

Biological Assessment Report

Humboldt County APN 211-283-007

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January 2020



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I. Summary of Findings and Conclusions

This Biological Report reviews the proposed project at Humboldt County APN 211-283-007 to determine potential impacts on special status plants, sensitive natural communities, and wildlife species currently listed or proposed for listing. See Table 1 for a list of reviewed wildlife species, and Table 3 for a list of reviewed plant species.

Habitat for listed or sensitive wildlife species was identified in the vicinity of the project for northern spotted owl (*Strix occidentalis caurina*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), fisher (*Pekania pennanti*), Sonoma tree vole (*Arborimus pomo*), Western pond turtle (*Actinemys marmorata*) and foothill yellow-legged frog (*Rana boylei*). We have determined that the project and operations will have less than significant impacts if Management Recommendations are adhered to.

No special status plant species or sensitive natural communities were found within the project area. We have determined that there will be no impacts to special status plant species or sensitive natural communities. A wetland delineation of the project area is needed, and all resulting wetland boundaries should be buffered from development under the setbacks outlined in the California State Water Resources Control Board (SWRCB) *General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Dischargers of Waste Associated with Cannabis Cultivation Activities* (SWRCB 2017).

II. Introduction

The purpose of this Biological Report is to review the project (described below) in sufficient detail to determine existing or potential impacts to wildlife species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), or designated as sensitive by the California Department of Fish and Wildlife (CDFW); these species are hereinafter referred to as special status species (Table 1). Wildlife species with potential habitat present, or whose presence was not confirmed but potentially occur in the general area are found in Table 4. A biological assessment of the project area and the surrounding habitat was conducted to evaluate any potential habitat for special status animal or other environmental issues, and to describe any terrestrial and aquatic animals occurring in and around the project areas.

Additionally, this report reviews the project described below in sufficient detail to determine potential impacts to any plant species that are listed, candidates for listing or proposed for listing under the ESA, CESA, and the California Native Plant Protection Act (NPPA) and or meet the definition of rare, endangered or special status under the California Environmental Quality Act (CEQA), hereinafter referred to as special status plants. Furthermore, this report reviews potential impacts to sensitive natural communities, as defined by the California Department of

Fish and Wildlife (CDFW). We conducted botanical surveys to determine the presence of special status species or sensitive natural communities within the proposed project areas. Survey findings are useful in assessing the potential for significant negative impacts on botanical resources and are critical in mitigating those impacts to a less than significant level. Special status plant species with the potential to occur in the project area are listed in Table 3.

This biological assessment evaluated the project area (described below) plus an approximately 200-foot buffer, referred to throughout this report as the Survey Area.

III. Background and Project Understanding

Project Location

The project parcel APN 211-283-007 is located approximately 4.7 air miles east of US Highway 101 in the unincorporated community of McCann, in Humboldt County, California. The legal description is T01S, R03E SEC 33 and T02S, R03E SEC 4, HB&M; USGS Myers Flat 7.5' Quadrangle (Figure 1). The site address is 337 W. McCann Road, McCann, California 95569.

Project Description

Black Bear Farms LLC is in the process of applying for a commercial cannabis cultivation permit under Humboldt County's Commercial Cannabis Land Use Ordinance "Ordinance 2.0" (CCLUO 2.0) on the project parcel, APN 211-283-007. This parcel is approximately 182 acres in size, with a portion zoned as TPZ. The proposed development includes a total of eight (8) Retirement, Remediation and Relocation (RRR) sites for a total of 183,560 square feet of outdoor cultivation.

The entire proposed project is outdoor and is proposed to be planted directly in native soils. Two outdoor cultivation methods are proposed. A total of 163,560 square feet (out of 183,560 square feet) will be full-sun outdoor, and the remaining 20,000 square feet will be light-deprivation method, using temporary hoop houses (Photo 1). Only the light-deprivation hoop houses are proposed to have fans (see Appendix F).

10,000 square feet of outdoor cultivation in temporary hoop houses already exists on the parcel, approved through application #10676 under Humboldt County's Commercial Medical Marijuana Land Use, "Ordinance 1.0" (Photo 2). A residence is located on-site (Photo 3).

The only supplemental lighting used will be in the nursery which will be equipped with automated black-out opaque tarps pre-dusk and post-dawn to prevent light from escaping, ensuring that habitat is protected and Dark Sky Standards are met. The Lead Cultivator would be responsible for ensuring the function of the automated greenhouses. This project will therefore not cause nighttime light pollution. Construction of the project will use only minimal heavy equipment and may not be needed at all as the site is already very flat, therefore, there will be little increase in noise during the construction phase. The fans used in the deprivation hoop houses noise has been analyzed by North Point engineering. The results of this analysis conclude that "The

proposed noise sources from the project are not expected to increase onsite ambient noise levels by greater than 3 dBS at any of the property lines. Proposed noise sources are not expected to exceed 50 dBS at any treeline or habitat line or 60 dBS at any property line” (Appendix F). Noise in general is less than 36 dBA at the edge of forested or riparian habitat (Figure _)

Water for domestic use is supplied by two springs. Water for cannabis irrigation will be supplied by rainwater catchment and storage and supplemented by a permitted groundwater well; no spring or surface water will be used.

Power for residential and cultivation use provided by Pacific Gas and Electric (PG&E); as per CCLUO 2.0, use of generators is prohibited.

Please see Engineering Plot Plans (Appendix D), Cultivation and Operations Manual (Appendix E), and Noise Source Assessment and Mitigation Plan (Appendix F) for project details.

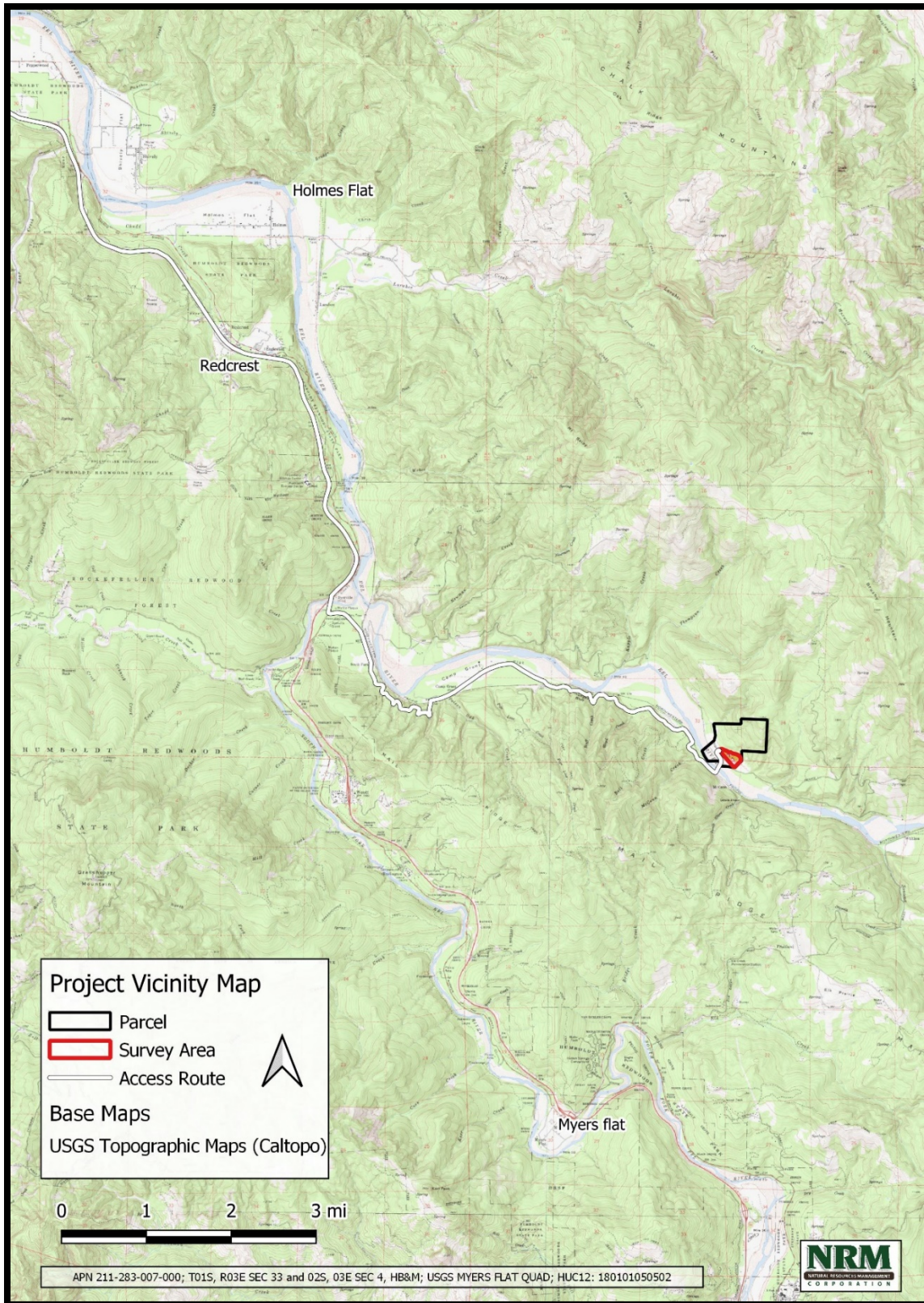


Figure 1. Vicinity Map for Project Area

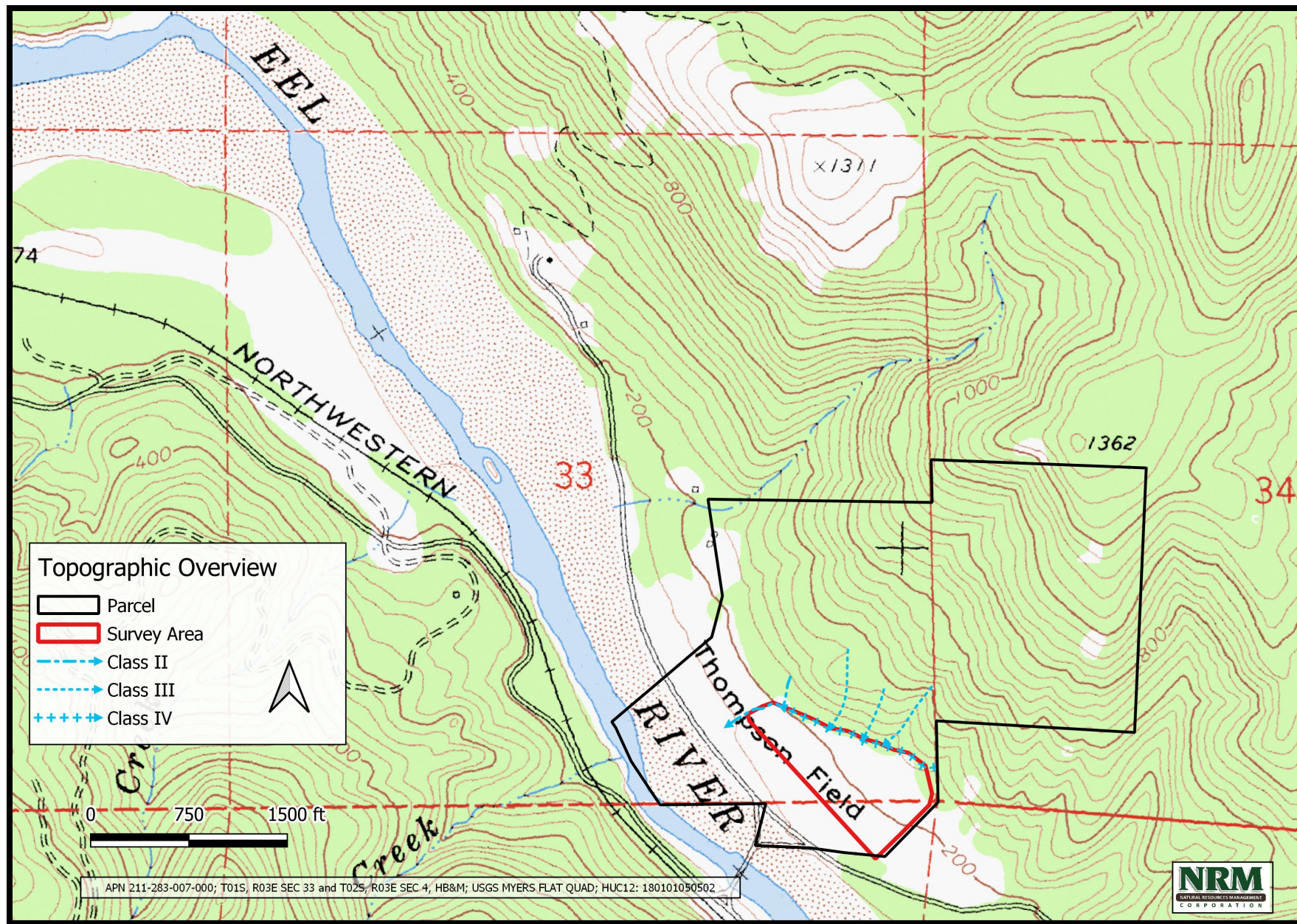


Figure 2. Topographic Overview Map

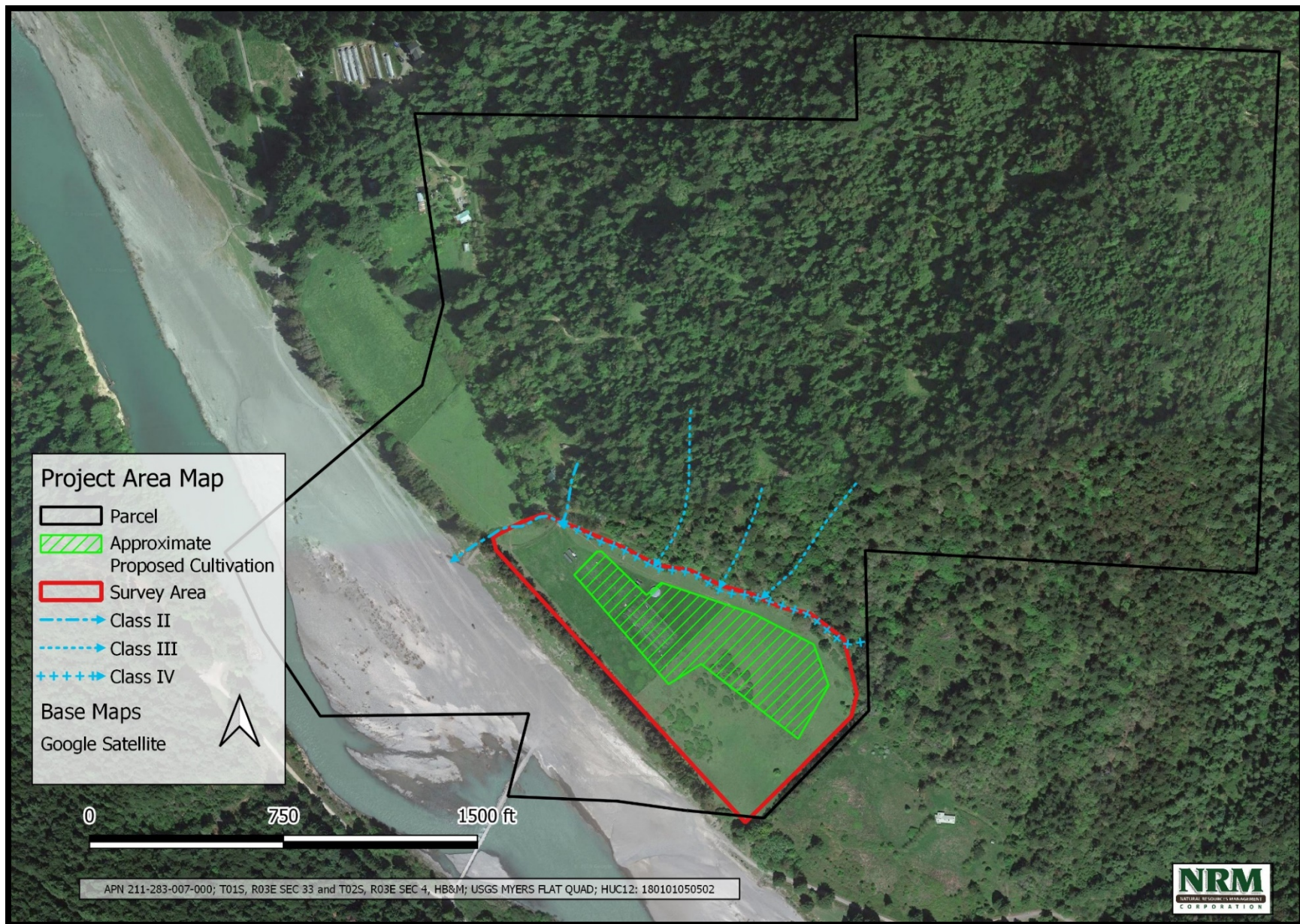


Figure 3. Project Area Map.

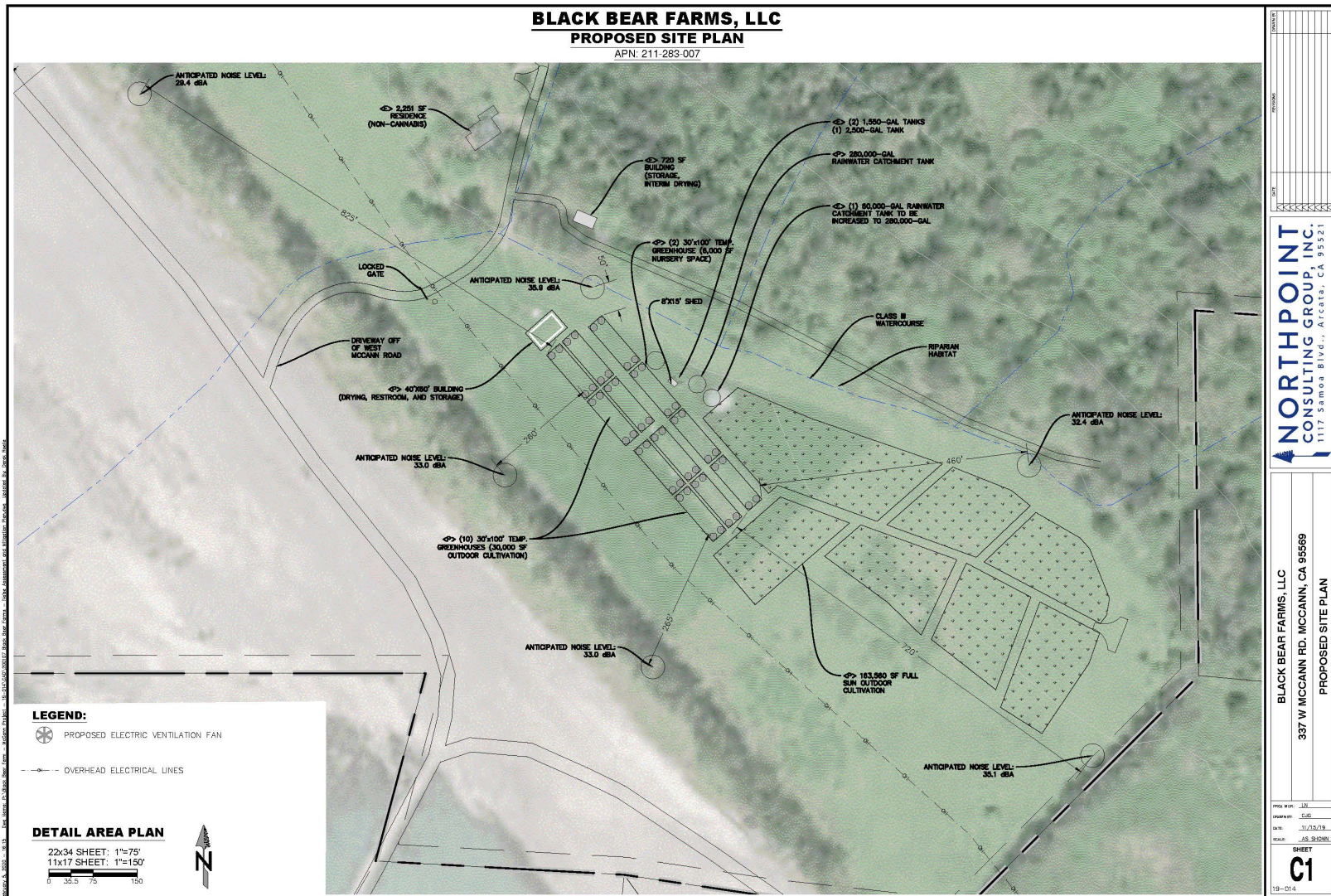


Figure 4. Anticipated Noise levels form ongoing project activities

IV. Environmental Setting

Topography and Hydrology

The approximately 185-acre project parcel occupies a southwest facing bank of the mainstem Eel River, with elevations ranging from approximately 200 feet at the Eel River bank break to 1,300 feet in the upper, northeast portion (Figure 2). The project area (and Survey Area) is entirely within a relatively flat fluvial terrace of the Eel River, identified on USGS topographic maps as Thompson Field. See Figures 2 and 3.

The mainstem Eel River, a Class I fish bearing watercourse, flows northwest along the southern parcel boundary, and a portion of this lower part of the parcel is within the 100-year floodplain (Humboldt County Web GIS 2019). The Eel River flows approximately 33 air miles from the vicinity of the parcel to the Pacific Ocean at Table Bluff, just south of Humboldt Bay.

No other blue line streams are identified in the USGS topographic maps. However, several ephemeral Class III watercourses drain south through the upper, forested portion of the parcel, and are intercepted by a historic drainage ditch (Class IV) that borders the north side of the fluvial terrace, draining west. A Class II watercourse drains into the westernmost point of this ditch, where both then concurrently drain south, contributing directly to the Eel River. See Figures 2 and 3. No watercourses were flowing during the December 2019 site visit (Photos 4-6), but the Class II was flowing during the May 2019 site visit.

Historic Land Use

The project area has been used historically to farm and graze livestock, and to cultivate alfalfa. The upper portions of the parcel have been logged more than once.

Vegetation

The project area is within the USDA Ecoregion Province 263: California Coastal Steppe - Mixed Forest, and Redwood Forest Province; the 263A Northern California Coast Section; and on the border between the 263Af Central Franciscan Subsection and 263Ag Coastal Franciscan Subsections (CALVEG 2004).

The project parcel lies within what was historically redwood (*Sequoia sempervirens*) and black cottonwood (*Populus trichocarpa*) forest (Holland 1986) along the Eel River valley, habitats which have been severely altered by logging, land clearing, and major flood events. The fluvial river terrace where the project area (and Survey Area) lies was historically cleared for agriculture and has been highly manipulated by farming and grazing practices over the last 100 years. This area is currently vegetated with a mix of mostly non-native, annual and perennial grasses and forbs typical of low elevation manipulated pastureland in Humboldt County. The Survey Area is divided east-west by a north-south running fence line. The area east of the fence is open to ranging livestock and is more severely grazed and appears to have compacted soils. Dominant species

over areas west of the fence include soft chess (*Bromus hordeaceus*), smooth brome (*Bromus racemosus*), wild radish (*Raphanus sativus*) and plantain (*Plantago lanceolata*). Areas east of the fence are dominated either by wetland indicator plants such as brome fescue (*Festuca bromoides* FAC), annual poa (*Poa annua*, FAC), and pennyroyal (*Mentha pulegium*, OBL), or by sub-clover (*Trifolium subterraneum*), and English daisy (*Bellis perennis*). The eastern and southern portions of the survey area are being invaded by Himalayan blackberry (*Rubus armeniacus*), forming a shrub layer that gets mowed every few years. Milk thistle and Italian thistle (*Silybum marianum* and *Carduus pycnocephalus*) are present in some areas. The upper slopes of the property are primarily vegetated by California mixed evergreen forests (Holland 1986) intermixed with stands of redwood forest. The mixed evergreen forests are comprised primarily of Douglas-fir (*Pseudotsuga menziesii*) and tanoak (*Notholithocarpus densiflorus*) with some madrone (*Arbutus menziesii*) and California bay (*Umbellularia californica*). Several large big leaf maples (*Acer macrophyllum*) and California black oaks (*Quercus kelloggii*) are present around the upper perimeter of the open river terrace at the transition to forest. A straight row of planted Monterey pine (*Pinus radiata*) or a cultivar hybrid thereof, and an occasional silver wattle acacia (*Acacia c.f. dealbata*) form a windbreak along the Eel riverbank just above the highwater line. Juvenile black cottonwood, coyote brush (*Baccharis pilularis*) and ruderal herbaceous vegetation grow along the river bank itself.

Soils

Soils within the Study Area are mapped by the Natural Resources Conservation Service (NRCS) as belonging to the following two Soil Map Units:

- Map Unit 143—Shively flat, 0 to 2 percent slopes. These soils are somewhat poorly drained silt loams, with parent materials of alluvium derived from mixed sedimentary sources (NRCS 2019).
- 151—Parkland-Garberville complex, 2 to 9 percent slopes. These soils are silt loams, clay loams and gravelly loams, with parent materials of alluvium derived from mixed sedimentary sources (NRCS 2019).

See NRCS soils map in Appendix C.

V. Methods

Pre-Field Review

Wildlife

Prior to initiating field surveys, a query of the CDFW California Natural Diversity Data Base (CNDDB 2019) for wildlife species occurrences within a nine-quad topographical map area of the parcel was conducted. This provides a comprehensive target species list from which to determine

habitat, presence, or sign of species, as well as any known locations for special status species in the general area (Table 1), including northern spotted owl (NSO) Activity Centers (ACs).

Table 1. CNDDDB list of potential special status wildlife species in the Myers Flat nine-quad area

Common Name	Scientific Name	Federal / State Listing
northern spotted owl	<i>Strix occidentalis caurina</i>	Federal and State Threatened
marbled murrelet	<i>Brachyramphus marmoratus</i>	Federal Endangered, State Threatened
golden eagle	<i>Aquila chrysaetos</i>	Fully Protected, Watch List, USFWS Bird of Conservation Concern
American peregrine falcon	<i>Falco peregrinus anatum</i>	Fully Protected
Cooper's hawk	<i>Accipiter cooperii</i>	Watch List
sharp-shinned hawk	<i>Accipiter striatus</i>	Watch List
osprey	<i>Pandion haliaetus</i>	Watch List
little willow flycatcher	<i>Empidonax traillii brewsteri</i>	State Endangered
bank swallow	<i>Riparia riparia</i>	State Threatened
fisher- west coast DPS	<i>Pekania pennanti</i>	State Threatened, Species of Special Concern (SSC)
Humboldt marten	<i>Martes caurina humboldtensis</i>	State Endangered, SSC
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SSC
western red bat	<i>Lasiurus blossevillei</i>	SSC
Sonoma tree vole	<i>Arborimus pomo</i>	SSC
northern red-legged frog	<i>Rana aurora</i>	SSC
foothill yellow-legged frog	<i>Rana boylei</i>	Candidate State Threatened, SSC
Pacific tailed frog	<i>Ascaphus truei</i>	SSC
southern torrent salamander	<i>Rhyacotriton variegatus</i>	SSC
red-bellied newt	<i>Taricha rivularis</i>	SSC
western pond turtle	<i>Emys marmorata</i>	SSC
summer-run steelhead trout	<i>O. mykiss irideus pop.36</i>	State Endangered
chinook salmon	<i>O. tshawytscha pop. 17</i>	Federal Threatened

Although there is some redwood present at the upper elevations of the parcel, it is predominantly Douglas fir. The survey protocol for NSO Activity Centers (USFWS Revised 2012) in non-redwood (inland) habitat (USFWS 2008) requires a 1.3-mile habitat analysis buffer for determining potential project effects. There are 4 ACs within 1.3 miles of the parcel (Figure 4).

Table 2. Northern spotted owl ACs in the vicinity of APN 211-283-007.

NSO Activity Center	CNDDDB Reported Positive Data	CNDDDB Reported Negative Data	Approximate Distance to Nearest Project Site (miles)
HUM0724	2000, 2003-2005, 2008, 2012, 2015, 2016, 2018 Nesting Pair 1994, 1997-1999, 2001, 2002, 2006, 2009-2011, 2013, 2017 Non-nesting pair 1992, 2014 Single NSO	--	1.0
HUM0524	1992, 2000, 2004 Nesting Pair 1991, 1995, 1997, 2001 Non-nesting Pair 1990, 1993, 1994, 2002, 2006 Single NSO	2005	1.1
HUM0941	1999 Non-nesting pair 2000 Single NSO	--	1.1
HUM1130	2018 Non-nesting pair	2013, 2014	1.1

A CNDDDB database query for all special status wildlife species within a 1-mile radius of the project parcels returned 2 records for foothill yellow-legged frog (*Rana boylei*) from the vicinity of the Eel River (Figure 5).

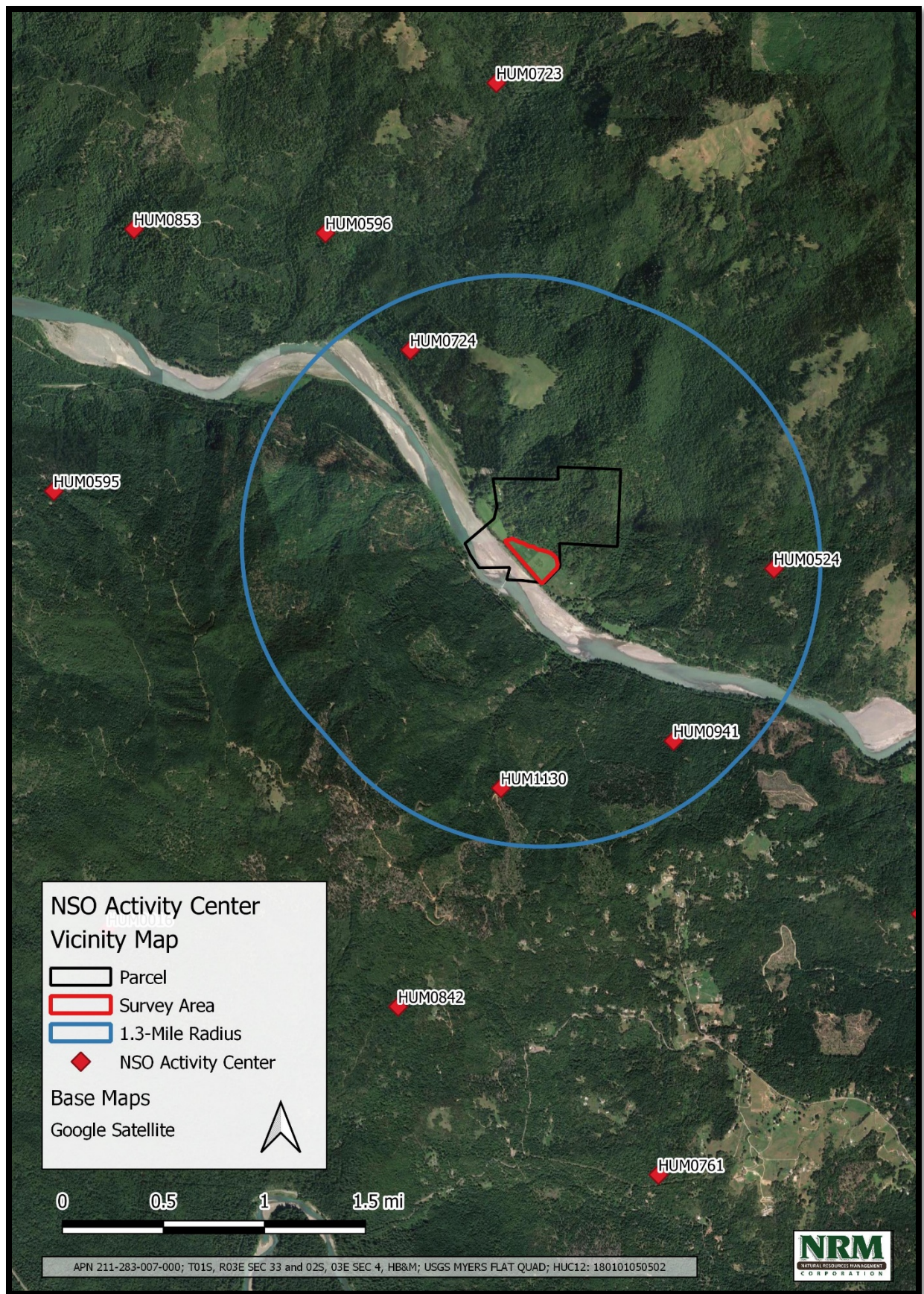


Figure 5. NSO Activity Centers in the vicinity of APN 211-283-007

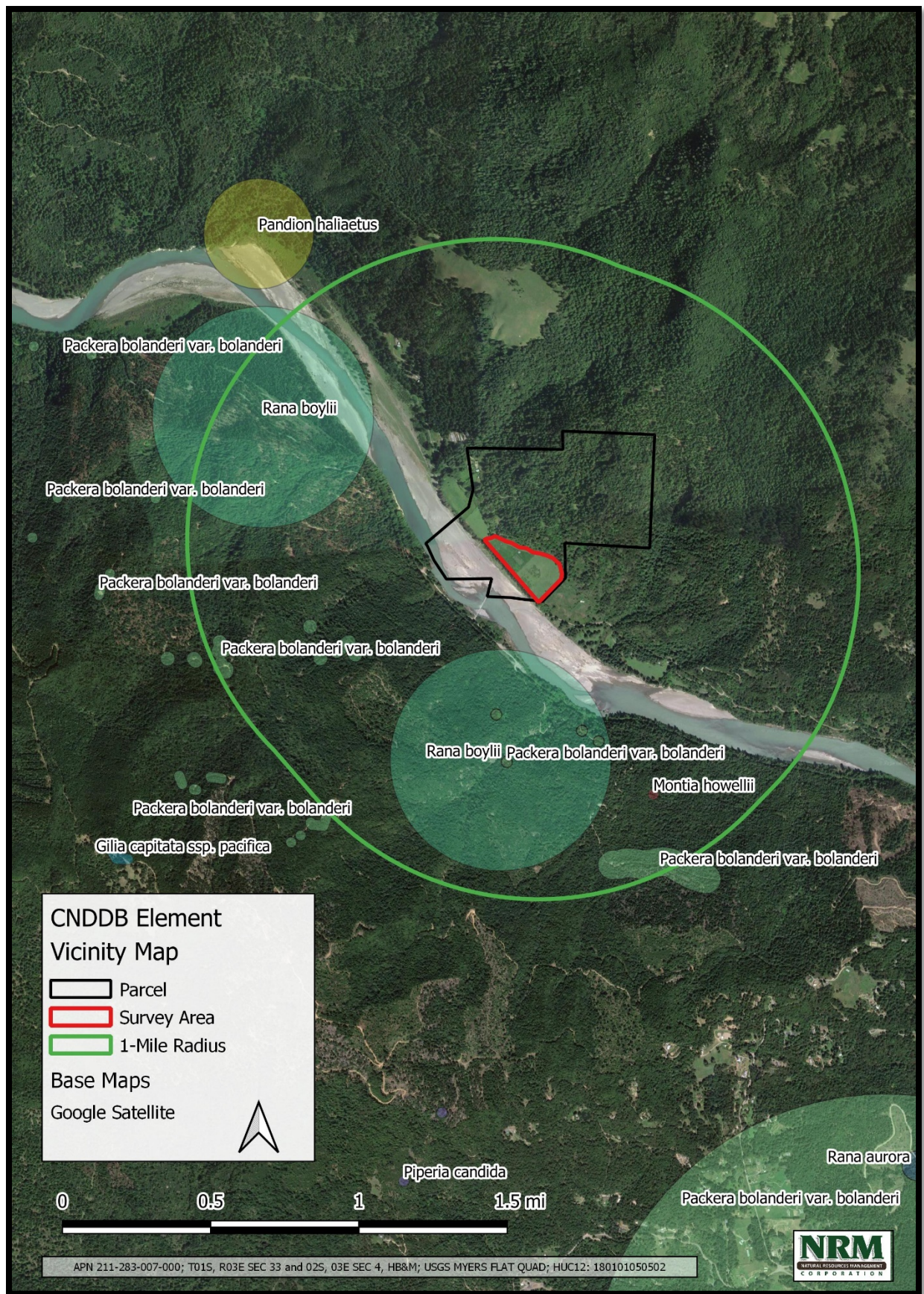


Figure 6. CNDDDB occurrences in the vicinity of APN 211-283-007.

Botany

Prior to the surveys, the current inventories of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2019a) and the California Natural Diversity Database (CNDDDB) (CNDDDB 2019) were consulted to determine which special status plant species may occur within the project area and to compile a target species list. A nine-quadrant query of CNDDDB and CNPS Inventory records resulted in 29 listed vascular and nonvascular plant species (Table 3). These scoping strategies are consistent with California Department of Fish and Wildlife protocols (CDFW 2018d) and the California Environmental Quality Act (State of California 2001). The following resources were consulted:

California Department of Fish and Wildlife (CDFW):

- California Natural Communities List (CDFW 2018a);
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2018b);
- Special Vascular Plants, Bryophytes, Lichens List (CDFW 2018c);
- California Natural Diversity Database (CNDDDB) Query (CNDDDB 2019).

Other Sources:

- The Jepson Manual, 2nd Edition (Baldwin et al. 2012);
- Jepson eFlora (Jepson Flora Project 2019);
- The California Native Plant Society's Online Inventory of Rare and Endangered Plants of California (CNPS 2019a);
- A Manual of California Vegetation (Sawyer et al. 2009)
- A Manual of California Vegetation, Online Edition (CNPS 2019b);
- Consortium of California Herbaria (CCH 2019);
- Calflora online database (Calflora 2019).

Botanical taxonomy and nomenclature conform to The Jepson Manual, 2nd Edition (Baldwin et al. 2012) and recent circumscriptions in the Jepson eFlora (Jepson Flora Project 2019). Common names of plant species are derived from The Calflora Database (Calflora 2019). Nomenclature for special-status plant species conforms to the Inventory of Rare and Endangered Plants of California (CNPS 2019) and Special Vascular Plants, Bryophytes and Lichens List (CDFW 2018c). Vegetation communities described herein conform to A Manual of California Vegetation (Sawyer et al. 2009) or A Manual of California Vegetation, Online Edition (CNPS 2019b), and/or the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), where applicable.

Wetland and deepwater habitat classifications are consistent with *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), and wetland indicator status is taken from *The National Wetland Plant List* (Lichvar et al. 2016). Stream classifications conform to the California State Water Resources Control Board (SWRCB)'s Order No. WQ 2017-0023-DWQ: *General*

Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Dischargers of Waste Associated with Cannabis Cultivation Activities (SWRCB 2017).

Additionally, this document provides a status description for populations of invasive plant species found in the vicinity of the proposed project. Here, invasive species are defined as those ranked with 'High' invasiveness in the inventory of the California Invasive Plant Council (Cal-IPC):

"High" – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

This Plan only pertains to species with a Cal-IPC rank of High. Species with a rank of Moderate or Limited are not considered here.

Reference Populations

The following reference populations were visited preceding or shortly following surveys:

Coast Fawn Lily (*Erythronium revolutum*): Maple Creek Quad, on High prairie Rd; elevation 2800 ft; visited 2019-04-29. Population of 50 plants 70% in bloom, 10% In bud, 20% vegetative.

Howell's Montia (*Montia howellii*): Korbel Quad, at the logger's palace; 150 ft elevation; visited 2019-03-20; less than 100 plants 100% in flower.

Pacific gilia (*Gilia capitata* ssp. *pacifica*): Lord Ellis Summit Quad, on Snow Camp Rd; elevation 2800 ft; visited 2019-05-30. Population of over 1000 plants 10% in bloom, 90% vegetative.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*): Hydesville Quad, on Johnsson Rd Rd; elevation 400 ft; visited 2019-05-09: population of several hundred plants 90% in flower; visited again 2019-06-13: Population 20% in flower, 80% in fruit.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*): Capetown Quad, on Mattole Rd; elevation 1300 ft; visited 2019-06-07; population of several hundred plants 90% in flower.

Seacoast Ragwort (*Packera bolanderi* var. *bolanderi*): Red Crest Quad: Along HWY 36, less than 100 yards west of entrance to Grizzly Creek campground. Visited 2019-06-13; Population of 15 plants 95 % in bloom.

Table 3. Special status plant species from nine-quad area surrounding project (CNDDDB 2019, CNPS 2019a).

Scientific Name	Common Name	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Elevation Low (ft)	Elevation High (ft)
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	G2	S2	CE	None	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest	openings, disturbed areas, sometimes roadsides	390	2625
<i>Carex arcta</i>	northern clustered sedge	2B.2	G5	S1	None	None	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)		195	4595
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	4.2	G4T4	S3S4	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins		0	1425
<i>Coptis laciniata</i>	Oregon goldthread	4.2	G4?	S3?	None	None	(Feb) Mar-May (Sep-Nov)	Meadows and seeps, North Coast coniferous forest (streambanks)	Mesic	0	3280
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	4.2	G4	S4	None	None	Mar-Aug	Lower montane coniferous forest, North Coast coniferous forest	usually serpentinite seeps and streambanks	325	7990
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	G4	S4	None	None	Jul-Sep	Broadleafed upland forest, North Coast coniferous forest	sandy or rocky	145	5905
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	G4G5	S2	None	None	Mar-Jun (Jul)	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings	325	3775
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	G4G5	S3	None	None	Mar-Jul (Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	0	5250

<i>Gilia capitata</i> <i>ssp. pacifica</i>	Pacific gilia	1B.2	G5T3	S2	None	None	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		15	5465
<i>Howellia aquatilis</i>	water howellia	2B.2	G3	S2	None	FT	Jun	Marshes and swamps (freshwater)		3555	4230
<i>Kopsiopsis hookeri</i>	small groundcone	2B.3	G4?	S1S2	None	None	Apr-Aug	North Coast coniferous forest		295	2905
<i>Lathyrus glandulosus</i>	sticky pea	4.3	G3	S3	None	None	Apr-Jun	Cismontane woodland		980	2625
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	G3	S3	None	None	May-Aug	Lower montane coniferous forest, North Coast coniferous forest	Openings, roadsides	5	4265
<i>Lilium rubescens</i>	redwood lily	4.2	G3	S3	None	None	Apr-Aug (Sep)	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Sometimes serpentinite, sometimes roadsides	95	6265
<i>Listera cordata</i>	heart-leaved twayblade	4.2	G5	S4	None	None	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		15	4495
<i>Lycopodium clavatum</i>	running-pine	4.1	G5	S3	None	None	Jun-Aug(Sep)	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	often edges, openings, and roadsides	145	4020
<i>Meesia triquetra</i>	three-ranked hump moss	4.2	G5	S4	None	None	Jul	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic)	soil	4265	9690
<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	4.2	G5	S4	None	None	(Mar) Apr-Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	mesic, sometimes roadsides	15	5575
<i>Montia howellii</i>	Howell's montia	2B.2	G3G4	S2	None	None	(Jan-Feb) Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides	0	2740

<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	G4T4	S2S3	None	None	(Jan-Apr) May-Jul(Aug)	Coastal scrub, North Coast coniferous forest	Sometimes roadsides	95	2135
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	G3	S3	None	None	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	95	4300
<i>Pityopus californicus</i>	California pinefoot	4.2	G4G5	S4	None	None	(Mar-Apr) May-Aug	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	mesic	45	7300
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	G4	S4	None	None	(Mar) Apr-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	Mesic	0	5250
<i>Sanicula tracyi</i>	Tracy's sanicle	4.2	G4	S4	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	openings	325	5200
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	G3	S3	None	None	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Often in disturbed areas	0	2395
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B.2	G5T2	S2	None	None	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	often roadcuts	45	2885
<i>Tracyina rostrata</i>	beaked tracyina	1B.2	G2	S2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland		295	2590
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	G4	S4	None	None	N/A	Broadleafed upland forest, North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers	160	4790
<i>Wyethia longicaulis</i>	Humboldt County wyethia	4.3	G4	S4	None	None	May-Jul	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	sometimes roadsides	2460	5005

*Listing codes are as follows (CNPS 2018a):California Rare Plant Rank (CRPR) 1B = rare, threatened, or endangered in CA and elsewhere; 2B = rare, threatened, or endangered in CA, but more common elsewhere; 3 = plants about which more information is needed; a review list; 4 = of limited distribution or infrequent throughout a broader area in California. Ranks at each level also include a threat rank and are determined as follows: 0.1-Seriously threatened in California; 0.2-Moderately threatened in California; 0.3-Not very threatened in California. Global Ranking (GRank) - The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range: G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres; G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres; G3 = 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres; G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat; G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world. State Rank (SRank) The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank: S1: Fewer than 6 viable occurrences worldwide/ statewide, and/ or up to 518 hectares; S2: 6-20 viable occurrences worldwide/ statewide, and/ or more than 518-2,590 hectares; S3: 21-100 viable occurrences worldwide/ statewide, and/or more than 2,590-12,950 hectares; S4: Greater than 100 viable occurrences worldwide/ statewide, and/or more than 12,950 hectares; S5: Demonstrably secure because of its worldwide/ statewide abundance. Additional Threat Ranks: 0.1=Very threatened; 0.2=Threatened; 0.3= No current threat known. CESA: California Endangered Species Act: CR: state-listed (NPPA) RARE; CE = state-listed ENDANGERED; FESA: Federal Endangered Species Act: FE = federally listed ENDANGERED

Field Surveys

This biological assessment evaluated the project area plus an approximately 200-foot buffer, referred to throughout this report as the Survey Area.

On December 11th, 2019 NRM wildlife biologist Michelle McKenzie conducted a site visit to assess potential biological impacts of cannabis development on animal species. Michelle has a B.S in Wildlife Management from Humboldt State University, has over twenty-five years of experience surveying for wildlife species across all taxa, primarily in the tri-county area. The project and surrounding area (Survey Area) was surveyed for all terrestrial and aquatic animal species present (Figure 3). The survey was conducted for approximately 2.5 hours on a mild (56°F/13°C), cloudy afternoon with a light rain falling.

While walking the area all audial and visual detections of bird and mammal species were noted and the parcel traversed for wildlife sign (tracks, burrows, scat). In addition, trees were inspected for activity or sign of use by wildlife (cavities, nests, scrapes, accumulated vegetation), and cover objects were inspected for potential amphibian species.

On, April 30th and May 14th, 2019 NRM botanist Claire brown conducted site visits to assess potential biological impacts of proposed cannabis development on special status plants, sensitive natural communities and wetland and riparian habitat. Claire has a B.S. in Ecology and Evolutionary Biology from the University of Tennessee, has seven years of experience as a botanist in California, including two and a half years of experience conducting rare plant surveys on the North Coast.

The plant surveys were floristic in nature and followed the 2018 California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018d). The surveys were timed to capture the bloom window of the target species with potential to occur at the site elevation and within habitat and soil types present. See Table 3. The Survey Area (Figure 6) was covered systematically, with emphasis on finding suitable habitat for target species while achieving thorough coverage. Species encountered in the field were identified to the taxonomic level necessary for a rare species determination. A comprehensive species list was recorded and is found in Appendix B.

Vegetation types within and around the project area were identified and recorded according to the conventions of A Manual of California Vegetation (Sawyer et al. 2009) or A Manual of California Vegetation, Online Edition (CNPS 2019b), and/or the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), where applicable. CDFW's California Natural Communities list (CDFW 2018a) was referenced to determine if sensitive communities were included in the vegetation alliances and associations found on-site. Location data for vegetation community types was recorded in the field using a Garmin etrex 30 GPS unit.

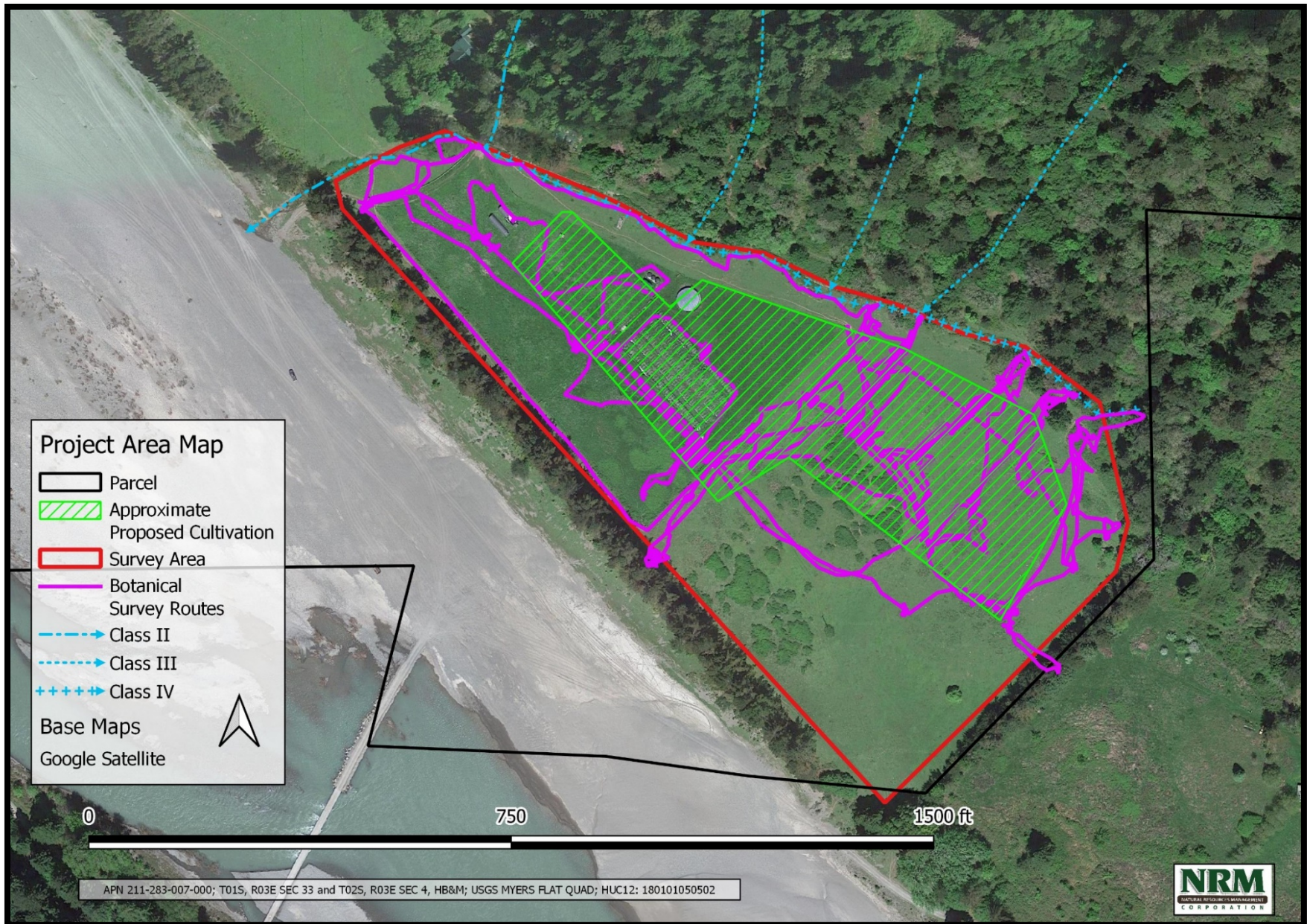


Figure 7. Botanical Survey Route Map April 30th and May 14th, 2019

VI. Wildlife: Survey Results and Discussion

Wildlife: Summary of Findings

For all species, direct effects are those which are caused by the action (project) and occur at the same time and place. Indirect effects are defined as those effects caused by the proposed action and are later in time, but still reasonably certain to occur.

No listed wildlife species or special status species were detected during the survey. Special status and the potential for project impacts are presented in Table 4, below. Species are considered on a case-by-case basis as to the project's affect based on considerations such as home range, habitat, and sensitivity to disturbance. All wildlife species detected during the survey are listed in Table 5. No spotted owl habitat exists on the parcel, but the nearest NSO habitat occurs within 1.3 miles of the Survey Area (Figure 4). It has been determined that preconstruction surveys are required due to the distance from the proposed project (CCLUO 2.0). Impacts to species from the proposed project, either directly or indirectly, are expected to be less than significant.

Wildlife: Survey Results and Discussion

Special status and the potential for project impacts are presented in Table 4, below. Species are considered on a case-by-case basis as to the project's affect based on considerations such as home range, habitat, and sensitivity to disturbance.

There are 4 NSO ACs within the 1.3-mile analysis buffer of the proposed project (Figure 4); two are located on the same side of the Eel River and two on the opposite side. Three of the ACs (HUM0724, HUM0524, HUM0941) appear to be on steep slopes in more mature forested habitats within approximately one-half mile of the Eel River; the fourth (HUM1130) occurs in the headwater region of Devils' Elbow Creek, approximately 0.7 miles south of the Eel River. In 2018, the last year of reported surveys, HUM0724 had a nesting pair and HUM1130 a non-nesting pair present; HUM0524 reported surveys from 3 consecutive years only (2004 nesting pair, 2005 negative), with a single owl reported in 2006; and HUM0941 reported surveys from 2 consecutive years only (1999 non-nesting pair), with a single owl reported in 2000.

Due to the presence of NSO habitat within the required analysis buffer and the recent activity at some of the ACs, preconstruction surveys for NSO will be required. The Noise Source Assessment and Mitigation Plan (Appendix F) provided by the landowner(s) determined that proposed operation plans meet the performance standards for noise at cultivation sites (CCLUO 2.0).

The upland forest of the parcel is primarily Douglas fir with some redwood (Photo 7). There were no suitably-sized trees for nesting for NSO due to historic logging on the parcel. Within the 1.3-miles analysis buffer some suitable habitat may occur in the vicinity of HUM0724, though is likely within this owls' territory. Across the Eel River there is potential habitat in isolated forest patches, which appears to be private timberlands due to the extensive road network, directly across from

the parcel and east in the vicinity of HUM1130 and HUM0941. Outside of this buffer, areas to the south and east begin to transition to open prairie grasslands on the ridgetops. Mail Ridge, south of the parcel approximately 1.7 miles, has multiple ACs on the south side where more forested habitat remains. The South Fork Eel River is due west approximately 5 miles, where the associated Humboldt Redwoods State Park (HRSP) and Avenue of the Giants has extensive old growth redwood habitat, optimal for NSO.

Marbled murrelets utilize the Eel River corridor to access nesting habitat in old growth redwoods from feeding grounds in the Pacific Ocean. Optimal habitat exists in the HRSP area; there is no suitable habitat east (upstream) of the parcel.

Golden eagles utilize open grasslands for hunting prey such as rabbits and ground squirrels. Nesting structures, such as broken tops of large diameter trees, are required and are often associated with steep-walled canyons, typically found locally in larger river corridors. Some habitat consistent with foraging needs is within 3 miles of the parcel, particularly to the northeast in the Brushy Mountain area. Optimal golden eagle habitat can be found east of the parcel, beginning at approximately 6 miles east, and continuing an additional 6 miles to the Little Van Duzen River watershed, where it then becomes heavily forested, with multiple NSO ACs within Six Rivers National Forest. Surveys for golden eagle conducted by NRM in 2019 on the project parcel resulted in no detections (Appendix A). Surveys for golden eagle on other, non-related parcels located approximately 2 miles upstream (2018, 2019) resulted in a single detection on the last survey of 2018, when a single adult was observed flying across the Eel River in a southwesterly direction.

The forested portion of the parcel is mostly continuous with no openings or edge habitat aside from the Survey Area flat and forest interface. Although this edge may be used by foraging raptors such as Cooper's hawk and sharp-shinned hawk, these species utilize more dense, interior forested areas for nesting. Optimal habitat for these species is expected in the drainages for nesting Cooper's hawk, and in the more interrupted habitats outside of parcel boundaries. Conversely, the forested habitat may be optimal for Sonoma tree vole at the lower elevations of the parcel where Douglas fir dominates.

American peregrine falcons utilize a variety of nesting structures in the absence of cliff walls, such as tree and snag cavities, open ledges and old raptor nests. Breeding is mostly in woodland and forest habitats, but near water. Foraging in the general area of the parcel is expected by this wide-ranging species, with the most likely nesting habitat occurring within the Eel River corridor.

Other species associated with the Eel River corridor are osprey, bank swallow, Townsend's big-eared bat and western red bat. Osprey require large trees adjacent to a water body for nesting and bank swallows require mud banks immediately adjacent to the river. There is no nesting habitat in the vicinity of the parcel for either species although foraging is expected (Photos 8-9).

The bat species most certainly forage over the Eel River, with Townsend's finding adequate roosting within old growth redwood cavities in HRSP and western red bats in more cottonwood dominated areas of the corridor.

Habitat for fisher and Humboldt marten is expected in areas such as NSO ACs, where it is presumed older forests with adequate denning structures exist. Fisher may use the general area around the parcel for foraging as the forest cover is optimal for this wide-ranging species. Humboldt marten would be expected in the area of HRSP where understory vegetation density is more suitable.

There are no well-developed riparian vegetation areas associated with the watercourses on the parcel or in the adjacent Eel River corridor, that would support species utilizing these habitats or vegetation, such as little willow flycatcher. Foothill yellow-legged frog and, likely, red-legged frogs are present in the Eel River; foothill yellow-legged frogs may utilize watercourses on the parcel but none were flowing during the time of the site visit; these may or may not be unsuitable breeding habitat, depending upon if water persists long enough for tadpoles to metamorphose. The western pond turtle occurs within the Eel River, using adjacent upland habitats for reproduction. Due to the historic agricultural use of project area flat and the current impact by cows, it is assumed turtles avoid this area for nesting. However, if construction on the flat occurs during nesting season (typically April to June), cursory surveys for the presence of turtles may be warranted.

Mail Ridge, approximately 1.7 miles south of the parcel on the opposite side of the Eel River, has multiple drainages flowing north to the river that appear optimal for species such as Pacific tailed frog, southern torrent salamander and red-bellied newt. Otherwise, spring areas on the parcel may retain water and provide habitat for these species. The point of diversion for this parcel which is only used for domestic purposes was undetermined after following the waterline uphill a great distance and may provide some habitat assuming permanent water exists there.

The Eel River, a Class I fish-bearing watercourse, is critical for accessing breeding habitat in tributary watercourses for summer-run steelhead and chinook salmon.

Table 4. Special status species, suitable habitat in project area, and potential impacts.

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
BIRDS					
northern spotted owl	FT, ST	Old-growth forests or mixed stands of old-growth and mature trees; occasionally in younger forests with patches of big trees	No	Yes	Surveys will be required to determine presence at existing ACs within 1.3 miles of the parcel. Less than significant impacts expected if Management Recommendations adhered to.
golden eagle	FP, WL, BCC	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas	No	No	No impact; the nearest CNDDDB record is from over 3 miles upstream, and likely associated with detection during GOEA survey on unrelated parcels located approximately 2 miles east. No habitat in the immediate project area.
American peregrine falcon	FP	Breeds near water in woodland, forest, and coastal habitats. Riparian areas important year-round. Requires cliffs, ledges for cover and breeding.	No	No	No impact; project sites adjacent to woodland habitat, but there are no well-developed riparian vegetation areas associated with the watercourses on the parcel or in the adjacent Eel River corridor. Rock outcrops for breeding

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
					available sporadically in general area but none in the immediate project vicinity.
Cooper's hawk	WL	Dense stands of live oak, riparian deciduous or other forest habitats near water used most frequently. Woodland, chiefly of open, interrupted or marginal type for hunting; nests usually in second growth conifer stands or deciduous riparian areas near streams	Yes	No	No impact; may use project area flat for foraging, but suitable woodland habitat for nesting is greater than 500 feet away. Other nesting habitat is located in riparian habitat associated with watercourses to north at parcel boundary approximately 1,400 feet, to the south approximately 2,500 feet; and potentially to the west across the Eel River in McCann Creek approximately 1,500 away.
sharp-shinned hawk	WL	Breeds in pine, oak, riparian deciduous and mixed conifer habitats, prefers riparian habitats with dense cover and requires north facing slopes; forages in openings at edge habitats	Yes	No	No impact; may use project area flat for foraging, but suitable woodland habitat for nesting is greater than 500 feet away. Other nesting habitat is located in riparian habitat associated with watercourses to north at parcel boundary approximately 1,400 feet, to the south approximately 2,500 feet; and potentially to the west across the Eel River in McCann Creek approximately 1,500 away.

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
osprey	WL	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	No	No	No impact; the Eel River is immediately adjacent, approximately 750 feet from the project area flat; nearest CNDDDB record approximately 1 mile downstream where nest site likely persists; this species tolerant of human activity. Noise and light impacts from project are minimal.
marbled murrelet	FT, SE	Partial to coastlines with stands of mature redwood and Douglas-fir for nesting/roosting. In breeding season, may be seen regularly 4-5 miles inland in dense, mature forests	No	No	No impact; closest optimal habitat exists downstream (west) of the parcel in the vicinity of HRSP approximately 5 miles
little willow flycatcher	SE	Breeds in moist brushy thickets, open second-growth, and riparian woodland, especially with willow	No	No	No impact; this species occurs in vicinity of watercourses with adequate, developed, willow-dominated riparian habitat; nearest CNDDDB record from the South Fork Eel River approximately 5 miles west of parcel

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
bank swallow	FT	Colonial breeder requiring vertical sandy banks or cliffs to dig horizontal nesting tunnel and burrow near water; feeds predominantly over open riparian areas	No	No	No impact; no habitat exists in the Eel River corridor in the vicinity of the parcel; nearest CNDDDB record from the Van Duzen River
MAMMALS					
Fisher	FC, SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure; denning structures include hollow trees, logs and snags	Yes	No	Less than significant impact; project area in proximity to potential, but less than optimal, upland foraging habitat; denning habitat likely in vicinity of NSO Activity Centers, the nearest approximately 1-mile northwest; nearest CNDDDB record from Mail Ridge, south of the Eel River approximately 1.7 miles. Light and noise impacts from this project are non-existent to minimal and will not impact possible denning habitat.

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
Humboldt marten	SE	Only in the coastal redwood zone from the Oregon border south to Sonoma County. Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure	No	No	No impact; the nearest potential habitat is likely associated with old growth redwood habitat in HRSP, west approximately 5 miles
Townsend's big-eared bat	SSC	Throughout California in a wide variety of habitats; most common in mesic sites. Typically found in caves, mines, manmade structures	No	No	No impact; foraging expected in Eel River corridor; buildings on parcel inspected for guano, none found. No trees will be removed and no cavities observed in trees in Survey Area
western red bat	SSC	Roosts in trees on edge of habitat in forests and woodlands, sea level up to mixed conifer forests; feeds over grasslands and open forest; roosts singly on branches	No	No	No impact; foraging expected in Eel River corridor. No trees will be removed in Survey Area; prefers leafy trees (cottonwood in Sacramento valley) for camouflage while roosting; no suitable trees between project flat and Eel River

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
Sonoma tree vole	SSC	North coast fog belt from Oregon border to Sonoma County; in Douglas-fir, redwood and montane hardwood-conifer forests	Yes	No	No impact; project sites greater than 500 feet from dense Douglas fir habitat (preferred food); nearest CNDDDB records from HRSP . Light and noise impacts from this project are non-existent to minimal and will not impact possible habitat.
HERPETOFAUNA					
northern red-legged frog	SSC	Humid forests, woodlands, grasslands, and stream sides in northwestern California, usually near dense riparian cover. Highly aquatic, little movement from pond or other slow moving or backwaters	No	No	No impact; often a pond-related species but also likely found in tributaries to and backwaters of the Eel River in areas with sufficient cover; nearest CNDDDB record from tributary watercourses south of the parcel approximately 2.3 miles in Elk Creek area. Project is outside of all stream buffers and will not impact water ways.
foothill yellow-legged frog	SC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis	Yes	No	No impact; expected to occur in Eel River and tributaries; in rainy season may forage up parcel watercourse outflow if connected to Eel River; nearest CNDDDB record from HRSP. Project is outside of all stream buffers and will not impact water ways.

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
Pacific tailed frog	SSC	Inhabits cold, clear, permanent rocky streams in wet forests; restricted to perennial montane streams. Suitable habitat likely exists in most flowing waterways within Humboldt County; known from Prairie Creek SP to King Range NCA	No	No	No impact; no permanent water in vicinity of Survey Area; most likely optimal habitat in upper reaches of permanent tributary watercourses in HRSP, but may occur in watercourses on northern parcel boundary approximately 1,400 feet, and south of parcel approximately 2,500 feet from the project area. Project will have no impact on these watercourses.
red-bellied newt	SSC	Primarily inhabits redwood forests but also mixed conifer; requires rapid streams for breeding and larval development. Known to occur within the Mattole River and tributaries; expected to occur in southern Humboldt County only	No	No	No impact; at northern portion of species range and no habitat on parcel; nearest CNDDDB record from Ettersburg, southwest approximately 15 miles

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
southern torrent salamander	SSC	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats; Old growth forests. Cold, well-shaded, permanent streams seepages/springs, splash zone or on moss-covered rocks within trickling water. Known to occur within rivers and creeks from Prairie Creek SP to the Mattole River; suitable habitat is likely present within most flowing streams and seeps within Humboldt County	No	No	No impact; no permanent water in vicinity of Survey Area, but may occur in spring area if rocky substrate present; most likely optimal habitat in upper reaches of permanent tributary watercourses in HRSP, but may occur in watercourses on northern parcel boundary approximately 1,400 feet, and south of parcel approximately 2,500 feet. Proposed project will have no impact on these water courses or the spring.

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat within the Project Area?	Potentially Impacted by Project?	Comments
western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation; digs nest burrows; overwinters in burrows in stream environments, and in mud bottom in pond environments	Yes	Yes	Potential impact; given historic activity in the McCann ferry area and associated car traffic on the river bar to access parcels on the north side, and the use of 'Thompson Field' (Figure 2) historically for agriculture, it is likely this species would avoid this area for basking or burrows. If however construction activity is occurring on the flat between April and June, cursory surveys for nesting turtles would be warranted to ensure no nest burrows are disturbed.
FISH					
chinook salmon (pop 17)	FT	Native anadromous fish in decline on west coast. Spawn in streams and rivers then move to ocean as adults; status applies to rivers and streams south of Klamath River to Russian River	No	No	No impacts expected from cannabis project as they are located outside of stream buffers and following requirements laid out in the cannabis Water Board order
summer-run steelhead trout (pop. 36)	SE (C)	Cool, swift, shallow water & clean loose gravel for spawning, and suitably large pools in which to spend the summer.	No	No	No impacts expected from cannabis project as they are located outside of stream buffers and following requirements laid out in the cannabis Water Board order

Federal:

FC Candidate

FE Endangered (legally protected)

FT Threatened (legally protected)

State:

FP Fully protected (legally protected)

SC Candidate: Threatened or Endangered

SE Endangered (legally protected)

SSC Species of special concern (no formal
protection other than CEQA
consideration)

ST Threatened (legally protected)

Species, or their sign, observed during the survey are summarized in Table 5. Due to the late season survey no migratory birds or reptiles were present. There were no direct sightings of mammal species, all were inferred from sign.

Table 5. Species detected at APN 211-283-007 on December 11, 2019

Common Name	Scientific Name	Federal or State Listing	Detection Method
California quail	<i>Callipepla californica</i>	None	visual (covey >75 individuals!)
red-tailed hawk	<i>Buteo jamaicensis</i>	None	visual
northern flicker	<i>Colaptes auratus</i>	None	auditory
red-breasted nuthatch	<i>Sitta canadensis</i>	None	visual
golden-crowned kinglet	<i>Regulus satrapa</i>	None	visual, auditory
common raven	<i>Corvus corax</i>	None	visual, auditory
Steller's jay	<i>Cyanocitta stelleri</i>	None	visual
California towhee	<i>Melospiza crissalis</i>	None	visual
dark-eyed junco	<i>Junco hyemalis</i>	None	visual
wrentit	<i>Chamaea fasciata</i>	None	auditory
white-crowned sparrow	<i>Zonotrichia leucophrys</i>	None	visual
black-tailed deer	<i>Odocoileus hemionus</i>	None	scat, tracks
gray fox	<i>Urocyon cinereoargenteus</i>	None	scat
brush rabbit	<i>Sylvilagus bachmani</i>	None	scat

Wildlife Species Accounts - Potential Impacts or Effects

The following species were noted either by CNDDDB as having historically occurred in the area or have the potential to occur due to habitat.

Northern spotted owl

Regulatory Status: The northern spotted owl is a Federal and State Threatened species.

Habitat Requirements and Natural History: This species is an uncommon, permanent resident that resides in dense, old-growth, multi-layered mixed conifer, redwood and Douglas-fir habitats. Breeding occurs in early March through June, with young independent and dispersing by September/October.

Potential for Occurrence within the Project Area: There are 4 NSO ACs within the 1.3-mile analysis buffer of the proposed project (Figure 4); two are located on the same side of the Eel River and two on the opposite side. Three of the ACs (HUM0724, HUM0524, HUM0941) appear to be on steep slopes in older forested habitats within approximately one-half mile of the Eel River; the fourth (HUM1130) occurs in the headwater region of Devils' Elbow Creek, approximately 0.7 miles south of the Eel River.

The nearest potential nesting/roosting habitat outside of the 1.3-mile buffer, aside from Humboldt Redwood State Park approximately 5 miles west of the parcel with optimal habitat for this species, is outside of the parcel boundaries. However, due to the existence of habitat (ACs) within the required analysis buffer, and the recent activity at some of the ACs, preconstruction surveys are required.

Short Term Project Impacts - Construction

The construction of the infrastructure portion of the cannabis operation is considered a short-term disturbance.

Direct Effects: It is possible that if project construction occurs during the breeding season that some breeding pairs may be in the area, although expected to be in the heavily forested areas where no direct project impacts are occurring. If northern spotted owls occur in the area equipment noise could disturb nestlings/fledglings during the construction phase.

Indirect Effects: No indirect impacts

Determination: If NSOs are present in the area, it is determined that the projects could have some impacts on nesting northern spotted owls **if** project construction uses heavy equipment and occurs during the breeding season (March-July). **If** project construction uses heavy equipment and occurs during the breeding season, as per the NSO protocol (2012) The project will do one year of “disturbance only” surveys to ensure no NSO are nesting within 0.25 miles of the project area. Alternatively, the project construction could not use any heavy equipment, or it could take place outside of the breeding season.

Ongoing Activity Impacts - Cannabis

Northern spotted owls doesn't appear to be nesting/roosting within a mile of the proposed project area, foraging may occur in the forested portion of the parcel. The nearest potential nesting habitat appears to be in the vicinity of known Activity Centers.

Direct Effects: If NSO are present in the area, either foraging or nesting noise and light pollution would have the most potential to impact this species. The project as described eliminated the potential for light pollution. The only lights will be in the nursery and these as described will be equipped with blackout curtains. Noise would come from human activity and fans, as the project uses no generators. As described in the noise assessment: “The proposed noise sources from the project are not expected to increase onsite ambient noise levels by greater than 3 dBS at any of the property lines. Proposed noise sources are not expected to exceed 50 dBS at any treeline or habitat line or 60 dBS at any property line.” Therefore, the project meets the County threshold of being under 50 dBS at the edge of NSO habitat.

Indirect Effects: No indirect impacts as project will not use any rodenticides.

Determination: The project as described will have no impacts on Northern Spotted Owl. The project will no impact any NSO habitat. No light pollution is expected, and fan and other project noise will be less than 50 dBs at the edge of foraging habitat.

Western pond turtle

Regulatory Status: The western pond turtle is a State Species of Special Concern.

Habitat Requirements and Natural History: A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation and below 6000 feet elevation. This species needs basking sites and suitable upland habitat (sandy banks with vegetation, open forest with moderate understory vegetation, tall grass) up to a maximum of 1,600 feet from water, for egg-laying and over-wintering in burrows dug into friable soils (Reese 1998).

Potential for Occurrence within the Project Area: This species was not observed during surveys of the project areas. The watercourses with the exception of the Eel River are unlikely to support western pond turtle with no permanent flowing water or basking sites. The Eel River corridor, where optimal habitat likely exists, is outside of the project area. There is the potential for nesting burrows in the project area.

Short term Project Impacts - Construction

The construction of the infrastructure portion of the cannabis operation is considered a short-term disturbance meaning it will take place over a relatively short set amount of time and it will not reoccur. Construction equipment noise levels will vary depending on the equipment being used.

Direct Effects: The project footprint is outside of water ways and their buffers. It is possible that grass field where the project will be constructed is being used as nesting habitat for the western pond turtle. All total the project infrastructure will remove approximately 4.4 acres of possible nesting habitat.

Indirect Effects: No indirect effects are expected.

Determination: If construction of the infrastructure and the initial planting takes place during the nesting season, preconstruction surveys western pond turtle nests will be conducted. If nests are found, they will be buffered and undisturbed until turtles have hatched and left the nest. As is standard practice CDFW will be consulted to help with buffer sizing. Often CDFW takes into account specific local factors when making buffer size decisions.

Ongoing Activity Impacts – Cannabis

This species was not observed during the site visits and is not expected, except within the immediate Eel River corridor.

Direct Effects: Although they were not detected during several site visits, it is possible this species currently nests in the field where the project will be built and therefore could experience some disturbance or displacement from operations due to increased infrastructure and human activity. Pond turtles' nest in both meadows and forested habitat and as such the majority of the Eel River corridor in the vicinity of the project area is available habitat. All total the project infrastructure will remove approximately 4.4 acres of possible nesting habitat a fraction of what is available. Additionally, given historic activity in the McCann ferry area and associated car traffic on the river bar to access parcels on the north side, and the use of 'Thompson Field' (Figure 2) historically for agriculture, it is likely this species avoids the project area for basking or burrows.

According to the noise assessment the project operations noise levels at the Eel River will be less than 33 dBs during project operations (figure 4).

Indirect Effects: no indirect impacts

Determination: All total the project infrastructure will remove approximately 4.4 acres of possible nesting habitat. Given the extensive available habitat along the Eel River, and the low quality of the habitat being removed the project will have less than significant impacts to western pond turtle.

VII. Botany: Survey Results and Discussion

Special Status Plants

Results

No special status plants were identified during surveys. Overall results are summarized in Table 6.

Discussion

Special emphasis was placed on surveying for Siskiyou checkerbloom (*Sidalcea malviflora ssp. patula*) and Howell's montia (*Montia howellii*), as the Survey Area presents potential habitat. Emphasis was also placed on Pacific gilia, (*Gilia capitata ssp. pacifica*) including searching for vegetative (non-flowering) plants in case surveys were too early for blooms. However, no populations were found. Survey timing should have been such as to detect these species if present. Table 6 summarizes survey results.

Perennial species such as Siskiyou checkerbloom should have been visible in the landscape if present. However, annual species such as Howell's montia and Pacific gilia have the potential to be

present in the seedbank even when not detected. However, rainfall patterns and temperatures in the area were not extreme for the season, making it unlikely that these annuals would not have germinated and grown successfully in 2019 (if present).

Table 6. Summary of Botanical Survey Results (Table Data: CNPS 2019a)

Scientific Name	Common Name	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Elevation Low (ft)	Elevation High (ft)	Species Detected?	Habitat Present?
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	1B.1	G2	S2	CE	None	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest	390	2625	No	No- very unlikely to occur in farmed pastureland
<i>Carex arcta</i>	northern clustered sedge	2B.2	G5	S1	None	None	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)	195	4595	No	Marginal- Possible in seasonal wetland area
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	4.2	G4T4	S3S4	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins	0	1425	No	Marginal- Possible in seasonal wetland area
<i>Coptis laciniata</i>	Oregon goldthread	4.2	G4?	S3?	None	None	(Feb)Mar-May(Sep-Nov)	Meadows and seeps, North Coast coniferous forest (streambanks)	0	3280	No	No- Very unlikely to occur in farmed pastureland
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	4.2	G4	S4	None	None	Mar-Aug	Lower montane coniferous forest, North Coast coniferous forest	325	7990	No	No- Very unlikely to occur in farmed pastureland
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	G4	S4	None	None	Jul-Sep	Broadleafed upland forest, North Coast coniferous forest	145	5905	No	No- Very unlikely to occur in farmed pastureland
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	325	3775	No	No- Very unlikely to occur

												in farmed pastureland
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	0	5250	No	No- Very unlikely to occur in farmed pastureland
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	1B.2	G5T3	S2	None	None	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	15	5465	No	Yes- Possible but unlikely due to heavy grazing/tillage
<i>Howellia aquatilis</i>	water howellia	2B.2	G3	S2	None	FT	Jun	Marshes and swamps (freshwater)	3555	4230	No	No-Found at higher elevations
<i>Kopsiopsis hookeri</i>	small groundcone	2B.3	G4?	S1S2	None	None	Apr-Aug	North Coast coniferous forest	295	2905	No	No-No host plants/forest habitat
<i>Lathyrus glandulosus</i>	sticky pea	4.3	G3	S3	None	None	Apr-Jun	Cismontane woodland	980	2625	No	No-found at higher elevations, very unlikely in pastureland
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	G3	S3	None	None	May-Aug	Lower montane coniferous forest, North Coast coniferous forest	5	4265	No	Marginal- Possible but unlikely in edge habitat
<i>Lilium rubescens</i>	redwood lily	4.2	G3	S3	None	None	Apr-Aug(Sep)	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	95	6265	No	No- very unlikely to occur in farmed pastureland or in type of edge habitat present- not rocky enough

<i>Listera cordata</i>	heart-leaved twayblade	4.2	G5	S4	None	None	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	15	4495	No	No-not forest habitat
<i>Lycopodium clavatum</i>	running-pine	4.1	G5	S3	None	None	Jun-Aug(Sep)	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	145	4020	No	No- Very unlikely to occur in farmed pastureland
<i>Meesia triquetra</i>	three-ranked hump moss	4.2	G5	S4	None	None	Jul	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic)	4265	9690	No	No- Very unlikely to occur in farmed pastureland
<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	4.2	G5	S4	None	None	(Mar)Apr-Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	15	5575	No	No- Very unlikely to occur in farmed pastureland
<i>Montia howellii</i>	Howell's montia	2B.2	G3G4	S2	None	None	(Jan-Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	0	2740	No	Yes- Possible in areas with thinner soils and on access road
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	G4T4	S2S3	None	None	(Jan-Apr)May-Jul(Aug)	Coastal scrub, North Coast coniferous forest	95	2135	No	No- Very unlikely to occur in farmed pastureland
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	G3	S3	None	None	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	95	4300	No	No- No forest habitat

<i>Pityopus californicus</i>	California pinefoot	4.2	G4G5	S4	None	None	(Mar-Apr)May-Aug	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	45	7300	No	No- No forest habitat
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	G4	S4	None	None	(Mar)Apr-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	0	5250	No	Yes- Possible in pastureland
<i>Sanicula tracyi</i>	Tracy's sanicle	4.2	G4	S4	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	325	5200	No	No- No forest habitat
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	G3	S3	None	None	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	0	2395	No	Yes- Possible on fence lines, edge habitat
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	1B.2	G5T2	S2	None	None	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	45	2885	No	Yes- Possible on fence lines, edge habitat
<i>Tracyina rostrata</i>	beaked tracyina	1B.2	G2	S2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	295	2590	No	Marginal- Possible in pastureland, unlikely due to grazing/tillage

<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	G4	S4	None	None		Broadleafed upland forest, North Coast coniferous forest	160	4790	No	No-No forest habitat
<i>Wyethia longicaulis</i>	Humboldt County wyethia	4.3	G4	S4	None	None	May-Jul	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	2460	5005	No	Marginal-Possible in pastureland, unlikely due to grazing/tillage

*Listing codes are as follows (CNPS 2018a): California Rare Plant Rank (CRPR) 1B = rare, threatened, or endangered in CA and elsewhere; 2B = rare, threatened, or endangered in CA, but more common elsewhere; 3 = plants about which more information is needed; a review list; 4 = of limited distribution or infrequent throughout a broader area in California. Ranks at each level also include a threat rank and are determined as follows: 0.1-Seriously threatened in California; 0.2-Moderately threatened in California; 0.3-Not very threatened in California. Global Ranking (GRank) - The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range: G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres; G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres; G3 = 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres; G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat; G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world. State Rank (SRank) The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank: S1: Fewer than 6 viable occurrences worldwide/ statewide, and/ or up to 518 hectares; S2: 6-20 viable occurrences worldwide/ statewide, and/ or more than 518-2,590 hectares; S3: 21-100 viable occurrences worldwide/ statewide, and/or more than 2,590-12,950 hectares; S4: Greater than 100 viable occurrences worldwide/ statewide, and/or more than 12,950 hectares; S5: Demonstrably secure because of its worldwide/ statewide abundance. Additional Threat Ranks: 0.1=Very threatened; 0.2=Threatened; 0.3= No current threat known. CESA: California Endangered Species Act: CR: state-listed (NPPA) RARE; CE = state-listed ENDANGERED; FESA: Federal Endangered Species Act: FE = federally listed ENDANGERED

Sensitive Natural Communities

Results

No sensitive natural communities would be impacted by the proposed project. However, wetland indicator plant species were dominant in some parts of the eastern portion of the Survey Area, indicating the possible presence of a seasonal wetland. These species include plants such as brome fescue (*Festuca bromoides* FAC), annual poa (*Poa annua*, FAC), Himalayan blackberry (*Rubus armeniacus* FAC) and pennyroyal (*Mentha pulegium*, OBL).

Discussion

A wetland delineation of the project area is needed, and all resulting wetland boundaries should be buffered from development under the setbacks outlined in the California State Water Resources Control Board (SWRCB) *General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Dischargers of Waste Associated with Cannabis Cultivation Activities* (SWRCB 2017).

Invasive Species

The eastern and southern portions of the survey area are invaded by Himalayan blackberry (*Rubus armeniacus*, Cal-IPC 'High'), forming a shrub layer that gets mowed every few years. Small populations of French broom (*Genista monspessulana*, Cal-IPC 'High') were identified along the northern and southern perimeters of the Survey Area, along the windbreak and the Class IV drainage ditch

Himalayan Blackberry (*Rubus armeniacus*) is an evergreen thorny shrub in the rose family (Rosaceae), which can reach over 10 feet in height (DiTomaso et.al 2013). It spreads vigorously via rhizomes and stem tip rooting, and the seeds are dispersed by birds and other wildlife. It is distinguished from two native, related berry species (California blackberry (*Rubus ursinus*), and whitebark raspberry (*Rubus leucodermis*)), by the stem being hexagonal in cross section, stem color, leaflet number, stature, and other traits. Within the surveyed area, populations of Himalayan blackberry were extensive, covering an estimated 10% of the Survey Area. Where it occurs, it forms dense thickets that have historically been mowed and therefore kept low in stature.

The persistent underground reproductive structures that re-sprout vigorously when the plant is disturbed can make removal and management of this species difficult, especially when patch sizes are extensive. While use of chemical (herbicide) control is common in largescale infestations, chemicals alone are not always effective and frequently require some mechanical and or manual treatment as well (DiTomaso et. al 2013; Bossard, Randall and Hoshovsky 2000). The timing and method of application of herbicides are also critical to success (DiTomaso et. al 2013). Additionally, some authors do not recommend the use of herbicides due to ineffectiveness and the stimulation of adventitious shoots (Bossard, Randall and Hoshovsky 2000). For small populations, manual and or/

mechanical removal is proven effective if a follow-up maintenance schedule is kept, as subsequent removal of re-sprouting canes will slowly starve the root crowns. (DiTomaso et. al 2013; Bossard, Randall and Hoshovsky 2000). Goats and pigs are effective animal control for Himalayan blackberry, if penned into the affected area for long enough to eat down the canes and their re-sprouts (DiTomaso et. al 2013).

French Broom (*Genista monspessulana*) is a long-lived perennial evergreen shrub in the pea family (Fabaceae). The leaves are composed of three leaflets, and the upright stems are often green and photosynthesizing. The flowers are yellow and resemble the flowers of familiar garden peas. It produces an abundant annual seed crop, produced in dehiscent hairy black pods, and seed can remain viable in the soil for up to 30 years (DiTomaso et. al 2013). Populations were along the northern and southern perimeters of the Survey Area, along the windbreak and the Class IV drainage ditch.

Mechanically pulling individual shrubs from the ground by hand or with the use of a weed wrench is effective at killing individuals, but abundant re-sprouting from the seedbank usually follows associated soil disturbance, making control difficult once populations are established (DiTomaso et. al 2013).

VIII. Management Recommendations

- The project could have some impacts on nesting northern spotted owls **if** project construction uses heavy equipment and it occurs during the breeding season (March-August). As per the NSO protocol (2012), if heavy equipment for construction and planting will be used during the breeding season (March- August), then the project should do one year of “disturbance only” surveys to ensure no NSO are nesting within 0.25 miles of the project area. Alternatively, the project construction could not use any heavy equipment, or construction could take place outside of the breeding season.
- If construction of the infrastructure and initial planting takes place during the nesting season, preconstruction surveys western pond turtle nests will be conducted within the project footprint. If nests are found, they will be buffered and undisturbed until turtles have hatched and left the nest. As is standard practice CDFW will be consulted to help with buffer sizing. Often CDFW takes into account specific local factors when making buffer size decisions.
- If construction and initial planting takes place during the migratory bird breeding season (Feb 15- August 31), preconstruction surveys for migratory birds should be conducted. A three pass survey of the entire footprint of the project plus a 300 foot buffer should be done no more than 7 days prior to the start of construction/ planting.
- Strict adherence to Riparian Setback Requirements for Humboldt County and State Water Board are required to maintain quality habitat for amphibians and anadromous fish.

- Propagation (nursery) hoophouses utilizing early-season, low impact lighting will require tarps to block all potential light pollution from at least one hour prior to sunset through at least one hour past sunrise.
- No use of plastic support netting. This plastic netting is a hazard to all forms of wildlife and is not to be used. CDFW recommends using netting of natural materials such as jute or hemp, with no welded seams.
- No rodenticides shall be used.

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Appendix A: Photos taken December 11, 2019



Photo 1. View from proposed full sun outdoor project area, looking west towards existing hoopouses



Photo 2. View of existing hoophouses and rain catchment tank; Eel River to left of row of pines



Photo 3. View of residence taken from garage (to right), looking west



Photo 4. Culvert from Class II watercourse entering ditch (proposed cultivation area visible)



Photo 5. View of eastern ephemeral Class III watercourse



Photo 6. View of the middle Class III ephemeral watercourse



Photo 7. View of upland habitat from Eel River bar



Photo 8. View from parcel entrance, south to Eel River (not visible, between river bar and road); no bank habitat for bank swallows



Photo 9. View of parcel entrance from river bar; no bank habitat for bank swallows

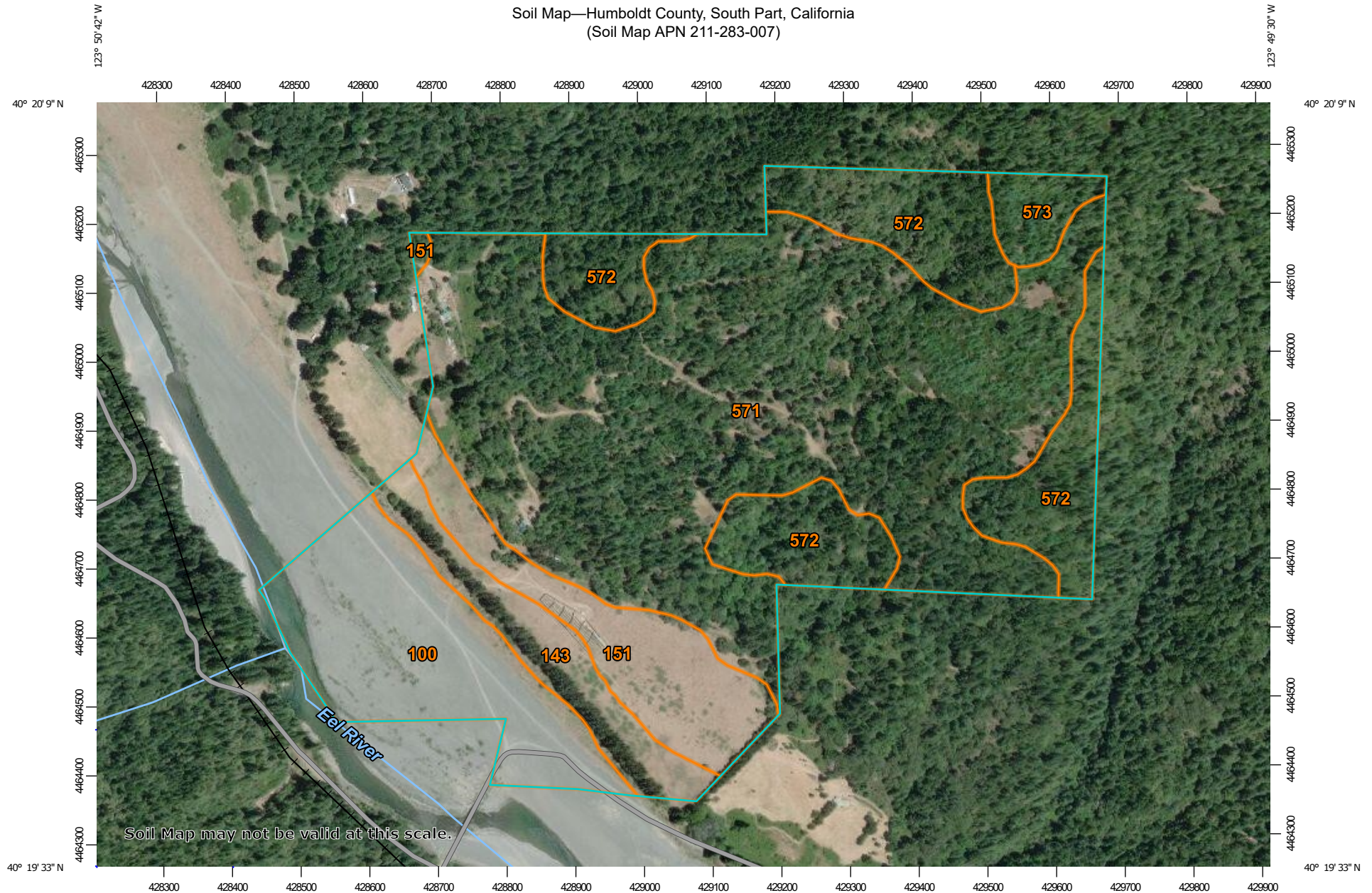
Appendix B. Floristic Plant List

FAMILY	SCIENTIFIC NAME	COMMON NAME	LIFEFORM	STATUS
APIACEAE	<i>Torilis arvensis</i>	Field hedge parsley	Annual herb	invasive
ASTERACEAE	<i>Carduus pycnocephalus</i>	Italian thistle	Annual herb	invasive
	<i>Cirsium vulgare</i>	Bullthistle	Perennial herb	invasive
	<i>Hypochaeris radicata</i>	Hairy cats ear	Perennial herb	invasive
	<i>Matricaria discoidea</i>	Pineapple weed	Annual herb	native
	<i>Silybum marianum</i>	Milk thistle	Annual, Perennial herb	invasive
	<i>Soliva sessilis</i>	South american soliva	Annual herb	non-native
BRASSICACEAE	<i>Raphanus sativus</i>	Jointed charlock	Annual, Biennial herb	invasive
CARYOPHYLLACEAE	<i>Cerastium glomeratum</i>	Large mouse ears	Annual herb	non-native
	<i>Spergularia rubra</i>	Purple sand spurry	Annual, Perennial herb	non-native
FABACEAE	<i>Genista monspessulana</i>	French broom	Shrub	invasive
	<i>Medicago polymorpha</i>	California burclover	Annual herb	invasive
	<i>Trifolium dubium</i>	Shamrock	Annual herb	non-native
	<i>Trifolium subterraneum</i>	Subterranean clover	Annual herb	non-native
	<i>Vicia sativa ssp. nigra</i>	Smaller common vetch	Annual herb, Vine	non-native
GERANIACEAE	<i>Geranium dissectum</i>	Wild geranium	Annual herb	invasive
JUNCACEAE	<i>Juncus bufonius</i>	Common toad rush	Annual grasslike herb	native
LAMIACEAE	<i>Mentha pulegium</i>	Pennyroyal	Perennial herb	invasive
MYRSINACEAE	<i>Lysimachia arvensis</i>	Scarlet pimpernel	Annual herb	non-native
PLANTAGINACEAE	<i>Plantago lanceolata</i>	Ribwort	Perennial herb	invasive
	<i>Plantago major</i>	Common plantain	Perennial herb	non-native
POACEAE	<i>Briza minor</i>	Little rattlesnake grass	Annual grass	non-native
	<i>Bromus diandrus</i>	Ripgut brome	Annual grass	invasive
	<i>Bromus hordeaceus</i>	Soft chess	Annual grass	invasive
	<i>Bromus racemosus</i>	Smooth brome	Annual grass	non-native
	<i>Festuca bromoides</i>	Brome fescue	Annual grass	non-native
	<i>Festuca perennis</i>	Italian rye grass	Annual, Perennial grass	invasive
	<i>Hordeum marinum ssp. gussoneanum</i>	Barley	Annual grass	non-native
	<i>Hordeum murinum</i>	Foxtail barley	Annual grass	invasive
	<i>Phalaris aquatica</i>	Harding grass	Perennial grass	invasive
	<i>Poa annua</i>	Annual blue grass	Annual grass	non-native
	<i>Poa c.f. trivialis</i>	Rough blue grass	Perennial grass	non-native

	<i>Polypogon monspeliensis</i>	Annual beard grass	Annual grass	invasive
POLYGONACEAE	<i>Rumex acetosella</i>	Sheep sorrel	Perennial herb	invasive
	<i>Rumex c.f. crispus</i>	Curly dock	Perennial herb	invasive
RANUNCULACEAE	<i>Ranunculus parviflorus</i>	Few flowered buttercup	Annual herb	non-native
ROSACEAE	<i>Rubus armeniacus</i>	Himalayan blackberry	Shrub	invasive

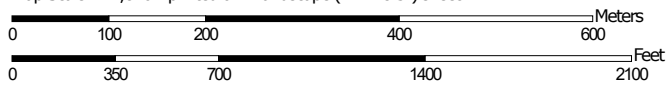
Appendix C. NRCS Soil Map (NRCS 2019)

Soil Map—Humboldt County, South Part, California
(Soil Map APN 211-283-007)



Soil Map may not be valid at this scale.

Map Scale: 1:7,810 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

1/10/2020
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Humboldt County, South Part, California

Survey Area Data: Version 8, Sep 17, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Nov 6, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
100	Water and Fluvents, 0 to 2 percent slopes	24.1	12.9%
143	Shivelyflat, 0 to 2 percent slopes	10.6	5.7%
151	Parkland-Garberville complex, 2 to 9 percent slopes	15.1	8.1%
571	Sproulish-Canoeecreek-Redwohly complex, 30 to 50 percent slopes	99.4	53.4%
572	Canoeecreek-Sproulish-Redwohly complex, 50 to 75 percent slopes	33.0	17.8%
573	Sproulish-Canoeecreek-Redwohly complex, 15 to 30 percent slopes, warm	3.9	2.1%
Totals for Area of Interest		186.0	100.0%