

Biological Reconnaissance Assessment

APN 316-086-017

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CONFIDENTIAL



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Redtail Ranch, MBC

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Executive Summary

Mother Earth Engineering staff conducted several site visits in January 2019 and on September 22, 2020 to assess for potential listed species and species of concern at subject property APN: 316-086-017. The purpose of this assessment is to provide an initial evaluation of the project site, discuss current site conditions, and assess any potential project impacts to biological resources within the Study Area.

Parcel and project areas were scoped using the CDFW's California Natural Diversity Database (CNDDDB) and California Native Plant Society (CNPS) Rare Plant Inventory to determine the extent of project impacts, assess potential habitat for sensitive species and develop guidelines and strategies for mitigation measures, as necessary.

The applicant, Redtail Ranch, MBC, is currently cultivating 20,350 square feet of existing outdoor cultivation pursuant to Humboldt County Commercial Medical Marijuana Land Use Ordinance (CMMLUO). Water is sourced from a groundwater well, a rainwater catchment pond, and two (2) points of diversions. Energy is provided by solar and generators. The loudest generator, Honda EB5000X, is located in the lower barn and is used for emergency purposes only in the event solar cannot be used. Manufacturer's specifications for this generator is 63 decibels (dB) at 50% rated load and 65 dB at 100% rated load at 23 feet. Noise levels are not expected to exceed 50 dB at property boundaries.

The property is situated on an east facing hillside near the ridgetop with variable mild hillslope depressions in a mixed hardwood forest habitat, grassland understory, and conifer encroachment in the riparian areas. The applicant is proposing to address the conifer encroachment by thinning out Douglas firs and saplings to restore oak woodland habitat on-site. Few ephemeral drainages flow across the property towards an unnamed tributary to Redwood Creek. There is one (1) rainwater catchment pond on site. There are no fish bearing streams on site.

The initial assessment of the project sites did not yield any observations of rare, sensitive or special status plant species. Protocol level surveys were not conducted at this time. In general, the site at APN: 316-086-017 was well maintained and established. Road traffic, noise, dust and visual impacts were at a minimum. Solid waste pollution or other discharge into terrestrial and further aquatic habitats were not observed. Nutrients such as fertilizers, and pesticides were observed to be securely stored with secondary containment in an enclosed structure.

1. Although the database search resulted in the potential for multiple listed species within the study area, none were observed during initial site evaluation.
2. All existing cultivation areas are outside the Streamside Management Areas with a low probability of negatively affecting special status species.
3. Noise levels from the generators are not expected to exceed 50 dB at property boundaries.
4. Although no American bullfrogs were found at the day of assessment, it is recommended that the pond is monitored for presence of bullfrogs (*Lithobates catesbeianus* = *Rana catesbeiana*) annually. If presence of bullfrogs is detected, removal and management efforts should be implemented. Management for bullfrogs must be reported to CDFW by the end of each year.

Additional consultation with agency staff including the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE), Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application, if necessary, and protocol-level surveys will be conducted, if required.

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1.0 Introduction

1.1 Purpose and Need

The purpose of this assessment is to provide an evaluation of biological resources on site and assess any potential project impacts to biological resources, specifically rare or endangered species within project sites. This document was prepared in response to a 11 April 2019 letter by Humboldt County Cannabis Services Division Case No: CUP-16-601 for Permit Application No. 12269 to provide a preliminary assessment of the biological resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), the Regional Water Quality Board (RWQCB), and the Humboldt County Streamside Management Area guidance (SMA) for the 49-acre parcel of Redtail Ranch, MBC which is owned and operated by April Armstrong.

1.2 Project Description

Redtail Ranch, MBC at APN: 316-086-017 currently has an interim permit for 20,350 square feet of existing outdoor cultivation pursuant to Humboldt County Commercial Medical Marijuana Land Use Ordinance (CMMLUO). All cannabis related activities, including the proposed cultivation, are referred to as “projects” throughout the duration of this assessment. The “Study Area” includes areas that are used for cannabis related activities, such as existing and proposed cannabis infrastructure and related land disturbance (Appendix A, *Figure 1*).

Water is sourced from a groundwater well, a rainwater catchment pond, and two (2) points of diversions. A Small Irrigation Use Registration (H504169) was approved on 1/16/19 for these diversions in addition to three other surface water diversions located on the adjacent parcel, APN: 316-086-011.

There is approximately 132,600 gallons of water storage in 33 hard tanks and approximately 500,000 gallons of additional storage in a rainwater catchment pond (Pond A) for a total of 632,600 gallons of water storage on-site. The total available water storage exceeds the total annual irrigation and is adequate to support irrigation needs. According to historic water usage, annual irrigation is approximately 126,157 gallons per year.

Energy at this site is provided by a solar array and generators. The applicant utilizes four (4) generators for various purposes, on-site while in operation. The loudest generator, Honda EB5000X is located in the lower barn and is used for emergency purposes only in the event solar cannot be used. Manufacturer's specifications for this generator is 63 decibels (dB) at 50% rated load and 65 dB at 100% rated load at 23 feet. Using the Inverse Square Law Calculator, in the case the generator is used at 100 % rated load, it is expected that the sound pressure level at 100 ft is 52.2 dB.

There are two (2) portable Honda EU2000 generators used for feeding and irrigation needs in the cultivation areas. The Honda EU2000 emits 59 dB at the maximum rated load at 23 feet. It is expected that these generators will not be used at their maximum rated loads. The nearest property line distance to a cultivation area is approximately 100 feet. Using the Inverse Square Law Calculator for a generator used at 100% rated load, it is expected that the sound pressure level at the nearest property line is 46.2 dB (https://www.engineeringtoolbox.com/inverse-square-law-d_890.html).

2.0 Environmental Setting

2.1 Project Location

The project area is located at 30000 299 Highway, in Blue Lake (Section 13, T6N, R3E) in Humboldt County, California. The project is located on a 49-acre parcel within the U.S. Geological Survey's (USGS) Lord-Ellis Summit 7.5-minute quadrangle map. The parcel is zoned Unclassified (U) with Residential Agricultural and Agricultural Grazing land use designations (AG, RA20) under the current general plan. The USDA Forest Service CALVEG

(“Classification and Assessment with Landsat of Visible Ecological Groupings”) system classifies the property and project area as Annual Grassland (AGS), Montane Hardwood (MHW) and Coastal Oak Woodland (COW).

The Annual Grassland habitat type occurs on gently rolling foothills and flat plains composed primarily of introduced annual plant species. Species composition and structure varies with precipitation and livestock grazing. Typical species found in this habitat includes wild oats, ripgut brome, wild barley, foxtail fescue, bur clover, popcorn flower and red brome. Perennial grasses found in more moist sites include Idaho fescue and purple needlegrass¹.

The Montane Hardwood habitat type is comprised of a pronounced hardwood tree layer, a poorly developed understory with a sparse herb and forb stratum. Middle elevation associates are Douglas fir, tanoak, Pacific madrone, California laurel, black oak, and bristlecone fir. Oregon white oak, foothill pine and coast live oak are abundant in lower elevations².

Coastal oak woodlands vary greatly based on environmental conditions, elevations and distributions. These woodlands, similar to Montane Hardwood, are composed of deciduous and evergreen hardwoods with scattered conifers. Coastal oak woodlands are common to mesic coastal foothills of California and grade into the Montane Hardwood habitat type. Main threats include land clearing, urban expansion, introduction of domestic grazing animals and accompanying land management practices. The change in herbaceous understory from perennial species to aggressive, introduced annuals may have resulted in young oaks being outcompeted for nutrients³.

Conifer encroachment has been occurring in the riparian areas of the parcel. The applicant proposes to restore oak woodland habitat by thinning out Douglas-fir overstory and saplings.

2.2 Soil, Topography, Hydrology

The soil complex on this parcel is composed primarily of Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes, dry (4426) and Yorknorth-Witherell complex, 30 to 50 percent slopes (662). The primary soil complex consists of very deep, well drained soils formed in colluvium and residuum derived from chloritic schist, sandstone, siltstone and mudstone. These soils typically occur on upper mountain side slopes and associate with oak woodland. These soils have a xeric soil moisture regime and are not considered to be hydric⁴.

The project areas are relatively flat with 15% slopes and generally drain southwest towards an unnamed creek that is tributary to Redwood Creek to the west. The site can be characterized as partially cleared ridgetop with variable mild hillslope depressions. The property is approximately 1,950-2,440 feet above sea level and is located in the Redwood Creek watershed and the Minor Creek subwatershed⁵, which is designated as a cannabis impacted watershed. All cultivation is pre-existing and is not expected to exacerbate the negative impacts of cannabis cultivation within the watershed. Several intermittent streams flow west into an unnamed creek tributary to Redwood Creek.

The area is mapped as possessing high levels of instability in the Humboldt County GIS database.

¹ CalVeg habitat description (AGS) at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67384>

² CalVeg habitat description (MHW) at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67338>

³ CalVeg habitat description (COW) at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67344>

⁴ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: <https://websoilsurvey.sc.egov.usda.gov/>. Accessed [August 2019]

⁵ Caltrans Water Quality Planning Tool available at: <http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx>.

3.0 Methods

Mother Earth Engineering staff conducted site visits in January 2019 and on September 22, 2020 to evaluate potential habitat and record observed, biological resources. The property diagram shows areas of pre-existing cultivation area (Appendix A, Figure 1). The Study Area includes areas of direct and indirect impact of cultivation and potential habitat for special status-species. The Study Area was scanned for wildlife sign including tracks, scat, tree habitat (cavities, nests scrapes or accumulated vegetation). Full floristic surveys and/or protocol-level surveys were not conducted at this time.

Before field visits occurred, the site was remotely evaluated for potential habitat value to protected, endangered, threatened, rare, and sensitive species by Geographic Information Systems (GIS), the California Natural Diversity Database (CNDDDB) RareFind and BIOS, and the California Native Plant Society Rare Plant Inventory (CNPS). Within one (1) mile of property project areas, the following species have been historically observed in the CNDDDB database (Table 1 / Appendix A, Figure 4). The localized CNDDDB 9-Quad area of Lord-Ellis was queried to generate occurrences of special-status animal species (Appendix C, Table 4).

Table 1. CNDDDB list of historically observed species within 1 mile of subject property boundaries.

Scientific Name	Common Name	Taxon Group	Date Surveyed	Federal / State Listing
<i>Rana boylei</i>	Foothill yellow-legged frog	Amphibian	2004	State Species of Special Concern
<i>Strix occidentalis caurina</i>	Northern Spotted Owl	Bird	20xx	Federal and State Threatened
<i>Oncorhynchus mykiss irideus pop. 36</i>	Summer-run steelhead trout	Fish	1993	State Species of Special Concern
<i>Oncorhynchus clarkii clarkii</i>	Coast cutthroat trout	Insect	1968	State Species of Special Concern
<i>Arborimus pomo</i>	Sonoma tree vole	Mammal	1990	State Species of Special Concern
<i>Erethizon dorsatum</i>	North American porcupine	Mammal	1960	None
<i>Astragalus umbraticus</i>	Bald mountain milk-vetch	Plant	1883	State Rare Plant Rank – 1B.1*
<i>Erythronium oregonum</i>	Giant fawn lily	Plant	1953	State Rare Plant Rank – 2B.2*
<i>Erythronium revolutum</i>	Coast fawn lily	Plant	1963	State Rare Plant Rank – 2B.2*

*California Rare Plant Ranks designated by CNPS:

- 1A – Plant species presumed extirpated in California and either rare or extinct elsewhere
- 1B – Plant species considered rare or endangered in California and elsewhere
- 2A – Plant species presumed extirpated in California but common elsewhere
- 2B – Plant species considered rare or endangered in California but more common elsewhere
- 3 – Plant species that need more information

4 – Plant species of limited distribution

*Threat Ranks:

0.1 – Seriously threatened

0.2 – Moderately threatened

0.3 – Not very threatened

4.0 Results and Discussion

4.1 Wetlands and SMA

A preliminary jurisdictional determination pursuant to Section 404 of the Federal Clean Water Act was performed on 31 January 2019 by Mother Earth Engineering staff. The property is located within the USACE Land Resource Region A (LRR: A) within the Western Mountains, Valleys, and Coast Region. The parcel was walked and observed for evidence of potential wetland hydrology based on local topography and vegetation.

The 49-acre parcel contained five (5) features that meet the definition of Section 404 Waters of the U.S. Three (3) features can be classified as riverine, one (1) as a lacustrine perennial feature, and one (1) palustrine, intermittent feature. All riverine features are Class II and III watercourses that display indicators of Ordinary High Water Marks (OHWM) and thus fall within Corps jurisdiction. The lacustrine feature, a constructed pond, displays indicators of ordinary high water marks and evidence of hydraulic connectivity, and falls under USACE jurisdiction (*Appendix A, Figure 2*). The last feature (0.007 acres) in the parcel is determined to be a palustrine-emergent wetland with evidence of surface hydrology, hydric soils and presence of hydrophytic vegetation.

Pursuant to Humboldt County's Streamside Management Ordinance, SMAs are sensitive habitat and need to be identified in relation to proposed developments. The ordinance provides standards pertaining to development within streamside management areas and other wet areas. All cultivation areas are outside SMA areas.

4.2 Northern Spotted Owl (NSO)

The nearest NSO Activity Center, HUM1036, was observed in 1991 and is approximately 2,050 feet southwest of the nearest project areas. The nearest positive observation was observed in 1998 and was approximately 0.5 mile east of the nearest project area. (*Appendix A, Figure 3*). The parcel is a mosaic of coastal oak woodland, annual grassland and montane hardwood coniferous forest with potential for NSO activity in the surrounding conifer forests. While there is potential for NSO activity, current cultivation activities within the project areas do not take place within potential habitat and have a low probability of negatively affecting the species. All lights are contained, noise levels are at a minimum, no rodenticides are used, and all projects are established with no future projects proposed. Should development of wooded areas for cannabis cultivation become necessary, Mitigation Measure 3.4-1j of the CCLUO MMRP should be implemented.

As per Humboldt County DEIR and Ordinance requirements⁶, noise standards are implemented to ensure cultivation related noise levels such as generators do not exceed ambient nesting conditions by 20-25 decibels. Where located within one (1) mile of mapped critical habitat, maximum noise exposure from the combination of background and generator created noise may not exceed 50 dBA measured at a distance of 100 feet from the generator or the edge of habitat, whichever is closer. However, no NSO final critical habitat is mapped within one (1) mile of the property boundaries. Energy at this site is provided by a solar array and generators. The applicant utilizes four (4) generators for various purposes, on-site while in operation. The loudest generator, Honda EB5000X is located in the lower barn and is used for emergency purposes only in the event solar cannot be used.

⁶ Draft Environmental Impact Report for the Amendments to Humboldt County Regulating Commercial Cannabis Activities (Accessed at <https://humboldt.gov.org/DocumentCenter/View/60897/Commercial-Cannabis-Draft-EIR-20mb-PDF>)

Manufacturer’s specifications for this generator is 63 decibels (dB) at 50% rated load and 65 dB at 100% rated load at 23 feet. Using the Inverse Square Law Calculator, in the case the generator is used at 100 % rated load, it is expected that the sound pressure level at 100 ft is 52.2 dB.

There are two (2) portable Honda EU2000 generators used for feeding and irrigation needs in the cultivation areas. The Honda EU2000 emits 59 dB at the maximum rated load at 23 feet. It is expected that these generators will not be used at their maximum rated loads. The nearest property line distance to a cultivation area is approximately 100 feet. Using the Inverse Square Law Calculator for a generator used at 100% rated load, it is expected that the sound pressure level at the nearest property line is 46.2 dB (https://www.engineeringtoolbox.com/inverse-square-law-d_890.html).

4.3 Special Status Species

The CNDDDB BIOS and RareFind, as well as California Native Plant Society (CNPS) databases, were scoped both before and after the field visit to search for reference sites or known occurrences in or around the project area. Scoping results for the nine (9) USGS 7.5 min quads surrounding Lord Ellis are included in Appendix C of this report. Other literature and databases used for consultation to evaluate potential unique biological communities and special-status species include but not limited to:

- USDA’s Ecoregion Classification system
- California’s Vegetation Classification and Mapping Program (VegCamp)
- U.S. Fish and Wildlife Service’s Information for Planning and Consultation (IpaC)
- National Marine Fisheries Service California Species List Tool (NOAA 2019)
- CalFlora database
- CNPS Inventory of Rare and Endangered Vascular Plants of California online inventory (CNPS)
- CDFW CNDDDB/Spotted Owl Viewer online database
- *The Jepson Manual, Vascular Plants of California* Second Edition (Baldwin et al. 2012)
- NRCS Websoil Survey
- *A Manual of California Vegetation* Second Edition (Sawyer et al. 2009)

The following Humboldt County listed EIR special status wildlife species have the potential to occur in the study boundary⁷⁸. Impacts to special status animals, including the Northern Spotted Owl, are evaluated in this section based on their likelihood to occur in the area due to habitat needs and natural life history.

Table 2. Humboldt County listed EIR special status wildlife species with potential to occur in the study boundary.

Scientific Name	Common Name	Taxon Group	Regulatory Status
<i>Rana aurora</i>	Northern red-legged frog	Amphibian	State Species of Special Concern
<i>Rana boylei</i>	Foothill yellow-legged frog	Amphibian	State Species of Special Concern
<i>Accipiter gentilis</i>	Northern goshawk	Bird	State Species of Special Concern

⁷ California Natural Diversity Database (CNDDDB) Rarefind and Bios Commercial Subscription (Accessed via <http://https://www.wildlife.ca.gov/data/cnddb/maps-and-data>)

⁸ California Native Plant Society (CNPS) Inventory of Rare or Endangered Plants (Accessed via <http://www.rareplants.cnps.org/advanced.html>)

<i>Haliaeetus leucocephalus</i>	Bald eagle	Bird	Federal – Delisted State – Endangered, Fully Protected
<i>Arborimus pomo</i>	Sonoma tree-vole	Mammal	State Species of Special Concern
<i>Corynorhinus townsendii</i>	Townsend’s big-eared bat	Mammal	State Species of Special Concern
<i>Emys marmorata</i>	Western pond turtle	Reptile	State Species of Special Concern

4.3.1 Mammals

***Arborimus pomo* (Sonoma tree vole)**

Species description: The Sonoma tree vole is a small arboreal rodent that occurs along the North Coast fog belt where it feeds almost exclusively on Douglas-fir needles, but will occasionally take needles of grand fir, hemlock or spruce. It is listed on the IUCN Red List as Near Threatened and is a California Species of Special Concern due to habitat loss from harvest, fire and conversion. Males and females occupy tree nests constructed of fir needles that may be occupied by succeeding generations. Predators include the barred owls, raccoons, and fishers. Since the vole is associated with old-growth forests, the vole is often used as an “indicator species” of overall ecosystem health.

Potential impact: The CNDDDB shows one (1) documented observation in 1990 of a Sonoma tree vole within one (1) mile of the property study area. However, current cultivation activities within the project areas are established, do not take place within potential habitat and have a low probability of negatively affecting the species. No expansion or development is proposed. Should development of wooded areas become necessary, Mitigation Measure 3.4-1l of the CCLUO MMRP should be implemented.

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

Species description: Townsend’s big-eared bats are medium-sized bats with broad wings. They live in a variety of habitats from montane coniferous forests to foothill grasslands, and roosts in the open. They are listed as a Species of Special Concern in California where their distribution is strongly correlated with caves. Colonies normally choose roost sites in relatively cold, dark places such as caves, mines, tunnels, or abandoned buildings with open ceilings due to extreme sensitivity to human disturbance. Despite a wide range of habitats, the Townsend’s big eared bat is limited to roosting sites of caves, cliffs, mines, tunnels, or buildings with very little human contact.

Potential impact: Low. While there is potential foraging habitat on site at the subject property, there were no signs of guano or potential roost sites. No new development is proposed on the property that may disturb potential roosting sites. The CNDDDB shows no documented observations of Townsend’s big-eared bat within one (1) mile of the property area. Current cultivation activities do not take place within potential habitat and have low probability of negatively affecting the species. Should development of wooded areas become necessary, Mitigation Measure 3.4-1k of the CCLUO MMRP should be implemented.

4.3.2 Birds

***Accipiter gentilis* (northern goshawk)**

Species description: The northern goshawk is a medium sized raptor with short, broad wings and a long, rounded tail. Adults are brown-gray to slate-gray on top with a black cap and a pronounced white superciliary line. Underparts are light gray with some black streaking. The northern goshawk is a species on the CDFW Watch List and is considered a California Bird Species of Special Concern. This species breeds in coniferous forests throughout the North Coast ranges and hunts in wooded areas, using tree snags for perching and observation. Northern goshawks build nests in both deciduous and coniferous trees and typically use the largest tree in a nest stand. They generally avoid developed areas, so are impacted by new development in forests.

Potential impact: Potential nesting habitat for these hawks exists near the project area, but no new development is proposed that would disturb potential nesting sites. The CNDDDB shows no documented observations of northern goshawk within the property study area. Current cultivation within the project areas do not take place within potential habitat and have a low probability of negatively affecting the species. No expansion or development is proposed. Should development of wooded areas become necessary, Mitigation Measure 3.4-1d of the CCLUO MMRP.

***Haliaeetus leucocephalus* (bald eagle)**

Species description: The bald eagle is a fully protected and endangered species listed by the state of California. They are one of the largest birds in North America measuring about 27.9-37.8 inches in length with an average wingspan of 80.3 inches. Adult bald eagles have white heads and tails with dark brown bodies and wing and bright yellow legs. Juveniles have mostly dark heads and tails, brown bodies and wings mottled with white in varying amounts. Bald eagles can be found near lakes, rivers, marshes and coasts. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Bald eagles are known to nest near Humboldt Bay and the Klamath, Trinity, and Mad Rivers.

Potential impact: Bald eagles are potentially present in the study area because the site falls within their distribution range and has riverine habitat that provides great nesting opportunities. However, current cultivation does not take place within potential habitat and have a low probability of negatively affecting the species. No expansion or development is proposed. The CNDDDB shows no documented observations of bald eagles within the property study area. Should further development resulting in disturbance become necessary, Mitigation Measure 3.4-1d of the CCLUO MMRP should be implemented.

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

Species description: The nearest NSO Activity Center, HUM1036, was observed in 1991 and is approximately 2,050 ft southwest of the nearest project areas. The nearest positive observation was observed in 1998 and was approximately 0.5 mile east of the nearest project area. (*Appendix A, Figure 4*). The parcel is a mosaic of coastal oak woodland, annual grassland and montane hardwood coniferous forest with potential for NSO activity in the surrounding conifer forests.

Potential impact: While there is potential for NSO activity, current cultivation activities within the project areas do not take place within potential habitat and have a low probability of negatively affecting the species. All lights are contained, noise levels are at a minimum, no rodenticides are used, and all projects are established with no future projects proposed. There are no NSO final critical habitat mapped within one (1) mile of the property boundaries. Should development of wooded areas become necessary, Mitigation Measure 3.4-1j of the CCLUO MMRP should be implemented. As per Humboldt County DEIR and Ordinance requirements⁹, noise standards are implemented to

⁹ Draft Environmental Impact Report for the Amendments to Humboldt County Regulating Commercial Cannabis Activities (Accessed at <https://humboldt.gov.org/DocumentCenter/View/60897/Commercial-Cannabis-Draft-EIR-20mb-PDF>)

ensure cultivation related noise levels such as generators do not exceed ambient nesting conditions by 20-25 decibels. Where located within 1 mile of mapped critical habitat, maximum noise exposure from the combination of background and generator created noise may not exceed 50 dBA measured at a distance of 100 feet from the generator or the edge of habitat, whichever is closer. A noise assessment is being prepared by Mother Earth Engineering to ensure noise standards are being met.

Fish

No perennial water courses flow through the subject property. However, the ephemeral streams on parcel are tributaries to an intermittent stream tributary to Redwood Creek, the nearest river approximately 1.3 miles west of the nearest cultivation area. Redwood Creek is known to host several fish species such as summer-run steelhead trout (*Oncorhynchus mykiss irideus pop. 36 & pop. 16*) and chinook salmon (*Oncorhynchus tshawtscha pop. 36*). These species are a California Species of Special Concern and Federally Threatened. Declines to fish populations have been linked to habitat degradation from poor timber harvest practices, mining operations, excessive sport harvesting, road construction and increased sedimentation from poor land management practices. Suitable habitat for state and federally listed species is likely present within the flowing waters of Redwood Creek.

The Applicant is currently enrolled with the North Coast Regional Water Board's Cannabis Discharge Waiver Program and will implement sediment and erosion control measures as prescribed by SWRCB Order WQ 2019-0001-DWQ to prevent sediment discharge to nearby watercourses. Current cultivation activities are all outside Streamside Management Areas. Should further development resulting in disturbance become necessary, Mitigation Measure 3.4-2 of the CCLUO MMRP should be implemented. The Applicant has obtained a Small Irrigation Use Registration from the waterboard and adheres to the diversion forbearance requirements of that water right. As such, surface water diversions associated with cannabis irrigation at the project site are not expected to have a significant impact on water levels in Redwood Creek.

Reptiles and Amphibians

***Emys marmorata* (Western pond turtle)**

Species description: The western pond turtle is the only native freshwater turtle along the West Coast and is listed as a California Species of Special Concern. In the Humboldt region, these turtles have been found in mixed oak-fir forests, open prairies, riparian habitats and along the banks of the Trinity, Little, Van Duzen, Eel, Elk and Mattole Rivers. They need basking sites and suitable upland habitat up to 0.5 km from water for egg-laying. Western pond turtles are also potentially present in riparian corridors adjacent to open water. Population threats include disease, loss of habitat, and increased predation from bullfrogs.

Potential impact: During the assessment, no western pond turtles or nests were observed in and near the pond on site. The CNDDDB shows no documented observations of western pond turtles within the property study area. Should further development of riparian areas resulting in disturbance become necessary, Mitigation Measure 3.4-1c and 3.4-4 of the CCLUO MMRP should be implemented.

***Rana aurora* (northern red-legged frog)**

Species description: Northern red-legged frogs are a California Species of Special concern and are potentially present in lowland moist forested habitats and riparian forest in the vicinity of standing or flowing waters. They are medium-sized frogs with slender bodies, smooth skin, distinct dorso-lateral folds and a dark eye mask. The dorsal color is tan, brown, or olive-brown with varying amount of black spotting and speckling.

Potential impact: There is potential habitat in the riparian area of the project. The CNDDDB does not show any documented occurrences of the Northern red-legged frog within one (1) mile of the project location (*Appendix B, Figure 3*). On the day of assessment, no Northern red-legged frogs were observed. Should further development of riparian areas resulting in disturbance become necessary, Mitigation Measure 3.4-1c and 3.4-4 of the CCLUO MMRP should be implemented.

***Rana boylei* (foothill yellow-legged frog)**

Species description: The foothill yellow-legged (*Rana boylei*) is a California species of special concern. This species is a medium-sized frog typically found in shady streams with sufficient flow and rock and cobble substrates for egg-laying. Unlike most other ranid frogs in California, this species is rarely found far from permanent water. They are sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools. Seasonal variation in streamflow has a strong influence on life history and movement. According to a 2016 technical report by U.S. Forest Service, nonbreeding post-metamorphic foothill yellow-legged frogs have been observed in permanent and intermittent streams with low to relatively high gradients. Adult females have been observed to frequent pools during nonbreeding season and as winter refugia.

Potential impact: There is potential habitat and a 2004 CNDDDB observation within one (1) mile of property boundaries. However, on the day of assessment, no foothill yellow-legged frogs were observed and there is no habitat within project sites. All watercourses are intermittent, and few have sufficient flow and rock substrates. Current project activities are outside SMA setbacks, do not take place within potential habitat, and have a low probability of negatively affecting the species. The applicant shall continue to implement sediment and erosion control measures as prescribed by SWRCB Order WQ 2019-0001-DWQ to prevent sediment discharge to the nearby watercourse. Should further development of riparian areas into the watercourse resulting in disturbance become necessary, Mitigation Measure 3.4-1b and 3.4-4 of the CCLUO MMRP should be implemented.

4.3.3 Plant Species of Special Concern

Initial site visit did not yield any observations of listed plant species. However, a full floristic survey was not conducted. The plants listed in Table 3 below with a California Rare Plant Rank (CRPR) of 1B and 2B may have the potential to occur within and near the cultivation areas. Other plants that have the potential to occur within the 9-quads nearby Lord-Ellis Summit USGS 7.5' quadrangle is listed in *Appendix C*.

Table 3. List of special status plants that have potential to be present in the study area.

Species	CRPR	Habitat
<i>Astragalus umbraticus</i> Bald mountain milk-vetch	2B.3	Cismontane woodland, lower montane coniferous forest. Dry open oak and pine woodlands; sometimes on roadsides. 689 to 4,003 ft in elevation. Blooms May-August.
<i>Erythronium revolutum</i> coast fawn lily	2B.2	Wetland. Bogs and fens, broad-leafed upland forest, norther coast coniferous forests. Mesic sites; streambanks. 197 to 4,610 ft in elevation. Blooms March – August.
<i>Erythronium oregonum</i> giant fawn lily	2B.2	Ultramafic. Cismontane woodland, meadows and seeps. Openings, sometimes on serpentine

		and rocky sites. 984 to 4,708 ft in elevation. Blooms March – July.
<i>Gilia capitata ssp. pacifica</i> pacific gilia	1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley, and foothill grassland. 16 to 4,413 ft in elevation. Blooms April-August.
<i>Sidalcea malviflora ssp. patula</i> Siskiyou checkerbloom	1B.2	Coastal bluff scrub, coastal prairie, north coast coniferous forest. Open coastal forest; roadcuts. 16 to 4,117 ft in elevation. Blooms May-August.

While no special status plant species were observed during the site assessment, the listed species may have the potential to occur within or near existing cultivation areas. It is unlikely that existing activities will have a negative impact on these species. The CNDDDB shows no documented observations of any listed plant species within the property study area. Should further development resulting in disturbance become necessary, Mitigation Measure 3.4-3a of the CCLUO MMRP should be implemented.

5.0 Regulatory Background

5.1 U.S. Army Corps of Engineers (USACE)

The USACE Regulatory Branch regulates activities that may discharge dredged or fill materials into “waters of the U.S.” under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all “waters of the U.S.” where the material (1) replaces any portion of a “waters of the U.S.” with dry land or (2) changes the bottom elevation of any portion of any “waters of the U.S.”. These fill materials include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters. The selection of disposal sites for dredged or fill material is done in accordance with guidelines specified in Section 404(b)(1) of the CWA, which were developed by the U.S. Environmental Protection Agency (USEPA).

5.2 Regional Water Quality Control Board (RWQCB)

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB’s jurisdiction extends to all “waters of the State” and to all “waters of the U.S.,” including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide certification that there is reasonable assurance an activity with the potential for discharge into navigable waters will not violate water quality standards. Water Quality Certification must be based on findings that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives found in each of the nine RWQCBs’ Basin Plans.

5.3 California Department of Fish and Wildlife (CDFW)

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the California Fish and Game Code (§§1600–1616). Activities of state and local agencies, as well as public

utilities that are project proponents, are regulated by the CDFW under Section 1602 of the California Fish and Game Code.

Because the CDFW includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA, and often do not have all three parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a wetland.

However, riparian forests are frequently included within CDFW regulatory jurisdiction under Section 1602 of the California Fish and Game Code.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW extends jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or near a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species. It also includes watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

5.4 Humboldt County-Streamside Management Area (SMA)

“Streamside Management Areas” (SMAs) [Section 3432(5) of the Humboldt County 1984 General Plan] are defined in the Humboldt County General Plan (Page G-8) and include a natural resource area along both sides of streams containing the channel and adjacent land. Updates to the SMA guidance for cannabis activities are defined in the Environmental Impact Assessment Biological Resources Section¹⁰.

Project applicants proposing development activities within a SMA or wetland areas are required to include a site-specific biological report prepared consistent with these regulations. The written report prepared by a qualified biologist is subsequently referred to CDFW for review and comment. If required, after agency review of the preliminary habitat assessment, protocol level surveys will be completed per recommendations by the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities¹¹.

5.5 Additional Laws and Policies

In addition to the above-mentioned policies, numerous other policies exist to protect wetlands, waters and biological resources including the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA) and the Z'berg-Nejedly Forest Practice Act.

6.0 Conclusion and Recommendations

Mother Earth Engineering staff conducted several site visits in January 2019 and on September 22, 2020 to assess for potential listed species and species of concern at subject property APN: 316-086-017. Parcel and project areas were scoped using the CDFW's California Natural Diversity Database (CNDDDB) and California Native Plant Society

¹⁰ <https://humboldt.gov/DocumentCenter/View/58840/Section-311-Biological-Resources-Revised-DEIRPDF>

¹¹ Final Environmental Impact Report: Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. January 2018. Prepared by Ascent Environmental. Accessed via <https://humboldt.gov/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR6omb-PDF>. Accessed August 2019]

(CNPS) Rare Plant Inventory to determine the extent of project impacts, assess potential habitat for sensitive species and develop guidelines and strategies for mitigation measures, as necessary. Additional consultation with agency staff including the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE), Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application, if necessary, and protocol-level surveys will be conducted, if required.

The property is situated on an east facing hillside near the ridgetop with variable mild hillslope depressions in a mixed hardwood forest habitat, grassland understory, and conifer encroachment in the riparian areas. The applicant is proposing to address the conifer encroachment by thinning out Douglas firs and saplings to restore oak woodland habitat on-site. Few ephemeral drainages flow across the property towards an unnamed tributary to Redwood Creek. There is one (1) rainwater catchment pond on site. There are no fish bearing streams on site.

The initial assessment of the project sites did not yield any observations of rare, sensitive or special status plant species. Protocol level surveys were not conducted at this time. In general, the site at APN: 316-086-017 was well maintained and established. Road traffic, noise, dust and visual impacts were at a minimum. Solid waste pollution or other discharge into terrestrial and further aquatic habitats were not observed. Nutrients such as fertilizers, and pesticides were observed to be securely stored with secondary containment in an enclosed structure.

1. Although the database search resulted in the potential for multiple listed species within the study area, none were observed during initial site evaluation.
2. All existing cultivation areas are outside the Streamside Management Areas with a low probability of negatively affecting special status species.
3. Noise levels from the generators are not expected to exceed 50 dB at property boundaries.
4. Although no American bullfrogs were found at the day of assessment, it is recommended that the pond is monitored for presence of bullfrogs (*Lithobates catesbeianus* = *Rana catesbeiana*) annually. If presence of bullfrogs is detected, removal and management efforts should be implemented. Management for bullfrogs must be reported to CDFW by the end of each year.

Additional consultation with agency staff including the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE), Humboldt County and US Fish and Wildlife Service (USFW) will continue throughout the project application, if necessary, and protocol-level surveys will be conducted, if required.

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Appendix C



CONFIDENTIAL

Biological Survey Report

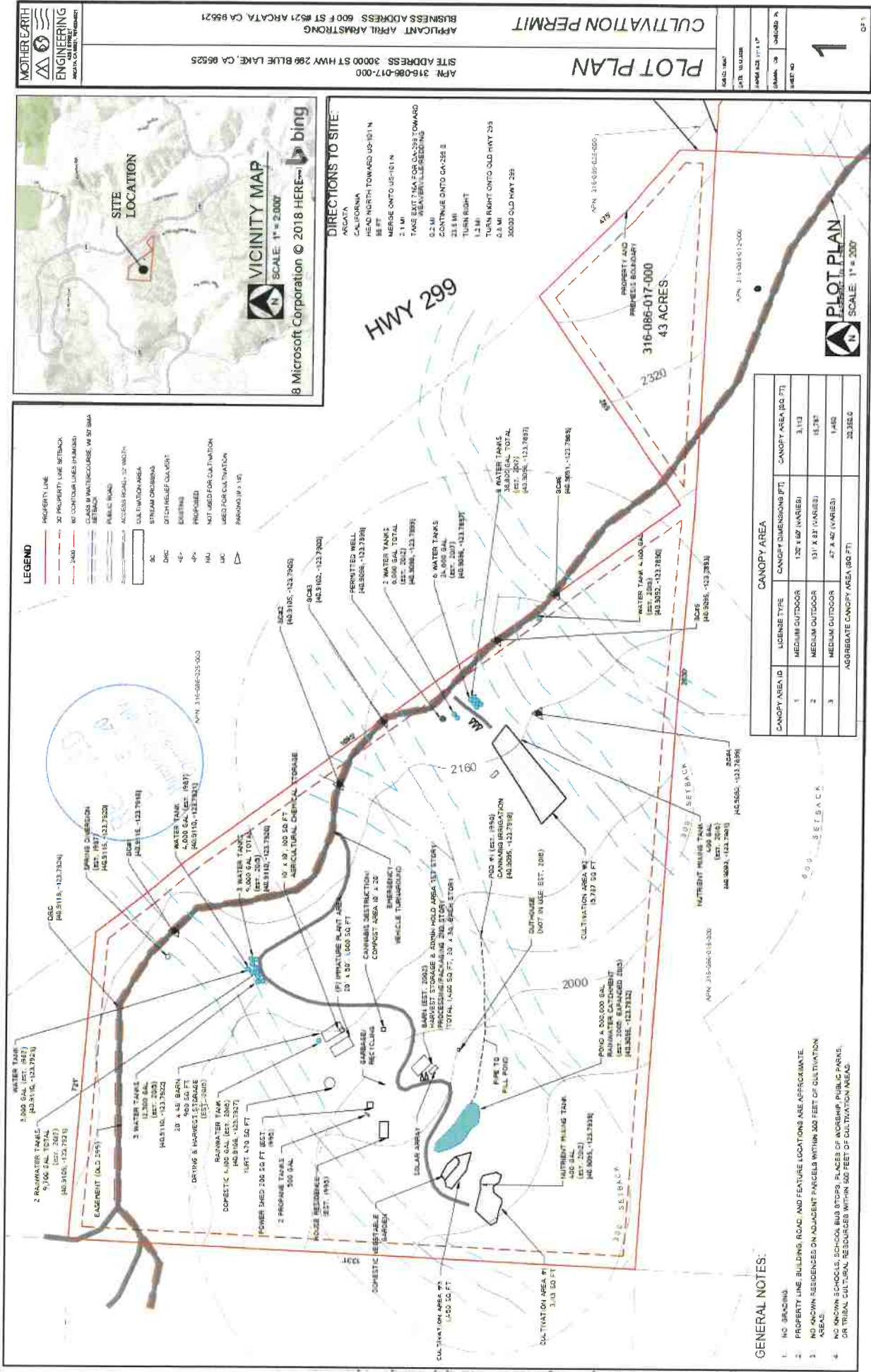


Figure 1: Plot Plan for subject property APN: 316-086-017. The Study Area is outlined in red.



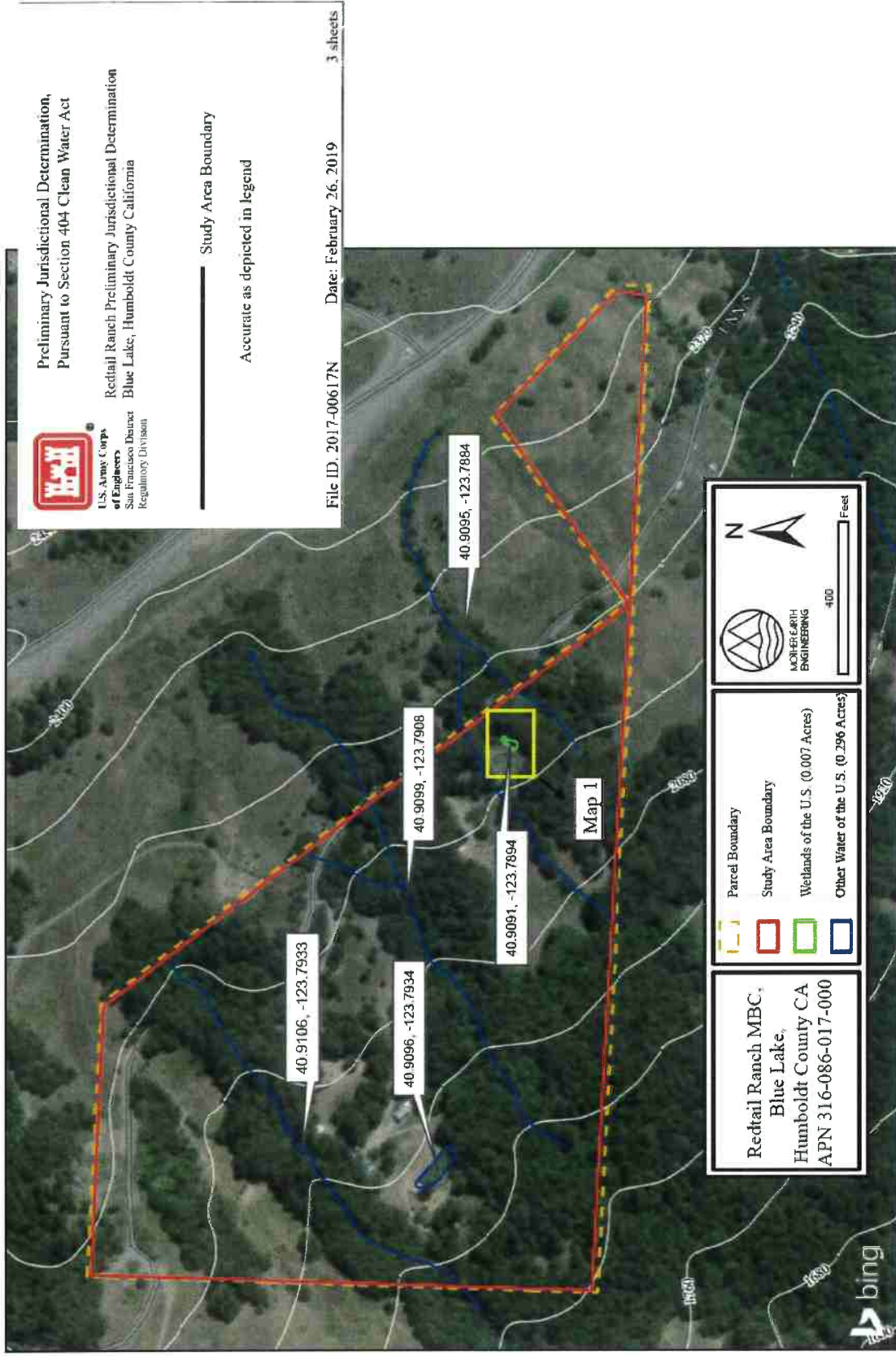


Figure 2: A preliminary jurisdictional determination pursuant to Section 404 of the Clean Water Act was performed on 31 January 2019 and confirmed by USACE on 26 February 2019.

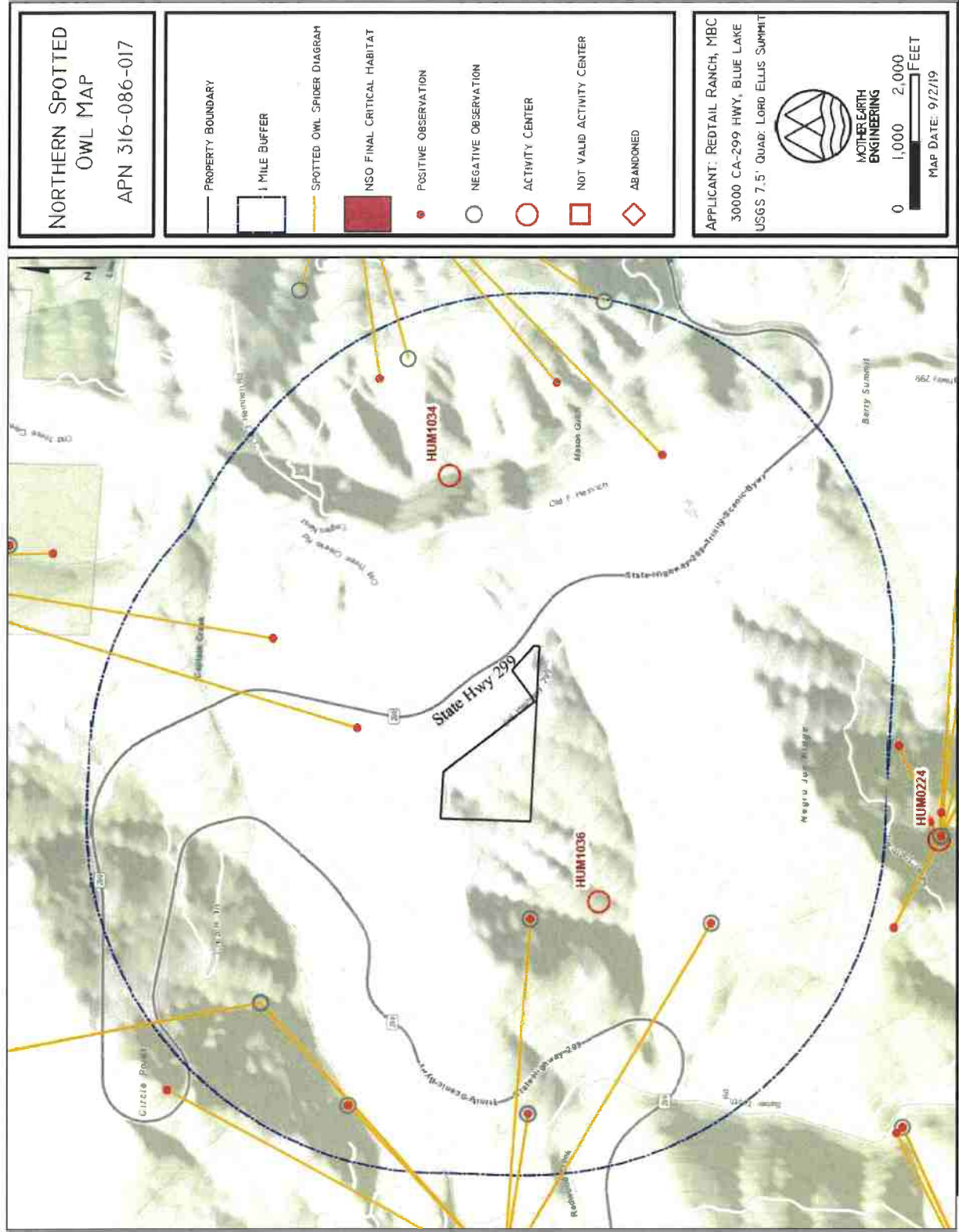


Figure 3: Northern Spotted owl occurrences and final critical habitat observed within 1 mile of the property's project areas.

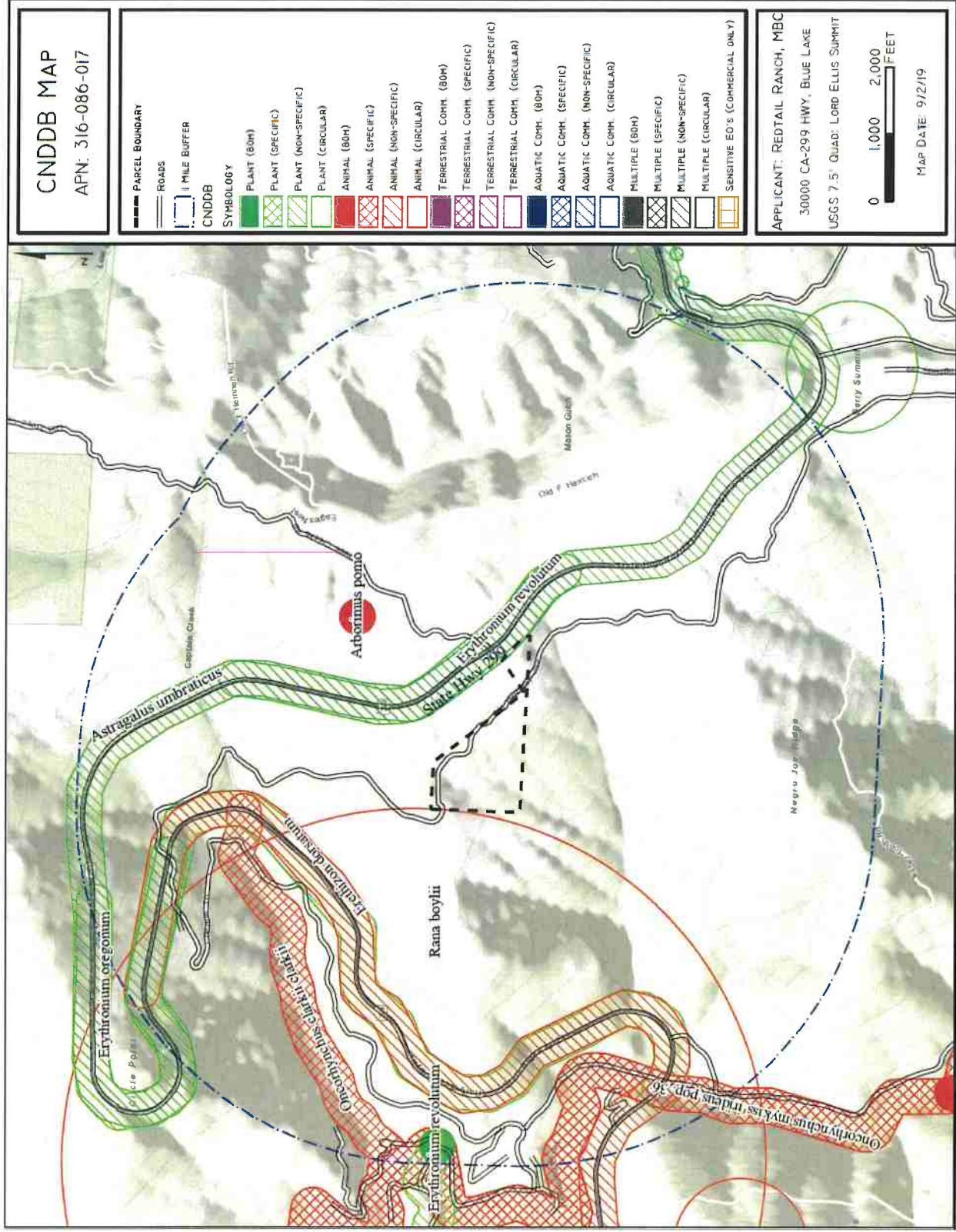




Figure 4: Occurrences of rare plant and special status animal species observed within 1 mile of the property's project areas.

Appendix

A







Maps

<p>Picture No. 1</p>	
<p>September 22, 2020</p>	<p>© 216°SW (T) LAT: 40.909515 LON: -123.793947 ±16ft ▲ 1942ft</p> 
<p>Description:</p> <p>View of existing cultivation area #1 (CA-1).</p>	<p>CA 1 Courtney's iPhone</p> <p>Armstrong Redtail 22 Sep 2020, 10:55:11</p>

<p>Picture No. 2</p>	
<p>September 22, 2020</p>	<p>© 186°S (T) LAT: 40.909484 LON: -123.790204 ±32ft ▲ 2188ft</p> 
<p>Description:</p> <p>View of existing cultivation area #2 (CA-2).</p>	<p>CA 2 Courtney's iPhone</p> <p>Armstrong Redtail 22 Sep 2020, 14:21:59</p>



<p>Picture No. 3</p>	
<p>September 22, 2020</p>	<p>☉ 237°SW (T) LAT: 40.909692 LON: -123.793108 ±16ft ▲ 1988ft</p> 
<p>Description:</p> <p>Rainwater catchment pond.</p>	<p>Pond Courtney's iPhone</p> <p>Armstrong Redtail 22 Sep 2020, 11:23:33</p>

<p>Picture No. 4</p>	
<p>September 22, 2020</p>	<p>☉ 15°N (T) LAT: 40.910823 LON: -123.791944 ±16ft ▲ 2139ft</p> 
<p>Description:</p> <p>Water storage tanks on site.</p>	<p>10 water tanks Courtney's iPhone</p> <p>Armstrong Redtail 22 Sep 2020, 14:41:46</p>



Appendix B



Photos

Table 1-CNDDDB and CNPS nine-quad database results for the Lord-Ellis Summit USGS 7.5' quadrangle August 2019.

Animals

Scientific Name	Common Name	Taxon	Fed	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Project Area
<i>Ascaphus truei</i>	Pacific tailed frog	Amphibian	None	None	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Unlikely – no perennial streams in project areas
<i>Plethodon elongatus</i>	Del Norte salamander	Amphibian	None	None	Old-growth associated species with optimum conditions in the mixed conifer/hardwood ancient forest ecosystem.	Cool, moist, stable microclimate, a deep litter layer, closed multi-storied canopy, dominated by large, old trees.	Unlikely
<i>Rana aurora</i>	northern red-legged frog	Amphibian	None	None	Humid forests, woodlands, grasslands, and stream sides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Potentially present
<i>Rana boylei</i>	foothill yellow-legged frog	Amphibian	None	Candidate Threatened	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.	Potentially present
<i>Rhyacotriton variegatus</i>	southern torrent salamander	Amphibian	None	None	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.	Unlikely – no perennial streams in project areas



Scientific Name	Common Name	Taxon	Fed	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Project Area
<i>Accipiter cooperii</i>	Cooper's hawk	Bird	None	None	Woodland, 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.	Potentially present
<i>Accipiter gentilis</i>	northern goshawk	Bird	None	None	Within, and in vicinity of, coniferous forest. Uses old nests and maintains alternate sites.	Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	Potentially present
<i>Haliaeetus leucocephalus</i>	bald eagle	Bird	Delisted	Endangered	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.	Potentially present
<i>Nycticorax nycticorax</i>	black-crowned night heron	Bird	None	None	Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	Unlikely
<i>Pandion haliaetus</i>	osprey	Bird	None	None	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Potentially present
<i>Riparia riparia</i>	bank swallow	Bird	None	Threatened	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.	Unlikely
<i>Oncorhynchus clarkii clarkii</i>	coast cutthroat trout	Fish	None	None	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water	Unlikely – no perennial streams in project areas



Scientific Name	Common Name	Taxon	Fed	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Project Area
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Fish	Threatened	Threatened	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.	Unlikely -- no perennial streams in project areas
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	Threatened	None	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.		Unlikely -- no perennial streams in project areas
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	Fish	None	None	No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS.	Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer.	Unlikely -- no perennial streams in project areas
Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	Fish	None	Candidate Endangered	Spring-run chinook in the Trinity River and the Klamath River upstream of the mouth of the Trinity River.	Major limiting factor for juvenile chinook salmon is temperature, which strongly effects growth and survival.	Unlikely -- no perennial streams in project areas
Thaleichthys pacificus	eulachon	Fish	Threatened	None	Found in Klamath River, Mad River, Redwood Creek, and in small	Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of	Unlikely -- no perennial streams in project areas



Scientific Name	Common Name	Taxon	Fed	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Project Area
					numbers in Smith River and Humboldt Bay tributaries.	pea-sized gravel, sand, and woody debris.	
Bombus caliginosus	obscure bumble bee	Insect	None	None	Coastal areas from Santa Barbara county to north to Washington state.	Food plant genera include Baccharis, Chrsium, Lupinus, Lotus, Grindelia and Phacelia.	Potentially present
Bombus occidentalis	western bumble bee	Insect	None	None	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		Potentially present
Aplodontia rufa humboldtiana	Humboldt mountain beaver	Mammal	None	None	Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	Potentially present
Arborimus albipes	white-footed vole	Mammal	None	None	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.	Unlikely
Arborimus pomo	Sonoma tree vole	Mammal	None	None	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.	Potentially present
Corynorhinus townsendii	Townsend's big-eared bat	Mammal	None	None	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.	Potential foraging present but no roosts sites on site.



Scientific Name	Common Name	Taxon	Fed	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Project Area
<i>Erethizon dorsatum</i>	North American porcupine	Mammal	None	None	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.	Potentially present
<i>Lasionycteris noctivagans</i>	silver-haired bat	Mammal	None	None	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas.	Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	Potentially present
<i>Myotis evotis</i>	long-eared myotis	Mammal	None	None	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Potential foraging present but no roost sites on site.
<i>Pekania pennanti</i>	fisher - West Coast DPS	Mammal	None	Threatened	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. Needs large areas of mature, dense forest.	Unlikely – no large areas of mature, dense forest
<i>Helminthoglypta talmadgei</i>	Trinity shoulderband	Mollusk	None	None	Limestone rockslides, litter in coniferous forests, old mine tailings, and along shaded streams in the Klamath Mountains.		Unlikely
<i>Margaritifera falcata</i>	western pearlshell	Mollusk	None	None	Aquatic.	Prefers lower velocity waters.	Unlikely – no perennial streams in project areas
<i>Emys marmorata</i>	western pond turtle	Reptile	None	None	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with	Needs basking sites and suitable (sandy banks or grassy open fields) upland	Potentially present



Scientific Name	Common Name	Taxon	Fed	State	General Habitat	Micro Habitat	Potential for Species Occurrence in Project Area
					aquatic vegetation, below 6000 ft elevation.	habitat up to 0.5 km from water for egg-laying.	

Plants

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
Allium siskiyouense	Siskiyou onion	Alliaceae	perennial bulbiferous herb	4-3	G4	S4	Lower montane coniferous forest, Upper montane coniferous forest	rocky, sometimes serpentine	No, outside elevation range
Antennaria suffrutescens	evergreen everlasting	Asteraceae	perennial stoloniferous herb	4-3	G4	S3	Lower montane coniferous forest (serpentine)		No serpentine soils
Arnica cernua	serpentine arnica	Asteraceae	perennial rhizomatous herb	4-3	G5	S4	Lower montane coniferous forest (serpentine)		No serpentine soils
Astragalus umbraticus	Bald Mountain milk-vetch	Fabaceae	perennial herb	2B-3	G4	S2	Cismontane woodland, Lower montane coniferous forest	sometimes roadside	Yes



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
Bensoniella oregona	bensoniella	Saxifragaceae	perennial herb	1B.1	G3	S2	Bogs and fens, Lower montane coniferous forest (openings), Meadows and seeps	mesic	No, outside elevation range
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	2B.2	G5	S1	Bogs and fens, North Coast coniferous forest (mesic)		No
Carex geyeri	Geyer's sedge	Cyperaceae	perennial rhizomatous herb	4.2	G5	S4	Great Basin scrub, Lower montane coniferous forest		No, outside elevation range
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	2B.2	G5	S2	Meadows and seeps (mesic)		No
Chryso-splenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	4.3	G5?	S3	North Coast coniferous forest, Riparian forest	Streambanks, sometimes seeps, sometimes roadsides	No, outside elevation range
Collomia tracyi	Tracy's collomia	Polemoniaceae	annual herb	4.3	G4	S4	Broadleafed upland forest, Lower montane coniferous forest	rocky, sometimes serpentinite	No
Coptis laciniata	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	4.2	G4?	S3?	Meadows and seeps, North Coast	Mesic	Yes



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
<i>Cornus canadensis</i>	bunchberry	Cornaceae	perennial rhizomatous herb	2B.2	G5	S2	Bogs and fens, Meadows and seeps, North Coast coniferous forest		No
<i>Cypripedium californicum</i>	California lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	G4	S4	Bogs and fens, Lower montane coniferous forest	seeps and streambanks, usually serpentine	No
<i>Cypripedium montanum</i>	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	G4	S4	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest		Yes
<i>Epilobium oreganum</i>	Oregon fireweed	Onagraceae	perennial herb	1B.2	G2	S2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	mesic	No
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	Onagraceae	perennial herb	4-3	G4	S4	Broadleaved upland forest, North Coast coniferous forest	sandy or rocky	No



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
<i>Erythranthe trinitensis</i>	pink-margined monkeyflower	Phrymaceae	annual herb	1B.3	G2	S2	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Often serpentine, often roadsides	No
<i>Erythronium citrinum</i> var. <i>citrinum</i>	lemon-colored fawn lily	Liliaceae	perennial bulbiferous herb	4.3	G4T3T4	S3	Chaparral, Lower montane coniferous forest	usually serpentine	No serpentine
<i>Erythronium oregonum</i>	giant fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S2	Cismontane woodland, Meadows and seeps	sometimes serpentine, rocky, openings	Yes
<i>Erythronium revolutum</i>	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S3	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	No
<i>Eucephalus glabratus</i>	Siskiyou aster	Asteraceae	perennial herb	4.3	G4	S3	Lower montane coniferous forest, Upper montane coniferous forest	rocky openings	No
<i>Eucephalus vialis</i>	wayside aster	Asteraceae	perennial herb	1B.2	G3	S1	Lower montane coniferous forest, Upper montane coniferous forest	gravelly	No, outside elevation range



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
<i>Gilia capitata</i> <i>ssp. pacifica</i>	Pacific gilia	Polemoniaceae	annual herb	1B.2	G5T3	S2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		Yes
<i>Glyceria grandis</i>	American manna grass	Poaceae	perennial rhizomatous herb	2B.3	G5	S3	Bogs and fens, Meadows and seeps, Marshes and swamps (streambanks and lake margins)		No
<i>Tilamna latibracteata</i>	California globe mallow	Malvaceae	perennial herb	1B.2	G2G3	S2	Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks)	Often in burned areas	No
<i>Lewisia cotyledon</i> var. <i>howellii</i>	Howell's lewisia	Montiaceae	perennial herb	3.2	G4T4Q	S2	Broadleaved upland forest, Chaparral, Gismontane woodland, Lower montane coniferous forest	rocky	No
<i>Lilium kelloggii</i>	Kellogg's lily	Liliaceae	perennial bulbiferous herb	4.3	G3	S3	Lower montane coniferous forest, North Coast coniferous forest	Openings, roadsides	Yes



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
<i>Lilium pardalinum</i> ssp. <i>vollmeri</i>	Vollmer's lily	Liliaceae	perennial bulbiferous herb	4-3	G5T4	S3	Bogs and fens, Meadows and seeps (mesic)		No
<i>Lilium rubescens</i>	redwood lily	Liliaceae	perennial bulbiferous herb	4-2	G3	S3	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Sometimes serpentine, sometimes roadsides	No
<i>Listera cordata</i>	heart-leaved twayblade	Orchidaceae	perennial herb	4-2	G5	S4	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		No
<i>Lycopodium clavatum</i>	running-pine	Lycopodiaceae	perennial rhizomatous herb	4-1	G5	S3	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	often edges, openings, and roadsides	No
<i>Micranthes marshallii</i>	Marshall's saxifrage	Saxifragaceae	perennial rhizomatous herb	4-3	G5	S3	Riparian forest	rocky streambanks	No
<i>Microseris borealis</i>	northern microseris	Asteraceae	perennial herb	2B.1	G5	S1	Bogs and fens, Lower montane coniferous forest, Meadows and seeps	mesic	No, outside elevation range



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
Mielichhoferia elongata	elongate copper moss	Mielichhoferiaceae	moss	4.3	G5	S4	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Subalpine coniferous forest	Metamorphic rock, usually acidic, usually vernal mesic, often roadsides, sometimes carbonate	No
Mitella caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	4.2	G5	S4	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	mesic, sometimes roadsides	Yes
Montia howellii	Howell's montia	Montiaceae	annual herb	2B.2	G3G4	S2	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides	No
Packera bolanderi var. bolanderi	seacoast ragwort	Asteraceae	perennial rhizomatous herb	2B.2	G4T4	S2S3	Coastal scrub, North Coast coniferous forest	Sometimes roadsides	No, outside elevation range
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	1B.2	G3	S3	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	No



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
<i>Pityopus californicus</i>	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	4.2	G4G5	S4	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	mesic	No
<i>Platanthera stricta</i>	slender bog-orchid	Orchidaceae	perennial herb	4.2	G5	S3	Lower montane coniferous forest, Meadows and seeps	mesic	No, outside elevation range
<i>Pleuropogon refractus</i>	nodding semaphore grass	Poaceae	perennial rhizomatous herb	4.2	G4	S4	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	Mesic	No
<i>Ptilidium californicum</i>	Pacific fuzz wort	Ptilidiaceae	liverwort	4.3	G4G5	S3S4	Lower montane coniferous forest, Upper montane coniferous forest	Usually epiphytic on trees, fallen and decaying logs, and stumps; rarely on humus over boulders	No, outside elevation range
<i>Ramalina thrausta</i>	angel's hair lichen	Ramalinaceae	fruticose lichen (epiphytic)	2B.1	G5	S2?	North Coast coniferous forest	On dead twigs and other lichens	No, outside elevation range



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	4-3	G5?	S3	North Coast coniferous forest	sometimes roadside	Yes
Rosa gymnocarpa var. serpens	Gasquet rose	Rosaceae	perennial rhizomatous shrub	1B-3	G5-T3T4	S2	Chaparral, Cismontane woodland	Serpentine. Often roadsides, sometimes ridges, streambanks, and openings.	No
Sanguisorba officinalis	great burnet	Rosaceae	perennial rhizomatous herb	2B-2	G5?	S2	Bogs and fens, Broadleaved upland forest, Meadows and seeps, Marshes and swamps, North Coast coniferous forest, Riparian forest	often serpentine	No
Sanicula tracyi	Tracy's sanicle	Apiaceae	perennial herb	4-2	G4	S4	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	openings	Yes
Sedum laxum ssp. flavidum	pale yellow stonecrop	Crassulaceae	perennial herb	4-3	G5-T3Q	S3	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper	Serpentine or volcanic	No serpentine



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	Malvaceae	perennial herb	4.2	G3	S3	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Often in disturbed areas	Yes
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	1B.2	G5T2	S2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	often roadcuts	Yes
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	coast checkerbloom	Malvaceae	perennial herb	1B.2	G5T1	S1	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest		No
<i>Tauschia glauca</i>	glaucous tauschia	Apiaceae	perennial herb	4-3	G4	S4	Lower montane coniferous forest (gravelly, serpentinite)		No serpentine
<i>Thermopsis robusta</i>	robust false lupine	Fabaceae	perennial rhizomatous herb	1B.2	G2	S2	Broadleafed upland forest, North Coast coniferous forest		No
<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	trifoliolate laceflower	Saxifragaceae	perennial rhizomatous herb	3.2	G5T5	S2S3	Lower montane coniferous forest, North Coast coniferous forest	edges, moist shady banks, streambanks	No



Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	Habitat	Micro Habitat	Habitat present in Project Area
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)	4.2	G4	S4	Broadleaved upland forest, North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers	Yes
Vaccinium scoparium	little-leaved huckleberry	Ericaceae	perennial deciduous shrub	2B.2	G5	S3	Subalpine coniferous forest (rocky)		No, outside elevation range



Appendix C



Database Results

