

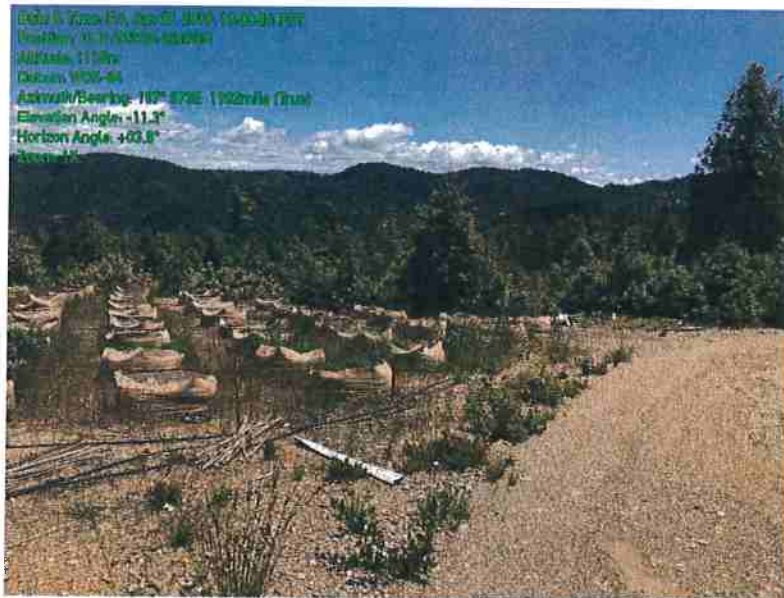


A Biological Assessment for Commercial Cannabis Cultivation

For

Emry Jacque
Emerald Mountain Coast LLC
4235 Excelsior Road
Eureka, CA 95503
APN 522-021-009

App # 11291-CUP



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Table of Contents

List of Appendices.....	3
1.0 Introduction.....	4
1.1 Purpose and Need.....	4
1.2 Biological Assessment Area and Project Sites.....	4
2.0 Regulatory Background.....	4
2.1 Cannabis Cultivation.....	4
2.2 Sensitive Biological Communities.....	4
2.2.1 Aquatic Habitats.....	4
2.2.2 Sensitive Natural Communities.....	5
2.2.3 Sensitive and Protected Species.....	6
3.0 Methods.....	6
3.1 Field Observations.....	6
3.2 Review of Scientific Literature.....	6
3.3 Agency Consultation.....	6
3.4 Sensitive Biological Communities.....	7
3.5 Sensitive and Protected Species.....	7
4.0 Results and Discussion.....	8
4.1 BAA Description.....	8
4.2 Site Description.....	8
4.3 Commercial Cannabis Cultivation.....	8
4.4 Sensitive Biological Communities.....	9
4.4.1 Aquatic Habitats.....	9
4.4.2 Sensitive Biological Communities.....	9
4.4.3 Sensitive Natural Communities.....	9
4.5 Sensitive and Protected Species.....	9
4.5.1 Bird species of Special Concern.....	9
4.5.2 Amphibian Species of Special Concern.....	12
4.5.3 Mammal Species of Special Concern.....	14
4.5.4 Fish Species of Special Concern.....	15
4.5.5 Plant Species of Special Concern.....	18
4.6 Potential Impacts.....	24
4.6.1 Northern Spotted Owl.....	24
4.6.2 Marbled Murrelet.....	25
4.6.3 Sensitive/Nesting Birds.....	25
4.6.4 Sensitive Fish/Amphibians.....	26
4.6.5 Sensitive Mammals.....	26
4.6.6 Sensitive Plants.....	26
5.0 Recommendations.....	26
6.0 References.....	28
7.0 Appendix.....	29

List of Appendices

Topo Parcel Map	Figure 1
Photo Parcel Map with Cultivation Sites	Figure 2
Web Soil Survey	Figure 3
Map Unit Legend	Figure 3A
Map Legend/Map Information	Figure 3B
Aquatic Habitats	Figure 4
Nearest NSO Critical Habitat	Figure 5
Nearest NSO Activity Center	Figure 6
Nearest Marbled Murrelet Critical Habitat	Figure 7
Photos of BAA	Figure 8

1.0 Introduction

1.1 Purpose and Need

This biological assessment has been prepared for the Emry Jacque property on Three Creeks road, northeast of Willow Creek, CA, as a supplement to a 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 cultivation areas within the 168-acre property under ownership of Jacque (APN 522-021-009, figure 1). The biological assessment area (BAA) is defined as the entire 168-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 the presence of sensitive biological communities and protected species of 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 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 CDFW 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 June 7, 2019, 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 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 June query of the California Natural Diversity Database (CNDDDB) for any sensitive species detections within 9 quadrangles, of which the Lord Ellis Summit quad is at the center (CDFW 2019). These quadrangles include Panther Creek, Hupa Mtn, Hoopa, Blue Lake, Willow Creek, Maple Creek, Korbek, and Grouse Mtn. A general habitat assessment was performed as well. Given the habitat types listed within the BAA, a species list was developed for animals and plants utilizing the following: CDFW Endangered and Threatened (August 2018), Special Animals List (August 2019), Special Vascular Plants Bryophytes and Lichens List (August 2018), 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 168 acres under Emry Jacque’s ownership. Terrestrial habitat on the property is mostly forested and dominated by Klamath Mixed Conifer series (KMC), associated with white fir, douglas fir, tanoak, golden chinquapin, and ponderosa pine. The herbaceous layer often includes pinemat manzanita, Oregon grape, and snowberry, among other plants. Photos of the BAA are included (Figure 8). Annual mean rainfall in this region is ~ 40" (<https://wrcc.dri.edu/summary/climsmnca.html>), although some areas may receive more than twice that amount. Elevation ranges from ~3,100 to 3,600 feet above sea level. Measured slopes in the BAA vary from 5 to 15%. The BAA contains aquatic habitats in the form of intermittent stream habitat in 2 unnamed tributaries (Class III, Figure 4)).

The BAA contains primarily 3 different soil types: Burroin-Redtop complex, 9-30% slopes; Bagual-Burroin-Redtop complex, 15-50% slopes; Sidehill-Oakside-Darkwoods complex, 50-100% (Figures 3, 3A, 3B).

Land use on the BAA is primarily restricted to cannabis cultivation. The biological assessment site visit on June 7, 2019 included an inventory of wildlife species observed. No mammals or amphibians were detected; 5 species of birds were observed or heard. The species detected were Dark-Eyed Junco, American Robin, Turkey Vulture, Common Raven, and Mountain Quail. None of these species are considered sensitive under CESA or by CDFW.

4.2 Site Description

The Jacque property is located approximately 8.0 miles northwest of Willow Creek, CA (Figure 1). The parcel is within the southeast ¼ of section 18, Township 7N, Range 4E, HB&M, as made known on the 7.5' USGS Quadrangle Map, Lord Ellis Summit, CA. Existing development is limited to a seasonal road network, one well, one single family residence and the 5 cannabis cultivation sites. There is an unpermitted but properly functioning outdoor pit toilet for workers that is outside recommended protective stream/waterbody buffers of 200 feet.

4.3 Commercial Cannabis Cultivation

The cannabis cultivation will take place in existing facilities located in the southwest and central portions of the parcel (Figure 1). All existing cultivation areas currently in use (labeled 1-5 in Figure 1) contain a total cultivation area of approximately 10,045 square feet.

Water for irrigation is currently supplied from a groundwater well ~130 feet deep. There is no surface water diversion for cultivation anywhere on the property. The five water tanks on the property have ~11,820 gallons capacity. Estimated water use is approximately 20,000 gal/month during peak cultivation times, and ~1/4 to 1/8 of that amount during the early cultivation season. All water and fertilizers are applied by hand at agronomic rates to minimize runoff.

4.4 Sensitive Biological Communities

4.4.1 Aquatic Habitats

The BAA includes two Class I I I intermittent streams, tributaries of Pine Creek and Supply Creek and ultimately the Trinity and Klamath rivers. The intermittent streams may provide flowing water and pools as habitat for aquatic wildlife for at least a portion of the year. The streams have rocky coarse sediment bed with low and moderate slope gradients and moderate to high canopy cover over much of their run. These stream systems may provide habitat for wildlife such as Foothills Yellow-Legged Frog (*Rana boylei*) Giant Salamander (*Dicamptodon tenebrosus*) and Pacific Tailed Frog (*Ascaphus truei*). The Trinity and Klamath rivers provides habitat for Summer-run Steelhead (*Onchorhynchus mykiss irideus*, Klamath Mountains Province DPS), Coho Salmon (*Onchorhynchus kisutch*), Chinook Salmon (*Onchorhynchus tshawytscha*, California coastal ESU) and Western Pond Turtle (*Emys marmoratus*). Plant species associated with these riparian systems include Wild Rose (*Rosa gymnocarpa*), Bracken fern (*Pteridium aquilinum*), Willow spp. (*Salix*), and other vegetation associated with the Klamath Mixed Conifer 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 indicated the presence of a PEM1B seasonal bog/wetland in the southeast corner of the property (Figure 1, green A). The classification PEM1B refers to a (P) palustrine habitat (non-tidal marsh or bog) with (EM) emergent vegetation (rooted perennials) that are (1) persistent (remain until next growing season), and the ground is only (1) seasonally saturated by water. The nearest cultivation site (Figure 1, #1) is greater than 200 feet from this wetland. The mapping is based on high-altitude photo-imagery which may not accurately reflect conditions on the ground, as wetlands do change over time.

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 Klamath Mixed Conifer with White Fir and Douglas Fir being the dominant species, which is a state ranked S4 series. No associations in this vegetation series are ranked lower than S4.

4.5 Sensitive and Protected Species

4.5.1 Bird Species of Special Concern

Cooper's Hawk (*Accipiter cooperii*)

Status: CDFW – Watch List (WL); State Rank – S4:

Habitat: Cismontane and riparian woodland, riparian forest, upper montane coniferous forest chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.

Status within BAA: No occurrences within the BAA. Two listed historical occurrences within the 9-quad CNDDDB report, Korbel and Maple Creek. Suitable nesting habitat may exist within the BAA.

Northern Goshawk (*Accipiter gentilis*)

Status: CDFW – Species of Special (SSC); State Rank – S3:

Habitat: North coast coniferous forest, Subalpine 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. Uses old nests, and maintains alternate sites.

Status within BAA: No occurrences within the BAA. One listed historical occurrence within the 9-quad CNDDDB report, Willow Creek, nest active in 1979, one young observed, nest active from 1980 to 1983. Suitable nesting habitat may exist within the BAA.

Bald Eagle (*Haliaeetus leucocephalus*)

Status: CDFW -Fully Protected (FP); 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 within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.

Status within BAA: No occurrences within the BAA. Two listed historical listed occurrences within the 9-quad CNDDDB report, Korbel and Willow Creek. Suitable nesting habitat likely does not exist within the BAA.

Status within BAA: No occurrences within the BAA. There were two occurrences within the 9-quad CNDDDB report, In Korbel and Hoopa. Suitable nesting habitat likely does not 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 predominately consists of a scrape or a depression or ledge in an open site.

Status within BAA: No occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report, in Korbel. Possible suitable nesting habitat may exist within the BAA.

Bank Swallow (*Riparia riparia*)

Status: CDFW – none; Federal status – none; State status – threatened; State rank – S2

Habitat: Riparian scrub and Riparian woodland, 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. There was one occurrence the 9-quad CNDDDB report, Korbel. Suitable nesting habitat likely does not exist within the BAA.

Yellow-breasted Chat (*Icteria virens*)

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

Habitat: Riparian forest, Riparian scrub or Riparian woodland. Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.

Status within BAA: No occurrences within the BAA. There were two occurrences within the 9-quad CNDDDB report, in Korbel and Grouse Mountain. Suitable nesting habitat likely does not exist within the BAA.

Northern spotted owl (*Strix occidentalis caurina*)

Status: CDFW – SSC; Federal status – threatened; State – 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: See **Figure 5** and **4.6.1**

Status within BAA: No occurrences within the BAA. There were two occurrences within the 9-quad CNDDDB report in Grouse Mountain and Willow Creek. Potential suitable nesting habitat may exist within the BAA.

Olive-sided Flycatcher (*Contopus cooperi*)

Status: CDFW –SSC; Federal - none; State status – none; State rank – S4

Habitat: Lower montane coniferous forest, Redwood, Upper montane coniferous forest. Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir & lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.

Status within BAA: No listed occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report in Maple Creek. Potential suitable nesting habitat may exist within the BAA.

Willow flycatcher (*Empidonax traillii*)

Status: CDFW –none; Federal - none; State status – endangered; State rank – S1, S2

Habitat: Meadow & seep, Riparian scrub, Riparian woodland, Wetland. Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.

Status within BAA: No listed occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report in Korbel. Potential suitable nesting habitat may exist within the BAA.

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: Aquatic, Klamath/North coast flowing waters, Lower montane coniferous forest, North coast coniferous forest. Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Requires cold, permanent, swift moving streams with coarse (i.e. cobble/boulder) substrates. Tadpoles require water below 15 degrees C (Thomson et al 2016).

Status within BAA: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were eight occurrences within the 9-quad CNDDDB report, Grouse Mtn., Maple Creek, Korbel, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn. and Panther Creek. There may be potential suitable habitat within the BAA, as tailed frogs can occur in intermittent flow streams.

Del Norte Salamander (*Plethodon elongatus*)

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

Habitat: Old-growth associated species with optimum conditions in the mixed conifer/hardwood ancient forest ecosystem. Requires cool, moist, stable microclimate, a deep litter layer, closed multi-storied canopy, dominated by large, old trees.

Status within BAA: No listed occurrences within the BAA. There were seven occurrences within the 9-quad CNDDDB report, Grouse Mtn., Korbek, Willow Creek, Lord Ellis Summit, Blue Lake, Hoopa and Panther Creek. Potential suitable habitat may exist within the BAA.

Northern Red-Legged Frog (*Rana aurora*)

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

Habitat: Humid forests, woodlands, grasslands, and stream sides in northwestern California, usually near dense riparian cover. Occurs in mesic forests and riparian areas which in its Northern California range are steep coniferous forests, coastal terraces, and floodplains (Nussbaum et al 1983, Stebbins 2003) Generally near permanent water but can be found far from water, in damp woods and meadows, during non-breeding season (Thomson et al 2016).

Status within BAA: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were eight occurrences within the 9-quad CNDDDB report, Maple Creek, Korbek, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn. and Panther Creek. Potential suitable habitat may exist within the BAA.

Foothill Yellow-Legged Frog (*Rana boylei*)

Status: CDFW – SSC; Federal status – none; State status -Threatened (candidate); 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). Different life stages use different habitats for development, foraging and overwintering.

Status within BAA: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were eight occurrences within the 9-quad CNDDDB report, Grouse Mtn., Maple Creek, Korbek, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn. and Panther Creek. Potential suitable habitat may 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). Key habitat requirements are the maintenance of cold water (6.5 to 15 degrees C) (Thompson et al 2016)

Status within BAA: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were nine occurrences within the 9-quad

CNDDDB report, Grouse Mtn., Maple Creek, Korbelt, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn., Grouse Mtn. and Panther Creek. 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 two occurrences within the 9-quad CNDDDB report, Blue Lake, Korbelt and Willow Creek. Potential suitable habitat does not likely exist within the BAA.

4.5.3 Mammal Species of Special Concern

White-footed Vole (*Arborimus albipes*)

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

Habitat: North coast coniferous forest, Redwood, Riparian forest. Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs. Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.

Status within BAA: No listed occurrences within the BAA. There was one occurrence within the 9-quad CNDDDB report, Korbelt. Potential suitable habitat may exist within the BAA.

Sonoma Tree Vole (*Arborimus pomo*)

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

Habitat: North coast coniferous forest, Oldgrowth, Redwood. North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-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: There were seven occurrences within the 9-quad CNDDDB report, Maple Creek, Korbelt, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn., and Panther Creek. Potential suitable habitat may exist within the BAA.

West Coast Fisher (*Pekania pennanti*)

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

Habitat: North coast coniferous forest, Old-growth, Riparian forest. Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent 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: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were nine occurrences within the 9-quad CNDDDB report, Grouse Mtn., Maple Creek, Korbek, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn., Grouse Mtn. and Panther Creek. Potential suitable habitat may exist within the BAA.

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

Status: CDFW – SSC; State – none; Federal – none; State rank – S2

Habitat: Deserts, grasslands, shrublands, woodlands and forests. Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.

Status within BAA: No listed occurrences within the BAA. There were three occurrences within the 9 quad CNDDDB report, Korbek, Hoopa and Hupa Mtn. Potential suitable habitat may exist within the BAA

4.5.4 Fish Species of Special Concern

Green Sturgeon (*Acipenser medirostris*)

Status: CDFW – SSC; Federal status- Threatened; State status –none; State rank – S1, S2

Habitat: Aquatic, Klamath/North coast flowing waters. These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.

Status within BAA: No listed occurrences within the BAA. There were two occurrences within the 9 quad CNDDDB report Korbek and Willow Creek. No potential suitable habitat within the BAA.

Eulachon (*Thaleichthys pacificus*)

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

Habitat: Aquatic, Klamath/North coast flowing waters. Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.

Status within BAA: No listed occurrences within the BAA. There were two occurrences within the 9 quad CNDDDB report Korbek and Blue Lake. No potential suitable habitat within the BAA.

Pacific Lamprey (*Entosphenus tridentatus*)

Status: CDFW – SSC; Federal status- none; State status – none; State rank – S4

Habitat: Aquatic, Klamath/North coast flowing waters. Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.

Status within BAA: No listed occurrences within the BAA. There were two occurrences within the 9 quad CNDDDB report Korbek and Panther Creek. No potential suitable habitat within the BAA.

Coast Cutthroat Trout (*Oncorhynchus clarkii clarkii*)

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

Habitat: Aquatic, Klamath/North coast flowing waters. Small coastal streams from the Eel River to the Oregon border. Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.

Status within BAA: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were six occurrences within the 9 quad CNDDDB report, Blue Lake, Korbek, Maple Creek, Panther Creek, Lord Ellis Summit and Hupa Mtn. No potential suitable habitat within the BAA.

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

Status: CDFW – SSC; 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: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were six occurrences within the 9 quad CNDDDB report, Blue Lake, Willow Creek, Maple creek, Panther Creek, Lord Ellis Summit, and Korbek. No potential suitable habitat within the BAA.

Steelhead - Klamath Mountains Province DPS (*Oncorhynchus mykiss irideus*) Pop 1

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

Habitat: Aquatic, Klamath/North coast flowing water. Streams between Elk River, Oregon and the Klamath & Trinity rivers in California, inclusive. Minimum water depth for upstream migration is 18 cm. Water velocities > 3-4 m/sec may impede upstream progress.

Status within BAA: No listed occurrences within the BAA. There were three occurrences within the 9 quad CNDDDB report, Korbel, Maple Creek and Willow Creek. No potential suitable habitat within the BAA.

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

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: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were eight occurrences within the 9 quad CNDDDB report, Blue Lake, Maple Creek, Lord Ellis Summit, Panther Creek, Willow Creek, Grouse Mtn., Hupa Mtn., and Korbel. No potential suitable habitat within the BAA.

Steelhead - Summer-run steelhead trout (*Oncorhynchus mykiss irideus*) Pop 36

Status: CDFW – SSC; Federal and 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: Occurrences listed in the center quad (Lord Ellis Summit) of the 9-quad CNDDDB report. No listed occurrences within the BAA. There were nine occurrences within the 9-quad CNDDDB report, Grouse Mtn., Maple Creek, Korbel, Willow Creek, Lord Ellis Summit, Blue Lake, Hupa Mtn. and Grouse Mtn. No potential suitable habitat within the BAA.

Chinook Salmon- California Coastal ESU (*Oncorhynchus tshawytscha*) Pop 17

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

Habitat: Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co.

Status within BAA: No listed occurrences within the BAA. There were four occurrences within the 9 quad CNDDDB report, Blue Lake, Maple Creek, Korbel and Panther Creek. No potential suitable habitat within the BAA.

Chinook Salmon- California Coastal ESU (*Oncorhynchus tshawytscha*) Pop 30

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

Habitat: Spring-run chinook in the Trinity River and the Klamath River upstream of the mouth of the Trinity River.

Status within BAA: No listed occurrences within the BAA. There were three occurrences within the 9 quad CNDDDB report, Willow Creek, Kobel and Panther Creek. No potential suitable habitat within the BAA.

Chinook Salmon- Sacramento River winter-run ESU (*Oncorhynchus tshawytscha*) Pop 7

Status: CDFW – none; Federal status – endangered; State status – endangered; State rank – S1

Habitat: Spring-run chinook in the Trinity River and the Klamath River upstream of the mouth of the Trinity River.

Status within BAA: No listed occurrences within the BAA. There was one occurrence within the 9 quad CNDDDB report, Willow Creek. No potential suitable habitat within the BAA.

4.5.5 Plant Species of Special Concern

<i>Ramalina thrausta</i>		Angel's Hair Lichen
Fed status – none	State status – none	CA rare plant rank – 2B.1
USGS 7.5' Quad – Grouse Mtn.		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – North coast coniferous forest.		

<i>Eucephalus vialis</i>		Wayside aster
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Willow Creek		
Documented in BAA - no		Potential Habitat in BAA - no
Habitat – Lower montane coniferous forest, upper montane coniferous forest.		

<i>Microseris borealis</i>	Northern microseris	
Fed status – none	State status – none	CA rare plant rank – 2B.1
USGS 7.5' Quad – Maple Creek		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – Bogs and fens, meadows and seeps, lower montane coniferous forest.		

<i>Packera bolanderi var. bolanderi</i>	Seacoast ragwort	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Panther Creek		
Documented in BAA - no		Potential Habitat in BAA - no
Habitat – Coastal scrub, north coast coniferous forest.		

<i>Cornus canadensis</i>	Bunchberry	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Maple Creek		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – North coast coniferous forest, bogs and fens, meadows and seeps.		

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

<i>Carex leptalea</i>	Bristle-stalked sedge	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Lord Ellis Summit		
Documented in BAA - no	Potential Habitat in BAA - no	
Habitat – Bogs and fens, meadows and seeps, marshes and swamps.		

<i>Carex praticola</i>	Northern meadow sedge	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Grouse Mtn.		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Meadow & seep, wetland.		

<i>Vaccinium scoparium</i>	Little-leaved huckleberry	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Willow Creek		
Documented in BAA - no	Potential Habitat in BAA - no	
Habitat – Subalpine coniferous forest.		

<i>Astragalus umbraticus</i>	Bald Mountain milk-vetch	
Fed status – none	State status – none	CA rare plant rank – 2B.3
USGS 7.5' Quad – Willow Creek, Lord Ellis Summit, Maple Creek, Hupa Mtn.		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Cismontane woodland, lower montane coniferous forest.		

<i>Thermopsis robusta</i>	Robust false lupin
Fed status – none	State status – none
CA rare plant rank – 1B.2	
USGS 7.5' Quad – Lord Ellis Summit, Maple Creek	
Documented in BAA - no	Potential Habitat in BAA - no
Habitat – North Coast coniferous forest, broadleaved upland forest.	

<i>Erythronium oregonum</i>	Giant fawn lily
Fed status – none	State status – none
CA rare plant rank – 2B.2	
USGS 7.5' Quad – Panther Creek, Blue Lake, Lord Ellis Summit, Willow Creek, Hoopa, Grouse Mtn., Hupa Mtn.	
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 – Blue Lake, Korb, Grouse Mtn., Hupa Mtn., Maple Creek, Lord Ellis Summit	
Documented in BAA - no	Potential Habitat in BAA - yes
Habitat – Streambanks, bogs, and wet redwood and mixed evergreen forest understory.	

<i>Lilium occidentale</i>	Western lily
Fed status – none	State status – none
CA rare plant rank – 1B.1	
USGS 7.5' Quad – Arcata North	
Documented in BAA - no	Potential Habitat in BAA - no
Habitat – Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes and swamps.	

<i>Liamna latibracteata</i>	California globe mallow	
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Blue Lake		
Documented in BAA - no	Potential Habitat in BAA - no	
Habitat – North coast coniferous forest, chaparral, lower montane coniferous forest, riparian scrub (streambanks).		

<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Korbel, Maple Creek, Grouse Mtn.		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Coastal bluff scrub, coastal prairie, north coast coniferous forest.		

<i>Sidalcea oregana ssp. eximia</i>	Coast checkerbloom	
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Maple Creek, Grouse Mtn.		
Documented in BAA - no	Potential Habitat in BAA - yes	
Habitat – Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.		

<i>Montia howellii</i>	Howell's montia	
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Willow Creek, Panther Creek, Lord Ellis Summit, Korbel, Maple Creek, Hupa Mtn.		
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>Epilobium oreganum</i>	Oregon fireweed	
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Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Maple Creek, Grouse Mtn		
Documented in BAA - no		Potential Habitat in BAA - no
Habitat – Bogs and fens, meadows and seeps, lower montane coniferous forest, upper montane coniferous forest.		

<i>Oenothera wolfti</i>		Wolf's evening-primrose
Fed status – none	State status – none	CA rare plant rank – 1B.1
USGS 7.5' Quad – Willow Creek		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest.		

<i>Piperia candida</i>		White-flowered rein orchid
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Maple Creek, Hoopa, Lord Ellis Summit, Willow Creek, Hupa Mtn.		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – Northern California Coniferous forest.		

<i>Erythranthe trinitensis</i>		Pink-margined monkey flower
Fed status – none	State status – none	CA rare plant rank – 1B.3
USGS 7.5' Quad – Willow Creek, Grouse Mtn.		
Documented in BAA - no		Potential Habitat in BAA - no
Habitat – Marshes and swamps.		

<i>Glyceria grandis</i>		American manna grass
Fed status – none	State status – none	CA rare plant rank – 2B.3

USGS 7.5' Quad – Maple Creek		
Documented in BAA - no		Potential Habitat in BAA - no
Habitat – Bogs and fens, meadows and seeps, marshes and swamps.		

<i>Gilia capitata ssp. pacifica</i>		Pacific gilia
Fed status – none	State status – none	CA rare plant rank – 1B.2
USGS 7.5' Quad – Maple Creek, Lord Ellis Summit, Grouse Mtn.		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – Northwestern California coniferous forest in sandy or rocky soils.		

<i>Rosa gymnocarpa var. serpentina</i>		Gasquet rose
Fed status – none	State status – none	CA rare plant rank – 1B.3
USGS 7.5' Quad – Willow Creek, Grouse Mtn.		
Documented in BAA - no		Potential Habitat in BAA - no
Habitat – Chaparral, cismontane woodland.		

<i>Sanguisorba officinalis</i>		Great burnet
Fed status – none	State status – none	CA rare plant rank – 2B.2
USGS 7.5' Quad – Maple Creek		
Documented in BAA - no		Potential Habitat in BAA - yes
Habitat – Bogs and fens, meadows and seeps, broad-leafed upland forest, marshes and swamps, north coast coniferous forest, riparian forest.		

<i>Bensoniella oregona</i>		Bensoniella
Fed status – none	State status – none	CA rare plant rank – 1B.1

USGS 7.5' Quad – Maple Creek	
Documented in BAA - no	Potential Habitat in BAA - yes
Habitat – Bogs and fens, lower montane coniferous forest, meadows and seeps.	

4.6 Potential Impacts

4.6.1 Northern Spotted Owl

The cannabis cultivation process at the Jacque property will be restricted to the existing roads and the existing cultivation sites. No habitat removal is proposed under the current interim permit. Potential impacts to NSO within the BAA are limited to disturbance from noise from traffic accessing the site and the likely intermittent use of small equipment such as generators, ATVs, 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/roosting owls and murrelets, based on ambient sound levels at the site, the use of specific equipment, and visual line-of-sight distance to 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 the likely ambient background noise on the Jacque BAA, 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 Jacque BAA generally does not have appropriate forest habitat to support Spotted Owl nesting/roosting. The nearest critical habitat for the spotted owl is approximately .51 miles to the northeast from the nearest cultivation site (Figure 5). The nearest known spotted owl activity center is approximately 1.1 miles to the west of the cultivation sites, HUM0789 (Figure 6).

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 1.1 miles to the west, there is a strong likelihood of no significant impact to Spotted Owl nesting habitat. As there is abundant foraging habitat on nearby public and private properties, cultivation activities also will not likely impact roosting or foraging Spotted Owls.

4.6.2 Marbled Murrelet

Nesting marbled murrelets require older forests with trees that support potential nesting “platforms”, such as large mossy branches or canopy deformities. The forested habitat on the Jacque property does not generally have trees of sufficient age or canopy complexity to support breeding marbled murrelets. The property is also to the east of the eastern edge of the redwoods range, which closely approximates the nesting range of the murrelet. The nearest current critical breeding habitat for marbled murrelets is approximately .75 miles to the northwest. There is no potential murrelet nesting habitat located on the BAA.

4.6.3 Sensitive/Nesting Birds

Cultivation activities at the existing project sites are unlikely to disturb nesting or sensitive birds, as impacts would generally be limited to noise disturbance only. As the cultivation is located in greenhouses or on open ground, generally away from potential nesting habitat, minimal noise disturbance should be expected. If any significant vegetation removal or habitat conversion is proposed during the bird nesting season, generally March 1st to August 31st, nesting bird surveys should be considered.

4.6.4 Sensitive Fish/Amphibians

The Water Resources Protection Plan (WRPP) outlines the necessary BMPs (Best Management Practices) needed to protect water quality from cultivation practices on the Jacque property. One area of road requires a water break to allow water to drain off the road surface, and another portion of road has developed rills, and needs to be rocked to prevent erosion. Two additional functioning water bars will be monitored and maintained to ensure proper drainage off the road. All of the cultivation sites (1-5, Figure 1) are outside of the 200-foot stream buffers, which are well-vegetated for water infiltration. No runoff from the cultivation sites should reach any surface waters. These BMP's, implemented properly, should protect water quality on the BAA and to downstream waters. There should be no deleterious effects to fish or other aquatic and amphibian species.

4.6.5 Sensitive Mammals

Forest carnivores (Fisher, Humboldt Marten) may use the BAA for foraging as part of a larger home territory. Older forests with complex canopies and large downed woody debris are preferred denning areas for these species; the Jacque BAA does not likely provide appropriate habitat for natal dens. As no habitat removal or ground disturbance is currently planned for the BAA, there is a low likelihood of impacts to potential foraging habitats for these carnivores, as well as to smaller sensitive mammals such as White-footed and Sonoma tree voles

4.6.6 Sensitive Plants

Use of the existing cultivation sites will likely not affect sensitive plants, as activities should be limited to previously impacted areas. Conversion of a proposed cultivation site would likely involve some ground disturbance. Spring season floristic (botanical) surveys are effective at identifying sensitive plants for protection.

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 to 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 are discovered or become established on the property, efforts should be undertaken to remove them, including digging out established plant colonies and removing any new plants or shoots.

Conduct springtime floristic (botanical) surveys for rare plants before any significant cultivation expansion is initiated.

Any proposed construction or maintenance of roads 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 during 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 cannabis cultivation process at the Jacque property has a low likelihood of having significant impacts to sensitive wildlife or plant species as the process currently operates. Any proposed expansion should re-consider the potential for significant impacts to biological resources.

6.0 References

- California Department of Fish and Wildlife, Natural Diversity Database. August 2019. Special Animals List. Periodic publication. 66 pp.
- California Department of Fish and Wildlife. 2018. Natural Diversity Database BIOS Viewer. June 2019 Report.
- California Department of Fish and Wildlife. 2018. Natural Diversity Database Spotted Owl Data Viewer. June 2019 Report.
- Clark, W.S., Wheeler, B.K. 1987. A Field Guide to Hawks of North America. Peterson Field Guides, Houghton Mifflin Harcourt Co., Boston, MA, USA.
- Harris, S.W. 2005. Northwestern California Birds. Mosaic Press, Happy Camp, CA.
- Hunter, J.E., Fix, D., Schmidt, G.A., Power, J.C. 2005. Atlas of the Breeding Birds of Humboldt County, California. Redwood Region Audubon Society. Eureka, CA.
- Ingles, L.G. 1965. Mammals of the Pacific States: California, Oregon, Washington. Stanford University Press, Stanford, CA.
- Mayer, K.E, and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. California Dep. Of Forestry and Fire Protection, Pacific Southwest Forest and Range Experiment Station (Berkeley, Calif.).
- Polite, C., Pratt, J.K.L., editor. 1990. Bald Eagle. California's Wildlife, Vol. 1-111. California Department of Fish and Wildlife, Sacramento, CA.
- Raphael, M.G. 1988. Douglas Fir Vegetation. A Guide to Wildlife Habitats of California. State of California Resource Agency, Department of Fish and Wildlife. Sacramento, CA.
- Thompson, R. C., Wright, A.N., and Shaffer H.B. 2016. California Amphibian Species of Special Concern. University of California Press, Oakland, CA.
- U.S. Fish and Wildlife Service, Arcata, CA. 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. July 26, 2006
- U. S. Fish and Wildlife Service. 2016. Final Species Report Fisher (*Pekania pennanti*), West Coast Population. (PDF)
- U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*). U.S. Fish and Wildlife Service. Portland, Oregon.
- Welsh, H.H., and Lind, A.J. 1996. Habitat Correlates of the Southern Torrent Salamander, *Rhyacotriton variegatus*, (Caudata: Rhyacotritonidae) in Northwestern California. Journal of Herpetology 30:385-398.

7.0 Appendix

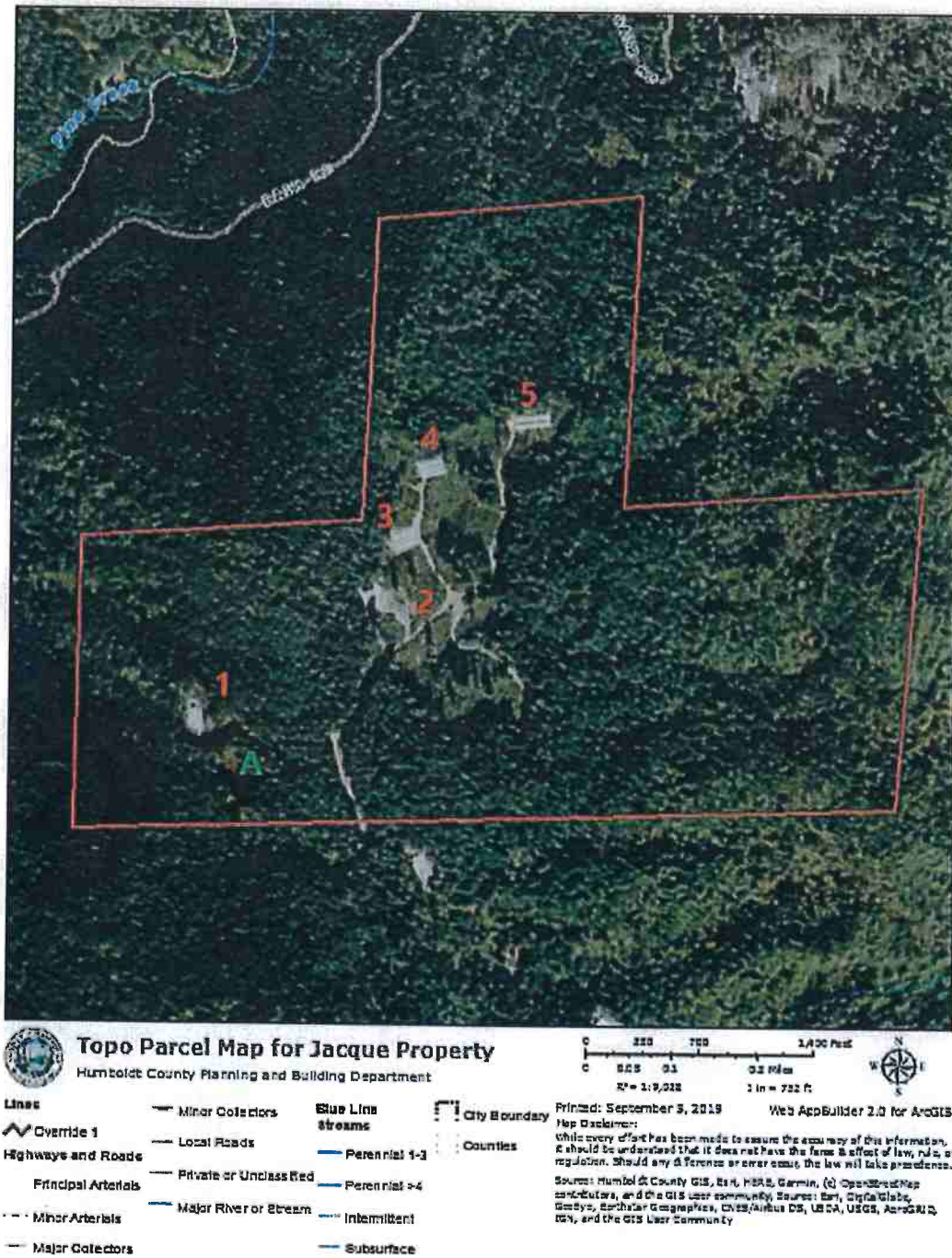
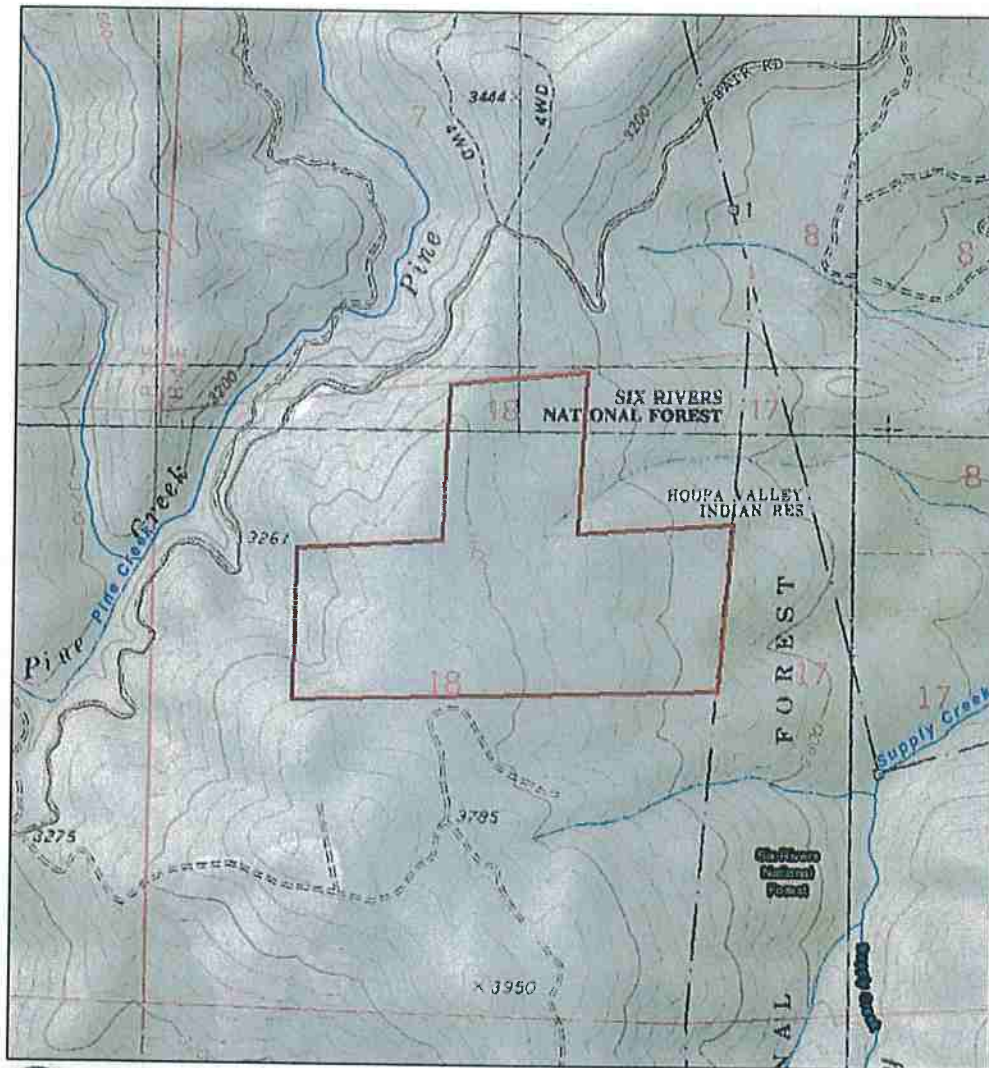


Figure 1. Photo Parcel Map of Jacque Property with Cultivation Sites and Wetland Area



Topo Parcel Map for Jacque Property
 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

- | | | | |
|---------------------------|---------------------------|--------------------------|--------------------------|
| 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: September 5, 2019 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 2. Topo Parcel Map of Jacque Property



Figure 3. Web Soil Survey Map of Jacque Property

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
445	Burns-Redtop complex, 8 to 30 percent slopes	47.9	32.4%
446	Beggs-Burns-Redtop complex, 15 to 50 percent slopes	86.2	59.7%
405	Stansel-Chaloupe-Danewoods complex, 50 to 100 percent slopes	13.6	9.5%
Subtotals for Soil Survey Area		148.0	100.0%
Totals for Area of Interest		148.0	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
446hd	Burns-Beggs-Redtop complex, 15 to 50 percent slopes	0.1	0.0%
Subtotals for Soil Survey Area		0.1	0.0%
Totals for Area of Interest		148.0	100.0%

Figure 3A. Soil Map Unit Legend

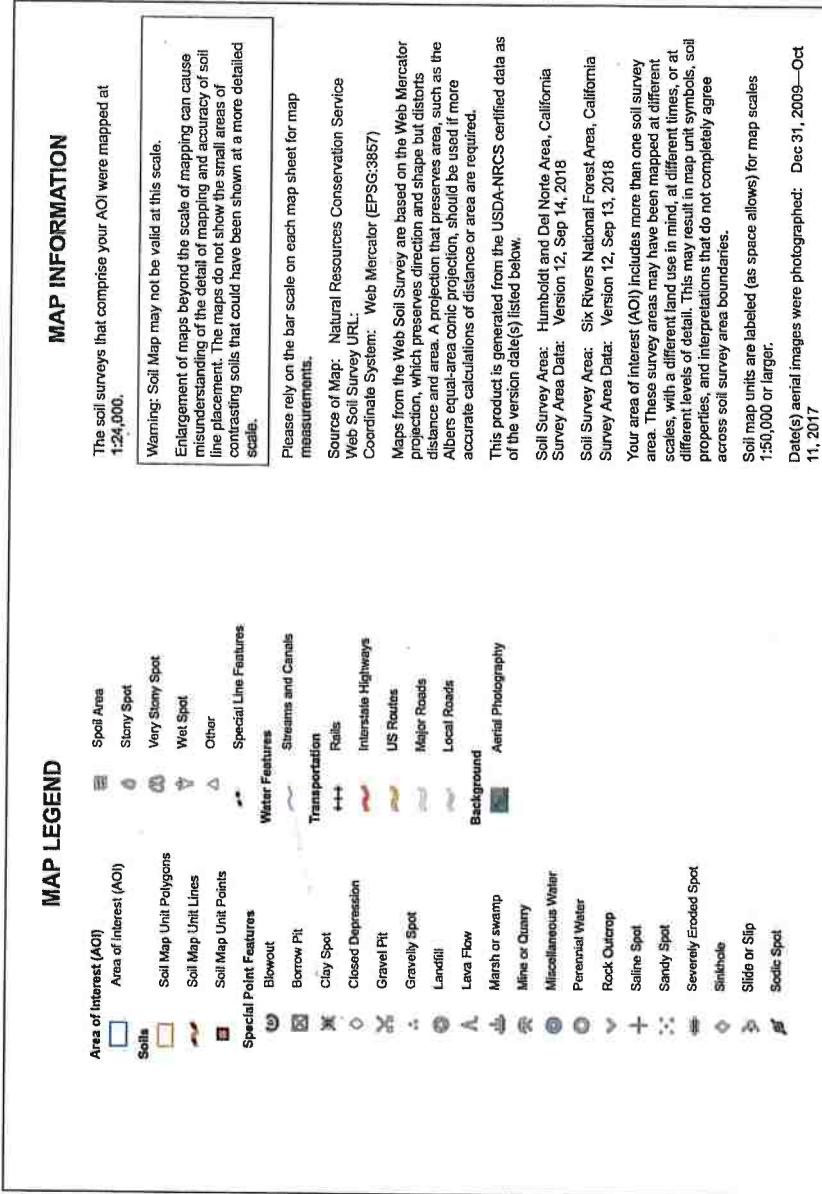


Figure 3B. Soil Map Legend/Map Information

U.S. Fish and Wildlife Service
National Wetlands Inventory

Aquatic Habitats on Jacque Property



September 5, 2019

Wetlands

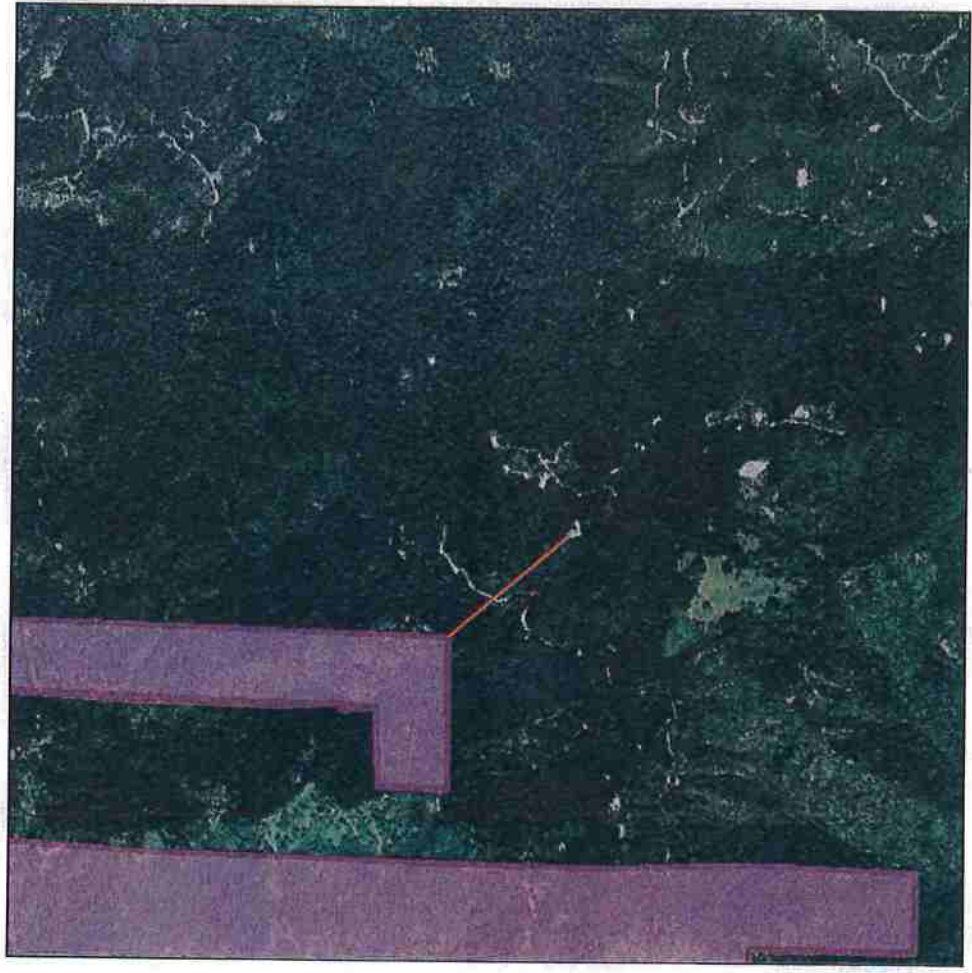
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

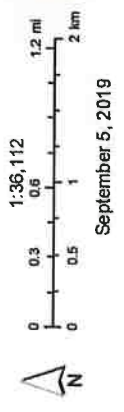
National Wetlands Inventory (NWI)
 This page was produced by the NW Mapper

Figure 4. Aquatic Habitats on Jacque Property

Nearest Critical Habitat to Jacque Cultivation Sites



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



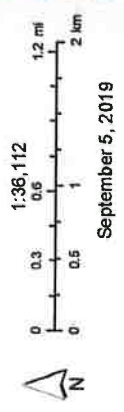
Author: cncdb.com@fws.gov
Printer from <http://files.efg.ca.gov>

Figure 5. Nearest NSO Critical Habitat to Jacque Cultivation Sites.

Nearest NSO Activity Center to Jacque Cultivation Sites



- 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: cndb_com@fgca.gov
 Printed from <http://bioms.cdfg.ca.gov>

Figure 6. Nearest NSO Activity Center to Jacque Cultivation Sites

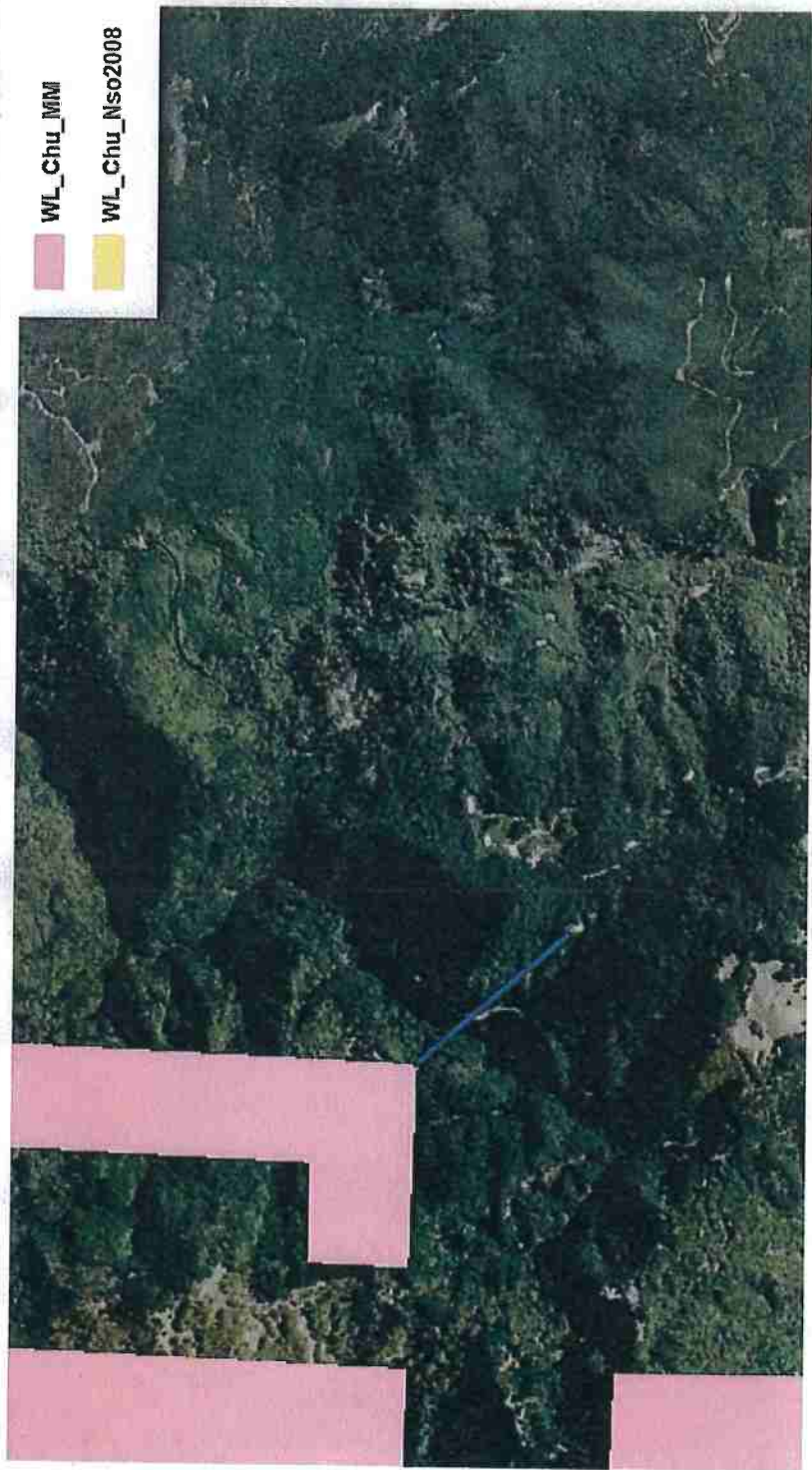
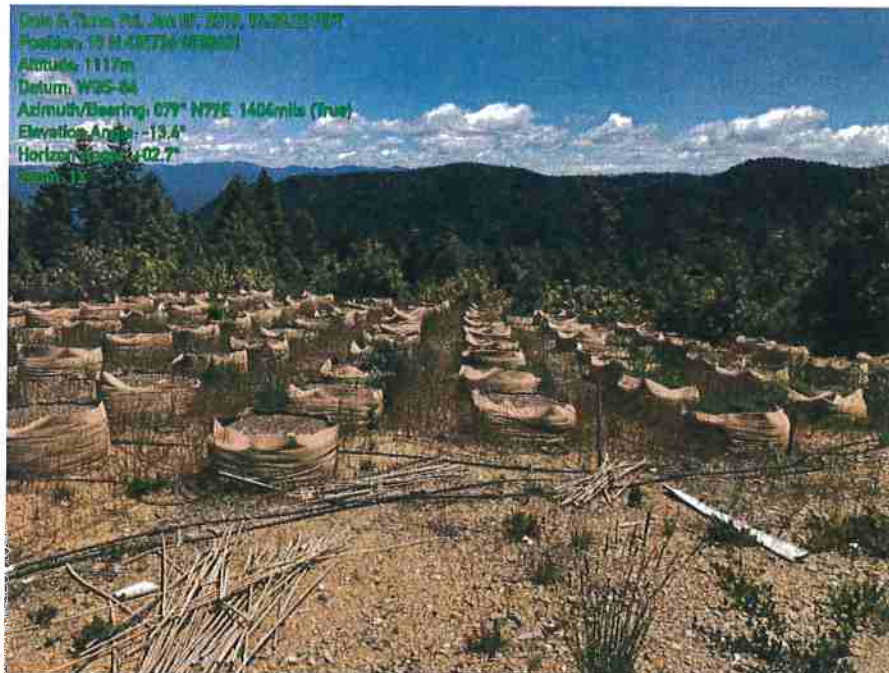


Figure 7. Nearest Marbled Murrelet Critical Habitat to Jacque Cultivation Sites

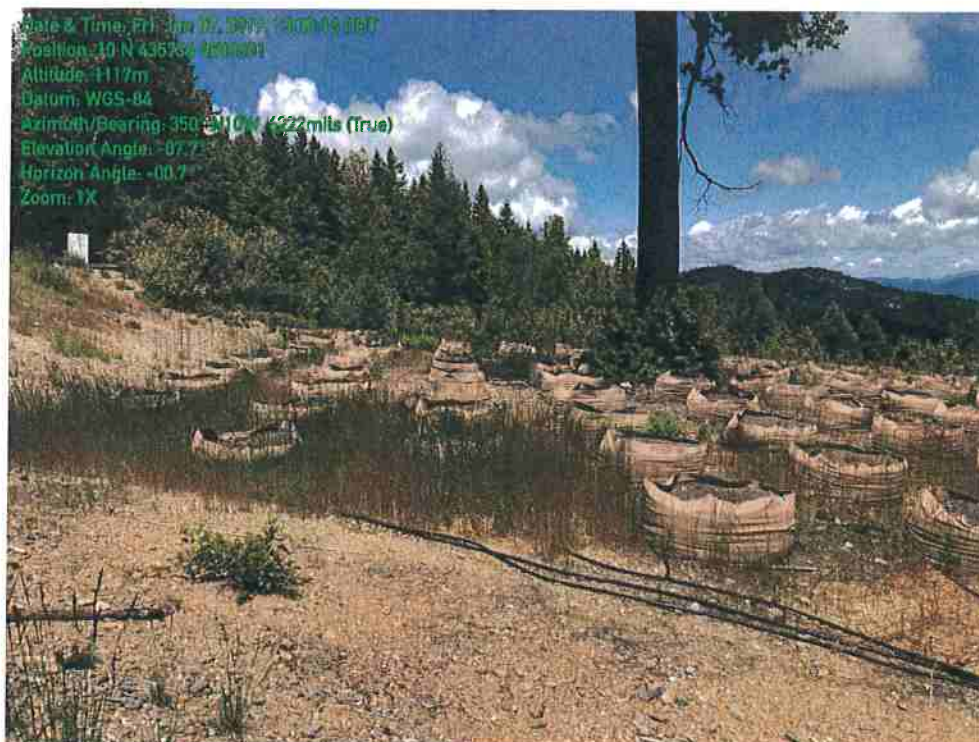
Figure 8. Photos of the BAA



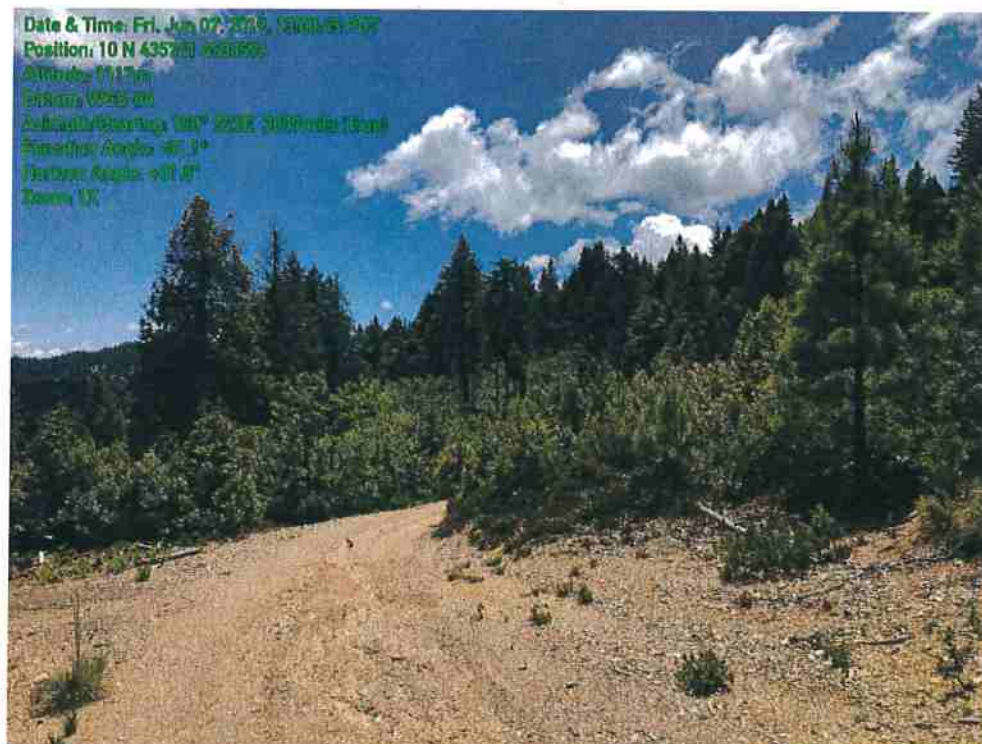
1.0 Photo of Main Residence on Jacque Property



2.0 Photo of Cultivation Site 1 on Jacque Property



3.0 Additional view of Cultivation Site 1



4.0 Photo of Typical Habitat South of Cultivation Site 3



5.0 Photo of Pit Toilet