Biological Habitat Assessment

Sordal Commercial Cannabis Cultivation
CEQA Compliance

CONTENTS

1. Summary

This Biological Habitat Assessment was prepared on behalf of Erik Sordal, who is seeking permits for commercial cannabis cultivation under the Humboldt County Commercial Cannabis Land Use Ordinance. This document assesses habitats and potentially occurring special-status animals and identifies potential impacts of cultivation-related activities on biological resources. This assessment also recommends mitigation needed to reduce potential impacts to less-than-significant levels, and it identifies additional surveys needed to adequately evaluate impacts.

The property is in a rural area in Larabee Valley along Highway 36. The area supports a mosaic of mixed coniferous forest, open grasslands, riparian and oak woodlands, and emergent wetlands, which have the potential to support numerous special status animal species (details are provided in Section 4.3 Special Status Animals). Restoration is recommended to compensate for native vegetation removal and grading within Streamside Management Areas (SMAs). Further surveys are recommended to evaluate and mitigate potential impacts to raptors, nesting birds, northern spotted owls, and amphibians (See table in Section 5.3). Additional mitigation measures have been recommended to address potential impacts of noise disturbance. A table summarizing all mitigation measures recommended to reduce biological impacts to less-than-significant levels can be found in Section 5.2.

2. Introduction

2.1 Project Description

Erik Sordal is seeking permitting for commercial cannabis cultivation on parcel APNs: c, 210-054-008, 210-071-001, and 210-062-007 in Larabee Valley along Highway 36. The total acreage of the parcels is approximately 755 acres. The proposed project includes 37,000 square feet of current cultivation on the western parcel (APN 210-062-007). The northeastern parcel (APN 210-054-008) currently contains ~22,000 square feet of pre-existing cultivation on the steep forested slope to be relocated to open grasslands closer to Highway 36. Five acres of new outdoor cultivation is planned in open grasslands on the southern parcel (210-071-001). Restoration is planned for remediation areas where previous cultivation encroached on Streamside Management Areas and sensitive habitat. Three ponds are currently on the northeastern (008) parcel, and two are on- stream. One lined pond occurs on the western (007) parcel, and an additional pond is proposed nearby on the ridge. Water will be sourced from wells on the eastern parcels (008 and 001). The ponds and a stream diversion will supply the cultivation on the western parcel (007).

2.2 Setting

The Sordal Cannabis Cultivation Project is located in Section 23, 24, 25, 26, and 27 Township 1North, Range 4 East, HB&M, Humboldt County, CA on the Larabee USGS. 7.

This site lies within the California Floristic Province, Northwestern California region, and North Coast Ranges sub-region. The project area is 5 miles west of Dinsmore, CA in the Van Duzen River Watershed. The project area is

~265 acres. The property is about 2.4 miles from the Little Van Duzen River. Multiple unnamed creeks run through the property, and wetlands have been mapped on the property. Elevation ranges from approximately 3807 feet to 2640 feet, with very gentle to steep slopes. The aspect varies, but it is primarily east-facing.

2.4 Zoning

The parcel is zoned for agriculture and timber. The General Plan designation is "Agricultural Grazing" and "Timberland." The Combined Zoning is "Agricultural Exclusive" with some areas of "Timber Production Zone."

2.5 Purpose

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

- an evaluation of biological resources on the site
- determinations of whether the project has the potential to significantly impact biological resources
- recommendations of additional surveys needed to adequately assess potential impacts
- recommended mitigations to avoid, minimize, or compensate for any potentially significant impacts

2.6 Qualifications

The Habitat Assessment for this project was conducted by Kelsey McDonald. Kelsey McDonald is a California Native Plant Society (CNPS) Certified Consulting Botanist. Kelsey holds a M.S. in Natural Resources with a concentration in Environmental Science from Humboldt State University. Kelsey has taken relevant courses including Conservation Biology, Ornithology, Ecology, Ecological Restoration, Wildlife Management, River Ecosystem Evaluation and Management, Environmental Impact Assessment, Plant/Animal Interactions, Plant Taxonomy, Field Botany, and Plant Biology. She has over five years of botany, wildlife, and environmental science experience in Northern California, including over three years of experience conducting botanical surveys and evaluating potential impacts in fulfillment of CEQA requirements.

2.7 Terms

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1. 100 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of perennial streams.

2. 50 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of intermittent streams.

3. The width of Streamside Management Areas shall not exceed 200 feet measured as a horizontal distance from the top of bank.

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

3. Methods

3.1 Biological Assessment Area

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

3.2 Database Search

A list of special-status animal species was downloaded from CNDDB for the Larabee Valley 9-quad area. Potential habitats on the parcel and within the Biological Assessment Area (BAA) for species occurring in the in the 9-quad areas were evaluated. The potential for the project to impact each species was evaluated based on the potential for the species to occur in the area of impact and sensitivity of the species to potential loss of habitat, disturbance, or other effects of operations. Surveys and mitigations needed are specified for species that could incur significant impacts. Attachment A contains a vegetation map of showing the CALVEG

(Classification and Assessment with LANDSAT of Visible Ecological Groupings) dominant vegetation alliances for the parcel and surrounding area (U.S. Forest Service 2000), which was used to assess habitat in the surrounding area. Attachment B shows nearby occurrences of special status taxa as mapped in CNDDB.

3.3 Field Surveys

The site was evaluated for potential habitat value to protected, endangered, threatened, rare, and sensitive species by walking around the project area to observe species, habitat types, and quality. Habitat and potential impacts were evaluated during visits to the cultivation site on 3/29/19, 5/1/19, 5/25/19, 7/4/19, 8/14/19. Professional Wetland Scientist Jonathan Foster has also conducted a formal wetland delineation at proposed cultivation areas on the property (**BIO-1**). Floristic surveys have been completed, and a botanical survey report has been prepared (**BIO-2**). Additional biological surveys have been recommended for 2020. Table 5.2 provides a list of surveys and mitigation measures needed to reduce the potential impact of the project on biological resources to less than significant. Attachments A and B provide maps with data from CNDDB and USFS CalVeg used in initial scoping for the project. Photos taken of the project footprint and surrounding habitat can be found in Attachment C. Attachment D provides an explanation of NatureServe rankings. A Northern Spotted Owl Habitat Assessment can be found in Attachment E.

3.4 Trustee and Other Agency Consultation

A California Department of Fish and Wildlife (CDFW) representative visited the site and provided feedback for LSAAs 1600-2018-0318-R1 and 1600-2018-0570-R1.

4. Results

4.1 Existing Conditions

The project contains three parcels that have differing plans for new cultivation, existing cultivation, cultivation relocation, and restoration. Existing conditions are broken down by parcel below. Please see the Restoration and Monitoring Plan for additional details on remediation site conditions and plans. Mitigation measures have been proposed for each potentially significant biological impact of current and planned operations on the property. Relevant mitigation measures for the impacts discussed in this report are listed in parentheses (e.g. BIO-1, BIO-2, etc.), and these mitigation measures can be found in the table of Section 5.1.2 Mitigation for Potentially Significant Impacts.

Southeast Parcel (APN 210-071- 001)

The southeastern parcel contains five acres of proposed outdoor cultivation on <5% grade grasslands. A previous cultivation site on the parcel occurred within the SMA for a class II perennial creek (Site C). Cultivation materials have been removed from this site. The cleared flat is unstable and eroding into the stream. Four 1-acre outdoor cultivation applications have been submitted to lease and grow on the open pasture south of the creek (Site D). Perennial and seasonal wetlands have been delineated in this area, and these sites must be set back 150’ from mapped perennial wetlands and 50’ from seasonal wetlands

according to Humboldt County Streamside Management Areas and Wetlands Ordinance (314-61). A one-acre cultivation application has been submitted to lease a graded opening to the north of the creek (Site L).

Northeast Parcel (APN 210-054-008)

The northeastern parcel currently contains two cultivation areas along the eastern facing slope and three ponds. Current cultivation Site M is located in an area of greater than 15% slope that is accessed by a steep seasonal jeep trail. The 86' x 100' site was first converted for cannabis cultivation around 2012. Serpentine soils and native grasslands occur near Site M. This site is planned to be relocated to the lower meadow with <5% slopes (Proposed Sites A1 and B1). Site M shall be restored by removing all cultivation related materials and planting native trees and grass seed. Site I is located along the main access road running up the forested slope to the western parcel. Site I contains areas of >15% slope, and the 130'x170' site is also planned for relocation to the lower meadow near Highway 36 (Proposed Sites A1 and B1). This site was converted for cannabis use around 2012. A pond located on the forested slope near Sites I and M is on-stream (Site B2). This pond will be removed and restored by planting Douglas fir trees. Pond Site F is mid-slope along the main access road. This pond is not on-stream, and there are no plans for alteration to this site. The largest pond on the property, Site K, is on a class II stream near the proposed relocation sites. The pond has existed since at least the 1990s, as it is visible in all digital aerial imagery of the site, and it was expanded to its current size around 2012. The applicant would like to keep the pond for recreational, aesthetic, and wildlife value, and does not intend to use the pond for cultivation. Work is needed on the pond inlet and outlet, and native habitat enhancement is recommended for the pond. A qualified wetland scientist has examined the Proposed Sites A1 and B1 and mapped streams in the vicinity. All cultivation shall be set back 100' from the stream courses and the on-stream pond. An uncovered potting soil pile was present in the cleared flat near proposed Site A1, and invasive bull thistle and Italian thistle were proliferating in the non-native soil.

Western Parcel (APN 210-062-007)

The western parcel is primarily steep Douglas fir and tanoak forest. The parcel contains current cultivation areas as well as some areas to be remediated. Cultivation Site A2 is located on a knoll along the main access road. This site has had some grading and outdoor cultivation since around 2012-2014, and it was expanded and converted to greenhouses around 2016-2018. Site J, located at the property's peak, has had a small cleared landing and road throughout early historical imagery. The nearby pond (Site G) appears to have been dug in a former log landing area or opening around 2014. A diversion has been permitted under LSAA (#1600-2018- 0570-R1) in the class II stream near the pond with flow restrictions and seasonal limitations. Remediation Site H is a previous cultivation site along an unsuitable seasonal road through steep sloping grasslands. The remaining cultivation materials shall be removed from this site. Site H shall be restored by pulling back fill from the stream course and revegetating bare earth with native grass seed.

Additional pots for outdoor cultivation were scattered along side roads and within the forested area on the parcel, and all cultivation materials and non-native soil shall be removed from these

areas. Additional work is needed on the main access road to the sites to reduce sedimentation to watercourses. Information on the work needed at road points and stream crossings can be found in the LSAA and restoration documents.

4.2 Habitats

4.2.1 Upland Communities

The area is primarily mixed coniferous forest dominated by Douglas fir (*Pseudotsuga menziesii*) and tanoak (*Notholithocarpus densiflorus*) (Rank G3 S3), with large meadows that support many native species and a fringe of high-quality oak woodlands. Most oak woodlands on the property are highly diverse, with black oak (*Quercus kellogii*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Quercus garryana*), and madrone (*Arbutus menziesii*) (G4 S4), with some areas of strong Oregon white oak dominance (G4 S3). Serpentine outcrops also occur on the property, and these areas support a diversity of uncommon native plants that are specially adapted to these conditions. The property provides habitat for diverse songbirds, a nesting red tailed hawk, and a red shouldered hawk that have been observed on the property. A barred owl has also been observed on the property.

4.2.2 Wetland and Riparian Communities

Wetland Ecologist Jonathan Foster has mapped freshwater wetlands on parcels 210-071-001 and 210-054-008. Wetlands shall be avoided and cultivation areas shall be set back by the proper SMA buffers. Restoration is needed at remediation sites C, E, N, and B2, which currently overlap with class II SMAs. Native habitat enhancement is recommended at the pre-existing onstream pond (Site K). Emergent wetlands, riparian habitat, and ponds appear to support a high diversity of native wildlife including sensitive amphibians, songbirds and waterfowl. A red-legged frog was observed in the class II stream near remediation site C. A western pond turtle was observed in the vicinity of Pond Site K. CNDDB submissions have been completed for sensitive species observed on the property. Please see section 4.3 for further discussion of potentially occurring sensitive native wildlife.

Spring boxes have been mapped on the property, and all of the infrastructure for these must be removed, with the exception of the permitted diversion at Site G near the peak of the western (007) parcel. The creek diversion has been permitted with flow restrictions in the LSAA as follows:

POD-5: Maintain existing surface water diversion.
Permittee shall ***bypass 90% of stream flow****.*
Rate of diversion shall be no more than ***3 gallons per minute****.*
Permittee shall implement seasonal diversion minimization from ***May 15 - October 31*** *of each year when* ***no more than 200 gallons per day*** *may be diverted.*
Permittee shall submit Diversion Infrastructure Plan within 60 days of the effective date of this Agreement.

4.3 Special Status Animals

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

4.3.1 Special Status Animals Documented by CNDDB in the Larabee Valley 9-Quad Area

Table 1. Birds

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
Accipiter cooperii	Cooper's hawk	None	None	WL	G5	S4	Yes
Accipiter gentilis	northern goshawk	None	None	SSC	G5	S3	Yes
Aquila chrysaetos	golden eagle	None	None	FP ; WL	G5	S3	Yes
Empidonax traillii	little willow flycatcher	None	Endangered	-	G5	S1S2	Yes
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	G4T4	S3S4	Yes
Icteria virens	yellow-breasted chat	None	None	SSC	G5	S3	Yes
Pandion haliaetus	osprey	None	None	WL	G5	S4	Yes
Setophaga petechia	yellow warbler	None	None	SSC	G5	S3S4	Yes
Strix occidentalis caurina	northern spotted owl	Threatened	Threatened	SSC	G3T3	S2S3	Yes

Table 2. Mammals

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
Arborimus pomo	Sonoma tree vole	None	None	SSC	G3	S3	Yes
Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	G3G4	S2	Yes
Martes caurina humboldtensis	Humboldt marten	None	Endangered	SSC	G5T1	S1	No
Pekania pennanti	fisher - West Coast DPS	Proposed Threatened	Threatened	SSC	G5T2T3Q	S2S3	Yes
Taxidea taxus	American badger	None	None	SSC	G5	S3	Yes

Table 3. Amphibians and Reptiles

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
Ascaphus truei	Pacific tailed frog	None	None	SSC	G4	S3S4	Yes
Rana aurora	northern red-leggedfrog	None	None	SSC	G4	S3	Yes
Rana boylii	foothill yellow-legged frog	None	Candidate Threatened	SSC	G3	S3	Yes
Rhyacotriton variegatus	Southern torrent salamander	None	None	SSC	G3G4	S2S3	Yes
Emys marmorata	Western pond turtle	None	None	SSC	G3G4	S3	Yes

Table 4. Fish

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
Oncorhynchus kisutch	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	G4T2Q	S2?	Yes
Oncorhynchus mykiss irideus	steelhead - northern California DPS	Threatened	None	-	G5T2T3Q	S2S3	Yes
Oncorhynchus mykiss irideus	summer-run steelhead trout	None	Candidate Endangered	SSC	G5T4Q	S2	Yes
Oncorhynchus tshawytscha	chinooksalmon-California coastal ESU	Threatened	None	-	G5	S1	Yes

Table 5. Invertebrates

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

4.3.2 Potential Impacts to Special Status Animals

BIRDS

Potential impacts are evaluated for potentially occurring threatened, endangered, rare and sensitive bird species that have been documented in the surrounding 9-quad area. Other species with potential habitat in the surrounding area have been added to the list for consideration. Raptor surveys and pre-construction nesting bird surveys are recommended (BIO-4, BIO-5).

1. **Cooper's hawk (*Accipiter cooperii*)**
   Special Status: CDFW Watch List; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4
   Family: Accipitridae
   Habitat/Life-history Requirements: Cooper's hawks are common year-round residents in wooded areas of California, and they can be found in urban and suburban areas as well (Cornell Lab). The raptor commonly nests in riparian and lowland habitats throughout much of Humboldt County (Hunter et al. 2005). The medium-sized hawk builds nests made of piles of sticks over two feet wide in tall trees, typically 25-50 feet off the ground (Cornell Lab). Nesting trees include pines, oaks and Douglas firs (Cornell Lab). Dense stands are typically used for nesting and patchy open areas are commonly used for hunting (Zeiner et al. 1988).
   Potential Impact: The area could provide habitat for the Cooper's hawk. The raptor is on the CDFW Watch List. Construction of mixed-light cultivation areas is planned for the property. Pre-construction raptor scans are recommended prior to any construction or vegetation removal during the breeding season (**BIO-4**).

2. **Northern goshawk (*Accipiter gentilis*)**
   Special Status: CDFW Species of Special Concern; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S3
   Family: Accipitridae
   Habitat/Life-history Requirements: The northern goshawk inhabits mature coniferous and mixed-coniferous forests that provide suitable nesting structures and adequate prey for this large hawk (Shuford and Gardali 2008). The northern goshawk builds nests that are 3-4 feet long (Cornell Lab) in stands of large trees with high canopy closure and an open understory (Shuford and Gardali 2008). Northern goshawks are known to breed in the Klamath and Inner North Coast Ranges (Hunter et al. 2005). They have also been spotted in the southwestern area of the county (Hunter et al. 2005). The northern goshawk is sensitive to disturbance, and aggressive toward intruders near their nest. They typically nest in wild forested areas, away from human-caused disturbances (Cornell Lab).
   Status within the Project Area: No habitat exists within the project area. However potential habitat exists adjacent to the project. Construction of mixed-light cultivation areas is planned for the property. Pre-construction raptor scans are recommended prior to any construction or vegetation removal during the breeding season **(BIO-4).**

3. **Grasshopper sparrow (*Ammodramus savannarum*)**
   Special Status: CDFW Species of Special Concern; NatureServe Ranks: G5, S3
   Family: Passerellidae

Habitat/Life-history Requirements: Although widely distributed, grasshopper sparrow populations have steeply declined with the loss and degradation of grassland habitat. Typically beginning in May, the ground-nesting sparrow builds a domed nest with a side entrance in tall overhanging grasses (Vickery 1996). Disturbance to grassland habitat during the breeding season, such as mowing, intensive grazing, or development, poses a major threat to grasshopper sparrow populations (Vickery 1996).
Potential Impact: The grasshopper sparrow was added to the CNDDB species list based on potential habitat in the area of impact. No tree removal or removal of riparian brush is proposed on the parcel, which limits the potential impact to many nesting birds. However, the ground-disturbance in open grasslands has the potential to impact ground-nesting species like the grasshopper sparrow. A pre-construction nesting bird survey is recommended prior to any disturbance during the breeding season (Feb 1 - Aug 31), with special focus on the grasshopper sparrow and other ground-nesting birds (**BIO-5**).

4. **Golden eagle (*Aquila chrysaetos*)**
Special Status: CDFW Fully Protected and Watch List; Protected under Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act; NatureServe Ranks: G5, S3
Family: Accipitridae
Habitat/Life-history Requirements: The golden eagle is an uncommon migrant and year-round resident (Zeiner et al. 1988). The golden eagle typically utilizes open habitats away from human environments (Sibley 2003). Small mammals are the primary prey for the golden eagle (Sibley 2003). One of the largest raptors in North America, the golden eagle builds massive nests, about 6 feet across (Cornell Lab). Nests are typically located on cliffs, but may also be found on trees, man-made structures, or on the ground (Cornell Lab).
Potential Impact: The area could provide habitat for the golden eagle. Construction of mixed-light cultivation areas is planned for the property. Pre-construction raptor scans are recommended prior to any construction or vegetation removal during the breeding season **(BIO-4).**

5. **Willow flycatcher (*Empidonax traillii)***
Special Status: State Endangered, NatureServe Ranks:G5 S1S2
Family: Tyrannidae
Habitat/Life-history Requirements: The willow flycatcher is a rare to locally uncommon summer resident that breeds in the Cascades and the Sierra Nevada (Craig and Williams 1998). The little willow flycatcher breeds in wet meadows and montane riparian habitats at 2,000-8,000 feet elevation (Craig and Williams 1998). The riparian songbird requires dense willow thickets for nesting and roosting (Bombay et al. 2003, Zeiner et al. 1988). Destruction of riparian vegetation, modification of hydrology, and nest parasitism by brown headed cowbirds are the main threats to this species (Bombay et al. 2003).
Potential Impact: No habitat exists within the project area. However potential habitat exists adjacent to the project. The willow flycatcher has the potential to occur in brushy riparian areas of the property. No sightings have been recorded in the area, the nearest recorded observation was over 5 miles from the project area as per CNDDB.
Mitigations: Current plans appear to show construction of cultivation areas in open pasture, but riparian brush habitat may be subject to noise disturbance nearby. Pre-construction

nesting-bird surveys are recommended prior to any construction or vegetation removal during the breeding season **(BIO-5).**

6. **American peregrine falcon (*Falco peregrinus anatum*)**
   Special Status: Federally Delisted, State Delisted, CDFW Fully Protected; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G4T4, S3S4
   Family: Falconidae
   Habitat/Life-history Requirements: The formerly federally endangered American peregrine falcon was delisted in 1999 due to recovery (USFWS ECOS). The American peregrine falcon is an uncommon year-round resident and migrant in California (Zeiner et al. 1988). Peregrine falcons typically use cliffs and ledges near bodies of water for cover and nesting areas, but they may also nest on buildings or bridges in the city (Sibley 2003, Cornell Lab). Peregrine falcons may breed in woodland, forest, or coastal habitat (Zeiner et al. 1988). Riparian and wetland areas are important habitat yearlong (Zeiner et al. 1988).
   Potential Impact: Peregrine falcons may breed in a wide variety of habitats, and they have the potential to nest in the area on suitable ledges or other structures. No likely nesting cliffs or ledges were observed in aerial photos, but they have the potential to exist in the area. Construction of mixed-light cultivation areas is planned for the property. Pre-construction raptor scans are recommended prior to any construction or vegetation removal during the breeding season **(BIO-4).**

7. **Yellow-breasted chat (*Icteria virens*)**
   Special Status: CDFW Species of Special Concern; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S3
   Family: Parulidae
   Habitat/Life-history Requirements: The yellow-breasted chat is a CDFW Species of Special Concern. This songbird nests in dense riparian brush. The distribution of the yellow-breasted chat in Humboldt County largely follows the riparian habitat surrounding the major rivers, especially the Eel, Trinity, Klamath, and Mad Rivers (Hunter et al. 2005). The yellow breasted chat is relatively numerous in Humboldt County, whereas much of California has seen a decline in population (Shuford and Gardali 2008). Protecting riparian areas, including shrub layers, is important for the conservation of this species.
   Potential Impact: Current plans appear to show construction of cultivation areas in open pasture, but riparian brush habitat may be subject to disturbance nearby. Pre-construction nesting-bird surveys are recommended prior to any construction or vegetation removal during the breeding season **(BIO-5).**

8. **Osprey (*Pandion haliaetus*)**
   Special Status: CDFW Watch List; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4
   Family: Accipitridae
   Habitat/Life-history Requirements: Ospreys primarily prey on fish and they require large fish-bearing waters for hunting (Zeiner et al. 1988). Ospreys are widespread along the Trinity, Klamath, Van Duzen, Eel, and South Fork Eel Rivers in Humboldt County (Harris 2005). Ospreys typically make large nests in tall snags or trees high off the ground in open forest habitats (Zeiner et al.).

Potential Impact: Osprey may occur in the BAA, which has fish bearing waters and large trees. Construction of mixed-light cultivation is planned for the property. Pre-construction raptor scans are recommended prior to any construction or vegetation removal during the breeding season **(BIO-4).**

9. **Yellow Warbler (*Setophaga petechial*)**
   Special Status: CDFW Species of Special Concern; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S3S4
   Family: Parulidae
   Habitat/Life-history Requirements: The yellow warbler primarily nests in deciduous riparian forest with a thick brush understory (Zeiner et al. 1988, Lowther et al. 1999). Yellow warblers are often associated with riparian willow thickets, but may also be found in thick brushy understories of coniferous forests (Zeiner et al. 1988), or hedgerows in human-influenced environments (Lowther et al. 1999). The yellow warbler primarily feeds on insects and other arthropods (Lowther et al. 1999). The songbird is threatened by removal of riparian habitat and brood parasitism by the brown-headed cowbird (Lowther et al. 1999).
   Potential Impact: The yellow warbler could occur in dense riparian brush in the surrounding BAA, but is unlikely to breed in the project area. Current plans appear to show construction of cultivation areas in open pasture, but riparian brush habitat may be subject to disturbance nearby. Pre-construction nesting-bird surveys are recommended prior to any construction or vegetation removal during the breeding season **(BIO-5).**

10. **Northern spotted owl (*Strix occidentalis caurina)***
   Special Status: Federally Threatened, California Threatened, CDFW Species of Special Concern, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G3T3, S2S3.
   Family: Strigidae
   Habitat/Life-history Requirements: Northern spotted owls typically nest or roost in multi-layered, mature coniferous forest with high canopy closure, large overstory trees, and broken-topped trees or other nesting platforms (USFWS 2012). Confirmed breeding areas are widespread throughout Humboldt County (Hunter et al. 2005). Northern spotted owls may use a broad range of habitats for foraging. Their favored prey, the dusky-footed woodrat (*Neotoma fuscipes*), typically inhabits the forest edge (Harris 2005).
   Potential Impact: UFWS protocol surveys are needed for any activity that may modify nesting, roosting, or foraging habitats for northern spotted owls (USFWS 2012). The new construction footprint is typed as non-habitat for northern spotted owls, and no trees are to be removed. However, northern spotted owls have the potential to occur in forested areas of the property and operations might be a source of disturbance to potential breeding and foraging habitat. Two years of protocol-level surveys should be completed to determine if NSO are present in the area (**BIO-6**).

Mammals

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

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

Special Status: CDFW Species of Special Concern, NatureServe Ranks: G3, S3
Family: Muridae
Habitat/Life-history Requirements: The Sonoma tree vole occurs along the North Coast in in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats (Zeiner et al. 1988). The small rodent specializes in feeding on Douglas-fir and grand fir needles, and typically constructs nests in Douglas-fir trees (Zeiner et al. 1988).
Potential Impact: The arboreal rodent is unlikely to occur in the project area. The Sonoma tree vole may occur in the surrounding BAA. The nearest occurrence mapped in CNDDB is 2 miles from the project. The project is not likely to affect the Sonoma tree vole.

2. **Townsend's big-eared bat (*Corynorhinus townsendii)***
Special Status: CDFW Species of Special Concern, NatureServe Ranks: G3G4, S2.
Family: Vespertilionidae
Habitat/Life-history Requirements: Although it can be found in a wide range of habitats, the bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting (Zeiner et al. 1988). Townsend's big-eared bat is highly sensitive to disturbance of roosting sites (Zeiner et al. 1988).
Potential Impact: If any unused structures or caves occur in the area, they might provide roosting habitat. The nearest occurrence mapped in CNDDB is ~10 miles from the project. The project should incorporate measures to reduce disturbance from generator noise and lights for bats and other sensitive wildlife.

3. **Humboldt marten (*Martes caurina humboldtensis)***
Special Status: California Endangered, CDFW Species of Special Concern, NatureServe Ranks: G5T1, S1.
Family: Mustelidae
Habitat/Life-history Requirements: Martens use structurally complex conifer forest with large trees and low human disturbance (Zeiner et al. 1988). Martens require old-growth conifers and snags with cavities for denning and nesting (Zeiner et al. 1988). Martens are currently known to inhabit the northern part of Humboldt County near Prairie Creek Redwood State Park and the Klamath Mountains. Historically, martens occupied a great deal of Humboldt and Mendocino Counties.
Potential Impact: The Humboldt marten is not likely extant in southern Humboldt County. No impacts to the Humboldt marten are expected.

4. Fisher - West Coast DPS (*Pekania pennanti*)
Special Status: State Threatened, Species of Special Concern; NatureServe Ranks: G5T2T3Q, S2S3
Family: Mustelidae
Habitat/Life-history Requirements: The fisher uses large expanses of forest with moderate to high canopy closure, and will avoid open forest, grasslands, and wetlands (USFWS 2014). Fishers use cavities in live trees, snags and down logs for reproductive dens (USFWS 2014). Structural complexity is a critical element of fisher habitat, necessary to provide cover for resting and denning, and habitat for prey (USFWS 2014).
Potential Impact: The fisher could occur in forested areas. No new construction is planned in the forested area, and the amount of cultivation within the forested area will be reduced

with cultivation on the 008 parcel being relocated from the forested slope to the lower flat. No significant impacts to the fisher are expected. The nearest occurrence is mapped less than one mile away.

5. **American badger (*Taxidea taxus*)**
   Special Status: No state or federal listing, Species of Special Concern; NatureServe Ranks: G5 S3
   Family: Mustelidae
   Habitat/Life-history Requirements: The American badger is an uncommon resident that can be found in open habitats with friable soil throughout the majority of California (Zeiner et al. 1988). The badger digs burrows for cover and reproductive dens (Zeiner et al. 1988). The carnivore preys on a wide variety of rodents as well as reptiles, insects, birds, and any other available prey (Zeiner et al. 1988). Although they are fairly tolerant of humans, they can be affected by the use of poison and indiscriminate trapping (Zeiner et al. 1988).
   Potential Impact: American badgers could occur in the area, which has been mapped in BIOS as high-quality potential habitat for American badgers. Pre-construction surveys are recommended (**BIO-3**).

Amphibians and Reptiles

The area contains wetland habitat and is known to support sensitive amphibians and reptiles. Potential impacts are considered for species that have been documented in the 9-quad area.

1. **Pacific tailed frog (*Ascaphus truei*)**
   Special Status: CDFW Species of Special Concern; NatureServe Ranks: G4, S3S4
   Family: Ascaphidae
   Habitat/Life-history Requirements: The Pacific tailed frog requires permanent, cool streams in conifer-dominated habitats including redwood, Douglas fir, mixed-conifer, and ponderosa pine habitats (Zeiner et al. 1988). They prefer turbulent waters with rocky substrates in steep-walled valleys with dense vegetation, where the water temperature remains low (Zeiner et al. 1988). Increased water temperature and siltation from logging pose threats to the amphibian (Zeiner et al. 1988). Additionally, invasive American bullfrogs may pose a threat to native amphibians through competition, predation, and spread of disease.
   Potential Impact: Steep, densely vegetated steams in the surrounding area could provide habitat for the Pacific tailed frog. The nearest occurrence mapped in CNDDB is 1 mile from the project. The planned project footprint should be evaluated to ensure that no wetland habitats are in the area of impact, and that operations are set back by the proper SMA buffer distances **(BIO-1).** If construction on-site has the potential to impact wetland habitats, wetland delineation and additional mitigation measures may be needed.

2. **Northern red-legged frog (*Rana aurora)***
   Special Status: CDFW Species of Special Concern; NatureServe Ranks: G4, S3
   Family: Ranidae
   Habitat/Life-history Requirements: The northern red-legged frog inhabits low-elevation wetlands of the North Coast Ranges from Del Norte to Mendocino Counties (Zeiner et al.

1988). The northern red-legged frog requires permanent or nearly permanent pools in streams, marshes, or ponds (Zeiner et al. 1988).
Potential Impact: Areas of permanent or near-permanent water in the area provide habitat for the northern red-legged frog. A northern red-legged frog was observed in the creek running though the 001 parcel. Operations shall be set back by the proper SMA buffer distances **(BIO-1)** and SMAs shall be restored.

3. **Foothill yellow-legged frog (*Rana boylii*)**
Special Status: State Candidate for listing as Threatened; CDFW Species of Special Concern; NatureServe Ranks: G3, S3
Family: Ranidae
Habitat/Life-history Requirements: The foothill yellow legged frog primarily inhabits rocky streams or rivers with permanent water, and may be found in many habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows (Zeiner et al. 1988). Breeding primarily occurs in low-velocity, shallow stream habitats with high habitat heterogeneity (Yarnell 2013). Foothill yellow-legged frogs may also travel substantial distances overland and use seasonally wet areas (Bourque 2008). The invasive American bullfrog and introduced fish species contribute to the reduction of foothill yellow legged frog populations (Zeiner et al. 1988).
Potential Impact: Riparian areas are likely to provide habitat for the foothill yellow-legged frog. Occurrence have been mapped in CNDDB on the property in the lower creek. Multiple occurrences have been documented in this area. The Little Van Duzen River, which runs through the BAA, provides high-quality breeding habitat, and the tributary running along the edge of the property may have breeding potential. Foothill yellow legged frog surveys are recommended prior to any work in wetted channels (such as culvert replacements). The planned project footprint should be evaluated to ensure that no wetland habitats are in the area of impact, and that operations are set back by the proper SMA buffer distances.

4. **Southern torrent salamander (*Rhyacotriton variegatus*)**
Special Status: CDFW Species of Special Concern; NatureServe Ranks: G3G4, S2S3
Family: Rhyacotritonidae
Habitat/Life-history Requirements: The southern torrent salamander primarily occupies cold, shaded permanent streams and seeps in redwood, Douglas fir, mixed conifer, montane riparian and montane hardwood-conifer habitats in Sonoma, Mendocino, Humboldt and Lake Counties (Zeiner et al. 1988). The newt requires rapid, permanent streams with rocky substrate for breeding and larval development (Zeiner et al. 1988).
Potential Impact: Permanent, rocky steams in the surrounding area could provide habitat for the southern torrent salamander. The nearest occurrence mapped in CNDDB is 1 mile from the project. The planned project footprint should be evaluated to ensure that no wetland habitats are in the area of impact, and that operations are set back by the proper SMA buffer distances (**BIO-1**). The project should minimize potential impacts to amphibians by following construction BMPs.

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

Special Status: CDFW Species of Special Concern; NatureServe Ranks: G3G4, S3
Family: Emydidae
Habitat/Life-history Requirements: The western pond turtle is associated with permanent or nearly permanent water in ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams (Ziener et al. 1988). Invasive American bullfrogs prey upon hatchlings and juveniles (Zeiner et al. 1988).
Potential Impact: The area is likely to provide habitat for the western pond turtle. The western pond turtle has been observed on the property. The planned project footprint should be evaluated to ensure that no wetland habitats are in the area of impact, and that operations are set back by the proper SMA buffer distances (**BIO-1**). The project should minimize potential impacts to amphibians by following construction BMPs.

Fish

1. **Coho salmon - southern Oregon / northern California ESU (*Oncorhynchus kisutch*)**
   Special Status: Federally Threatened, State Threatened; NatureServe Ranks: G4T2Q,S2?
   Family: Salmonidae
   Habitat/Life-history Requirements: Coho salmon are a federally and state-listed anadromous fish that occupy low gradient rivers and coastal streams (CDFW). The anadromous salmonids return to these watersheds in the fall and early winter to spawn in gravel substrate, after the first major rains (Moyle et al. 2008). Coho require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juveniles are most abundant in well-shaded, deep pools with many structural elements that provide cover (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages. The southern Oregon/northern California ESU range includes watersheds from Cape Blanco in Oregon south to the Mattole River (Moyle et al. 2008).
   Potential Impact: The Van Duzen River and its tributaries provide habitat for the anadromous salmonid. The project should minimize potential impacts to aquatic species by following construction BMPs and observing SMA buffer distances.

2. **Steelhead - northern California DPS (*Oncorhynchus mykiss irideus*)**
   Special Status: Federally Threatened; NatureServe Ranks: G5T2T3Q, S2S3
   Family: Salmonidae
   Habitat/Life-history Requirements: Steelhead are anadromous rainbow trout that migrate to the ocean as juveniles and return to freshwater habitats to spawn. The Northern California Distinct Population Segment (DPS) ranges from Redwood Creek to just south of the Gualala River, and includes the Eel River watershed (Moyle et al. 2008). Salmonids, including steelhead, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment. Steelhead may swim upstream in during the winter to spawn in stream segments that are not accessible to other salmonids during low flows (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.
   Potential Impact: The Van Duzen River and its tributaries provide habitat for the anadromous salmonid. The project should minimize potential impacts to aquatic species by following construction BMPs and observing SMA buffer distances.
3. **Summer-run steelhead trout (*Oncorhynchus mykiss irideus*)**

Special Status: State Candidate Endangered**;** CDFW Species of Special Concern; NatureServe Ranks: G5T4Q, S2
Family: Salmonidae
Habitat/Life-history Requirements: Summer-run steelhead trout remain in freshwater habitats until they reach maturity (Moyle et al. 2008). These steelhead have similar requirements during their juvenile stages, with an additional need for freshwater habitats to remain suitable throughout the summer (Moyle et al. 2008). Summer steelhead are sensitive to human disturbance and typically are only found in the most remote areas of the watersheds (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.
Potential Impact: The Van Duzen River and its tributaries provide habitat for the anadromous salmonid. The project should minimize potential impacts to aquatic species by following construction BMPs and observing SMA buffer distances.

4. **Chinook salmon - California coastal ESU (*Oncorhynchus tshawytscha*)**
Special Status: Federally Threatened; NatureServe Ranks: G5, S1
Family: Salmonidae
Habitat/Life-history Requirements: The Federally Threatened Chinook salmon is the largest Pacific salmonid (Moyle et al. 2008). The California Coast Evolutionary Significant Unit (ESU) is composed of Chinook spawning in watersheds ranging from Redwood Creek south to the Russian River (Moyle et al. 2008). The anadromous salmonids return to these watersheds in the fall to spawn, after the first major rains (Moyle et al. 2008). Chinook, like other salmonids, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juvenile chinook may inhabit estuaries for an extended period (Moyle et al. 2008). Chinook are particularly sensitive to temperature and water quality, and require larger cobble and coarse gravel substrate for spawning compared to other salmonids (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.
Potential Impact: The Van Duzen River and its tributaries provide habitat for the anadromous salmonid. The project should minimize potential impacts to aquatic species by following construction BMPs and observing SMA buffer distances.

Invertebrates

1. **Obscure bumble bee (*Bombus caliginosus*)**
Special Status: CDFW Special Animals List; NatureServe Ranks: G4?, S1S2
Family: Apidae
Habitat/Life-history Requirements: The obscure bumble bee occupies open grassy coastal prairies and Coast Range meadows (IUCN). This long-tongued species may pollinate flowers with elongated corollas, such as Keckiella spp. (IUCN). The obscure bumblebee does not fare well in agricultural or urban/suburban environments, where it is often outcompeted by more common bumblebees (NatureServe 2017). The obscure bumblebee has declined in the San Francisco Bay area, and may be threatened by habitat loss from development (NatureServe 2017).
Potential Impact: No occurrences are mapped nearby, but the area may provide habitat. The property has the potential to support many native pollinators, and the project should take measures to minimize potential impacts.

2. **Western bumble bee (*Bombus occidentalis*)**
   Special Status: State Candidate Endangered; NatureServe Ranks: G2G3, S1
   Family: Apidae
   Habitat/Life-history Requirements: The western bumble bee is a generalist short-tongued forager that may be found in open habitats such as grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows (IUCN). Like many bumble bees, the western bumble bee nests underground in abandoned rodent holes (IUCN). The western bumble bee is threatened by disease, habitat loss and degradation, and insecticides.
   Potential Impact: An occurrence mapped in CNDDB is 5 miles away. The property has the potential to support many native pollinators, and the project should take measures to minimize potential impacts.

4.4 Wildlife Movement and Connectivity

Riparian areas may serve as corridors for wildlife movement, and forested areas adjacent to major rivers have increased value to wildlife. It is important to maintain native vegetation communities around riparian areas that may provide cover, forage, and other value to wildlife. Any abandoned sites must be restored with native riparian vegetation to mitigate impacts to riparian habitat connectivity. Please see the Restoration, Invasive Species Management, and Monitoring Plan for details on stream and riparian habitat restoration. Any other remaining debris within SMAs should be removed or stored in a shed. Additionally, no plastic bird/deer netting shall be used in cultivation because netting may become an entanglement hazard if it becomes litter in the natural environment, as stated in LSAAs.

5. Conclusions

5.1 Summary of Potential Impacts and Mitigations

Restoration is needed to mitigate for the reduction and degradation of riparian habitat as well as for upland sites to be relocated. The applicant must implement proper winterization measures by seeding all bare areas with native grass and mulching prior to November 15 of each year. Mitigation measures have been recommended to reduce potential impacts to sensitive species and wildlife movement to less-than-significant levels. Surveys are recommended for potentially occurring northern spotted owls, nesting birds, amphibians, and the western pond turtle. If special status species are detected, appropriate protective buffers or other mitigation measures will be established in consultation with CDFW. A detailed write-up of the potential impact to the Northern Spotted Owl with habitat mapping can be found in Attachment E. All additional surveys and mitigation measures recommended to reduce impacts to less-than-significant levels are listed in the table below (5.2).

Table 6. Recommended Biological Surveys and Mitigation Measures

Number	Survey/Mitigation	Description	Timing
BIO-1	Wetland Delineation and SMA Setbacks	A wetland delineation has been completed and all sites will be set back according to appropriate SMA buffer distances.	2019
BIO-2	Floristic Survey	Complete floristic surveys based on the Protocol for Surveying and Evaluating Impacts to Special Status native Plant Populations and Natural Communities (CDFW 2018).	Seasonally appropriate surveys were completed in 2019.
BIO-3	Raptor Scan	The area will be surveyed for nesting/roosting raptors by scanning the property and surrounding area from a prominent location.	Two three-hour surveys will occur during the early/peak breeding season, March-June. Surveys will occur prior to any additional construction or clearing native vegetation between Feb 1 and Aug 31.
BIO-4	Nesting Bird Survey	The footprint of the project will be searched for nesting birds prior to any vegetation removal.	Surveys will occur prior to any additional clearing native vegetation between Feb 1 and Aug 31.
BIO-5	Northern Spotted Owl (NSO) Surveys	USFWS Northern Spotted Owl Protocol surveys (2012). See Attached NSO Maps.	March-August, 6 visits/year 2019-2020.
BIO-6	Foothill Yellow Legged Frog (FYLF) Visual Encounter Survey	An individual qualified to identify FYLF adults, tadpoles, and eggs shall walk at least 100 feet upstream and downstream of any crossings while visually scanning for FYLF and other amphibians. Any amphibians encountered shall be identified to species level and documented.	Surveys shall occur within a week of work beginning on any stream crossings. If FYLF are encountered, CDFW will be consulted for further instructions.
BIO-7	American Bullfrog Survey	Ponds that are not completely drawn down by the end of the dry season must be surveyed for invasive American Bullfrogs	Annually, please see CDFW bullfrog eradication guidance attached to LSAAs
BIO-8	Restoration, Invasive Plant Removal, and Monitoring	Sites that overlap the SMAs (Site C, E, N, B2) and upland remediation areas shall be restored by planting native vegetation and removing invasive plants and unused fencing according to the Restoration and Monitoring Plan.	Restoration, invasive plant removal, and monitoring shall occur 2020-2025.

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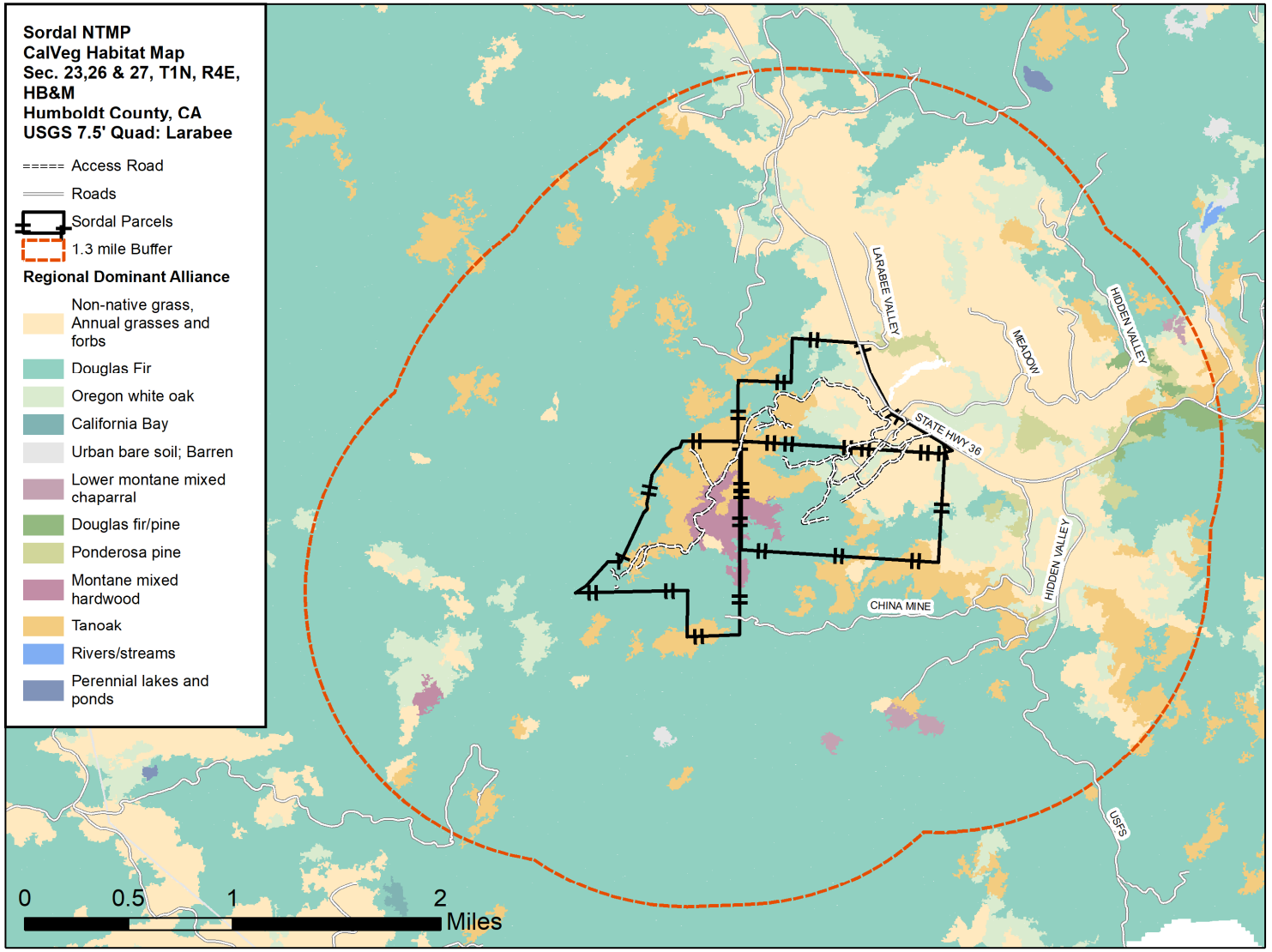
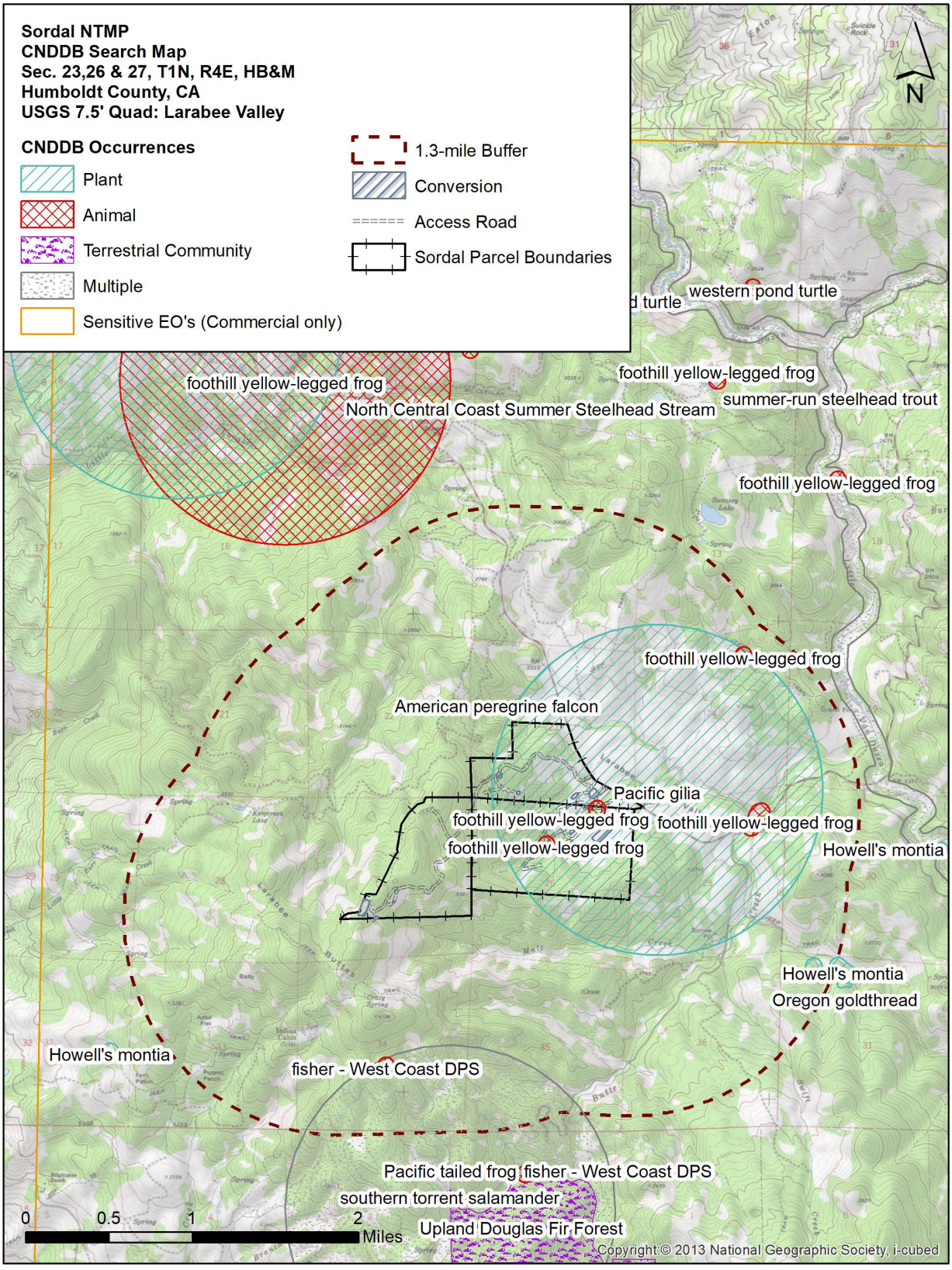
Attachment A. CALVEG Vegetation Alliance Map of Surrounding Area



Attachment B. CNDDB Special Status Taxa Search Map



Attachment D. Rank Definitions

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

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

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

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

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

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

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

Infraspecific Taxon Conservation Status Ranks

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

Subnational (S) Conservation Status Ranks

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

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

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

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

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

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

Rank Qualifiers

? **Inexact Numeric Rank** – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status

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

Attachment E. NSO Habitat Assessment