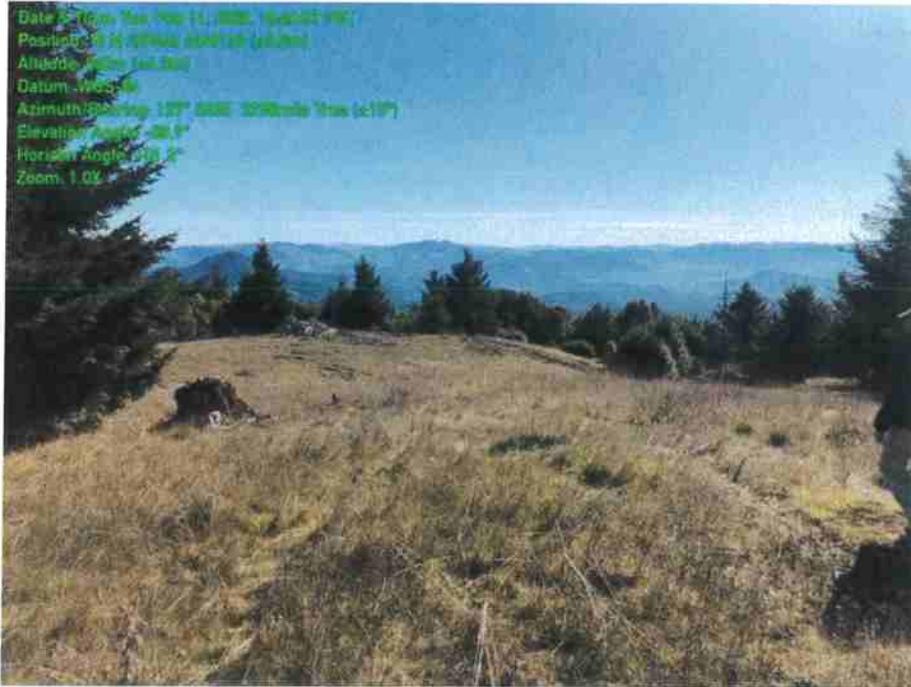


A Biological Assessment for Commercial Cannabis Cultivation

For

Clark's Butte Ranch & Ranch Center Permit Areas
APN 221-261-001



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1.0 Introduction

1.1 Purpose and Need

This biological assessment has been prepared for the Charles Benbow property on Thomas Road, five miles north of Etnersburg, CA, as a supplement to a proposed commercial cannabis cultivation permit.

Through obligations of environmental review under the California Environmental Quality Act (CEQA), permits are required by both the State of California and Humboldt County for all cultivation and irrigation activities.

Humboldt County regulates commercial cannabis through the Commercial Medical Marijuana Land Use Ordinance (CMMLUO), which requires permit applicants to assess all potentially significant impacts to biological resources from existing or proposed cannabis cultivation operations.

1.2 Project Sites and Biological Assessment Area

The project sites are defined as the two cultivation sites within the larger, ~1,200-acre parcel (APN# 221-261-001-000). These two permit areas, Clark's Butte (PLN-2019-16106), and Ranch Center (PLN-2019-16104) will both be assessed for potential impacts to sensitive species. The Biological Assessment Area (BAA) is defined as the entire ~1,200-acre parcel.

2.0 Regulatory Background

2.1 Cannabis Cultivation

With the passage of Proposition 64 in November 2016 (Medical Cannabis Regulation and Safety Act) cannabis was determined to be a commercial agricultural crop and was legalized for recreational use as well. Cannabis production is regulated by the California Department of Food and Agriculture (CDFA) which administers the Cal Cannabis program regulating cannabis licensing from the state. This permitting process is subject to environmental review under The California Environmental Quality Act (CEQA).

Under CEQA, Humboldt County, as the lead agency, requires that CMMLUO permit applicants have a qualified biologist professional assess the project area for sensitive biological communities and the potential presence of protected plants and animals.

2.2 Sensitive Biological Communities

Habitats that fulfill distinctive functions or values such as wetlands, streams or riparian habitat are termed sensitive biological communities. These communities are protected federally with the Clean Water Act (CWA) regulations. In addition, these habitats are regulated by the state of California via the Porter-Cologne Act, The California Department of Fish and Wildlife (CDFW), Fish and Game Code, and the California Environmental Quality Act (CEQA). They are further governed by local ordinances such as city or county tree ordinances, Special Habitat Management Areas or General Plan Elements.

2.2.1 Aquatic Habitats

Federal, State and local regulatory agencies have recognized aquatic habitats such as water bodies, waterways and wetlands as ecologically significant biological communities. The Clean Water Act (CWA) authorizes the U.S. Army Corp of Engineers (ACOE) to regulate the "Waters of the United States" under section 404. These are defined as "waters susceptible to use in commerce, including interstate waters and wetlands, all other waters, and their tributaries (33 CFR 328.3). Non-wetland waters of a sufficient depth and inundated for a sufficient duration, which also exclude hydrophytic vegetation, are considered "other waters" and are usually defined by the high-water mark. These non-wetland waters include lakes, streams and rivers.

The state of California defines "Waters of the state", through the Porter-Cologne Act, as "any surface or groundwater, including saline waters, within the boundaries of the state." Within the state, the Regional Water Quality Control Board (RWQCB) is responsible for protecting all waters within its regulatory boundaries, with a special emphasis on wetlands, riparian areas, and headwaters. These sensitive areas that are not fully protected by the ACOE's section 404 are regulated by the RWQCB. State waters are also protected from cannabis cultivation impacts through Order 2015-0023 Waiver of Waste Discharge and General Water Quality Certification for Discharges of Waste from Cannabis and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region. CDFW also exerts jurisdiction over lakes, streams and riparian areas through section 1600-1616 of the CDFG Code, and Humboldt County has additional jurisdiction through the Humboldt County General Plan (§BR-P5).

2.2.2 Sensitive Biological Communities

CDFW and the California Native Plant Society (CNPS) defines Sensitive Natural Communities as vegetation types with a state ranking of S1 to S3 by protocols established by the Nature Serve Heritage methodologies. This system uses the best science available to determine each community's range and distribution, and potential threats, to establish rarity. There are no specific protocols for mitigating impacts to sensitive communities, but they are considered for environmental review under CEQA checklist IVb. The state ranking (S) is as follows:

1 –Critically imperiled –At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

2 -Imperiled-At risk because of rarity due to very restricted range, very few populations, (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

3 -Vulnerable-At moderate risk of extinction due to a restricted range, relatively few populations, (often 80 or fewer), recent widespread declines, or other factors.

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

5 –Secure– Common; widespread and abundant.

A global ranking (G) is also often used; for this assessment the state ranking will be sufficient for analysis.

2.2.3 Sensitive and Protected Species

The Federal Endangered Species Act (FESA) of 1973 is intended to protect and recover imperiled animal and plant species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service (Service) and the Commerce Department's National Marine Fisheries Service (NMFS). Under the ESA, species may be listed as either endangered, threatened, or as a candidate for listing. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. Candidate species are currently under review for a proposed listing.

The California Endangered Species Act (CESA) states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. CESA prohibits the take of any species of wildlife designated by the California Fish and Game Commission as endangered, threatened, or as a proposed candidate species.

CDFW has also developed a list of "Species of Special Concern" (SSC) that includes species whose populations, reproductive capacity, or habitat may be declining, as well as a number of "fully protected" species, listed by the state before CESA was enacted into law.

The Migratory Bird Treaty Act of 1918 (Canada, Mexico, Japan Russia) also extends federal protections to all nesting birds, regardless of sensitive status. Nesting adults, eggs, and young are protected by this treaty.

3.0 Methods

3.1 Field Observations

All field data was recorded by Wildlife Biologist Brit O'Brien on February 11th and 12th 2020, using a 100' measuring tape for all distance measurements and a Theodolite application for measuring slope, elevation, and GPS locations. Leica binoculars (10 x 42) were used to identify any wildlife sightings. Portions of all aquatic and terrestrial habitats within the project area were assessed.

3.2 Review of Scientific Literature

Most of the scientific literature and reference material was sourced online through journals, databases or published public sources. Some general data was sourced from USFWS, USDA, and CDFW factsheets, CEQA reference material and naturalist field guides.

3.3 Agency Consultation

Much of the scientific literature referenced in this report was produced by various State and Federal agencies. As most of the necessary data and sources are available online and in other formats, no agencies were consulted on behalf of this assessment.

3.4 Sensitive Biological Communities

The Natural Resources Conservation Service Web Soil Survey (WSS) was analyzed for specific soil types that could support sensitive plant communities and/or any aquatic features within the BAA. Satellite imagery from USGS topographic maps, the National Agriculture Imagery Project, the Humboldt County Biological Resources Map, and the National Wetlands Inventory was used to scope for possible sensitive natural communities within the BAA.

Survey data from the site visit was analyzed with existing published literature and data to classify any potential sensitive biological communities per federal, state, and local jurisdictions. Classification of plant communities was conducted using *A Manual of California Vegetation, Online Editions* (CNPS).

3.5 Sensitive and Protected Species

The preliminary scoping procedure used to determine the listed plants and animals noted in this report included a February 2020 query of the California Natural Diversity Database (CNDDDB) for any sensitive species detections within 9 quadrangle maps, of which the Ettersburg quadrangle is at the center (CDFW 2020). These quadrangles also include Bull Creek, Myers Flat, Weott, Honeydew, Miranda, Shelter Cove, Briceland and Garberville. A general habitat assessment was performed as well. Given the habitat types discovered within the BAA, and utilizing the CNDDDB Map (Figure 9) and database, a species list was developed for animals and plants utilizing the following: CDFW Endangered and Threatened Animals List (November 2019), Special Animals List (August 2019), Special Vascular Plants Bryophytes and Lichens List (November 2019), and the California Native Plant Society (CNPS) Endangered and Rare Plants. The above lists were obtained from <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>. The Interactive Distribution Map v2.02 available through Calflora was used to check for potential occurrences within the BAA.

Plant species have an additional ranking system designed by the CNPS. The following alphanumeric codes are from the CNPS List, California Rare Plants Ranks (CRPR):

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 more information is needed -Review List

4 -Plants of limited distribution -Watch List

The CRPR use a decimal style threat rank. The threat rank is an extension added on to 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. 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. Rank IA and 2A plants have no code extensions as there are no known extant populations in California.

Threat code extensions and their meanings are as follows:

- 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 of threat)
- 3) Not very threatened in California (<20 % of occurrences threatened/Low degree and immediacy of threat or no current threats known)

4.0 Results and Discussion

4.1 BAA Description

The BAA consists of the approximately 1,200 acres under Charles Benbow's ownership. Forested habitat on the property is primarily Douglas Fir habitat (DFR, Mayer and Laudenslayer 1988). Common tree species include Douglas Fir (*Pseudotsuga menziesii*), Madrone (*Arbutus menziesii*), Tanoak (*Notholithocarpus densiflorus*), Canyon Live Oak (*Quercus chrysolepis*), California Black Oak (*Quercus kelloggii*), and Western Red Cedar (*Thuja plicata*). Typical shrubs include California Huckleberry (*Vaccinium ovatum*), California Bay (*Umbellularia californica*) and Coyote Brush (*Baccharis pilularis*). Approximately 45% of the BAA consists of Annual and Perennial Grasslands (APG, Mayer and Laudenslayer 1988). Photos are included (Figure 9).

Annual mean rainfall in this region is ~ 60" (<https://wrcc.dri.edu/summary/climsmnca.html>), although some areas may receive as much as twice that amount. Elevation ranges from ~ 1,000 to ~ 2,800 feet above sea level. Measured slopes in the BAA vary from 5% to 30% The BAA contains minimal riverine aquatic habitat, primarily in Blue Slide and Kinsey creeks, mostly ephemeral (Class III) and intermittent (Class II) creeks which run through the central portion and northeastern boundaries of the property, respectively (Fig. 1)

The Clark's Butte site likely contains 4 different soil types: Sproulish-Canoecreek-Redwohly complex, 30 to 50% slopes warm; Canoecreek-Sproulish-Redwohly complex, 50 to 75% slopes warm; Yorknorth-Devilshole complex, 5 to 30% slopes; Canoecreek-Coyoterock-Sproulish complex 5 to 50% (Figs. 6, 6A, 6B).

The Ranch Center site likely contains only 1 soil type: Yorknorth-Devilshole complex, 5 to 30% slopes (Figs. 7, 7A, 7B). The soil map shown may have some minor inaccuracies due to the small scale of the cultivation permit areas.

Land use on the property is currently primarily restricted to cannabis cultivation. The assessment site visit on February 11th and 12th, 2020, included an inventory of wildlife species heard or observed. No amphibians or fish were detected; 5 species of birds were observed or heard: American Robin (*Turdus migratorius*), Dark-Eyed Junco (*Junco hyemalis*), California Quail (*Callipepla californica*), Golden-Crowned Sparrow (*Zonotrichia atricapilla*), and Steller's Jay (*Cyanocitta stelleri*). Gray Squirrel (*Sciurus*

griseus) was the only mammal observed. None of these species are considered sensitive under CESA or CDFW.

4.2 Site Descriptions

The Clark's Butte permit area is mostly open grassland interspersed with primarily small firs and tanoaks (Figure 2); the parcel is located approximately 6.0 miles northwest of Redway, CA. There is an existing water tank farm at the site, and the area is being permitted under CMMLU Ordinance 2.0. Three cultivation sites are proposed at the Clark's Butte area, with associated storage and drying facilities (Fig. 2, photos 1, 3, 5).

There is no existing development at the Ranch Center permit area. It is located ~ 5.3 miles northwest of Redway, CA. The site is on open grasslands with some small forested areas nearby. There is a residence and two smaller ranch buildings located to the southeast of the Ranch Center permit area. A septic tank has also been installed there for the bunkhouse. Two ponds are located to the southeast of the ranch buildings. One area has been proposed for cannabis cultivation under the CMMLU Ordinance 2.0, including associated storage and drying facilities (Fig.3, photo 6).

4.3 Commercial Cannabis Cultivation

Cannabis cultivation at the Clark's Butte Permit Area (PLN-2019-16106) will take place only on the three proposed cultivation areas (Fig. 1), totaling ~ 89,120 square feet of cultivation. The current cultivation permit proposal seeks to consolidate previous smaller cultivation areas into the three sites that are located on open, relatively flat ground that is less environmentally sensitive than the previous sites, which were located in forested areas, with greater slopes, and closer to existing creeks.

Cannabis cultivation at the Ranch Center Permit Area is proposed for the prairie site of ~ 44,043 square feet (Fig. 2, PLN-2019-16104). Previous cultivation areas are being consolidated at this site as it is flat, and no aquatic habitats are nearby. This appears to be the least environmentally sensitive site available.

All water and fertilizers will be applied by hand at agronomic rates to minimize runoff.

The Clark's Butte Ranch Permit Area will be supplied with water from the multiple existing tank sites, two existing rain catchment ponds, and a proposed well. Site 3 has two proposed tank sites totaling ~ 7,300 gals. Both ponds will be lined.

All of the cultivation sites are located greater than 200 ft. from any creeks or waterbodies; Site 3 at Clark's Butte is the closest site to a creek at ~ 325 feet. This buffer is well-vegetated, which will minimize potential erosion from the cultivation site.

4.4 Sensitive Biological Communities

4.4.1 Aquatic Habitats

The Clark's Butte Permit Area includes portions of a Class III (ephemeral) stream, Kinsey creek, a tributary of Salmon creek, and ultimately, the South Fork Eel river. A pond is located along Kinsey creek in the Eastern portion of the parcel

The Ranch Center Permit Area is adjacent to ephemeral portions Blue Slide Creek, a tributary of the Mattole river, and adjacent to Hacker creek and South Fork Salmon creek, tributaries of the Eel river. These ephemeral portions of the streams likely do not provide year-round habitat for aquatic species during a typical year. These streams have a coarse sediment bed with a moderate to high gradient and moderate canopy cover over most of its run. The upper portions of these creeks have no canopy cover, as they start in the prairie portions of the parcels.

These stream systems may ultimately provide habitat for aquatic wildlife such as Western Pond Turtle (*Emys marmorata*), Red-Bellied Newt (*Taricha rivularis*), Foothills Yellow-Legged Frog (*Rana boylei*), Northern Red-Legged Frog (*Rana aurora*), and Tailed Frog (*Ascaphus Truei*).

The South Fork Eel river provides habitat for Summer-run Steelhead (*Onchorhynchus mykiss irideus*), Northern California DPS), Coho Salmon (*Onchorhynchus kisutch*), Northern California ESU), and Chinook Salmon (*Onchorhynchus tshawytscha*), California Coastal ESU).

Plant species associated with these riparian systems include Red Alder (*Alnus rubra*), Bracken Fern (*Pteridium aquilinum*), Sword Fern (*Polystichum munitum*) Big Leaf Maple (*Acer macrophyllum*), Coast Fawn Lily (*Erythronium revolutum*) and other vegetation associated with the Douglas Fir vegetation series (Raphael, 1988).

4.4.2 Wetlands

The project area is located within the USACE Land Resources Region A, in the Western Mountains, Valleys and Coast Region. This region often experiences frequent and sustained rainfall events that can encourage growth of diverse wetland vegetation, but hydric indicators of wetland presence may often be absent at sites with present wetland vegetation species.

A review of the USFWS National Wetlands Inventory indicates two seasonal wetlands on the property. There is a Freshwater Emergent Wetland area southeast of the Ranch Center Permit Area, and a Freshwater Forested/Shrub Wetland area just north of the Emergent Wetland. These areas were noted in the project area during the February 12th, 2020 visit. There are no observed potential threats to these wetlands from any cultivation activities.

4.4.3 Sensitive Natural Communities

No known Sensitive Natural Communities of state ranking S1 or S2 were reported by CNDDDB within the BAA. The dominant vegetation series is Douglas Fir, which is state-ranked S3 series. No associations in this vegetation series are ranked lower than S3.

4.4.4 Invasive Species Plant Species

The assessment field visit did not discover significant populations of invasive plants. All of the proposed cultivation, processing, and associated facilities were inspected, as well as most roadways and portions of typical forest and grassland/shrub habitat. Common Humboldt County invasive plants such as Jubata Grass (*Cortaderia jubata*), Scotch Broom (*Cytisus scoparius*), Himalayan Blackberry (*Rubus*

armeniacus), English Ivy (*Hedera helix*), Gorse (*Ulex europaeus*), and Canada Thistle (*Cirsium arvense*) were not found on the Benbow property.

Aquatic Species

The field visits on Feb. 11 and 12 included inspections of three existing ponds on the Ranch Center Permit Area. Tadpoles were not observed in the ponds, and no adult bullfrogs, red-bellied newts, or other aquatic species were observed either. The artificial ponds are not hydrologically connected to natural waterways on the property; any non-native species occurring in the ponds would likely not be able to colonize any native waterbodies. The presence of exotic fish species in the ponds, such as Rainbow or Brook trout, is unknown, but none were observed during the assessment. If Bullfrogs (*Lithobates catesbeiana*) are discovered in a pond, the most effective method to interrupt the breeding cycle is to drain the pond fully for at least 72 hours at the end of the summer season (Boersma et al, 2006). This strategy can effectively reduce that year's cohort of young animals (metamorphs). This method should be used annually to control Bullfrog populations, as complete elimination from any pond is impracticable. The Clark's Butte Ranch Permit Area also has a small pond on the eastern edge of the site; this pond was not observed during the assessment.

Insect Species

Assessment of the forest habitats on the Benbow property did not indicate any obvious damage from any insect species. Asian Longhorned Beetles (*Anoplophora glabripennis*) are a threat to some NW pacific hardwood species, such as Maples and Willows. Brown Spruce Longhorned Beetle (*Tetropium fuscum*) is a potential threat to fir, spruce and other softwood species, although it has not yet been detected on the U.S. west coast (Boersma et al, 2006).

Forest Pathogens

Sudden Oak Death (SOD, *Phytophthora ramorum*) is a fungal blight recently discovered (1995) in oak and redwood forests of Northern California. Characterized by stem cankers and foliar lesions, nearly 40% of forest tree species in the Pacific Northwest are potentially susceptible to SOD, including Redwood and Douglas Fir trees. Although the long-term impacts of this disease are unknown, it has the potential to affect commercially important tree species in California (Boersma et al, 2006). No tree damage indicating the presence of SOD was detected during the assessment visit.

4.5 Sensitive and Protected Species

4.5.1 Bird Species of Special Concern

Golden Eagle (*Aquila chrysaetos*)

Status: CDFW - Fully Protected (FP), Watch list (WL); Federally protected under the Bald and Golden Eagle Act, State Rank - S3:

Habitat: Golden eagles' nest in mature and old-growth forests with more than 60% closed canopy (Harris 2005). Often use old nests and maintains alternate nest sites. North coast coniferous forest, Sub-alpine coniferous forest, Upper montane coniferous forest. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.

Status within BAA: No occurrences within the BAA. Four listed historical occurrences within the 9-quad CNDDDB report, Myers Flat, Miranda, and Bull Creek. The most recent occurrence was in 2007 in the Miranda quad on the east side of Fish creek, 2.5 miles east of Miranda. Suitable nesting habitat may exist within the BAA.

Bald Eagle (*Haliaeetus leucocephalus*)

Status: CDFW - Fully Protected (FP), Watch list (WL); Federally protected under the Bald and Golden Eagle Act, State Rank - S3:

Habitat: Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests are within 1 mile of water. Nests in large, old-growth, or dominant live trees with open branches, especially ponderosa pine. Roosts communally in winter.

Status within BAA: No occurrences within the BAA. No listed occurrences within the 9-quad CNDDDB report. Suitable nesting habitat may potentially exist within the BAA.

American Peregrine Falcon (*Falco peregrinus anatum*)

Status: CDFW - FP; Federal status – Delisted; State status – Delisted; State rank-S3, S4

Habitat: Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest commonly consists of a scrape or a depression or ledge in an open site.

Status within BAA: No listed occurrences within the BAA. There was one listed occurrence within the 9-quad CNDDDB report, in the Miranda quad, but the location is suppressed to protect the species. Suitable nesting habitat likely exists within the BAA.

Marbled Murrelet (*Brachyramphus marmoratus*)

Status: CDFW - Endangered; Federal status - Threatened; State status – Endangered; State rank-S1

Habitat: Coastal marine areas, usually feeds within 1 mile of shore. Nests inland along coast from Oregon border intermittently to Santa Cruz. Nests on large branches in mature old-growth forests, or in younger forests with residual larger trees (Hunter et al, 2005). Restricted primarily to forest preserves, parks, and protected state and federal lands.

Status within BAA: No occurrences within the BAA. There were two occurrences within the 9-quad CNDDDB report, both in Miranda. Suitable nesting habitat may exist within the BAA.

Little Willow Flycatcher (*Empidonax traillii brewsteri*)

Status: CDFW - WL; Federal status – None; State status – None; State rank- S4

Habitat: Mountain meadows and riparian habitats in the Sierra Nevada and Cascades. Nests near the edges of vegetation clumps and near streams.

Status within BAA: No occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report, in the Miranda quad in year 2000. The subspecies was determined by CNDDDB based on estimated range. Suitable nesting habitat does not likely exist within the BAA.

Bank Swallow (*Riparia riparia*)

Status: CDFW - none; Federal status - None; State status - Threatened; State rank- S2

Habitat: Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.

Status within BAA: No listed occurrences within the BAA. No listed occurrences within the 9-quad CNDDDB report. Suitable nesting habitat may potentially exist within the BAA.

Long Eared Owl (*Asio otus*)

Status: CDFW -SSC; Federal status - none; State status - none; State rank - SX

Habitat: Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.

Status within BAA: No listed occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report, Honeydew; but the data is unprocessed. There is no potential habitat within the BAA.

Northern Goshawk (*Accipiter gentilis*)

Status: CDFW - Species of special concern (SSC); Federal status - none; State status - none; State rank- S3

Habitat: North coast coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Prefers older, mature coniferous forest. Uses old nests, and often maintains alternate nest sites.

Status within BAA: No occurrences within the BA. There were no occurrences within the 9-quad CNDDDB report. There is likely no suitable nesting habitat within the BAA.

Northern Spotted Owl (*Strix occidentalis caurina*)

Status: CDFW - SSC; Federal and State status - Threatened; State rank - S2, S3

Habitat: Unlogged, expansive, mature coniferous forest stands with lars and a complex array of vegetation types. Primarily inhabits old growth forests in the northern part of its range and landscapes with a mix of old and younger forest types in the southern part of its range (Klamath region and California). The subspecies' range is the Pacific coast from extreme southern British Columbia to Marin County in northern California. It nests in cavities or on platforms in large trees and will use abandoned

nests of other species (USFWS 2011). Spotted owls form long-term pair bonds and remain in the same geographical areas year after year.

Status within BAA: There are occurrences in all eight quads of the CNDDDB report. See Figure 5 and 4.6.1 for details.

4.5.2 Amphibian Species of Special Concern

Pacific Tailed Frog (*Ascaphus truei*)

Status: CDF- SSC; Federal and State status - none; State rank - S3, S4

Habitat: Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C (Thomson et al 2016).

Status within BAA: No listed occurrences within the BAA. There were two occurrences within the 9-quad CNDDDB report, Honeydew, Bear Harbor. There may be potential suitable habitat within the BAA.

Northern Red-Legged Frog (*Rana aurora*)

Status: CDFW – SS; Federal and State status – none; State rank - S3

Habitat: Humid forests, woodlands, grasslands, and stream sides in northwestern California, usually near dense riparian cover. Generally near permanent water but can be found far from water, in damp woods and meadows, during the non-breeding season (Thomson et al 2016).

Status within BAA: No listed occurrences within the BAA. There were no occurrences within the 9-quad CNDDDB report, although the animal does occur in southern Humboldt county. Potential suitable habitat likely does not exist within the BAA.

Foothill Yellow-Legged Frog (*Rana boylei*) Northern CA Population

Status: CDFW – SSC; Federal status – none; State status - none; State rank - S3

Habitat: Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis (Thomson et al 2016).

Status within BAA: No listed occurrences within the BAA. There were occurrences on every quad in the 9-quad CNDDDB report, with the exception of Bear Harbor. Potential suitable habitat does exist within the BAA.

Southern Torrent Salamander (*Rhyacotriton variegatus*)

Status: CDFW - SSC; Federal and State status - none; State rank - S2, S3

Habitat: Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water (Welsh and Lind, 1996).

Status within BAA: No listed occurrences within the BAA. There were three occurrences within the 9-quad CNDDDB report, Shelter Cove, Ettersburg, Bear Harbor. Potential suitable habitat may exist within the BAA.

Red Bellied Newt (*Taricha rivularis*)

Status: CDFW – SSC; Federal and State status – none; State rank - S2

Habitat: Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County (Thomson et al 2016).

Status within BAA: No listed occurrences within the BAA. There were four occurrences within the 9-quad CNDDDB report, Ettersburg, Briceland, Honeydew, and Shelter Cove. Potential suitable habitat may exist within the BAA.

Western Pond Turtle (*Emys marmorata*)

Status: CDFW – SSC; Federal and State status – none; State rank - S3

Habitat: Resides in ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying (Thomson et al 2016).

Status within BAA: No listed occurrences within the BAA. There were four occurrences within the 9-quad CNDDDB report, Garberville, Miranda, and Ettersburg. Potential suitable habitat likely exists within the BAA.

4.5.3 Mammal Species of Special Concern

Sonoma Tree Vole (*Arborimus pomo*)

Status: CDFW – SSC; Federal and State status – none; State rank - S3

Habitat: North coast fog belt from Oregon border to Sonoma County. Found in Douglas-fir, redwood & montane conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce (Polite and Pratt, 1990).

Status within BAA: No listed occurrences within the BAA. There were five occurrences within the 9-quad CNDDDB report, Briceland, Shelter Cove, Piercy, Bear Harbor. Potential suitable habitat likely does exist within the BAA.

Humboldt Marten (*Martes caurina humboldtensis*)

Status: CDFW – SSC; Federal status – none; State status - Endangered (candidate); State rank - S1

Habitat: Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Mature coniferous forests with low, overhead cover and rocky areas are preferred habitats (Ingles, 1965).

Status within BAA: No listed occurrences within the BAA. There were no occurrences within the 9-quad CNDDDB report. Potential suitable habitat does not exist within the BAA.

West Coast Fisher (*Pekania pennanti*)

Status: CDFW – SSC; Federal status – none; State status – Threatened; State rank - S2, S3

Habitat: Intermediate to late-successional stages of coniferous forests and deciduous-riparian areas with a high percentage of canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning (USFWS 2016). Needs large areas of mature, dense forest.

Status within BAA: No listed occurrences within the BAA. There was one occurrence in Miranda in 1973, about ½ mile north of the Miranda Post Office, along Avenue of the Giants. Potential suitable habitat does not likely exist within the BAA.

American Badger (*Taxidea taxus*)

Status: CDFW – SSC; State status – none; Federal status - none

Habitat: Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.

Status within BAA: No listed occurrences within the BAA, or on the 9-quad CNDDDB report. Suitable habitat does not likely occur within the BAA.

Townsend's Big Eared Bat (*Corynorhinus townsendii*)

Status: CDFW – SSC; Federal and State status – none; State rank - S2

Habitat: Throughout California in a wide variety of habitats. Broad-leaved upland forests, chaparral, Great Basin scrub. Most common in mesic sites. Roosts in the open, occasionally on buildings and bridges. Roosting sites are limiting factor in disturbance. Extremely sensitive to human disturbance (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report, Honeydew, 2 miles NE of Saddle Mountain Peak. Potential suitable habitat may exist within the BAA.

Pallid Bat (*Antrozous pallidus*)

Status: CDFW – SSC; Federal and State status – none; State rank - S2

Habitat: Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.

Status within BAA: No listed occurrences within the BAA. There was one listed historical occurrence within the 9-quad CNDDDB report, Garberville. Specimen collected in Richardson Grove S.P., 1936. Potential suitable habitat may exist within the BAA.

Western Red Bat (*Lasiurus blossevillii*)

Status: CDFW – SSC; Federal and State status –none; State rank - S3

Habitat: Solitary rooster, primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. Often associated with riparian habitats (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. There were three occurrences within the 9-quad CNDDDB report quad, Bull Creek and Miranda. Potential suitable habitat does exist within the BAA.

4.5.4 Fish Species of Special Concern

Pacific Lamprey (*Entosphenus tridentatus*)

Status: CDFW – SSC; Federal and State status – none; State rank - S3

Habitat: Found in Pacific Coast streams north of San Luis Obispo County; regular runs in Santa Clara River. Size of runs are declining. Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Larval Ammocoetes need soft sand or mud.

Status within BAA: No listed occurrences within the BAA. There were two unprocessed occurrences within the 9-quad CNDDDB report, Garberville and Weott. Potential suitable habitat does not likely exist within the BAA.

Coho Salmon – Southern Oregon-Northern California ESU (*Oncorhynchus kisutch*) Pop 2

Status: Federal and State status –Threatened; State rank - S2

Habitat: Aquatic, Anadromous fish requiring cool rocky streambeds for breeding. Klamath/North coast flowing waters, Sacramento/San Joaquin flowing water. Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. State listing refers to populations between the Oregon border and Punta Gorda, California (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. One occurrence in Briceland. There may be potential suitable habitat within the BAA.

Coho Salmon – Central California Coast ESU (*Oncorhynchus kisutch*) Pop 4

Status: Federal and State status – Endangered; State rank - S2

Habitat: Aquatic, Anadromous fish requiring cool rocky streambeds for breeding. Klamath/North coast flowing waters, Sacramento/San Joaquin flowing water. Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. State listing refers to populations between the Oregon border and Punta Gorda, California (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. One occurrence within the 9-quad CNDDDB report, Shelter Cove, but the occurrence is unmapped. There may be potential suitable habitat within the BAA.

Steelhead – Summer-Run (*Oncorhynchus mykiss irideus*) Pop. 36

Status: CDFW – SSC; Federal status – threatened; State status – none; State rank - S2, S3

Habitat: Northern California coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns. province DPS & Northern California DPS. Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. Occurrences in 4 of the 9-quad CNDDDB report; Ettersberg, Briceland, Shelter Cove and Honeydew. Potential suitable habitat may occur within the BAA.

Steelhead – Northern California DPS (*Oncorhynchus mykiss irideus*) Pop. 16

Status: CDFW – SSC; Federal Status – Threatened; State status – none; State rank - S2

Habitat: Northern California coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & Northern California DPS. Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. There are unprocessed occurrences in all nine quads. Potential suitable habitat may occur within the BAA.

Chinook salmon - California coastal ESU (*Oncorhynchus tshawytscha*) Pop 17

Status: CDFW – SSC; Federal status - Threatened: State status – none; State rank - S1

Habitat: Aquatic, Klamath/North coast flowing waters. Spring-run chinook in the Trinity River and the Klamath River upstream of the mouth of the Trinity River. Major limiting factor for juvenile chinook salmon is temperature, which strongly effects growth and survival (CDFW 2018).

Status within BAA: No listed occurrences within the BAA. There are unprocessed occurrences in quads Shelter Cove, Briceland, Garberville, Honeydew, Miranda, Weott, Bull Creek. Potential suitable habitat may exist within the BAA.

4.5.5 Insect Species of Special Concern

Western Bumble Bee (*Bombus occidentalis*)

Status: CDFW- None; Federal and State status - none; State rank –candidate endangered; USFS - Sensitive

Habitat: Occurs in most western North America states, including California, Oregon, Washington, Idaho, Montana, Wyoming, Utah, and Colorado, as well as British Columbia, Saskatchewan and Alaska. This species is a generalist forager, using both wild plants and crops as a food source. It is an important pollinator of human food species. This bee is experiencing widespread declines throughout portions of its historical range, especially within the pacific states.

Status within the BAA: There are no listed occurrences within the BAA. Six historical occurrences in the Miranda, Briceland, Garberville, Myers Flat, Weott, and Bull Creek quads. Potential suitable habitat does exist on the BAA.

4.5.6 Plant Species of Special Concern

<i>Astragalus agnicidus</i>		Humboldt County milk-vetch
Fed status – none	State status – endangered	CA rare plant rank – 1B.1
USGS 7.5' Quad – Miranda, Myers Flat		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – Broadleafed upland forest, north coast coniferous forest. Disturbed openings in partially timbered forest lands; also, along ridgelines, south aspects. 115-670 m.		

<i>Packera bolanderi</i> var. <i>bolanderi</i>		Seacoast ragwort
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Myers Flat		
Documented in BAA - no		Potential Habitat in BAA - unlikely
Habitat – Coastal scrub, north coast coniferous forest. Sometimes along roadsides. 30-915 m.		

<i>Kopsiopsis hookeri</i>	Small groundcone
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Fed status – none	State status – none	CA rare plant rank – 2B.3
USGS 7.5' Quad – Miranda		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – North coast coniferous forest. Open woods, shrubby places, generally on <i>Gaultheria shallon</i> . 120-1435 m.		

<i>Lasthenia californica ssp. macrantha</i>		Perennial Goldfields
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Shelter Cove		
Documented in BAA - no	Potential Habitat in BAA - no	
Habitat – Coastal bluff scrub, coastal dunes, coastal scrub.		

<i>Lathyrus palustris</i>		Marsh Pea
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Shelter Cove		
Documented in BAA - no	Potential Habitat in BAA - likely	
Habitat – Bogs & fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub.		

<i>Carex arcta</i>		Northern clustered sedge
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Garberville		
Documented in BAA - no	Potential Habitat in BAA – likely	
Habitat – Bogs and fens, north coast coniferous forest.		

<i>Clarkia amoena ssp. whitneyi</i>		Whitney's farewell-to-spring
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Fed status – none	State status – none	CA rare plant rank – 1B.1
USGS 7.5' Quad – Shelter Cove		
Documented in BAA - no	Potential Habitat in BAA - no	
Habitat – Coastal bluff scrub, coastal scrub.		

<i>Erythronium oregonum</i>	Giant fawn lily	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad –Myers Flat, Ettersburg, Bull Creek, Garberville, Miranda		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat –Cismontane woodland, meadows and seeps.		

<i>Erythronium revolutum</i>	Coast fawn lily	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad –Ettersburg, Miranda,		
Documented in BAA - yes	Potential Habitat in BAA - yes	
Habitat –Streambanks, bogs, and wet redwood and mixed evergreen forest understory.		

<i>Montia howellii</i>	Howell's montia	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad –Myers Flat, Bull Creek, Briceland, Miranda, Shelter Cove		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Moist to wet habitat, including vernal pools and meadows. It sometimes grows in shallow standing water such as puddles.		

<i>Piperia candida</i>	White-flowered rein orchid	
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Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Myers Flat, Miranda, Weott, Briceland, Bull Creek, Honeydew, Ettersburg, Garberville		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Northern California Coniferous forest.		

<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Garberville, Myers Flat		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Coastal bluff scrub, coastal prairie, north coast coniferous forest. Open coastal forest; roadcuts. 5-1255 m.		

<i>Castilleja litoralis</i>	Oregon coast paintbrush	
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Shelter Cove		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Northern California Coniferous forest.		

<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Bull Creek, Briceland, Weott, Myers Flat, Shelter Cove		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Northwestern California coniferous forest in sandy or rocky soils.		

<i>Pleuropogon hooverianus</i>	North Coast Semaphore Grass	
Fed status – none	State status – threatened	CA rare plant rank – 1B.1

USGS 7.5' Quad – Garberville (unprocessed)	
Documented in BAA - no	Potential Habitat in BAA - unlikely
Habitat – Broadleafed upland forest, meadows and seeps, north coast coniferous forest	

4.6 Potential Impacts

4.6.1 Northern Spotted Owl

The proposed cannabis cultivation process at the Clark's Butte and Ranch Center permit areas will be restricted to the existing roads, proposed buildings, tank storage areas and ponds, and the cultivation sites. No habitat removal is proposed under the current permit application. Potential impacts to NSO within the BAA are likely limited to disturbance from the occasional vehicles on the road, and the likely intermittent use of small equipment such as generators, ATVs, weed whackers, and chainsaws, etc.

The Arcata Fish and Wildlife Office (AFWO) has provided a 2006 guidance document regarding disturbance from noise-generated activities, "Estimating the effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California." The document provides likely disturbance distances to nesting owls and murrelets, based on ambient sound levels at the site, the use of specific equipment, and visual line-of-sight distance to potential nests. A review of the document suggests that scenario 4 under appendix B, the Northern Spotted Owl Sound and Visual Harassment Decision Support Tool, best reflects the likely ambient sound conditions at the site and the equipment likely to be used during cultivation. Under this scenario, "the existing environment is characterized by low to very low levels of sound associated with human activities, and is typified by small power tools, light vehicular traffic moving at slow speeds, recreational activities, and many urban and rural residential activities." The typical action-generated sounds from cultivation under this scenario could include "larger gas-powered engines, large generators, amplified music, ATV's, and small trucks at moderate speed on improved trails, and large chainsaws." This scenario 4 closely approximates or exceeds the likely ambient background noise at the site, and the potential action-generated noise from the cultivation activities.

Under scenario 4, the predicted auditory disturbance distance that may impact nesting Spotted Owls is 30 meters, with either low or moderate ambient sounds at the site. The visual line-of-sight disturbance distance for nests is a maximum 100 meters, or less if vegetation obscures a view of the nest.

The Benbow BAA has limited forested habitat to support Spotted Owl nesting/roosting, as ~ 50% of the BAA is grasslands.

The nearest critical habitat for the spotted owl at Clark's Butte Ranch is .26 miles to the north from the main cultivation site (Figure 10). The nearest known Spotted Owl activity center to Clark's Butte cultivation sites is ~ 2.6 miles to the northwest (Fig. 12)

The nearest critical habitat to the Ranch Center site is ~ 2.2 miles to the southeast (Fig. 11) The nearest known Spotted Owl activity center (HUM0531) is ~ 1.9 miles to the south of the cultivation site (Figure 13).

Based on the estimated auditory disturbance distance of 30 meters, and the visual disturbance distance of 100 meters, and the fact that the nearest activity center is ~ 2.6 miles to the southeast and critical habitat is greater than .25 miles from the site, there is likely no significant impact to Spotted Owl roosting or nesting habitat at the Clark's Butte Permit Area.

The Ranch Center site is located in grasslands with no significant forested areas nearby. As the nearest critical habitat is 2.2 miles away, and the nearest AC is 1.9 miles to the south, there is likely no significant impact to Spotted Owl roosting or nesting habitat.

As there is abundant foraging habitat on the BAA and on nearby public and private properties, cultivation activities also will not likely impact foraging Spotted Owls.

4.6.2 Marbled Murrelet

Marbled Murrelets generally use coastal old-growth forests with trees that have branches with potential nesting "platforms", such as large mossy branches or canopy deformities. Younger forests with residual larger trees with branches ≥ 4 " diameter can also support murrelet nests (USFWS 1995). The forested habitat on the Benbow property may have trees of sufficient age or canopy complexity to support breeding Marbled Murrelets. However, none of those trees were located near any of the cultivation sites. The nearest critical breeding habitat for Marbled Murrelets is approximately 2.6 miles to the west-northwest from the Ranch Center site, and 1.6 miles to the west-southwest from the Clark's Butte Site (Figures 14, 15). There is very likely no impact to any potential Murrelet nesting habitat located on the BAA.

4.6.3 Sensitive/Nesting Birds

The proposed Clark's Butte sites are located on mostly open, flat areas (photos 1, 3, 5), where there are few trees for potential bird nesting habitat. No large snags or potential nest trees for sensitive raptors were observed near the cultivation sites. However, there are large areas suitable for foraging raptors on the BAA. Any existing bird nesting or foraging habitat will likely not be affected by typical activities at the cultivation sites.

4.6.4 Sensitive Mammals

Forest carnivores (Fisher, Humboldt Marten) may potentially use the BAA for foraging as part of a larger home territory. Older forests with complex canopies are preferred habitat for denning for these species; portions of the BAA may provide appropriate habitat for natal dens. As no habitat removal is planned for the BAA, there is a very low likelihood of impacts to potential carnivore foraging or denning-habitats.

Primarily arboreal animals such as the Sonoma tree vole are unlikely to be affected by proposed cultivation activities as no tree habitat removal is planned.

Roosting bats discovered on the property should not be disturbed or handled. Sensitive bat species that may occur on buildings or in forested habitat nearby are not likely to be disturbed by typical cultivation activities. Surveys should be considered before any significant building remodeling or removal is begun.

4.6.5 Sensitive Fish/Amphibians

The four cultivation sites at Clark's Butte and Ranch Center are all located in upland areas, greater than 200' from any native waterbodies. The CDFW Lake and Streambed permit (1600) process provides protections for fish and aquatic amphibians from water diversions through seasonal use restrictions and pump flow rate limitations.

Some amphibian species such as pond turtles and foothills yellow-legged frogs may also use adjacent upland habitats for dispersal and foraging. Cultivation activities are not likely to impact these upland habitats for amphibian use, as they remain in a natural state with native vegetation.

Significant impacts to fish and amphibian species are unlikely if the 1600 permit conditions are enacted and maintained.

4.6.6 Sensitive Insects

Some insects, such as the Western and Obscure Bumblebees, are undergoing notable declines throughout their historic range; they are not currently listed for protection by the U.S., but the State of California has proposed the Western Bumblebee as a candidate for endangered status, and a status review is underway. Significant impacts to their populations include pesticide use and habitat loss. Maintaining the presence of many flowering native plant species such as *Ceanothus* and *Rhododendron* species, and greatly restricting or eliminating the use of pesticides can reduce impacts to these species from cultivation activities.

4.6.7 Sensitive Plants

Use of the proposed cultivation sites may affect sensitive plants, as preparation of the site will likely include some ground disturbance. Spring floristic (botanical) surveys are effective at identifying sensitive plants for protection. Under the 2.0 version of the CMMLUO, a floristic survey of the areas undergoing ground disturbance is required.

5.0 Recommendations

All cultivation activities should be conducted to minimize potential runoff from the project sites. Any fertilizers or pesticides should be used in strict accordance with the manufacturer's directions. All fertilizers, pesticides, and other cultivation-related products or amendments should be properly stored in secured facilities to prevent exposure to precipitation events and to prevent access to wildlife.

Pesticides used for cannabis cultivation should be limited to products endorsed by the Department of Pesticide Regulation's "Legal Pest Management Practices for Marijuana Growers in California" (DPR).

Any restoration and water protection measures required under Water Resource Protection Plans (WRPPs) should be conducted with minimal ground disturbance, and all recommended erosion control devices (straw bales, fiber rolls) should be installed before any significant precipitation events.

All trash and food waste should be stored in animal proof containers and secured away from human habitation areas and disposed of off-site regularly.

Generators should be housed inside insulated enclosures to muffle noise and adhere to noise thresholds of the CCLUO (≤ 50 decibels of maximum noise exposure at 100 feet from noise source or to the edge of potential habitat).

Conduct nesting bird surveys if any significant vegetation removal or habitat alteration is planned within the nesting bird season (generally March 1 - August 31). If necessary, use appropriate distance buffers for discovered active nests.

If invasive plants become established on the property, efforts should be undertaken to remove them, including removing established invasive plant colonies, and grubbing out any young plants.

Conduct springtime floristic (botanical) surveys for sensitive plants as ground disturbance is proposed.

Any proposed construction or maintenance of roads which may exceed noise thresholds discussed in section **4.6.1** should occur outside of the critical nesting period for spotted owls, Feb 1st to July 9th. If any operations with the potential to disturb Spotted owls are proposed for the critical nesting period, spotted owl surveys should be conducted per specifications outlined in the Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls. Surveys should be conducted per Section 9.0, Surveys for Disturbance-Only Projects.

The proposed cannabis cultivation process at the Benbow property has a very low likelihood of having significant impacts to sensitive wildlife. Any proposed expansion should re-consider the potential for significant impacts to biological resources.

6.0 References

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7.0 Appendix

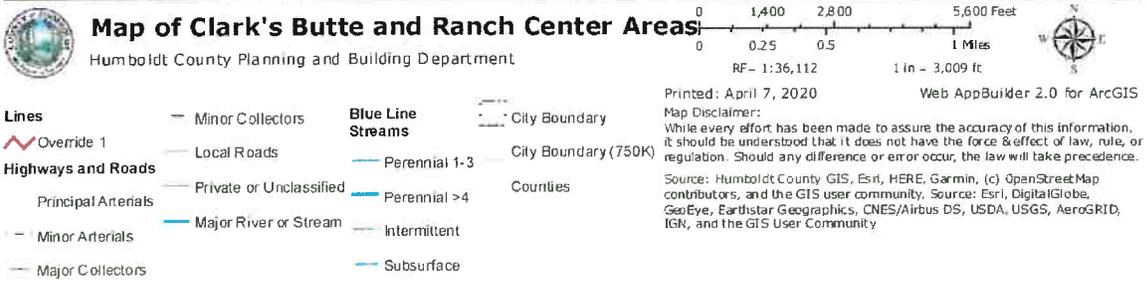


Figure 1. Overview Map of the Clark's Butte and Ranch Center Permit Areas

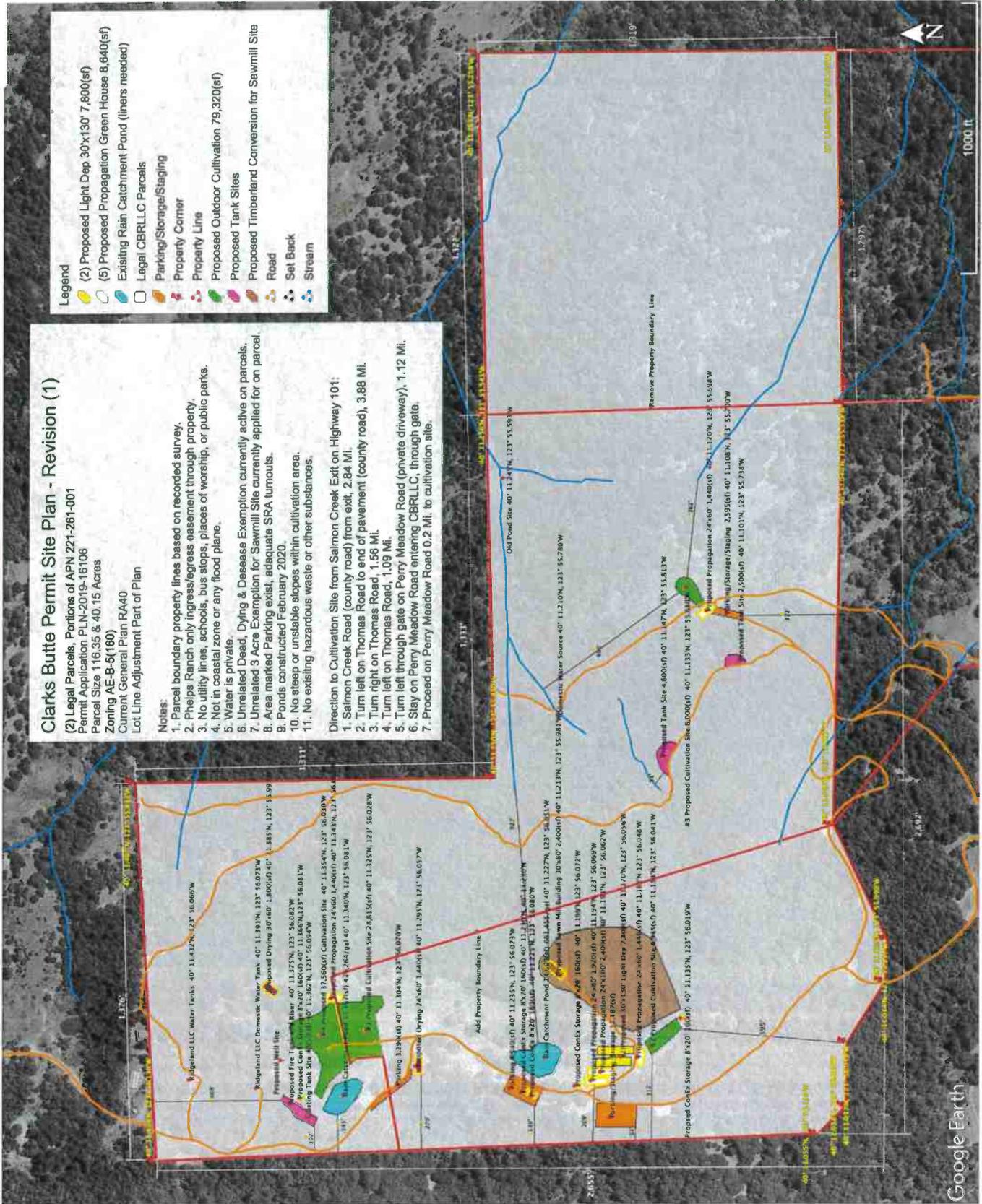
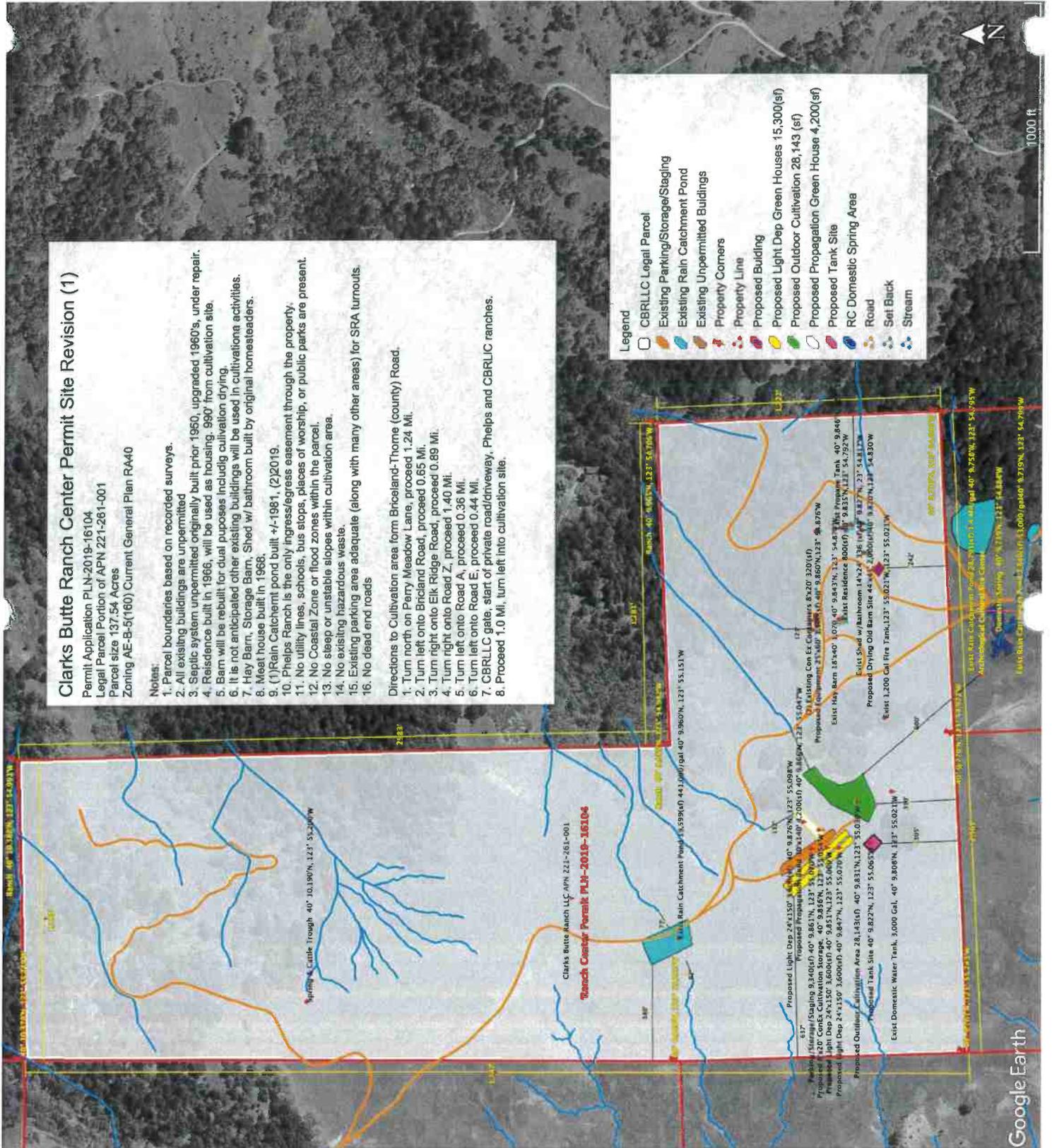


Figure 2. Clark's Butte Ranch Permit Area Photo Parcel Map



Clarks Butte Ranch Center Permit Site Revision (1)

Permit Application PLN-2019-16104
 Legal Parcel Portion of APN 221-261-001
 Parcel size 137.54 Acres
 Zoning AE-B-5(160) Current General Plan RA40

Notes:

1. Parcel boundaries based on recorded surveys.
2. All existing buildings are unpermitted
3. Septic system unpermitted originally built prior 1960, upgraded 1960's, under repair.
4. Residence built in 1966, will be used as housing, 990 from cultivation site.
5. Barn will be rebuilt for dual purposes including cultivation drying.
6. It is not anticipated other existing buildings will be used in cultivation activities.
7. Hay Barn, Storage Barn, Shed w/ bathroom built by original homesteaders.
8. Meat house built in 1968.
9. (1) Rain Catchment pond built +/-1981, (2)2019.
10. Phelps Ranch is the only ingress/egress easement through the property.
11. No utility lines, schools, bus stops, places of worship, or public parks are present.
12. No Coastal Zone or flood zones within the parcel.
13. No steep or unstable slopes within cultivation area.
14. No existing hazardous waste.
15. Existing parking area adequate (along with many other areas) for SRA turnouts.
16. No dead end roads

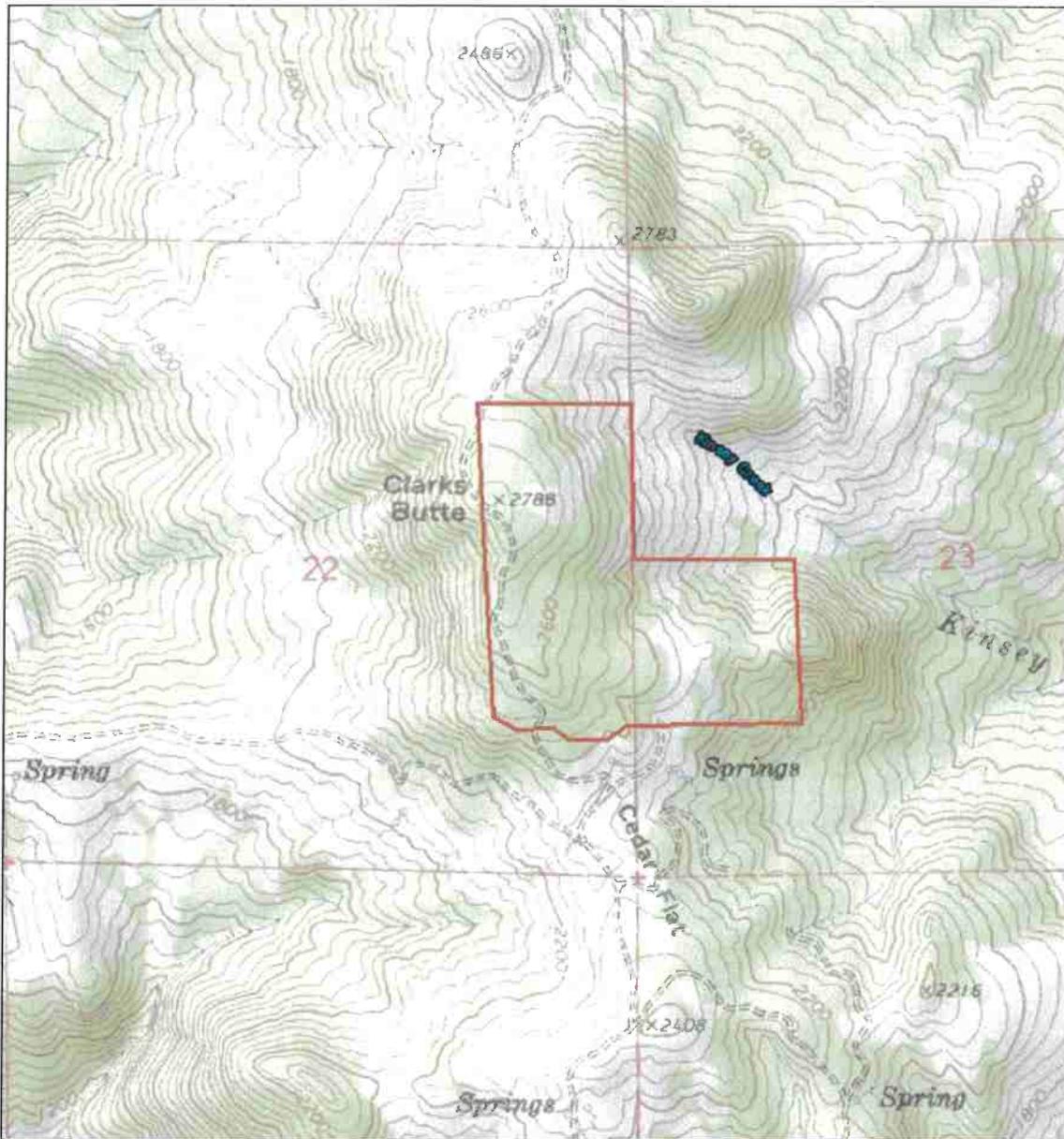
Directions to Cultivation area from Briceland-Thorne (County) Road.

1. Turn north on Perry Meadow Lane, proceed 1.24 Mi.
2. Turn left onto Briceland Road, proceed 0.65 Mi.
3. Turn right onto Elk Ridge Road, proceed 0.89 Mi.
4. Turn right onto Road Z, proceed 1.40 Mi.
5. Turn left onto Road A, proceed 0.36 Mi.
6. Turn left onto Road E, proceed 0.44 Mi.
7. CBRLLC gate, start of private road/driveway, Phelps and CBRLLC ranches.
8. Proceed 1.0 Mi, turn left into cultivation site.

Legend

- CBRLLC Legal Parcel
- 🟡 Existing Parking/Storage/Staging
- 🟢 Existing Rain Catchment Pond
- 🔴 Existing Unpermitted Buildings
- 🟠 Property Corners
- 🟤 Property Line
- 🟢 Proposed Building
- 🟡 Proposed Light Dep Green Houses 15,300(sf)
- 🟠 Proposed Outdoor Cultivation 28,143 (sf)
- 🟢 Proposed Propagation Green House 4,200(sf)
- 🟠 Proposed Tank Site
- 🟢 RC Domestic Spring Area
- 🟤 Set Back
- 🟢 Stream

Figure 3. Ranch Center Permit Area Photo Parcel Map



Clark's Butte Ranch Permit Area Topo Map

Humboldt County Planning and Building Department

0 700 1,400 2,800 Feet

0 0.125 0.25 0.5 Miles

RF = 1:18,056

1 in = 1,505 ft



Printed: March 30, 2020

Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:

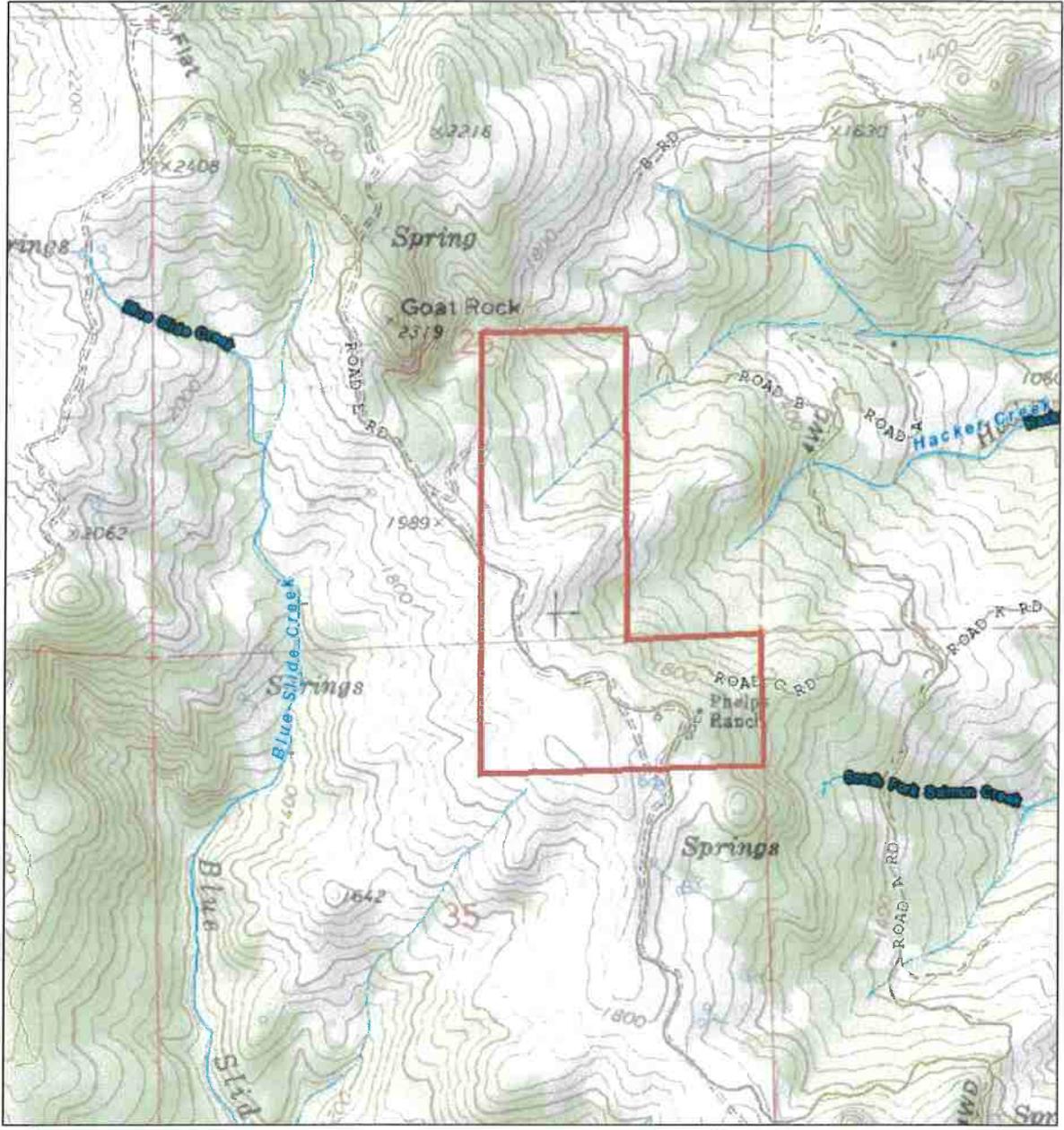
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

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

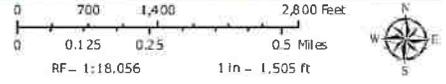
Lines

 Override 1

Figure 4. Clark's Butte Ranch Permit Area Topo Map



Ranch Center Permit Area Topo Map
Humboldt County Planning and Building Department



- | | | | |
|---------------------------|---------------------------|--------------------------|--------------------------|
| Lines | — Minor Collectors | Blue Line Streams | --- City Boundary |
| — Override 1 | — Local Roads | — Perennial 1-3 | --- City Boundary (750K) |
| Highways and Roads | — Private or Unclassified | — Perennial >4 | --- Counties |
| — Principal Arterials | — Major River or Stream | — Intermittent | |
| — Minor Arterials | — Subsurface | | |
| — Major Collectors | | | |

Printed: April 7, 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.
Source: Humboldt County GIS, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 5. Ranch Center Permit Area Topo Map



USDA Natural Resources Conservation Service

Web Soil Survey National Cooperative Soil Survey

3/30/2020 Page 1 of 3

Figure 6. Clark's Butte Permit Area Web Soil Survey Map

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
574	Sproulish-Canoe creek-Redwohly complex, 30 to 50 percent slopes, warm	0.4	3.3%
575	Canoe creek-Sproulish-Redwohly complex, 50 to 75 percent slopes, warm	0.6	4.8%
648	Yorknorth-Devilshole complex, 5 to 30 percent slopes	10.5	89.7%
5508	Canoe creek-Coyoterock-Sproulish complex, 15 to 50 percent slopes	0.3	2.2%
Totals for Area of Interest		11.7	100.0%

Figure 6A. Map Unit Legend for Clark's Butte Permit Area Web Soil Survey

MAP LEGEND

<p>Area of Interest (AOI)</p> <ul style="list-style-type: none"> Area of Interest (AOI) <p>Soils</p> <ul style="list-style-type: none"> Soil Map Unit Polygons Soil Map Unit Lines Soil Map Unit Points <p>Special Point Features</p> <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Spoil Area Stony Spot Very Stony Spot Wet Spot Other Special Line Features <p>Water Features</p> <ul style="list-style-type: none"> Streams and Canals <p>Transportation</p> <ul style="list-style-type: none"> Rails Interstate Highways US Routes Major Roads Local Roads <p>Background</p> <ul style="list-style-type: none"> Aerial Photography
---	---

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: [http://www.nrcs.usda.gov/wss/](#)
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.

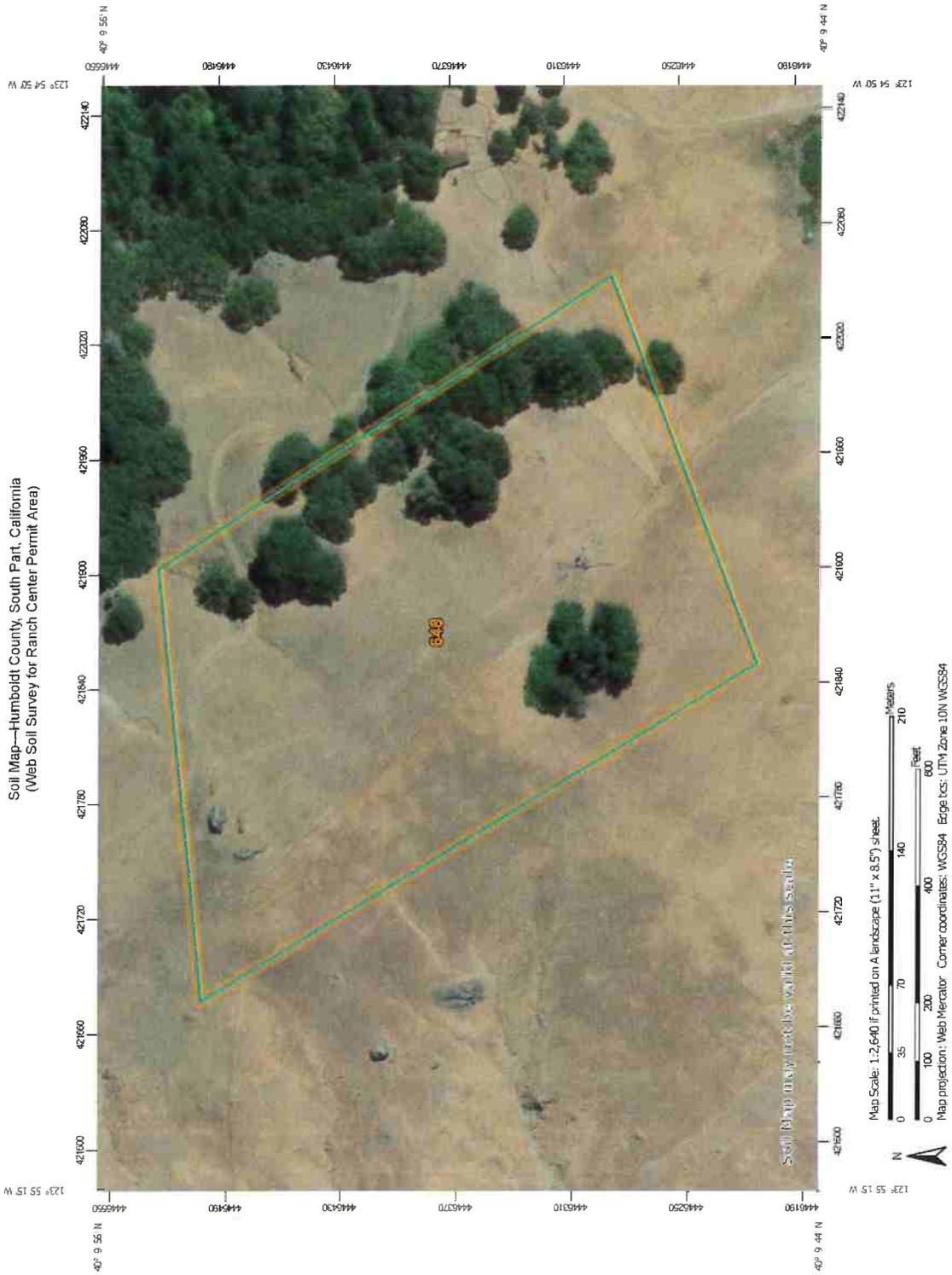
Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 8, Sep 17, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—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.

Figure 6B. Map Legend for Clark's Butte Permit Area Web Soil Survey



3/30/2020
Page 1 of 3

Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

Figure 7. Web Soil Survey Map for Ranch Center Permit Area

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
648	Yorknorth-Devilshole complex, 5 to 30 percent slopes	16.0	100.0%
Totals for Area of Interest		16.0	100.0%

Figure 7A. Map Unit Legend for Ranch Center Permit Area

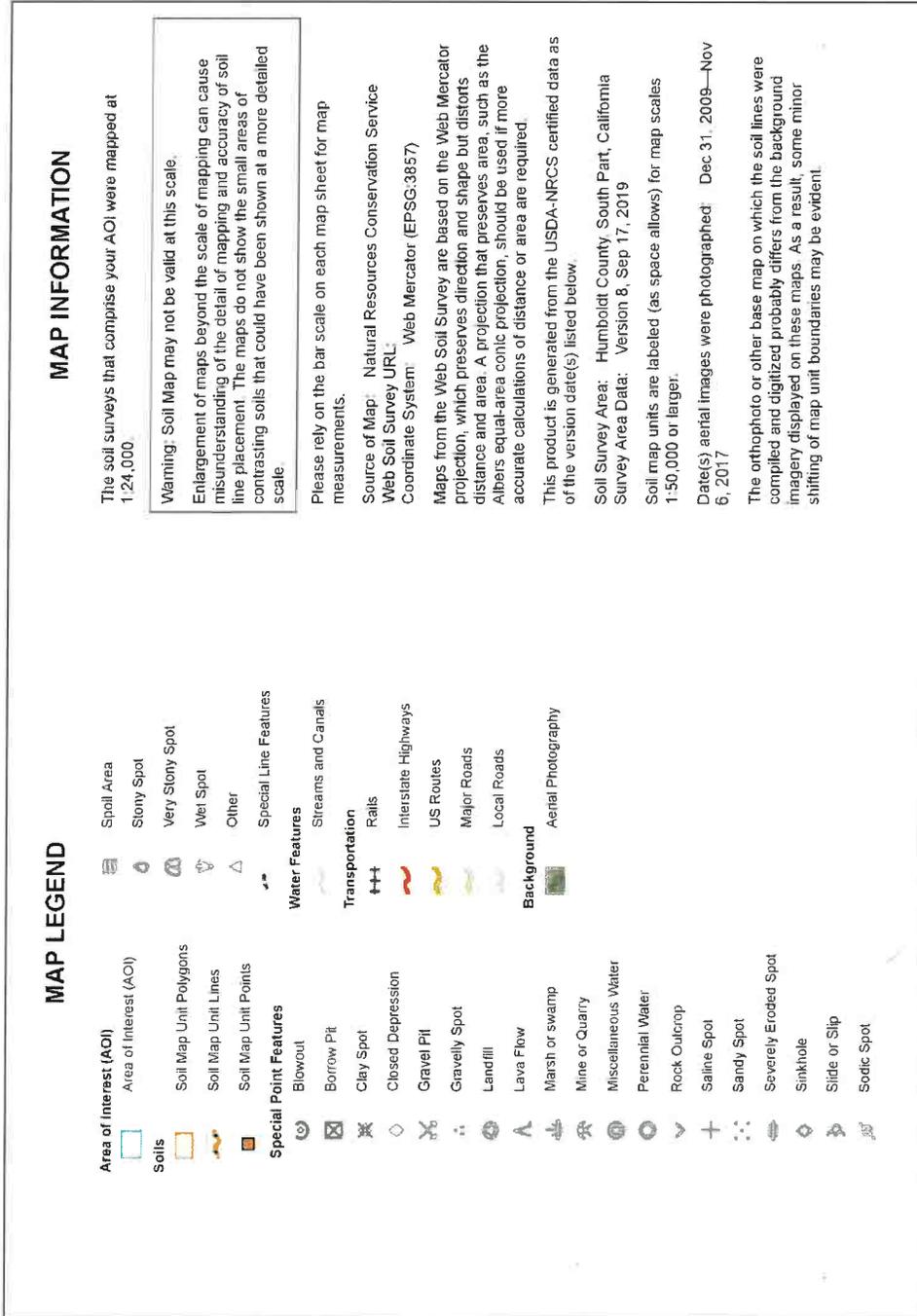
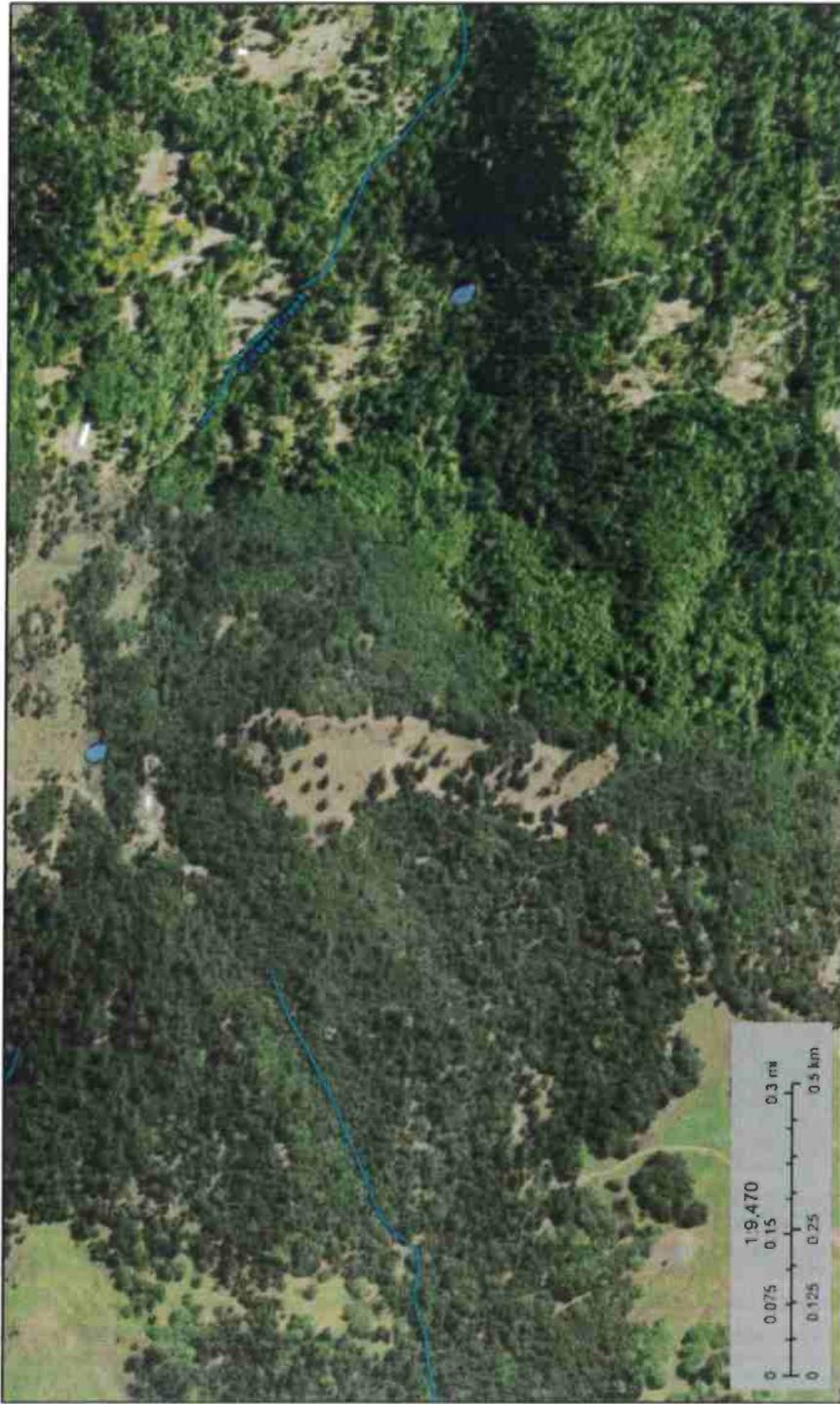


Figure 7B. Map Legend for Ranch Center Permit Area Web Soil Survey

Aquatic Habitats on Clark's Butte Ranch



March 12, 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.

National Wetlands Inventory (NWI)
 This page was produced by the NWI mapper.

Figure 8. Aquatic Habitat on Clark's Butte Ranch Permit Area

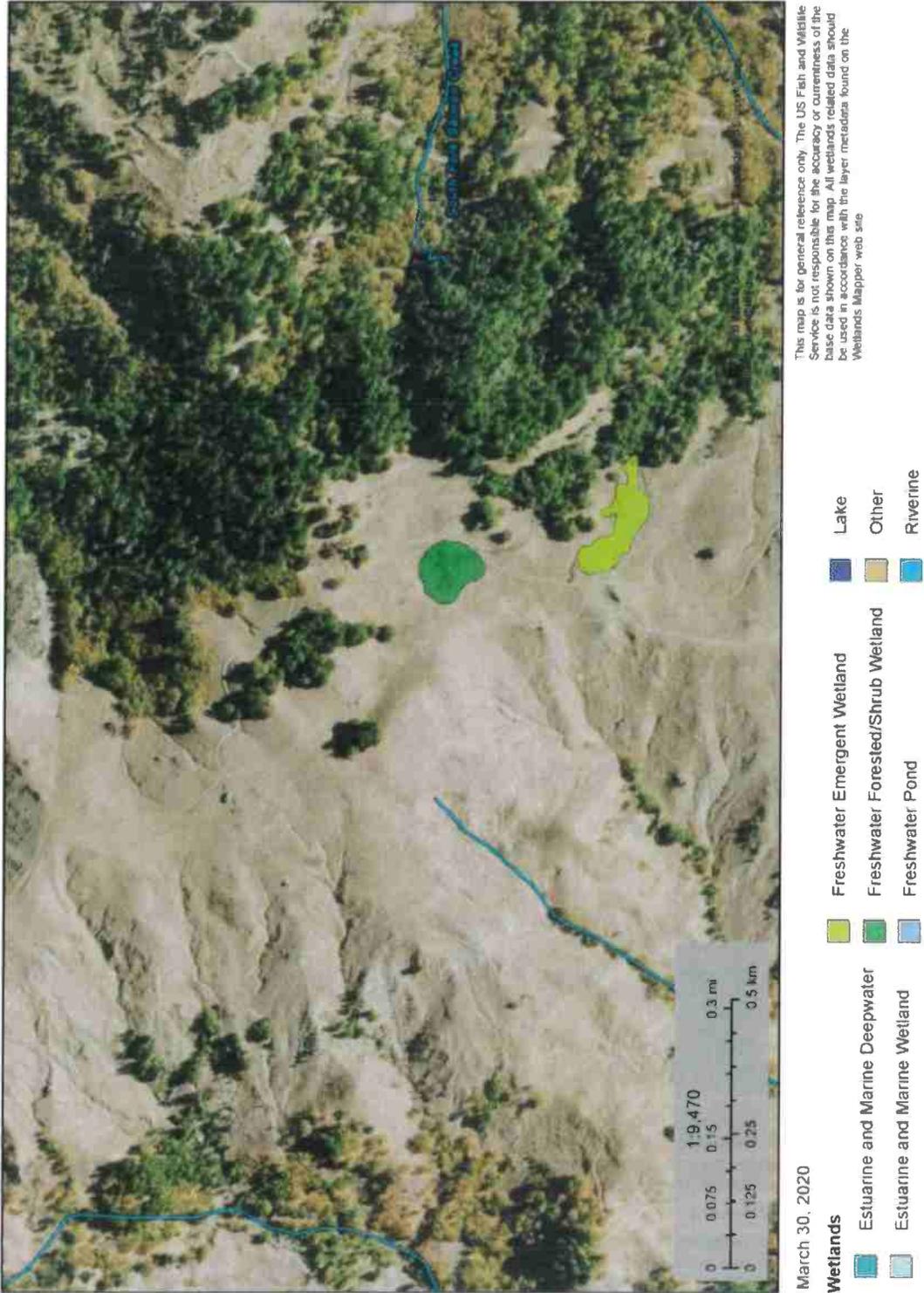


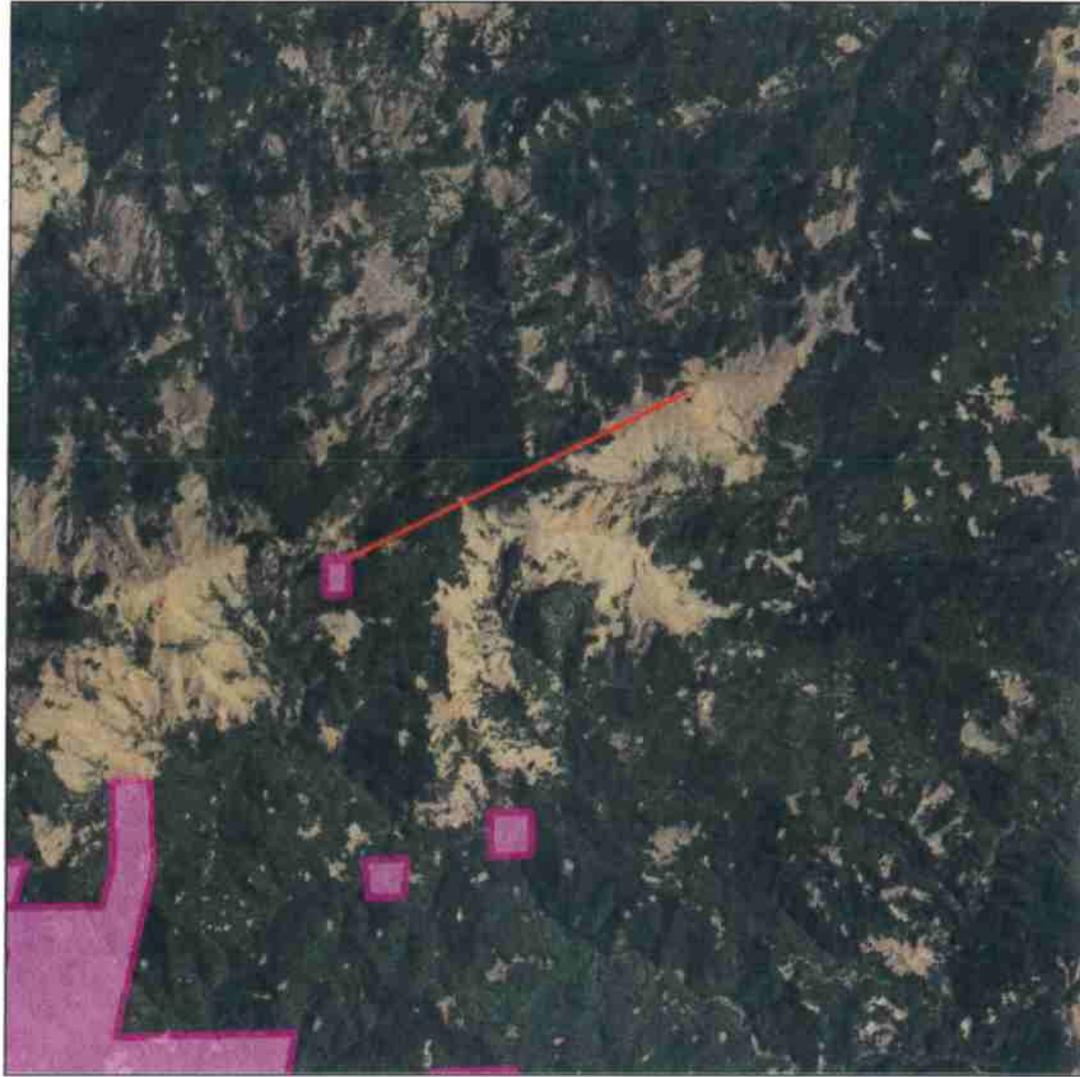
Figure 9. Aquatic Habitat on Ranch Center Permit Area

Nearest NSO Critical Habitat to Clark's Butte Ranch Site



Figure 10. Nearest NSO Critical Habitat to Clark's Butte Permit Area (0.26 miles)

Nearest NSO Critical Habitat to Ranch Center



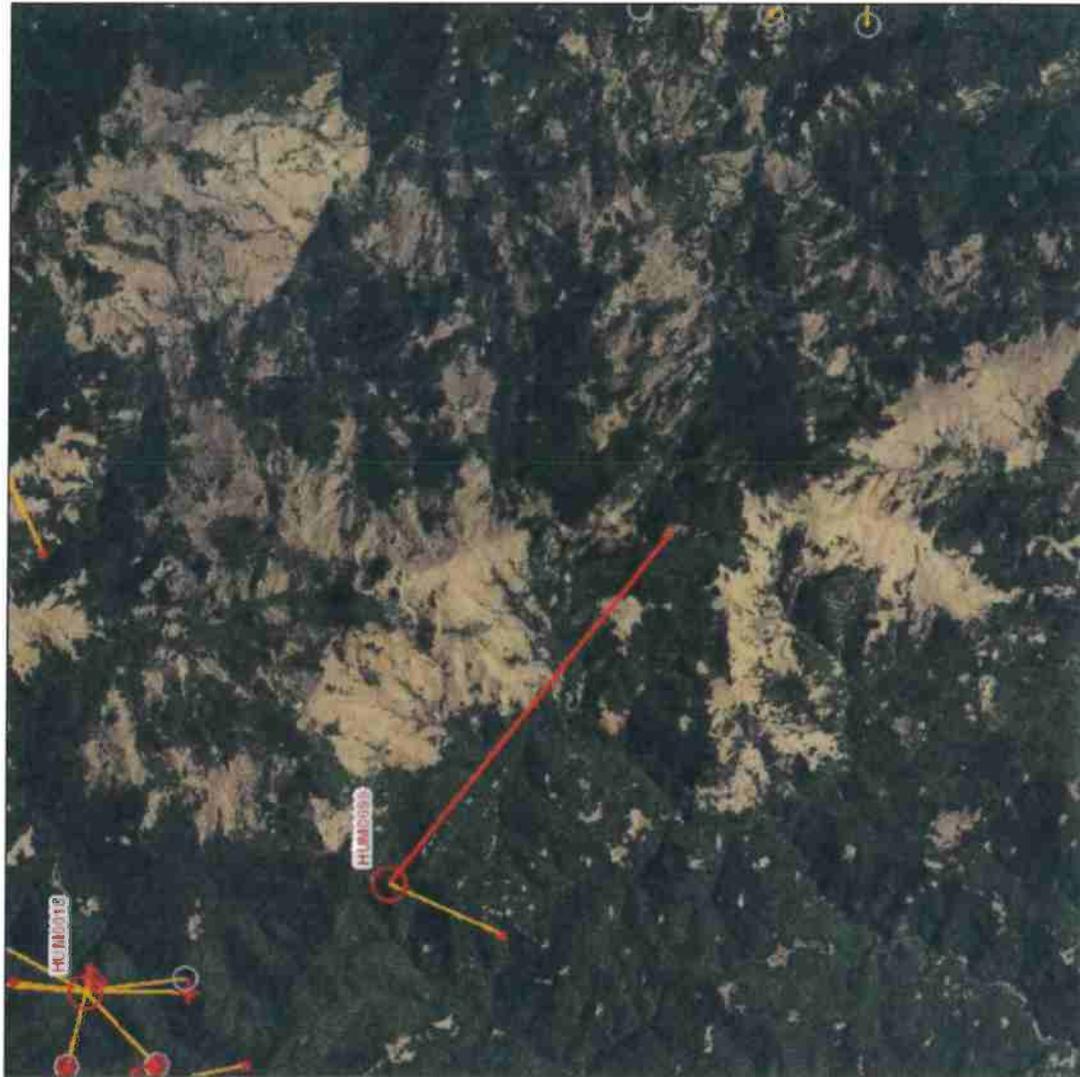
Northern Spotted Owl -
Final Critical Habitat -
USFWS [ds156]



Author: wydyer@yahoo.com
Printed from: http://duca.org/cal.gov

Figure 11. Nearest NSO Critical Habitat to Ranch Center (2.2 miles)

Nearest NSO Activity Center to Clark's Butte Ranch



Spotted Owl Observations
[ds704]

- Nest
- Young
- Pair
- Other Positive Observation
- Negative Observation
- Activity Center
- Abandoned Activity Center
- Not Valid Activity Center
- Spotted Owl Observations Spider Diagram [ds705]



Author: wyclifor@yahoo.com
Printed from: http://oc.sfp.ca.gov

Figure 12. Nearest NSO Activity Center to Clark's Butte Ranch (~ 2.6 miles)

Nearest NSO Activity Center to Ranch Center



Spotted Owl Observations
[ds704]

- Nest □
- Young +
- Pair ◇
- Other Positive Observation ●
- Negative Observation ○
- Activity Center ○
- Abandoned Activity Center ○
- Not Valid Activity Center X
- Spotted Owl Observations Spider Diagram [ds705] —



Author: webster@si.edu
Printed from: http://si.edu/sip/csl/pov

Figure 13. Nearest NSO Activity Center to Ranch Center (~ 1.9 miles)



Figure 14. Nearest Marbled Murrelet Critical Habitat to Ranch Center (2.6 miles)



Figure 15. Nearest Marbled Murrelet Critical Habitat to Clark's Butte Ranch (1.6 miles)

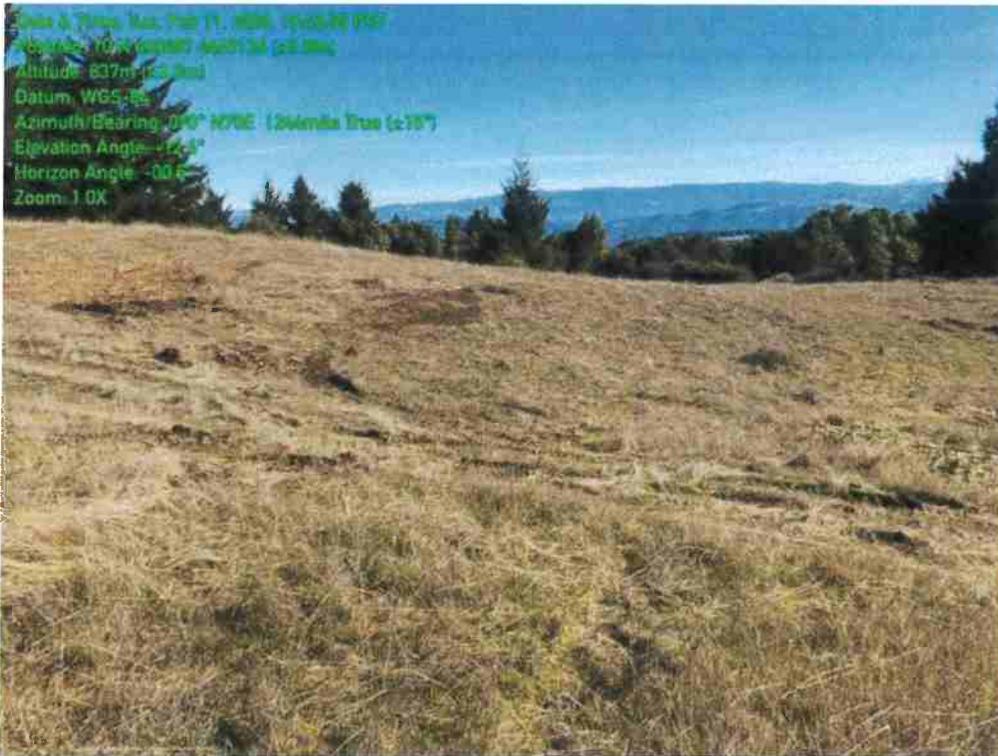
CNDDDB Map of Clark's Butte Ranch Site



Author: wpt@water.gov
 Printed from map.20.08.dlg on gov

Figure 16. California Natural Diversity Database Map Benbow Project Area

Figure 17. Photos of the BAA



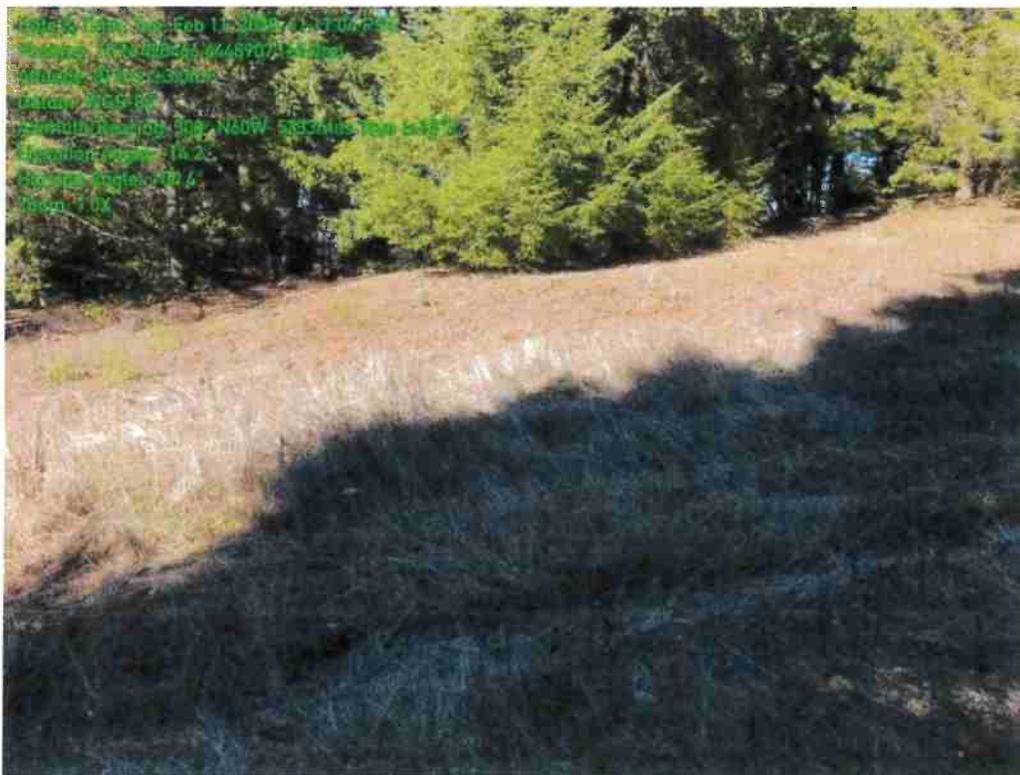
1.0 Cultivation Site 1 at Clark's Butte Ranch Permit Area



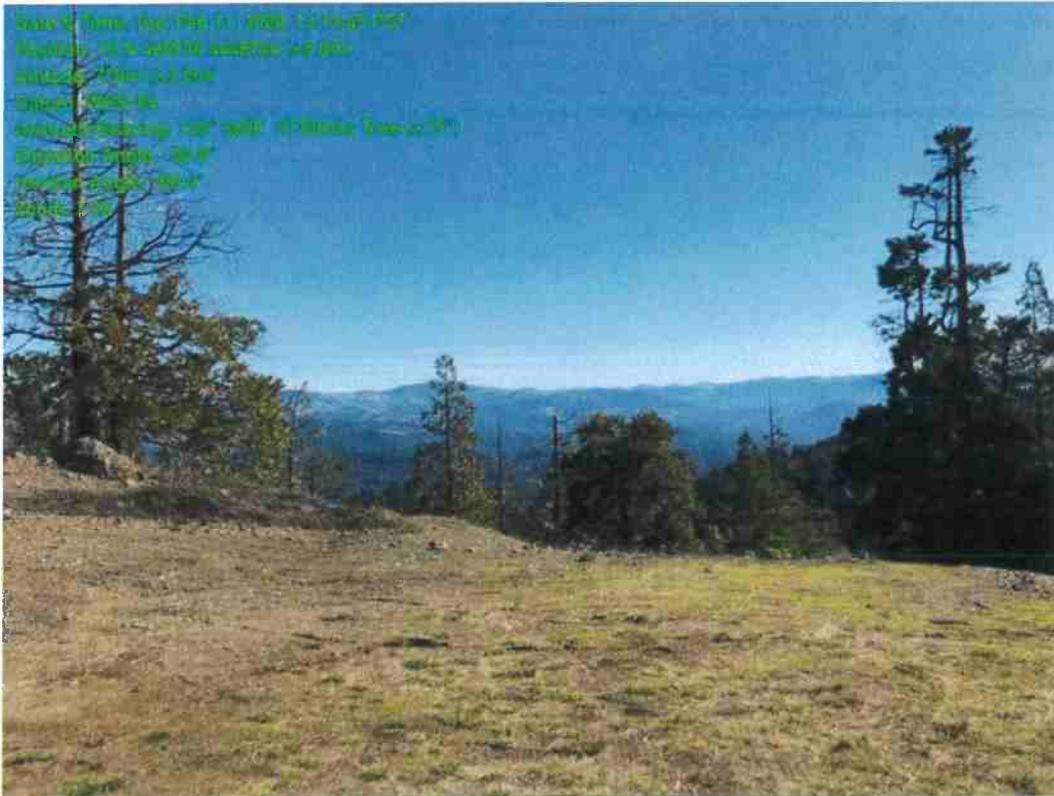
2.0 Proposed Pond Site at Cultivation Site 1 at Clark's Butte Ranch Permit Area



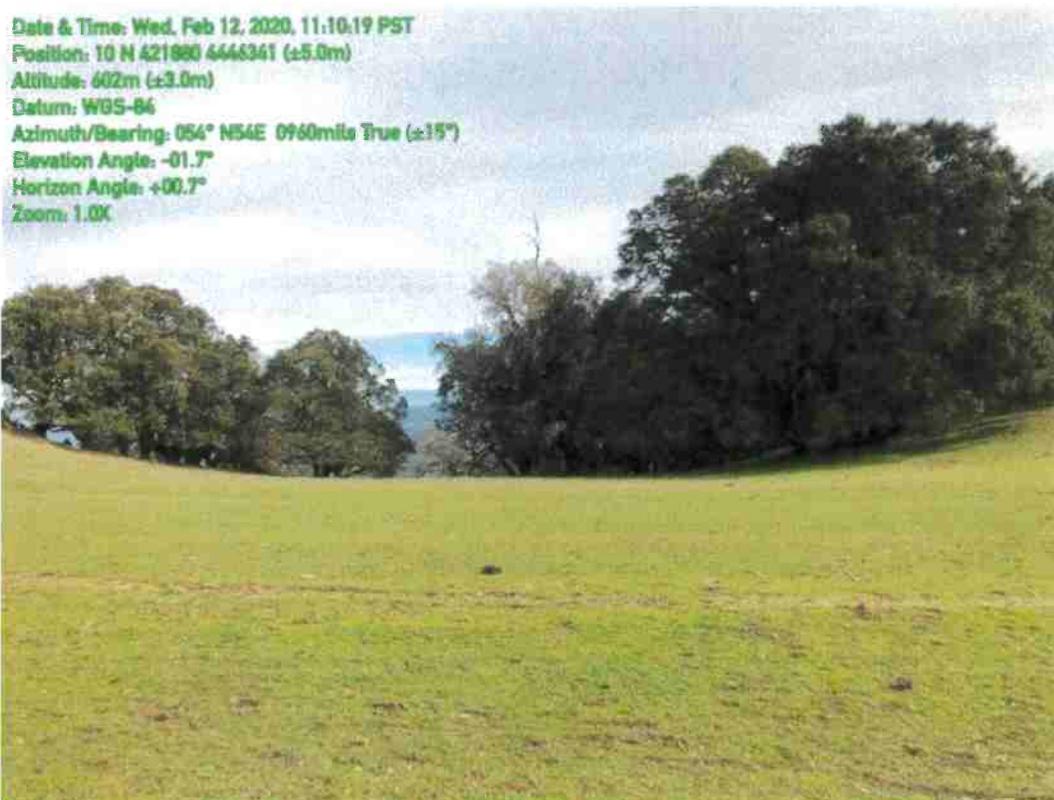
3.0 Cultivation Site 2 at Clark's Butte Ranch Permit Area



4.0 Proposed Pond Site 2 at Clark's Butte Ranch Permit Area



5.0 Cultivation Site 3 at Clark's Butte Ranch Permit Area



6.0 Cultivation Site 1 at Ranch Center Permit Area

Date & Time: Wed, Feb 12, 2020, 11:11:28 PST
Position: 10 N 421883 4446337 ($\pm 5.0m$)
Altitude: 599m ($\pm 3.0m$)
Datum: WGS-84
Azimuth/Bearing: 194° S14W 3484mils True ($\pm 15^\circ$)
Elevation Angle: -09.3°
Horizon Angle: $+02.7^\circ$
Zoom: 1.0K



7.0 Domestic Water Storage Tank at Ranch Center Permit Area

Date & Time: Wed, Feb 12, 2020, 11:28:58 PST
Position: 10 N 421781 4446581 ($\pm 5.0m$)
Altitude: 595m ($\pm 3.0m$)
Datum: WGS-84
Azimuth/Bearing: 211° S11W 4520mils True ($\pm 15^\circ$)
Elevation Angle: -06.6°
Horizon Angle: $+03.3^\circ$
Zoom: 1.0K



8.0 Rain Catchment Pond North of the Ranch Center Permit Area



9.0 Typical Forest Habitat on Clark's Butte Permit Area



10.0 Forested Habitat on the Clark's Butte Permit Area

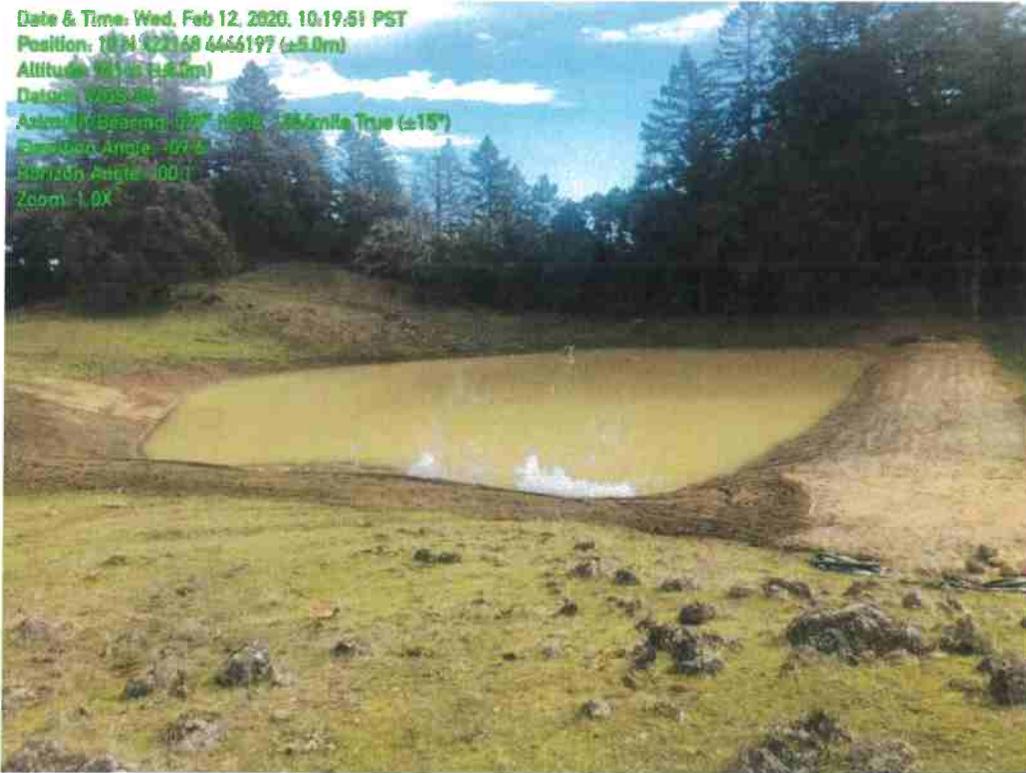


11.0 Ephemeral Portion of Kinsey Creek in the Clark's Butte Permit Area



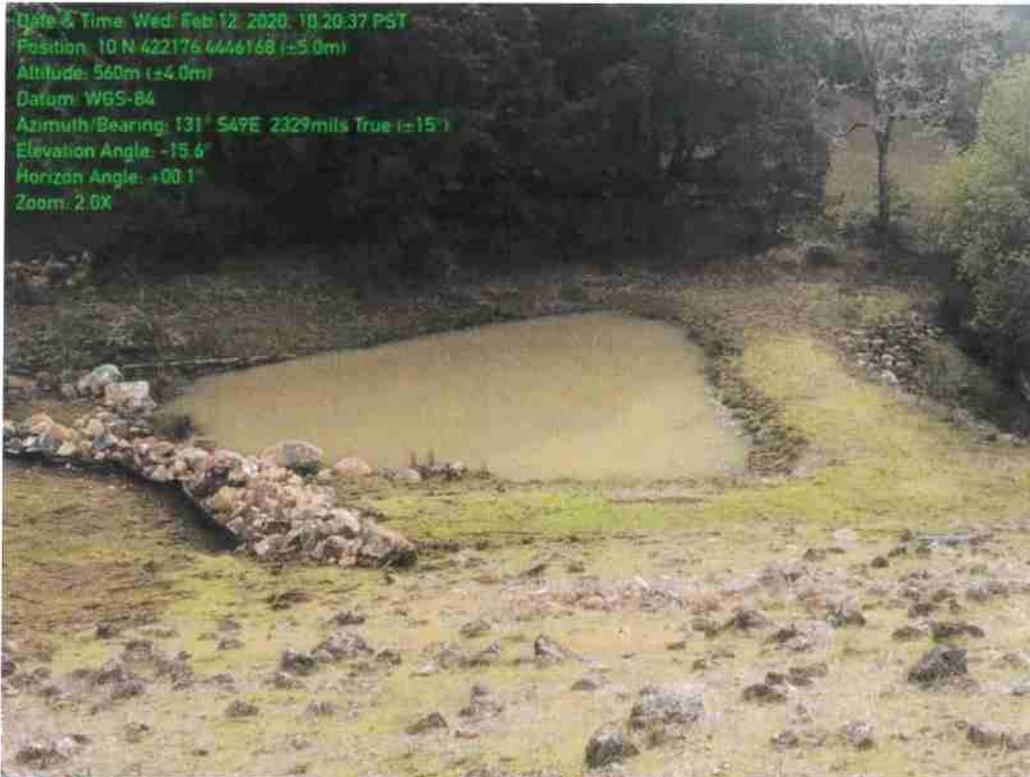
12.0 Cistern Well at the Freshwater Emergent Wetland Southeast of the Ranch Center Permit Area

Date & Time: Wed, Feb 12, 2020, 10:19:51 PST
Position: 10 N 422168 4446197 ($\pm 5.0m$)
Altitude: 565m ($\pm 4.0m$)
Datum: WGS-84
Azimuth/Bearing: 122° 54E 232mils True ($\pm 15^\circ$)
Elevation Angle: -07.6°
Horizon Angle: +00.1°
Zoom: 1.0X

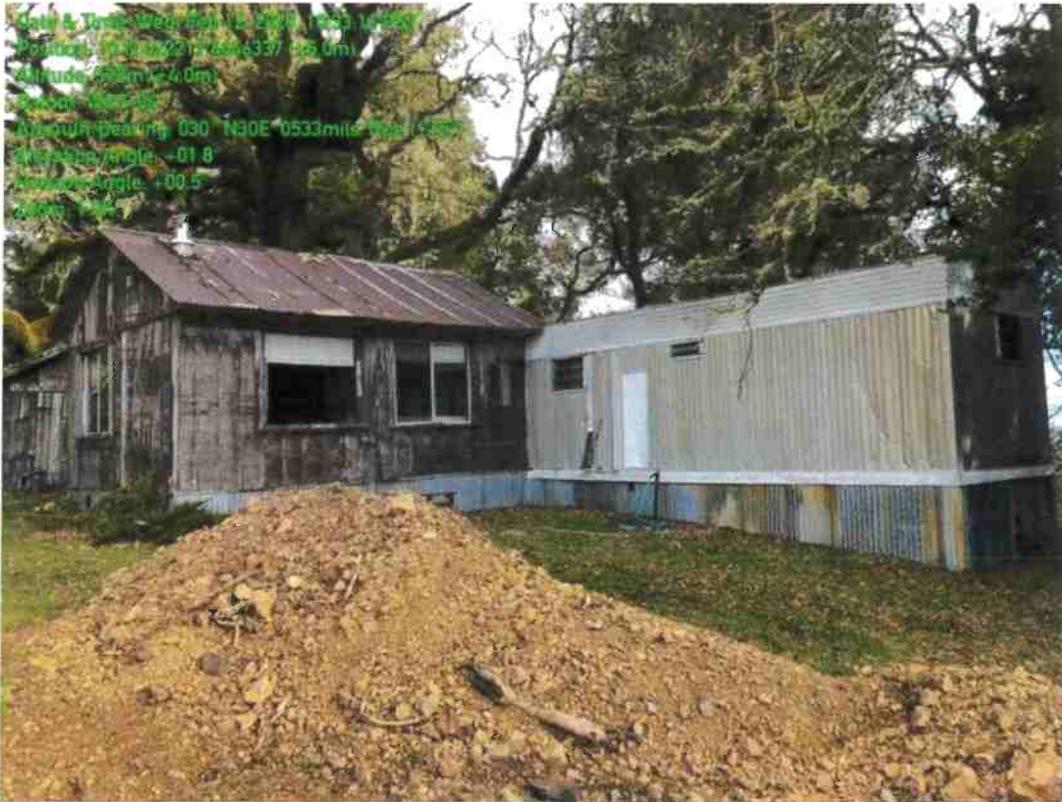


13.0 Pond for Livestock at Ranch Center Permit Area

Date & Time: Wed, Feb 12, 2020, 10:20:37 PST
Position: 10 N 422176 4446168 ($\pm 5.0m$)
Altitude: 560m ($\pm 4.0m$)
Datum: WGS-84
Azimuth/Bearing: 131° 549E 2329mils True ($\pm 15^\circ$)
Elevation Angle: -15.6°
Horizon Angle: +00.1°
Zoom: 2.0X



14.0 Small Pond to the Southeast of the Ranch Center Permit Area



15.0 Ranch Buildings Southeast of Ranch Center Permit Area



16.0 Bunkhouse at Ranch Center



18.0 Recently Installed Septic System for the Bunkhouse



19.0 Typical Forested Habitat at Ranch Center Permit Area