establish or re-establish native vegetation
        iii. Fuel Management – invasive plants can increase fire hazard
        iv. Reduce Competition – for planted crops or preferred vegetation (culturally important vegetation, livestock or wildlife food sources)
        v. Environmental degradation – removal of invasive plants to restore environmental features and/or processes
2. Identify areas to be managed (include on project maps)
    a. Areas with established invasive plants – these may be within or adjacent to the project site and will be a source of invasive plant propagules

b. Areas that will be disturbed or developed during land use activities – roadsides, parking lots, any area where native or naturalized vegetation will be removed or altered creating space for invasive plants to establish and spread. Some areas may be subjected to periodic disturbance and may have a higher chance of invasive species contamination (roadsides)
c. Restoration Areas – these sites will have specific restoration goals which will include invasive species management
d. Areas containing sensitive plants or habitats – could include watercourses, wetlands, sensitive native plant sites, or sensitive natural vegetation communities

3. Species to be managed
    a. Initial survey by personal trained in invasive plant identification
    b. Locate, identify, and map all potential invasive plants within and directly adjacent to the project footprint
    c. Identify highest priority target species

4. Establish Management Goals
    a. Prevention of invasive plants – areas where no invasive plants have yet been found
        i. Use BMPs to reduce the chance of infestation
            1. Do not use invasive or potentially invasive plants for erosion control or ornamental planting
            2. Tools and equipment (including all vehicles) should be periodically cleaned and inspected to reduce the chance of introducing invasive plants or plant propagules from outside the project footprint
            3. Plant and mulch all disturbed soils with native or non-invasive plants
            4. Conduct periodic survey of project site for target invasive plants and plan for early treatment if found
            5. Landowners should attempt to source all materials such as mulch, compost, and soils from distributors which follow BMPs for invasive species control – invasive plant propagules may be transported to the project site in these materials
    b. Eradication – sites known to contain invasive plants

f. Any areas treated for invasive plants should be re-planted with native species or mulched (preferably both) to reduce the possibility of re-establishment of invasive plant species

7. Monitoring
    a. Periodic survey and mapping of invasive plants within the treatment areas is necessary to gauge the effectiveness of any control technique and to assess the whether the management goals are being met or if alterations to the management plan are necessary to meet those goals
    b. Monitoring should include
        i. Periodic survey of the project area
        ii. A comparison of the baseline and current extent of invasive species distribution (map/maps with infected areas showing changes over time)
        iii. Discussion of control techniques used
        iv. Recommendations for any changes necessary to reach management goals
    c. Monitoring should be conducted until management goals are reached

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Appendix A

CAL-IPC Priority Invasive Plants

Scientific Name	Common Name	Rating
Aegilops triuncialis	barb goatgrass	High
Alternanthera philoxeroides	alligatorweed	High
Ammophila arenaria	European beachgrass	High
Arundo donax	giant reed	High
Brassica tournefortii	Sahara mustard, Morrocan mustard	High
Bromus madritensis ssp. rubens	red brome, foxtail chess	High
Bromus tectorum	cheatgrass, downy brome	High
Carpobrotus edulis	highway iceplant	High
Centaurea maculosa, *Centaurea stoebe ssp. micranthos*	spotted knapweed	High
Centaurea solstitialis	yellow starthistle	High
Cortaderia jubata	jubatagrass, pampasgrass	High
Cortaderia selloana	pampasgrass, white pampasgrass	High
Cytisus scoparius	Scotch broom, English broom	High
Delairea odorata	Cape-ivy, German ivy	High
Egeria densa	Brazilian egeria, egeria	High
Ehrharta calycina	purple veldtgrass, African veldtgrass	High

Scientific Name	Common Name	Rating
Eichhornia crassipes	water hyacinth,	High
Foeniculum vulgare	Fennel, sweet Fennel	High
Genista monspessulana	French broom, soft broom	High
Hedera helix, H. canariensis	English ivy and Algerian ivy	High
Hydrilla verticillata	hydrilla, water thyme	High
Lepidium latifolium	perennial pepperweed, tall whitetop	High
Limnobium laevigatum	South American spongeplant, West Indian spongeplant	High
Ludwigia hexapetala	creeping waterprimrose, Uruguay waterprimrose	High
Ludwigia peploides	creeping waterprimrose, California waterprimrose	High
Lythrum salicaria	purple loosestrife	High
Myriophyllum aquaticum	parrotfeather, Brazilian watermilfoil	High
Myriophyllum spicatum	spike watermilfoil	High
Onopordum acanthium	scotch thistle, cotton thistle	High

Scientific Name	Common Name	Rating
Rubus armeniacus	Himalayan blackberry	High
Salvinia molesta	giant salvinia, karibaweed	High
Sesbania punicea	scarlet wisteria, red sesbania	High
Spartina alterniflora x foliosa, S. alterniflora	smooth cordgrass and hybrids	High
Spartina densiflora	dense-flowered cordgrass, Chilean cordgrass.	High
Spartium junceum	Spanish broom	High
Taeniatherum caput-medusae, Elymus caput-medusae	medusahead	High
Tamarix parviflora	smallflower tamarisk	High
Tamarix ramosissima, T. gallica, T. chinensis	saltcedar, tamarisk	High
Ulex europaeus	gorse, common gorse	High