




Biological Resource Assessment

**Young Jacobsen
APN: 221-011-021
CEQA Compliance**

Prepared by
Corrina Kamoroff
5/20/2021

For
**Hohman and Associates
Hydesville, CA**

Signature: 

Date: 5/20/2021

CONTENTS

1. Summary.....	1
2. Introduction.....	1
2.1 Project Description.....	1
2.2 Setting.....	1
2.3 Zoning.....	2
2.4 Purpose.....	2
2.5 Qualifications.....	2
2.6 Terms.....	3
3. Methods.....	5
3.1 Biological Assessment Area.....	5
3.2 Database Search.....	5
3.3 Field Surveys.....	5
3.4 Trustee and Other Agency Consultation.....	5
4. Results.....	5
4.1 Existing Conditions.....	5
4.2 Habitats.....	7
4.2.1 Upland Communities.....	7
4.2.2 Wetland and Riparian Communities.....	7
4.3 Special Status Animals.....	7
4.3.1 Special Status Animals Documented by CNDDDB in the Ettersburg 9-Quad Area.....	8
Table 1. Birds.....	8
Table 2. Mammals.....	8
Table 3. Amphibians and Reptiles.....	9
Table 4. Fish.....	9
Table 5. Invertebrates.....	10
4.3.2 Potential Impacts to Special Status Animals.....	11
4.4 Wildlife Movement and Connectivity.....	25
5. Conclusions.....	25
5.1 Summary of Potential Impacts and Mitigations.....	25
5.2 Recommended Surveys and Mitigation Measures for Potentially Significant Impacts.....	27
6. References.....	28
Attachment A. CALVEG Vegetation Alliance Map.....	30
Attachment B. CNDDDB Special Status Taxa Search Map.....	31

Attachment C. Habitat Photos..... 32
Attachment D. Rank Definitions..... 35
Attachment E. NSO Database Check Map 36
Attachment F. Aerial Imagery Parcel Map..... 37

1. Summary

This Biological Resource Assessment was prepared on behalf of Young Jacobsen who is seeking permits for commercial cannabis cultivation under the Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO, a.k.a Ordinance 2.0) for Assessor's Parcel Number (APN) 221-011-021. This document assesses habitats and potentially occurring special-status animals as well as identifying potential impacts of previous and proposed cultivation-related activities on biological resources. This assessment also recommends mitigation measures needed to reduce potential impacts to less-than-significant levels, and it identifies additional surveys needed to adequately evaluate impacts.

The parcel is located in Timber Production Zone (TPZ) and Agricultural Exclusive (AE) zoned areas. The parcel is approximately 80 acres. The surrounding area has the potential to support numerous special-status animal species (details are provided in Section 4.3 Special Status Animals). Removal of infrastructure located within Streamside Management Areas (SMA) is recommended. Infrastructure within the SMA was actively being removed during the site visit on April 15, 2021. Additional mitigation measures have been recommended to address potential impacts of light and noise disturbance (See table in Section 5.2). A table summarizing all mitigation measures recommended to reduce biological impacts to less-than-significant levels can be found in Section 5.2.

2. Introduction

2.1 Project Description

Young Jacobsen is seeking permitting for commercial cannabis cultivation on APN: 221-011-021. The proposed project includes cannabis cultivation in five existing hoop houses. The hoop houses historically were located within the SMA of a Class III and a Class II drainage. However, the hoop houses will be shortened in order to adhere with land use regulations associated with the SMA. The cultivation site will be irrigated from water stored in three 5,000-gallon water tanks and one ~3,000-gallon water tank on a flat area near the forest edge.

2.2 Setting

The Young Jacobsen project is located in Section 1 Township 3 South, Range 2 East HB&M; Humboldt County on the Ettersburg USGS 7.5' quadrangle. 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. The elevation ranges from approximately 800 to 1400 feet. Slopes on the property are moderate to steep, and the aspect is primarily south-facing. The vegetation is mapped by USFS CalVeg as

annual grasses and forbs, California bay (*Umbellularia californica*), incense cedar (*Calocedrus decurrens*), Douglas fir (*Pseudotsuga menziesii*) and Oregon white oak (*Quercus garryana*).

2.3 Zoning

The parcel is zoned for Timber Production Zone (TPZ) and Agricultural Exclusive (AE).

2.4 Purpose

The primary purpose of this Biological Resource Assessment is to evaluate the potential effects of the applicant's cannabis cultivation operations on biological resources. The applicant is seeking permitting for commercial cultivation of cannabis in Humboldt County, and this is a discretionary project subject to the California Environmental Quality Act (CEQA). This assessment provides the following information for the permitting process:

- An evaluation of biological resources on the site
- Determinations of whether the project has the potential to significantly impact biological resources
- Recommendations of additional surveys needed to adequately assess potential impacts
- Recommended mitigations to avoid, minimize, or compensate for any potentially significant impacts

2.5 Qualifications

The Biological Resource Assessment for this project was conducted by Corrina Kamoroff. Corrina Kamoroff is a Wildlife Biologist for Hohman and Associates Forestry Consultants. Corrina received her B.S. in Evolution, Ecology and Biodiversity from University of California, Davis. Corrina is currently pursuing her M.S. in Natural Resources with a concentration in Wildlife from Humboldt State University. Corrina has over 8 years of wildlife experience in Northern California, including over two years conducting biological surveys and evaluating potential impacts in fulfillment of CEQA requirements.

2.6 Terms

Biological Assessment Area (BAA): The area evaluated for potential impacts to biological resources, defined in this document as the property area surrounded by a 1.3-mile buffer.

Biological Resource Assessment: Referring to this document, a review of potential impacts to biological resources that informs agency review of discretionary projects subject to CEQA.

California Department of Fire (CDF) Sensitive: Species that warrant protection during timber harvest operations, listed in California Forest Practice Rules.

California Environmental Quality Act (CEQA): A state environmental law that applies to discretionary projects subject to state agency review. The purposes of CEQA include disclosing environmental impacts, minimizing environmental damage, and involving the public.

California Endangered Species Act (CESA): A state law that prohibits “take” of species protected by CDFW, including Threatened, Endangered, and Candidate Species.

California Department of Fish and Wildlife (CDFW): A trustee agency that protects California’s fish and wildlife resources.

California Native Plant Society (CNPS): A non-profit organization dedicated to preserving and protecting native plants and their habitats. CNPS provides protocols and information relevant to plant conservation, including rankings of rare plants recognized by CDFW.

Commercial Medical Marijuana Land Use Ordinance (CMMLUO): “Ordinance 1.0,” a Humboldt County ordinance that regulates commercial cultivation, processing, manufacturing and distribution of cannabis for medical use.

Commercial Cannabis Land Use Ordinance (CCLUO): “Ordinance 2.0,” a Humboldt County ordinance regulating commercial cannabis cultivation for adult use.

Endangered: Taxa in immediate jeopardy of extinction in all or part of their range.

Federal Endangered Species Act (FESA): A federal law enacted in 1973 that protects species listed as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS).

Fully Protected (FP): Take of species is strictly prohibited by CDFW.

NatureServe: A non-profit dedicated to providing scientific information to support informed decisions. NatureServe provides information on species and rankings of rare species (see Attachment D).

Special Animals: All animals tracked by CDFW, including threatened, endangered, rare, sensitive, and otherwise vulnerable species.

Species of Special Concern (SSC): Species considered by CDFW to be vulnerable because of declining populations, limited range, or other threats.

State Water Resources Control Board Order WQ 2019-0001-DWQ: The order sets requirements for waste discharge related to cannabis cultivation. The State Water Resources Control Board Cannabis Cultivation Regulatory Program will replace the regional program, which is no longer accepting enrollment. The state program has set similar standards to minimize impacts to water quality. Information is available on the website:

https://www.waterboards.ca.gov/water_issues/programs/cannabis/

Streamside Management Area (SMA): Protective buffers around permanent or intermittent streams. The Humboldt County General Plan (2017) defines Streamside Management Areas as follows:

- 1. 100 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of perennial streams.*
- 2. 50 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of intermittent streams.*
- 3. The width of Streamside Management Areas shall not exceed 200 feet measured as a horizontal distance from the top of bank.*

Threatened: Taxa likely to become endangered in the foreseeable future.

3. Methods

3.1 Biological Assessment Area

The Biological Assessment Area (BAA) for this project includes a 1.3-mile buffer area around the property. The assessment considers off-site impacts to habitats and species that may be in the BAA. Consideration of offsite impacts in the BAA is potentially relevant to sensitive species and habitats downslope or downstream of operations (e.g. riparian habitat or salmonids), and to species that require a large range and may be sensitive to disturbance (e.g. the northern spotted owl).

3.2 Database Search

A list of special-status animal and plant species to consider was downloaded from CNDDDB BIOS for the Ettersburg 9-quad area. Animals and plants on the CNDDDB list were primarily included based on state or federal listing status or CDFW designation. Native pollinators found in the area were also included based on state rarity and their potential to be affected by cannabis cultivation. Additional species were added to the CNDDDB list for consideration based on potential habitat or high levels of conservation concern. Habitats within the 1.3-mile Biological Assessment Area (BAA) for potentially occurring species were evaluated based on CALVEG vegetation mapping and aerial photos. Attachment A shows a map of the CALVEG (Classification and Assessment with LANDSAT of Visible Ecological Groupings) dominant vegetation alliances for the parcel and surrounding area (U.S. Forest Service 2000). Attachment B shows nearby occurrences of special status taxa as mapped in CNDDDB. Habitat photos are provided in Attachment C. Rank Definitions are provided in Attachment D. An NSO Database Check Map can be found in Attachment E. Attachment F shows aerial photos of the project area.

3.3 Field Surveys

The site was evaluated for potential habitat value to protected, endangered, threatened, rare, and sensitive species by walking around the project area to observe species, habitat types, and habitat quality on April 15, 2021. Additional botanical surveys are recommended to be completed in 2021 for the proposed sites. Table 5.2 provides a list of surveys and mitigation measures needed to reduce the potential impact of the project on biological resources to less than significant levels and to restore what has already been implemented on the parcel.

3.4 Trustee and Other Agency Consultation

No Trustee or other agency consultation is known at this time.

4. Results

4.1 Existing Conditions

Aerial imagery shows that the site footprint on the parcel has had some level of development since 2012. Imagery from 4/24/2010 shows open grassland with a ranch road adjacent to what is

now the cultivation site on the property. The next available image dated 8/23/2012 shows grading and the installation of two greenhouses. The site was expanded in 2013 or 2014 by additional grading and the installation of three greenhouses. The site was converted from grassland for use as a cannabis cultivation site and has been used as a cultivation site since that time. One tree was cut to convert the area to a cultivation site. A portion of the western side of the site is within the 50' SMA of a class III watercourse to the northwest of the conversion site. A portion of the eastern side of the site is within the 100' SMA of a Class II watercourse to the east of the conversion site. No rare threatened or endangered animals or plants present within 1000' as per 2021 CNDDDB search.

Mitigation measures have been proposed for each potentially significant biological impact of current and planned operations on the property. Relevant mitigation measures for the impacts discussed in this report are listed in parentheses (e.g. BIO-1, BIO-2, etc.), and these mitigation measures can be found in the table of Section 5.2 Recommended Surveys and Mitigation Measures for Potentially Significant Impacts.

4.2 Habitats

4.2.1 Upland Communities

The parcel is within a mix of Douglas fir (*Pseudotsuga menziesii*), Oregon white oak (*Quercus garryana*), California bay (*Umbellularia californica*), incense cedar (*Calocedrus decurrens*) forest and open grassland. Tree species present consists primarily of even-age second growth Douglas-fir and white oak, bay and cedar. The property is zoned Timber Production (TPZ) and Agriculture Exclusive (AE). The area surrounding the cultivation sites is dominated by open grassland.

4.2.2 Wetland and Riparian Communities

The parcel is located ~0.15 miles to the north of Salmon Creek, and there are numerous tributaries that flow through the parcel. There are multiple Class II and III tributaries located on the parcel. Riparian forest on the property was characterized by Douglas fir (*Pseudotsuga menziesii*), Oregon white oak (*Quercus garryana*) and incense cedar (*Calocedrus decurrens*). See Section 4.3.2 Potential Impacts to Special Status Animals for discussion of specific habitat needs and potential impacts to sensitive species that may be found in the area.

4.3 Special Status Animals

Special status animals evaluated in this report include animal taxa listed or proposed for listing under Federal and State Endangered Species Acts, CDFW Fully Protected, CDFW Watch List, CDFW Species of Special Concern, California Department of Forestry and Fire Protection Sensitive Species, and other special species and taxa tracked by CDFW. Impacts to special status animals are evaluated in this section based on their likelihood of occurrence in the area, habitat needs, life-history needs, and sensitivity to operations. Likelihood of inhabiting the area was based on documented occurrences in the Ettersburg 9-quad area (Tables 1-5) and availability of potential habitat. Details on potentially occurring taxa, potential impacts, and surveys and mitigations needed for these animals can be found in Section 4.3.2 Potential Impacts to Special Status Animals.

4.3.1 Special Status Animals Documented by CNDDDB in the Ettersburg 9-Quad Area

Table 1. Birds

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Accipiter cooperii</i>	Cooper's hawk	None	None	WL	G5	S4	Yes
<i>Aquila chrysaetos</i>	golden eagle	None	None	FP; WL	G5	S3	Yes
<i>Ardea herodias</i>	great blue heron	None	None	-	G5	S4	Yes
<i>Asio otus</i>	Long-eared owl	None	None	SSC	G5	S3?	Yes
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened	Endangered	-	G3	S2	Yes
<i>Empidonax traillii brewsteri</i>	Little willow flycatcher	None	Endangered	-	G5T3T4	S1S2	Yes
<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	G4T4	S3S4	Yes
<i>Haliaeetus chrysaetos</i>	Bald eagle	Delisted	Endangered	FP	G5	S3	Yes
<i>Icteria virens</i>	Yellow-breasted chat	None	None	SSC	G5	S3	Yes
<i>Pandion haliaetus</i>	osprey	None	None	WL	G5	S4	Yes
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Delisted	Delisted	FP	G4T3T4	S3	No-coastal
<i>Psiloscops flammeolus</i>	Flammulated owl	None	None	-	G4	S2S4	Yes
<i>Setophaga petechia</i>	Yellow warbler	None	None	SSC	G5	S3S4	Yes
<i>Strix occidentalis caurina</i>	Northern spotted owl	Threatened	Threatened	-	G3G4T3	S2	Yes

Table 2. Mammals

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Antrozous pallidus</i>	Pallid bat	None	None	SSC	G4	S3	Yes
<i>Arborimus pomo</i>	Sonoma tree vole	None	None	SSC	G3	S3	Yes
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	G4	S2	Yes
<i>Enhydra lutris nereis</i>	Southern sea otter	Threatened	None	FP	G4T2	S2	No-Coastal
<i>Erethizon dorsatum</i>	North American porcupine	None	None	-	G5	S3	Yes
<i>Lasionycteris noctivagans</i>	Silver-haired bat	None	None	-	G3G4	S3S4	Yes
<i>Lasiurus blossevillii</i>	western red bat	None	None	SSC	G4	S3	Yes
<i>Lasiurus cinereus</i>	hoary bat	None	None	-	G3G4	S4	Yes

<i>Martes caurina humboldtensis</i>	Humboldt marten	Threatened	Endangered	SSC	G4G5T1	S1	Yes
<i>Myotis evotis</i>	Long-eared myotis	None	None	-	G5	S3	Yes
<i>Myotis lucifugus</i>	Little brown bat	None	None	-	G3	S2S3	Yes
<i>Myotis thysanodes</i>	Fringed myotis	None	None	-	G4	S3	Yes
<i>Myotis volans</i>	Long-legged myotis	None	None	-	G4G5	S3	Yes
<i>Myotis yumanensis</i>	Yuma myotis	None	None	-	G5	S4	Yes
<i>Pekania pennanti</i>	fisher – Northern California/Southern Oregon DPS	None	None	SSC	G5	S2S3	Yes
<i>Taxidea taxus</i>	American badger	None	None	SSC	G5	S3	Yes

Table 3. Amphibians and Reptiles

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Ascaphus truei</i>	Pacific tailed frog	None	None	SSC	G4	S3S4	Yes
<i>Emys marmorata</i>	Western pond turtle	None	None	SSC	G3G4	S3	Yes
<i>Rana aurora</i>	northern red-legged frog	None	None	SSC	G4	S3	Yes
<i>Rana boylei</i>	foothill yellow-legged frog	None	Endangered	SSC	G3	S3	Yes
<i>Rhyacotriton variegatus</i>	Southern torrent salamander	None	None	SSC	G3G4	S2S3	Yes
<i>Taricha rivularis</i>	Red-bellied newt	None	None	SSC	G2	S2	Yes

Table 4. Fish

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Entosphenus tridentatus</i>	Pacific lamprey	None	None	SSC	G4	S4	Yes
<i>Oncorhynchus kisutch pop. 2</i>	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	G5T2Q	S2	Yes
<i>Oncorhynchus kisutch pop. 4</i>	Coho salmon-central California coast ESU	Endangered	Endangered	-	G5T2T3Q	S2	Yes
<i>Oncorhynchus mykiss irideus pop. 16</i>	steelhead - northern California DPS	Threatened	None	-	G5T2T3Q	S2S3	Yes

<i>Oncorhynchus mykiss irideus pop. 36</i>	summer-run steelhead trout	None	Candidate Endangered	SSC	G5T4Q	S2	Yes
<i>Oncorhynchus tshawytscha pop. 17</i>	chinook salmon - California coastal ESU	Threatened	None	-	G5T2Q	S2	Yes

Table 5. Invertebrates

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Bombus caliginosus</i>	obscure bumble bee	None	None	-	G4?	S1S2	Yes
<i>Bombus occidentalis</i>	western bumble bee	None	Candidate Endangered	-	G2G3	S1	Yes

4.3.2 Potential Impacts to Special Status Animals

BIRDS

Potential impacts are evaluated for potentially occurring threatened, endangered, rare and sensitive bird species that have been documented in the surrounding 9-quad area. No tree removal or nesting habitat disturbance is proposed at this time and as result Raptor and Nesting bird surveys are not recommended. However, if the project proposes any potential nesting habitat removal, raptor surveys and pre-construction nesting bird surveys will be recommended prior to construction.

1. Cooper's hawk (*Accipiter cooperii*)

Special Status: CDFW Watch List; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4.

Family: Accipitridae

Habitat/Life-history Requirements: Cooper's hawks are common year-round residents in wooded areas of California, and they can be found in urban and suburban areas (Cornell Lab). The raptor commonly nests in riparian and lowland habitats throughout much of Humboldt County (Hunter et al. 2005). The medium-sized hawk builds nests made of piles of sticks over two feet wide in tall trees, typically 25-50 feet off the ground (Cornell Lab).

Nesting trees include pines, oaks and Douglas firs (Cornell Lab). Dense stands are typically used for nesting and patchy open areas are commonly used for hunting (Zeiner et al. 1988).

Potential Impact: The BAA could provide habitat for the Cooper's hawk. The raptor is on the CDFW Watch List and protected under the Migratory Bird Treaty Act (MBTA). As per county regulations, the project should incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife (**BIO-2**). The current project proposal is not expected to remove or impact potential nesting habitat for the Cooper's hawk.

2. Golden eagle (*Aquila chrysaetos*)

Special Status: CDFW Fully Protected and Watch List; Protected under Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act; NatureServe Ranks: G5, S3.

Family: Accipitridae

Habitat/Life-history Requirements: The golden eagle is an uncommon migrant and year-round resident (Zeiner et al. 1988). The golden eagle typically utilizes open habitats away from human environments (Sibley 2003). Small mammals are the primary prey for the golden eagle (Sibley 2003). One of the largest raptors in North America, the golden eagle builds massive nests, about 6 feet across (Cornell Lab). Nests are typically located on cliffs, but may also be found on trees, man-made structures, or on the ground (Cornell Lab).

Potential Impact: Open areas for foraging occur within the BAA. Potential nest trees are also available on the property. The nearest occurrence mapped in CNDDDB is ~3 miles from the project site. As per county regulations, the project should incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife (**BIO-2**). The current project proposal is not expected to impact or remove potential nesting habitat for the golden eagle.

3. **Great blue heron (*Ardea herodias*)**

Special Status: The species is Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4.

Family: Ardeidae

Habitat/Life-history Requirements: California Department of Forestry and Fire Protection has classified the great blue heron as *Sensitive* to timber operations, and it is protected under the California Forest Practice Rules. Great blue herons are fairly common in estuaries and emergent wetlands throughout California, and are occasionally observed in a variety of other habitats as well (Zeiner et al. 1988). These water birds are highly sensitive to disturbance of nesting colonies, which may cause desertion (Zeiner et al. 1988). Great blue herons typically nest in conspicuous colonies known as rookeries, but may build solitary nests as well (Zeiner et al. 1988) Although they prefer to nest in large trees adjacent to wetland feeding areas, nests may be up to 10 miles from feeding grounds (Zeiner et al. 1988). In Humboldt County, breeding areas are typically limited to the coastal slope and waterways in more inland areas (Hunter et al. 2005).

Potential Impact: The BAA is unlikely to provide habitat for the great blue heron. The current project proposal is not expected to impact or remove potential nesting habitat for the great blue heron

4. **Long-eared owl (*Asio otus*)**

Special Status: CDFW Species of Special Concern; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S3?

Family: Strigidae

Habitat/Life-history Requirements: Long-eared owls have been known to breed in some areas in the interior parts of southern Humboldt County (Shufard and Gardeli 2008.). Locally, the owls generally nest in dense stands of mixed conifer and oak where they can find platforms; nest sites are typically near a forest edge with a meadow or grassland adjacent (Shufard and Gardeli). They feed on small mammals, foraging at night over meadows (Sibley 2014).

Potential Impact: There are no CNDDDB recorded occurrences of the long-eared owl in the 9-quad area. The long-eared owl, however, may occur in the area of impact. The project should incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife (**BIO-2**).

5. **Marbled murrelet (*Brachyramphus marmoratus*)**

Special Status: Federally Threatened, California Endangered, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G3, S2.

Family: Alcidae

Habitat/Life-history Requirements: The federally Threatened and state Endangered marbled murrelet nests in large trees in mature coastal forests along the Pacific coast, especially old-growth redwood and Douglas-fir forests (Zeiner et al. 1988). Fish are the primary source of food for the unique alcid, which travels daily between nesting areas in mature forests and feeding grounds offshore during the breeding season (Cornell Lab). U.S. Fish and Wildlife Service has designated areas of mature coastal forest in Northern California as critical habitat based on the presence of individual trees with potential nesting

platforms, and forested areas within 0.5 miles of individual trees with potential nesting platforms that had a canopy height of at least one-half the average maximum potential height for trees given local growing conditions (USFWS 2011). The presence of trees with potential nesting platforms (flat areas that are at least 4 inches wide, 33 feet high in the canopy of coniferous forests) is the most important predictor of marbled murrelet presence (Evans Mack et al. 2003). Nesting, hatching, and fledging occur from April to August (Sibley 2003). Audio-visual surveys should be conducted in areas that contain mature coniferous forest or trees with suitable platforms (Evans Mack et al. 2003).

Potential Impact: The marbled murrelet is protected under the Migratory Bird Treaty Act (MBTA). The closest documented occurrence of the marbled murrelet is ~1.5 miles away in the Weott Quad. The project does not propose the removal of trees with potential nesting platforms. As a result, the current plan is not expected to impact any potential habitat of the marbled murrelet and surveys are not recommended at this time.

6. **Little willow flycatcher (*Empidonax traillii brewsteri*)**

Special Status: California Endangered, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5T3T4, S1S2.

Family: Tyrannidae

Habitat/Life-history Requirements: The little willow flycatcher is a rare to locally uncommon summer resident that breeds in the Cascades and the Sierra Nevada (Craig and Williams 1998). The little willow flycatcher breeds in wet meadows and montane riparian habitats at 2,000-8,000 feet elevation (Craig and Williams 1998). The riparian songbird requires dense willow thickets for nesting and roosting (Bombay et al. 2003, Zeiner et al. 1988). Destruction of riparian vegetation, modification of hydrology, and nest parasitism by brown headed cowbirds are the main threats to this species (Bombay et al. 2003).

Potential Impact/Mitigation: The BAA could provide habitat for the little willow flycatcher. No vegetation or riparian habitat disturbance is proposed and thus the project is not expected to impact the species.

7. **American peregrine falcon (*Falco peregrinus anatum*)**

Special Status: Federally Delisted, State Delisted, CDFW Fully Protected; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G4T4, S3S4.

Family: Falconidae

Habitat/Life-history Requirements: The formerly federally endangered American peregrine falcon was delisted in 1999 due to recovery (USFWS ECOS). The American peregrine falcon is an uncommon year-round resident and migrant in California (Zeiner et al. 1988). Peregrine falcons typically use cliffs and ledges near bodies of water for cover and nesting areas, but they may also nest on buildings or bridges in the city (Sibley 2003, Cornell Lab). Peregrine falcons may breed in woodland, forest, or coastal habitat (Zeiner et al. 1988). Riparian and wetland areas are important habitat yearlong (Zeiner et al. 1988).

Potential Impact/Mitigation: Peregrine falcons may breed in a wide variety of habitats, and they have the potential to nest in the BAA on suitable ledges or other structures. No vegetation, tree removal or degradation of potential habitat is proposed. Thus, the project is not expected to impact the species.

8. Bald eagle (*Haliaeetus leucocephalus*)

Special Status: Federally Delisted, California Endangered, CDFW Fully Protected; Protected under Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act; NatureServe Ranks: G5, S3.

Family: Accipitridae

Habitat/Life-history Requirements: Federally delisted, but still considered Endangered in California, bald eagles occur along rivers, large creeks, and coastlines throughout Northwestern California (Harris 2005). Fish are a primary source of prey, and bald eagles are typically found in forested areas near large fish-bearing waters (Cornell Lab). Bald eagles build large nests about 6 feet wide. Nests are typically found in large trees, but may be built on other available vegetation or structures (Cornell Lab).

Potential Impact: The BAA could provide habitat for the bald eagle. The closest occurrence mapped in CNDDDB is over 10 miles away. No vegetation or tree removal is proposed that will impact the species habitat and thus the project is not expected to impact the bald eagle.

9. Yellow-breasted chat (*Icteria virens*)

Special Status: CDFW Species of Special Concern; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S3.

Family: Icteriidae

Habitat/Life-history Requirements: The yellow-breasted chat is a CDFW Species of Special Concern. This songbird nests in dense riparian brush. The distribution of the yellow-breasted chat in Humboldt County largely follows the riparian habitat surrounding the major rivers, especially the Eel, Trinity, Klamath, and Mad Rivers (Hunter et al. 2005). The yellow-breasted chat is relatively numerous in Humboldt County, whereas much of California has seen a decline in population (Shuford and Gardali 2008). Protecting riparian areas, including shrub layers, is important for the conservation of this species.

Potential Impact/Mitigation: The BAA is unlikely to have habitat for the yellow-breasted chat. The closest occurrence in CNDDDB is over 10 miles away. No vegetation or tree removal is proposed that will impact the species habitat and thus the project is not expected to impact the yellow-breasted chat.

10. Osprey (*Pandion haliaetus*)

Special Status: CDFW Watch List; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4.

Family: Pandionidae

Habitat/Life-history Requirements: Ospreys primarily prey on fish and they require large fish-bearing waters for hunting (Zeiner et al. 1988). Ospreys are widespread along the Trinity, Klamath, Van Duzen, Eel, and South Fork Eel Rivers in Humboldt County (Harris 2005). Ospreys typically make large nests in tall snags or trees high off the ground in open forest habitats (Zeiner et al.).

Potential Impact/Mitigation: Osprey may occur in the BAA, which has fish bearing waters and large trees. The nearest occurrence mapped in CNDDDB is ~3 miles away on the South Fork Eel River. No vegetation or tree removal is proposed and thus the project is not expected to impact the osprey or important habitat for the species.

11. Flammulated owl (*Psiloscopus flammeolus*)

Special Status: NatureServe Rankings: G4, S2S4.

Family: Strigidae

Habitat/Life-history Requirements: The flammulated owl nests in montane regions at 6,000-10,000 feet with low to moderate canopy cover (Zeiner et al. 1988). This small owl nests in cavities or woodpecker holes in snags or trees, and it is frequently found on the edges of ponderosa pine forest (Zeiner et al. 1988).

Potential Impact/Mitigation: There are no CNDDDB recorded occurrences of the flammulated owl in the 9-quad area. The flammulated owl, however, may occur in the area of impact. The project should incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife (**BIO-2**).

12. Yellow warbler (*Setophaga petechia*)

Special Status: CDFW Species of Special Concern; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S3S4.

Family: Parulidae

Habitat/Life-history Requirements: The yellow warbler breeds in riparian woodlands up to 8000 feet in elevation (Zeiner et al. 1988). The warbler forages on insects, spiders, and berries in the upper canopy of deciduous trees and shrubs. Their territory often includes tall trees for singing and heavy brush for nesting (Zeiner et al. 1988).

Potential Impact/Mitigation: The BAA could provide habitat for the yellow warbler. The closest occurrence in CNDDDB is over 10 miles away. No vegetation or tree removal is proposed that will impact the species habitat and thus the project is not expected to impact the yellow warbler.

13. Northern spotted owl (*Strix occidentalis caurina*)

Special Status: Federally Threatened, California Threatened, CDFW Species of Special Concern, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G3G4T2T3, S3.

Family: Strigidae

Habitat/Life-history Requirements: Northern spotted owls typically nest or roost in multi-layered, mature coniferous forest with high canopy closure, large over story trees, and broken-topped trees or other nesting platforms (USFWS 2012). Confirmed breeding areas are widespread throughout Humboldt County (Hunter et al. 2005). Northern spotted owls may use a broad range of habitats for foraging. Their favored prey, the dusky-footed woodrat (*Neotoma fuscipes*), typically inhabits the forest edge (Harris 2005).

Potential Impact: UFWS protocol surveys are needed for any activity that may modify nesting, roosting, or foraging habitats for northern spotted owls (USFWS 2012). Light and noise disturbance from cannabis cultivation operations have the potential to disturb northern spotted owls, and may make areas unsuitable for nesting. The nearest northern spotted owl Activity Center (HUM0976) is approximately 1.4 miles from the proposed cultivation site (See Attachment E). If noise and light mitigations are followed(**BIO-2**), no impacts to the northern spotted owl are expected.

MAMMALS

Potential impacts are evaluated for potentially occurring threatened, endangered, rare and sensitive mammal species that have been documented in the surrounding 9-quad area.

1. Pallid bat (*Antrozous pallidus*)

Special Status: CDFW Species of Special Concern, NatureServe Ranks: G4, S3.

Family: Vespertilionidae

Habitat/Life-history Requirements: The pallid bat may occupy a wide range of low-elevation habitats, and roost in a wide variety of structures (Zeiner et al. 1988). The bat prefers to roost in outcrops, cliffs, and crevices with access to open areas for foraging (Zeiner et al. 1988).

Potential Impact: The pallid bat has been documented in the Garberville quad. The pallid bat has the potential to occur in the project area. The proposed projects are not expected to impact the species. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

2. Sonoma tree vole (*Arborimus pomo*)

Special Status: CDFW Species of Special Concern, NatureServe Ranks: G3, S3.

Family: Cricetidae

Habitat/Life-history Requirements: The Sonoma tree vole occurs along the North Coast in old-growth and other forests; mainly Douglas-fir, redwood, and montane hardwood-conifer habitats (Zeiner et al. 1988). The small rodent specializes in feeding on Douglas-fir and grand fir needles, and typically constructs nests in Douglas-fir trees (Zeiner et al. 1988).

Potential Impact: The nearest occurrence mapped in CNDDDB is ~7.5 miles from the project site. The arboreal rodent has the potential to occur within the BAA. However, no expansion into forested areas is planned and as a result no impacts to the species is expected.

3. Townsend's big-eared bat (*Corynorhinus townsendii*)

Special Status: CDFW Species of Special Concern, NatureServe Ranks: G4, S2.

Family: Vespertilionidae

Habitat/Life-history Requirements: Although it can be found in a wide range of habitats, the bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting (Zeiner et al. 1988). Townsend's big-eared bat is highly sensitive to disturbance of roosting sites (Zeiner et al. 1988).

Potential Impact: The nearest occurrence mapped in CNDDDB is over 10 miles from the project site. If there is any modification to any cave, tunnels or structures, bat surveys should be conducted. The current proposed operations are not expected to modify any cave, tunnel or roosting structures for the Townsend's big-eared bat. However, the project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

4. **North American porcupine (*Erethizon dorsatum*)**

Special Status: NatureServe Ranks: G5, S3.

Family: Erethizontidae

Habitat/Life-history Requirements: The North American porcupine is most commonly found in montane conifer, Douglas-fir, alpine dwarf-shrub, and wet meadow habitats (Zeiner et al. 1988). The herbivore feeds on a wide variety of aquatic and terrestrial herbs, shrubs, fruits, leaves, and buds in the summer (Zeiner et al. 1988). During the winter, the porcupine diet includes evergreen leaves, twigs, bark, and cambium of trees, particularly conifers (Zeiner et al. 1988).

Potential Impact: The nearest occurrence mapped in CNDDDB is ~5 miles from the project site. The property and the surrounding BAA has potential habitat for the North American porcupine. However, no expansion into forested area is planned and no impacts to the species is expected.

5. **Silver-haired bat (*Lasionycteris noctivagans*)**

Special Status: NatureServe Ranks: G3G4, S3S4.

Family: Vespertilionidae

Habitat/Life-history Requirements: The silver-haired bat is primarily a forest-dweller. The insectivore roosts in a wide variety of locations including hollow trees, snags, rock crevices, caves, under bark, and in man-made structures (Zeiner 1988).

Potential Impact: The silver-haired bat is not documented in CNDDDB within the BAA. However, the species could occur within the BAA. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

6. **Western red bat (*Lasiurus blossevillii*)**

Special Status: CDFW Species of Special Concern NatureServe Ranks: G4, S3.

Family: Vespertilionidae

Habitat/Life-history Requirements: The western red bat roosts in trees and sometimes shrubs on the edges of forests and woodlands (Zeiner et al. 1988).

Potential Impact: The nearest occurrence mapped in CNDDDB is ~9 miles from the project site. The proposed projects are not expected to impact the species. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

7. **Hoary bat (*Lasiurus cinereus*)**

Special Status: NatureServe Ranks: G3G4, S4.

Family: Vespertilionidae

Habitat/Life-history Requirements: The most widespread North American bat species, the hoary bat can be found in a wide variety of habitats throughout California (Zeiner 1988). The insectivore typically roosts in medium to large trees with nearby openings for foraging (Zeiner 1988).

Potential Impact: The hoary bat is not documented in CNDDDB within the BAA. However, the species could occur within the BAA. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

8. Humboldt marten (*Martes caurina humboldtensis*)

Special Status: Federally Threatened, California Endangered, CDFW Species of Special Concern, NatureServe Ranks: G4G5T1, S1.

Family: Mustelidae

Habitat/Life-history Requirements: Martens use structurally complex conifer forest with large trees and low human disturbance (Zeiner et al. 1988). Martens require old-growth conifers and snags with cavities for denning and nesting (Zeiner et al. 1988). Martens are currently known to inhabit the northern part of Humboldt County near Prairie Creek Redwood State Park and the Klamath Mountains. Historically, martens occupied a great deal of Humboldt and Mendocino Counties.

Potential Impact: The nearest occurrence mapped in CNDDDB is ~ 5 miles from the project site. Potential habitat for the Humboldt marten may occur within the BAA. However, no expansion into forested areas is planned and no impacts to the species is expected.

9. Long-eared myotis (*Myotis evotis*)

Special Status: NatureServe Ranks: G5, S3.

Family: Vespertilionidae

Habitat/Life-history Requirements: The long-eared myotis is widespread in California, but uncommon. The insectivore nests in cavities, under bark, in snags, or in buildings (Zeiner et al. 1988).

Potential Impact: The nearest occurrence mapped in CNDDDB is over 10 miles from the project. The proposed projects are not expected to impact the species. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

10. Little brown bat (*Myotis lucifugus*)

Special Status: NatureServe Ranks: G3, S2S3.

Family: Vespertilionidae

Habitat/Life-history Requirements: The little brown bat is common and widespread in mid to high elevation forests, using echolocation forage small insects (Zeiner et al. 1988). The bats roost in trees, buildings, crevices and caves, and uses separate day and night roosting sites (NorCal Bats 2017). Little brown bat populations are affected by available roosting sites as well as habitat loss and fragmentation (Zeiner et al.) The bat is long-lived (up to 34 years) and feeds on small arthropods (NorCal Bats).

Potential Impact: CNDDDB has an unprocessed record of the Little brown bat in the Bull Creek quad. The proposed projects are not expected to impact the species. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

11. Fringed myotis (*Myotis thysanodes*)

Special Status: NatureServe Ranks: G4, S3.

Family: Vespertilionidae

Habitat/Life-history Requirements: The Fringed myotis uses a wide variety of open habitats, especially pinyon-juniper, valley foothill hardwood and hardwood-conifer habitats. The insectivore requires water, and typically forages over lakes, streams, and ponds (Zeiner et al. 1988). The bat roosts in caves, mines, buildings, and crevices (Zeiner et al. 1988).

Potential Impact: There is potential habitat for the Fringed myotis within the BAA. The proposed projects are not expected to impact the species. However, the project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

12. Long-legged myotis (*Myotis volans*)

Special Status: NatureServe Ranks: G4G5, S3.

Family: Vespertilionidae

Habitat/Life-history Requirements: Although most commonly found in high elevation woodland and forest habitats, this small bat can be found in a wide variety of habitats (Zeiner et al. 1988). The Long-legged myotis uses denser woodlands and forests for cover and reproduction, and feeds over water or open habitats (Zeiner et al. 1988). The species may roost in rock crevices, buildings, snags, mines, caves, or under tree bark (Zeiner et al. 1988).

Potential Impact: There is potential habitat for the Long-legged myotis within the BAA. The proposed projects are not expected to impact the species. However, the project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife (**BIO-2**).

13. Yuma myotis (*Myotis yumanensis*)

Special Status: NatureServe Ranks: G5, S4.

Family: Vespertilionidae

Habitat/Life-history Requirements: The Yuma myotis is common and widespread in low-elevation habitats of California (Zeiner et al. 1988). The bat requires water for drinking and foraging habitat, and roosting structures such as buildings, mines, caves, or crevices (Zeiner et al. 1988). Open woodlands and forests provide optimal habitat (Zeiner et al. 1988).

Potential Impact: There is potential habitat for the Yuma myotis within the BAA. The proposed projects are not expected to impact the species. However, the project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife.

14. Fisher - Northern California/Southern Oregon DPS (*Pekania pennanti*)

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G5, S2S3.

Family: Mustelidae

Habitat/Life-history Requirements: The fisher uses large expanses of forest with moderate to high canopy closure, and will avoid open forest, grasslands, and wetlands (USFWS 2014). Fishers use cavities in live trees, snags and down logs for reproductive dens (USFWS 2014). Structural complexity is a critical element of fisher habitat, necessary to provide cover for resting and denning, and habitat for prey (USFWS 2014).

Potential Impact: The nearest occurrence mapped in CNDDDB is over 10 miles away from the project site. The property and the surrounding BAA have potential habitat for the fisher. However, no expansion into mature forests is planned and no impact to the species is expected.

15. American badger (*Taxidea taxus*)

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G5, S3.

Family: Mustelidae

Habitat/Life-history Requirements: American badgers prefer open areas with herbaceous cover, and are uncommon on the North Coast (Zeiner et al.) They consume rodents and small mammals, and build burrows in the ground. Fire suppression and reduction of grassland habitats have reduced their population in the West (NatureServe).

Potential Impact: The American badger is not documented in CNDDDB within the BAA. The property and the surrounding BAA have potential habitat for the American badger. However, no expansion into forested area is planned and no impacts to the species are expected.

AMPHIBIANS AND REPTILES

Potential impacts are evaluated for potentially occurring threatened, endangered, rare or sensitive amphibian and reptile species that have been documented in the surrounding 9-quad area. The Salmon Creek and its tributaries on the property could provide habitat for numerous rare and sensitive amphibians, as well as the western pond turtle.

1. Pacific tailed frog (*Ascaphus truei*)

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G4, S3S4.

Family: Ascaphidae

Habitat/Life-history Requirements: The Pacific tailed frog requires permanent, cool streams in conifer-dominated habitats including redwood, Douglas fir, mixed-conifer, and ponderosa pine habitats (Zeiner et al. 1988). They prefer turbulent waters with rocky substrates in steep-walled valleys with dense vegetation, where the water temperature remains low (Zeiner et al. 1988). Increased water temperature and siltation from logging pose threats to the amphibian (Zeiner et al. 1988). Additionally, invasive American bullfrogs may pose a threat to native amphibians through competition, predation, and spread of disease.

Potential Impact: Steep, densely vegetated streams in the surrounding area could provide habitat for the Pacific tailed frog. The nearest occurrence mapped in CNDDDB is ~7 miles from the project, in the Mattole watershed. The project should avoid impacts to amphibians by minimizing runoff and not impacting areas within the SMA.

2. Western pond turtle (*Emys marmorata*)

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G3G4, S3.

Family: Emydidae

Habitat/Life-history Requirements: The western pond turtle is associated with permanent or nearly permanent water in ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams (Zeiner et al. 1988). Invasive American bullfrogs prey upon hatchlings and juveniles (Zeiner et al. 1988).

Potential Impact: The BAA provides habitat for the western pond turtle. The nearest occurrence mapped in CNDDDB is ~3 miles from the project site along the South Fork Eel River. The project should avoid impacts to the western pond turtle by minimizing runoff and not impacting areas within the SMA.

3. **Northern red-legged frog (*Rana aurora*)**

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G4, S3.

Family: Ranidae

Habitat/Life-history Requirements: The northern red-legged frog inhabits low-elevation wetlands of the North Coast Ranges from Del Norte to Mendocino Counties (Zeiner et al. 1988). The northern red-legged frog requires permanent or nearly permanent pools in streams, marshes, or ponds (Zeiner et al. 1988).

Potential Impact: Areas of permanent or near-permanent water in the surrounding area could provide habitat for the northern red-legged frog. The nearest occurrence mapped in CNDDDB is ~3 miles away along the South Fork Eel River. The project should avoid impacts to amphibians by minimizing runoff and not impacting areas within the SMA.

4. **Foothill yellow-legged frog (*Rana boylei*)**

Special Status: State Endangered, CDFW Species of Special Concern; NatureServe Ranks: G3, S3.

Family: Ranidae

Habitat/Life-history Requirements The foothill yellow-legged frog primarily inhabits rocky streams or rivers with permanent water, and may be found in many habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows (Zeiner et al. 1988). Breeding primarily occurs in low-velocity, shallow stream habitats with high habitat heterogeneity (Yarnell 2013). Foothill yellow-legged frogs may also travel substantial distances overland and use seasonally wet areas (Bourque 2008). The invasive American bullfrog and introduced fish species contribute to the reduction of foothill yellow-legged frog populations (Zeiner et al. 1988).

Potential Impact: Riparian areas on the property and in the BAA could provide habitat for the foothill yellow-legged frog. The nearest occurrence mapped in CNDDDB is ~2 miles away from the parcel. The project should avoid impacts to amphibians by minimizing runoff and not impacting areas within the SMA.

5. **Southern torrent salamander (*Rhyacotriton variegatus*)**

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G3G4, S2S3.

Family: Rhyacotritonidae

Habitat/Life-history Requirements: The southern torrent salamander primarily occupies cold, shaded permanent streams and seeps in redwood, Douglas fir, mixed conifer, montane riparian and montane hardwood-conifer habitats in Sonoma, Mendocino, Humboldt and Lake Counties (Zeiner et al. 1988). The salamander requires rapid, permanent streams with rocky substrate for breeding and larval development (Zeiner et al. 1988).

Potential Impact: Permanent, rocky streams in the surrounding area could provide habitat for the southern torrent salamander. The nearest occurrence mapped in CNDDDB is ~7 miles from the project. The project should avoid impacts to amphibians by minimizing runoff and not impacting areas within the SMA.

6. **Red-bellied newt (*Taricha rivularis*)**

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G2, S2.

Family: Salamandridae

Habitat/Life The red-bellied newt primarily occupies redwood forest, but is also found within mixed conifer, valley-foothill woodland, montane hardwood and hardwood-conifer habitats (Zeiner et al. 1988). Although adults are terrestrial, the poisonous newt requires rapid, rocky permanent streams for breeding and larval development (Zeiner et al. 1988). **Potential Impact** Permanent, rocky streams in the surrounding area could provide habitat for the red-bellied newt. The nearest occurrence mapped in CNDDDB is ~6 miles from the project, in the Mattole watershed. The project should avoid impacts to amphibians by minimizing runoff and not impacting areas within the SMA.

FISH

Potential impacts are evaluated for potentially occurring threatened, endangered, rare, and sensitive fish species that have been documented in the surrounding 9-quad area. Numerous protected salmonid species, which are sensitive to sedimentation and pollution from erosion and runoff, may be found within the watershed. Preventing erosion and runoff by implementing proper winterization and replanting in SMAs is necessary to avoid impacts to sensitive fish species downstream.

1. Pacific lamprey (*Entosphenus tridentatus*)

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G4, S4.

Family: Petromyzontidae

Habitat/Life History: The Pacific lamprey requires cool, permanent streams with a variety of substrates and structural complexity (CalFish). Lampreys are anadromous and must have unimpeded access to the ocean (CalFish).

Potential Impact: Salmon Creek and associated tributaries could provide habitat for the fish. The project should avoid impacts to fish and other aquatic species by minimizing runoff and not impacting areas within the SMA.

2. Coho salmon - southern Oregon / northern California ESU (*Oncorhynchus kisutch*)

Special Status: Federally Threatened, California Threatened; NatureServe Ranks: G5T2Q, S2.

Family: Salmonidae

Habitat/Life-history Requirements: Coho salmon are a federally and state-listed anadromous fish that occupy low gradient rivers and coastal streams (CDFW). The anadromous salmonids return to these watersheds in the fall and early winter to spawn in gravel substrate, after the first major rains (Moyle et al. 2008). Coho require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juveniles are most abundant in well-shaded, deep pools with many structural elements that provide cover (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages. The southern Oregon/northern California ESU range includes watersheds from Cape Blanco in Oregon south to the Mattole River (Moyle et al. 2008).

Potential Impact: Salmon Creek and associated tributaries could provide habitat for the anadromous salmonid. The project should avoid impacts to fish and other aquatic species by minimizing runoff and not impacting areas within the SMA.

3. **Coho salmon – central California coast ESU (*Oncorhynchus kisutch*)**

Special Status: Federally Endangered, California Endangered; NatureServe Ranks: G5T2T3Q, S2.

Family: Salmonidae

Habitat/Life-history Requirements: Coho salmon are a federally and state-listed anadromous fish that occupy low gradient rivers and coastal streams (CDFW). The anadromous salmonids return to these watersheds in the fall and early winter to spawn in gravel substrate, after the first major rains (Moyle et al. 2008). Coho require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juveniles are most abundant in well-shaded deep pools with many structural elements that provide cover (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

Potential Impact: Salmon Creek and associated tributaries could provide habitat for the anadromous salmonid. The project should avoid impacts to fish and other aquatic species by minimizing runoff and not impacting areas within the SMA.

4. **Steelhead - northern California DPS (*Oncorhynchus mykiss irideus*)**

Special Status: Federally Threatened; NatureServe Ranks: G5T2T3Q, S2S3.

Family: Salmonidae

Habitat/Life-history Requirements: Steelhead are anadromous rainbow trout that migrate to the ocean as juveniles and return to freshwater habitats to spawn. The northern California Distinct Population Segment (DPS) ranges from Redwood Creek to just south of the Gualala River, and includes the Eel River watershed (Moyle et al. 2008). Salmonids, including steelhead, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment. Steelhead may swim upstream during the winter to spawn in stream segments that are not accessible to other salmonids during low flows (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

Potential Impact: Salmon Creek and associated tributaries could provide habitat for the anadromous fish species. The project should avoid impacts to fish and other aquatic species by minimizing runoff and not impacting areas within the SMA.

5. **Summer-run steelhead trout (*Oncorhynchus mykiss irideus*)**

Special Status: California Candidate Endangered, CDFW Species of Special Concern; NatureServe Ranks: G5T4Q, S2.

Family: Salmonidae

Habitat/Life-history Requirements: Summer-run steelhead trout remain in freshwater habitats until they reach maturity (Moyle et al. 2008). These steelhead have similar requirements during their juvenile stages, with an additional need for freshwater habitats to remain suitable throughout the summer (Moyle et al. 2008). Summer-run steelhead are sensitive to human disturbance and typically are only found in the most remote areas of the watersheds (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

Potential Impact: Salmon Creek and its tributaries could provide habitat for the anadromous fish species. The project should avoid impacts to fish and other aquatic species by minimizing runoff and not impacting areas within the SMA.

6. **Chinook salmon - California coastal ESU (*Oncorhynchus tshawytscha*)**

Special Status: Federally Threatened; NatureServe Ranks: G5T2Q, S2.

Family: Salmonidae

Habitat/Life-history Requirements: The Federally Threatened chinook salmon is the largest Pacific salmonid (Moyle et al. 2008). The California Coast Evolutionary Significant Unit (ESU) is composed of chinook spawning in watersheds ranging from Redwood Creek south to the Russian River (Moyle et al. 2008). The anadromous salmonids return to these watersheds in the fall to spawn, after the first major rains (Moyle et al. 2008). Chinook, like other salmonids, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juvenile chinook may inhabit estuaries for an extended period (Moyle et al. 2008). Chinook are particularly sensitive to temperature and water quality, and require larger cobble and coarse gravel substrate for spawning compared to other salmonids (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

Potential Impact: Salmon Creek and associated tributaries could provide habitat for the anadromous salmonid. The project should avoid impacts to fish and other aquatic species by minimizing runoff and not impacting areas within the SMA.

INVERTEBRATES

Potential impacts are evaluated for potentially occurring threatened, endangered, rare, and sensitive insect pollinator species that have been documented in the surrounding 9-quad area. Pollinators are addressed in particular because they may be affected by development and agricultural activities. The western bumblebee is also a candidate for listing under CESA.

1. **Obscure bumble bee (*Bombus caliginosus*)**

Special Status: CDFW Special Animals List (2017); NatureServe Ranks: G4?, S1S2.

Family: Apidae

Habitat/Life-history Requirements: The obscure bumble bee occupies open grassy coastal prairies and Coast Range meadows (IUCN). This long-tongued species may pollinate flowers with elongated corollas, such as *Keckiella* spp. (IUCN). The obscure bumble bee does not fare well in agricultural or urban/suburban environments, where it is often outcompeted by more common bumble bees (NatureServe 2017). The obscure bumble bee has declined in the San Francisco Bay area, and may be threatened by habitat loss from development (NatureServe 2017).

Potential Impact: An occurrence mapped in CNDDDB is over 6 miles away from the project site. The property has the potential to support many native pollinators. Adhering to restrictions and regulations of pesticide use in cannabis cultivation areas, including preventing drift to native vegetation, is expected to minimize the potential impact of agricultural activities (**BIO-3**).

2. **Western bumble bee (*Bombus occidentalis*)**

Special Status: CDFW Special Animals List (2017); California Candidate Endangered, NatureServe Ranks: G2G3, S1.

Family: Apidae

Habitat/Life-history Requirements: The western bumble bee is a generalist short-tongued forager that may be found in open habitats such as grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows (IUCN). Like many bumble bees, the western bumble bee nests underground in abandoned rodent holes (IUCN). The western bumble bee is threatened by disease, habitat loss and degradation, and insecticides.

Potential Impact: An occurrence mapped in CNDDDB is over 9 miles away from the project site. The property has the potential to support many native pollinators. Adhering to restrictions and regulations of pesticide use in cannabis cultivation areas, including preventing drift to native vegetation, is expected to minimize the potential impact of agricultural activities (BIO-3).

4.4 Wildlife Movement and Connectivity

Riparian areas may serve as corridors for wildlife movement, and forested areas adjacent to major rivers have increased value to wildlife. It is important to maintain native vegetation communities around riparian areas that may provide cover, forage, and other value to wildlife. All cultivation infrastructure should be removed from all SMA buffers. It is important that wildlife movement to water and through riparian areas is not impeded by fencing or materials that could cause wildlife to become entangled.

5. Conclusions

5.1 Summary of Potential Impacts and Mitigations

Floristic surveys for protected plant species are recommended for the proposed cultivation area (BIO-1). As per County regulations, light and noise restrictions are recommended to minimize any potential disturbance to the NSO and other sensitive wildlife species (BIO-2). There are watercourses and wetland areas within the BAA. The applicant may avoid indirect impacts to special-status fish, amphibians, and reptiles by adhering to state and regional water board guidelines to minimize runoff from cultivation and observing SMA buffer distances. All historic cannabis cultivation infrastructure shall be removed from the SMA associated with the Class II and Class III drainages and the proposed cultivation site shall remain outside of the SMA. No tree removal or removal of potential nesting habitat is proposed and as a result no pre-construction raptor and nesting bird surveys are recommended at this time. However, if the removal of potential habitat is proposed, raptor and nesting bird surveys will be recommended. Habitat within the 1.3 mi BAA provides the high canopy-closure forest habitat that may support NSO, however, the proposed operations are not expected to remove any potential habitat for the NSO. Additionally, there are no documented NSO Activity Centers within 1.3 mi BAA of the cultivation site. No NSO surveys are recommended at this time. The applicant may avoid impacts to native pollinators by using low-risk exempt substances and those that are broadly labeled by the Department of Pesticide Regulation. Application of pesticides should be reduced or stopped in the presence of pollinators, additionally pesticides should be applied in a manner that minimizes drift to flowering plants in the surrounding area (BIO-3).

Mitigation measures have been recommended to reduce potential impacts to sensitive species and wildlife movement to less-than-significant levels. Surveys have been recommended for potentially occurring special status plants prior to proposed operations. If special status species are detected, appropriate protective buffers or other mitigation measures will be established in

consultation with CDFW. Additional surveys and mitigation measures recommended to reduce impacts to less-than-significant levels are listed in the table below (5.2).

5.2 Recommended Surveys and Mitigation Measures for Potentially Significant Impacts

Number	Survey	Description	Timing
BIO-1	Floristic Survey	Complete floristic surveys based on the Protocol for Surveying and Evaluating Impacts to Special Status native Plant Populations and Natural Communities (CDFW 2018).	Seasonally appropriate surveys will be completed around any un-surveyed areas of potential project-related disturbance.
BIO-2	Potential disturbance to wildlife from noise and light pollution.	It is recommended that the applicant follow guidelines provided by the state and the county for reducing light and noise pollution, which may impact sensitive species.	Seasonally. Noise levels from the project should not exceed 75dB at the forest edge during the bird breeding season (Feb. 1-Aug 31).
BIO-3	Potential impacts of pesticides on pollinators	Pesticides that may be used for cannabis cultivation are limited to low-risk exempt substances and those that are broadly labeled by the Department of Pesticide Regulation. The potential impact of insecticide use on pollinators shall be reduced by not spraying in the presence of pollinators and not allowing drift to flowering plants in the surrounding area.	Year round.

6. References

- Bombay, H.L., Benson, T.M., Valentine, B.E. and Stefani, R.A., 2003. A willow flycatcher survey protocol for California. U.S. Forest Service, Pacific Southwest Region, Vallejo, California.
- Bourque, R. 2008. Spatial ecology of an inland population of the foothill yellow-legged frog (*Rana boylei*) in Tehama County, California. Arcata, CA: Humboldt State University. 93 p. M.S. thesis.
- CABI, 2019. *Rana catesbeiana* (American bullfrog). In: Invasive Species Compendium. Wallingford, UK: CAB International. <www.cabi.org/isc>.
- CalFish: A California Cooperative Anadromous Fish and Habitat Data Program. Species Pages. <http://www.calfish.org/FisheriesManagement/SpeciesPages/PacificLamprey.aspx>.
- California Department of Fish and Wildlife, Natural Diversity Database, BIOS. 2019. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW), California Natural Diversity Database, Special Animals List. 2020 California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline>>.
- Cook, D. G. 2012. *Rana boylei* (Foothill yellow-legged frog). Upland Movement. Herpetological Review 43(2): 325.
- Cornell Lab of Ornithology, "All About Birds: Bird Guide." <<https://www.allaboutbirds.org/guide/search.aspx>>.
- Craig, D. and P. L. Williams. 1998. Willow Flycatcher (*Empidonax traillii*). In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. <http://www.prbo.org/calpif/hunldocs/riparian_v-2.html>.
- Harris, S.W. 2005. Northwestern California birds. 3rd Ed. Humboldt State Univ., Arcata, CA.
- Humboldt County Code Section 314-55, Medical Marijuana Land Uses: Inland <<https://humboldt.county.codes/Code/314-55>>.
- Humboldt County Code Section 314-61, Streamside Management Areas and Wetlands Ordinance <<https://humboldt.county.codes/Code/314-61>>.
- Hunter, J.E., Fix, D., Schmidt, G.A., and Power, J.C. 2005. Atlas of the breeding birds of Humboldt County, California. Redwood Region Audubon Society.
- Moyle, P.B., J.A. Israel, and S.E. Purdy. 2008. Salmon, Steelhead, and Trout in California: Status of an Emblematic Fauna. U.C. Davis Center for Watershed Sciences.
- Nafis, G. 2000-2017. California Herps - A Guide to the Amphibians and Reptiles of California. <<http://www.californiaherps.com/>>
- NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <<http://explorer.natureserve.org>>.

Rodewald, P. (Editor). 2015. The Birds of North America: <https://birdsna.org>. Cornell Laboratory of Ornithology, Ithaca, NY.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
<<https://www.wildlife.ca.gov/Conservation/SSC/Birds>>.

Sibley, D.A., 2003. The Sibley field guide to birds of Western North America. Alfred A. Knopf, New York.

State Water Resources Control Board Order WQ 2019-0001-DWQ. General Waste Discharge Requirements And Waiver Of Waste Discharge Requirements For Discharges Of Waste Associated With Cannabis Cultivation Activities.
<https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2019/wqo2019_0001_dwq.pdf>.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292.

U.S. Fish and Wildlife Service (USFWS ECOS). ECOS Environmental Conservation Online System.
<<https://ecos.fws.gov/ecp/>>.

U.S. Fish and Wildlife Service (USFWS). 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. Arcata, CA.

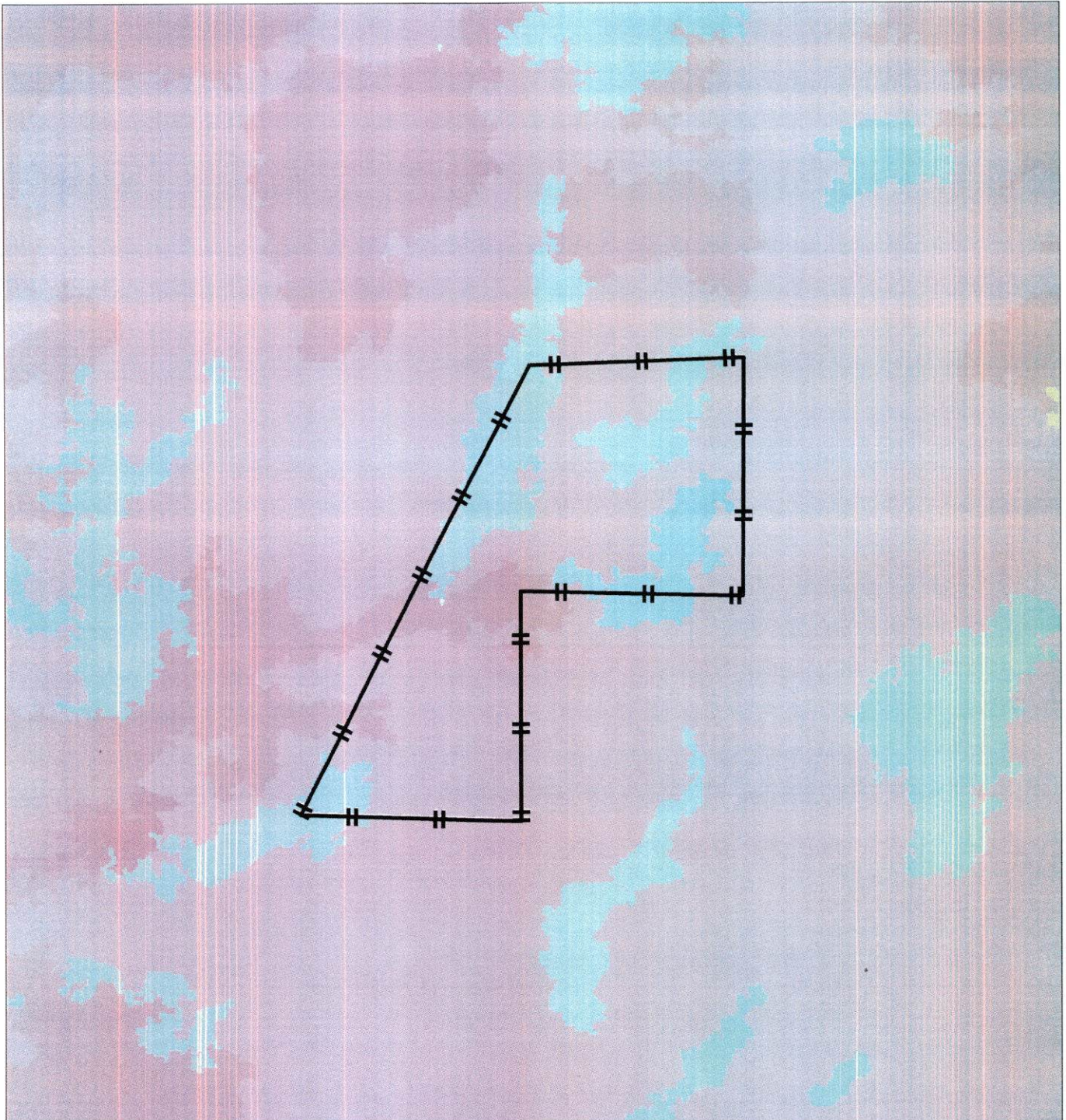
U.S. Fish and Wildlife Service (USFWS). 2014. Draft Species Report: Fisher (*Pekania pennanti*), West Coast Population. <https://www.fws.gov/yreka/20140911_WCFSR_finaldraft.pdf>.

Xerces Society for Invertebrate Conservation. Bumble bee conservation. Portland, OR.
<<http://xerces.org/bumblebees/>>.

Yarnell, S. 2013. 'Stream Habitat Associations of the Foothill Yellow-Legged Frog (*Rana boylei*): The Importance of Habitat Heterogeneity,' in Maddock, I., Harby, A., Kemp, P., and Wood, P., *Ecohydraulics: An Integrated Approach*, First Edition. John Wiley & Sons, Ltd., p. 93.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California. Updated by CWHR Program Staff, February 2005. <<https://www.wildlife.ca.gov/data/cwhr/life-history-and-range>>.

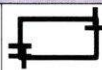
Attachment A. CALVEG Vegetation Alliance Map



**Young Jacobsen
CALVeg**

APN: 221-011-021

*Section 1; T3S; R2E; HB&M; Humboldt
County
Located on the Ettersburg 7.5' USGS
Quadrangle*



Property Boundary



Annual Grasses and Forbs



Black Oak



California Bay



Incense Cedar



Oregon White Oak



Pacific Douglas-Fir



Tanoak (Madrone)



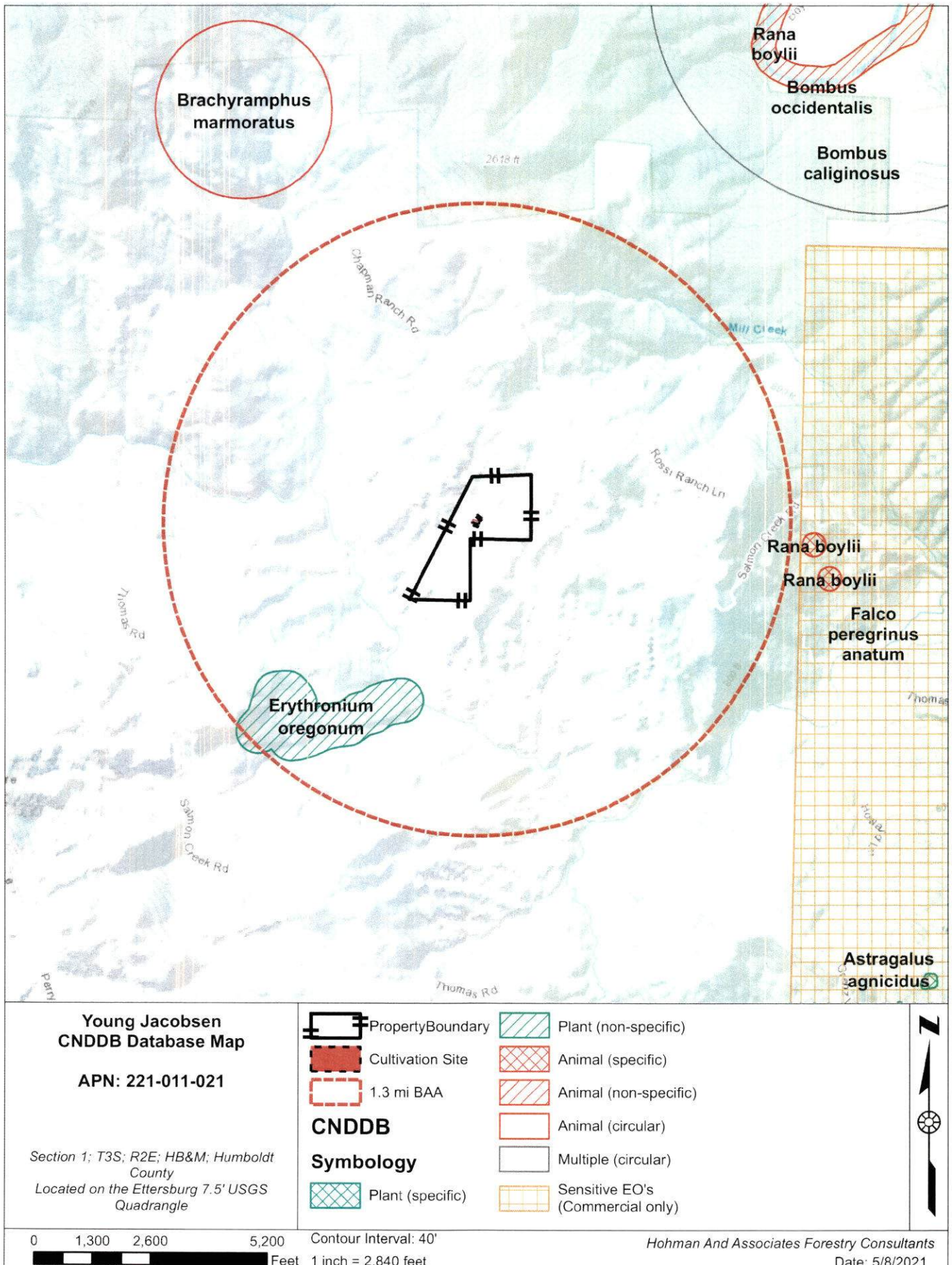
Contour Interval: 40'

1 inch = 873 feet

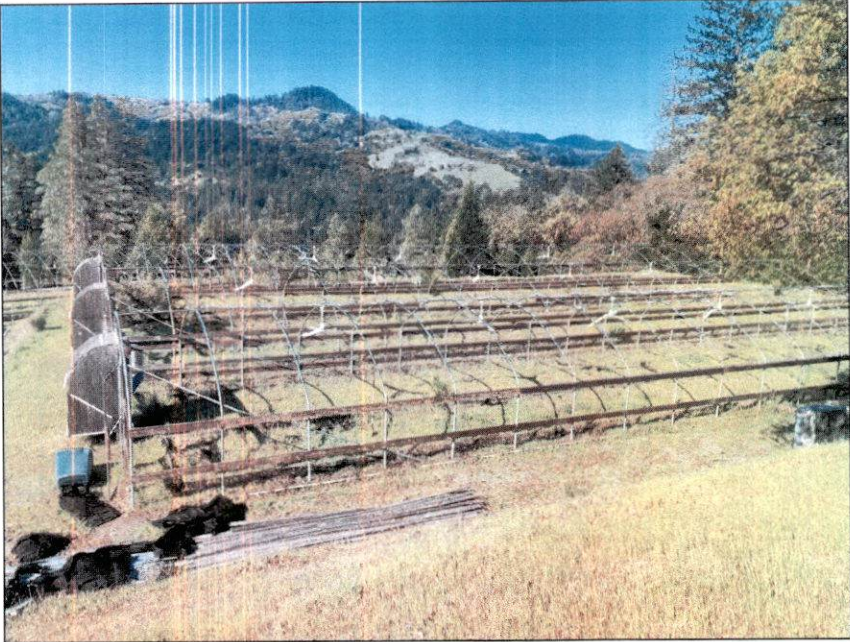
Hohman And Associates Forestry Consultants

Date: 5/8/2021

Attachment B. CNDDDB Special Status Taxa Search Map



Attachment C. Habitat Photos



Photos 1 & 2: Existing hoop house structures and surrounding habitat at the proposed cultivation site. April 15, 2021.



Photos 3 & 4: Existing water tanks for water storage to irrigate proposed cannabis cultivation. April 15, 2021.

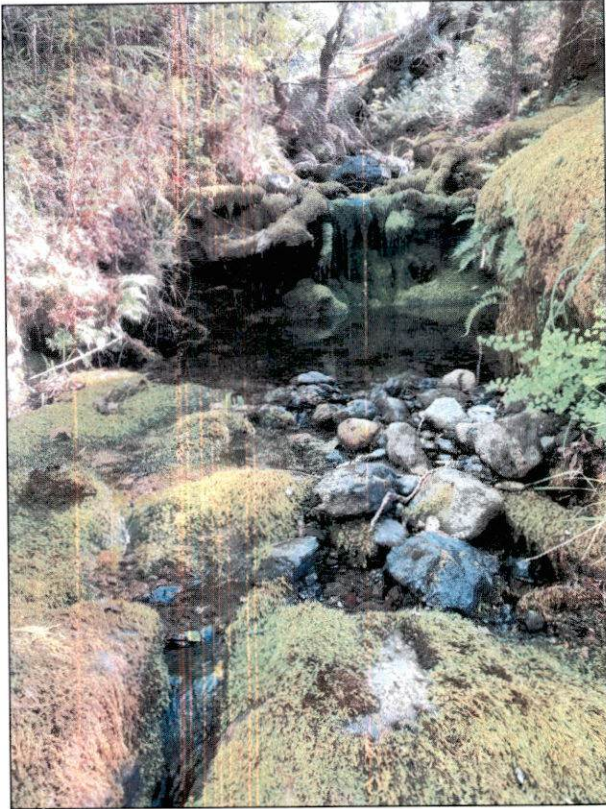


Photo 5: Class II drainage that flows through the center of the parcel. Drainage was classified as non-fish bearing after on the ground survey. April 15, 2021.



Photo 6: Upland habitat located north of the proposed cultivation site. April 15, 2021.

Attachment D. Rank 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).

Intraspecific Taxon Conservation Status Ranks

- T#** **Intraspecific Taxon (trimonial)** – The status of intraspecific 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 intraspecific 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.

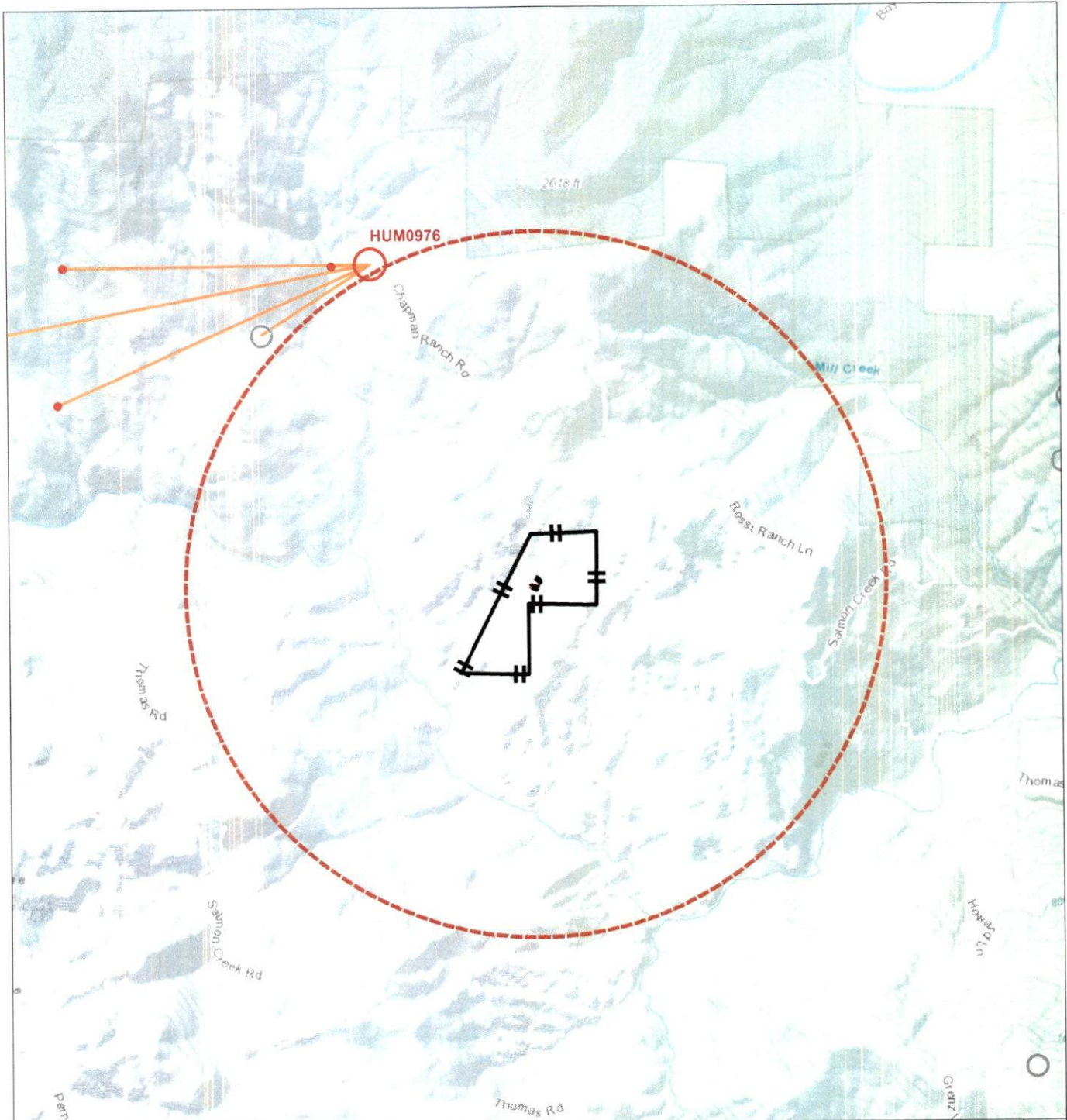
Subnational (S) Conservation Status Ranks

- 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
- 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.

Attachment E. NSO Database Check Map



**Young Jacobsen
NSO Database Map**

APN: 221-011-021

*Section 1; T3S; R2E; HB&M; Humboldt
County
Located on the Ettersburg 7.5' USGS
Quadrangle*

- Property Boundary
- Cultivation Site
- 1.3 mi BAA

Spotted Owl Observations

- Other Positive Observation

- Negative Observation
- Activity Center
- Spotted Owl Spider Diagram



0 1,300 2,600 5,200
 Feet Contour Interval: 40'
 1 inch = 2,840 feet

Hohman And Associates Forestry Consultants
 Date: 5/8/2021



Attachment F. Aerial Imagery Parcel Map



**Young Jacobsen
Imagery**

APN: 221-011-021

*Section 1; T3S; R2E; HB&M; Humboldt
County
Located on the Ettersburg 7.5' USGS
Quadrangle*

 Property Boundary
 Cultivation Site



0 700 1,400 2,800
Feet

Contour Interval: 40'
1 inch = 1,601 feet

Hohman And Associates Forestry Consultants
Date: 5/8/2021