

16188 - Attachment 4B

Biological Survey Report

Humboldt County APN 223-101-004-000

Prepared for:

Rising Goat Limited

Prepared by:

Michelle McKenzie, Wildlife Biologist

and

Claire Brown, Botanist

Natural Resources Management Corporation

1434 Third Street

Eureka, CA 95501

July 2020



Table of Contents

I. Summary of Findings and Conclusions	1
II. Introduction	2
III. Background and Project Understanding	4
Project Site	4
Project Description	4
IV. Environmental Setting	7
Topography and Hydrology	7
Historic Land Use	7
Vegetation	7
Soils	8
V. Methods	8
Pre-Field Review	8
Field Survey	21
VI. Wildlife: Survey Results and Discussion	22
Wildlife: Summary of Findings	22
Wildlife: Survey Results and Discussion	22
VII. Botany: Survey Results and Discussion	28
Special Status Plants	28
Results	28
Discussion	28
Sensitive Natural Communities	37
Results and Discussion	37
VIII. Management Recommendations	37
IV. References Cited	38
Appendix A: Photos taken April 15, 2020	40
Appendix B: Well Report	47
Appendix C. Floristic Plant List	49
Appendix D. NRCS Soil Map (NRCS 2020)	53

Figures

Figure 1. Vicinity map for APN 223-101-00.....	3
Figure 2. Project map (topographic)	5
Figure 3. Project map (Survey Route in pink).	6
Figure 4. NSO Activity Centers in the vicinity of APN 223-101-004	10
Figure 5. CNDDDB occurrences in the vicinity of APN 223-101-004	11

Tables

Table 1. CNDDDB list of potential special status wildlife species from nine-quad area	8
Table 2. CNDDDB special status plant species from nine-quad area surrounding project (CNPS 2019a). ...	14
Table 3. Special status species, suitable habitat in project area, and potential impacts	24
Table 4. Species detected at APN 223-101-004 on April 15, 2020	28
Table 5. Summary of botanical survey results (Table Data: CNPS 2019a).....	29

I. Summary of Findings and Conclusions

The project at parcel APN 223-101-004 is located approximately five air miles east of US Highway 101 and the town of Garberville, and approximately six air miles southwest of Alderpoint, in Humboldt County, California (Figure 1). The project involves cannabis cultivation and related infrastructure (Figure 2). Historically, the parcel has been the site of cannabis cultivation; the current landowner is applying for a cultivation permit under the Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO) 2.0 as an existing cultivator for 18,000 square feet of mixed light.

This Biological Report reviews the proposed project at Humboldt County APN 223-101-004 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 2 for a list of reviewed plant species.

No habitat for listed or sensitive wildlife species (special status species) was identified in the vicinity of the project area, and none of these species were observed. No special status plant species were found within the project area. The project area lies within a matrix of Oregon white oak woodland, or *Quercus garryana* (tree) Forest & Woodland Alliance, a sensitive natural community with a rank of S3. However, no impacts to this community are proposed. We have determined that there will be no impacts to special status plant species, sensitive natural communities, or wildlife special status species.

Summary of Further Surveys Needed and Mitigation Recommendations

- Strict adherence to Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO) 2.0 regarding performance standard for noise at cultivation sites (55.4.12.6) for generator use, when implemented into operations in the future. Generator will need to be housed in a ventilated and sound-insulated box to reduce noise pollution.
- 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. For example (not endorsement), see this product made in southern Humboldt: <https://consciousgardeners.com/>
- No rodenticides shall be used.
- No further wildlife surveys are needed.

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). Species with potential habitat present, or whose presence was not confirmed but potentially occur in the general area are found in Table 3. 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. In addition, these areas were surveyed 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 CDFW. We conducted seasonally appropriate 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 2.

Historically, the parcel has been the site of cannabis cultivation as well as a less than 3-acre conversion. This biological assessment evaluated these same areas plus a 200-foot buffer, referred to throughout this report as the Study Area. The timber conversion is being addressed in a separate document.

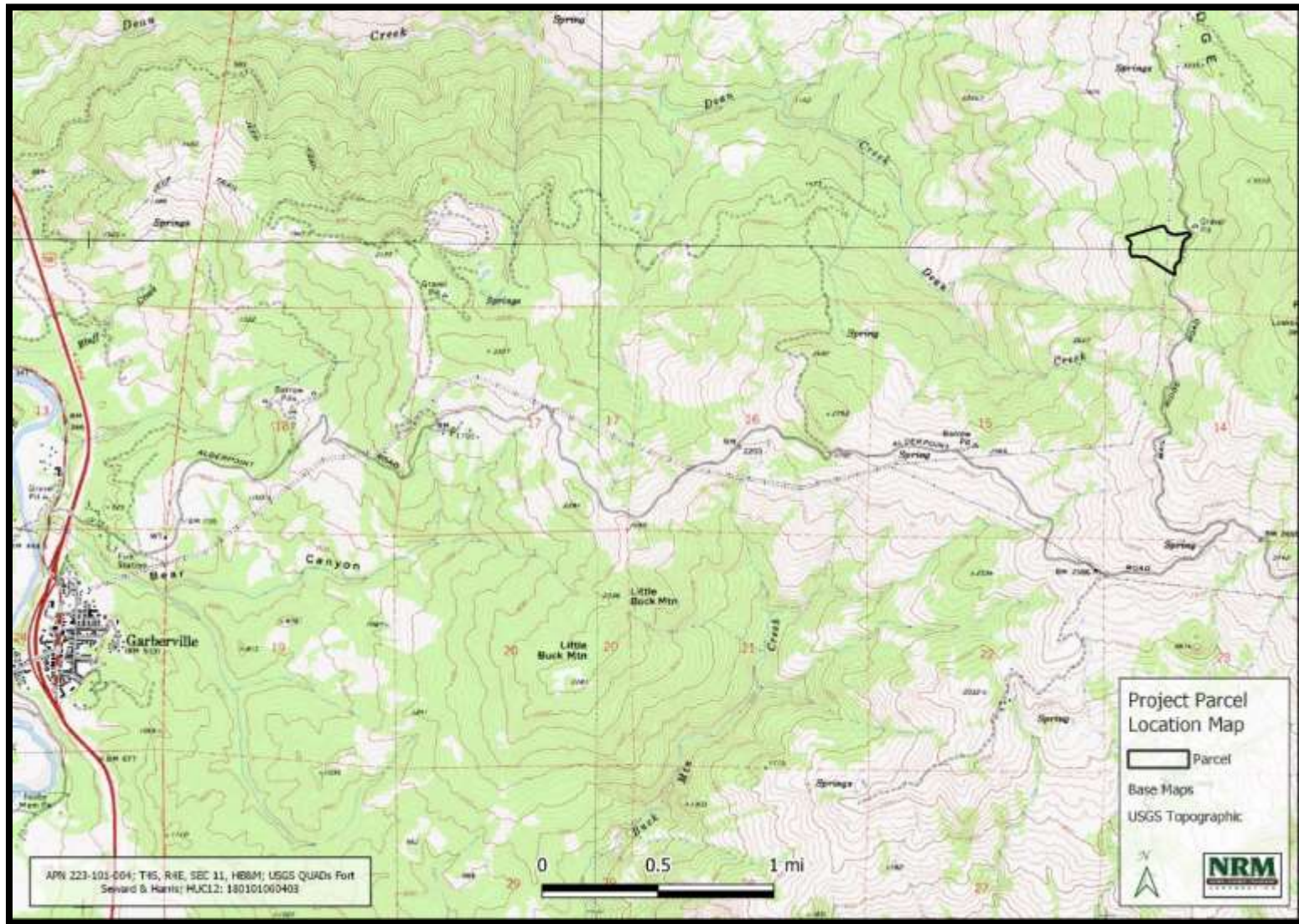


Figure 1. Vicinity map for APN 223-101-00

III. Background and Project Understanding

Project Site

The project at parcel APN 223-101-004 is located approximately 5 air miles east of US Highway 101 and the town of Garberville, and approximately 6 air miles southwest of Alderpoint, in Humboldt County, California. The site address is 1400 Ross Road, Garberville, 95542. The legal description is T04S, R04E, Section 11, HB&M within the USGS 7.5' Fort Seward and Harris quadrangles (Figure 1).

The parcel is accessed from Alderpoint Road in Garberville to Dyerville Loop Road; the parcel begins at the intersection with Dyerville Loop Road and Ross Road. Currently onsite are a residence, 9 greenhouses and a storage building (Photos 1-3). The residence is being dismantled by the new landowner (purchased May 2020), beginning in October.

When viewing the general area in Google Earth Imagery (1998-2019, Google Earth Pro 2020), it appears between 2010 and 2012 trees around the residence were cleared for cannabis cultivation, a typical land use in the general area. The region northeast of the parcel for approximately 2.3 miles, between Steelhead Creek and the Eel River, appears inundated with cannabis cultivation when viewed in satellite imagery.

Project Description

The current landowner is applying for a cultivation permit under the Humboldt County CCLUO (2.0) as an existing cultivator for 18,000 square feet of mixed light. Pending permitting, current plans are to begin with 10,000 square feet within existing greenhouses. There are 2 cultivation areas, the northernmost area is small and contains 2 greenhouses (22-foot by 66-foot); the area near the residence has 6 greenhouses of the same size and one smaller (16-foot by 20-foot). The cultivation flat nearest the house has a Class III watercourse channel along the southern edge; the nearest existing greenhouse is outside the CCLUO required 50-foot buffer (Figures 2, 3). The two northernmost greenhouses (Figures 2, 3) will be used for the 2020 growing season, pending permitting, then dismantled. This area will be cleared of garbage and cultivation waste (Photos 4-5) and replanted with native vegetation such as a native grass mix.

Some early-season accessory lighting (low-watt compact fluorescent) will be utilized to keep young starts in a vegetative, non-flowering state. These bulbs project light only a short distance but greenhouses will nonetheless be covered with tarps to prevent any potential light pollution and disruption to local wildlife. This is the only use of lights for cultivation purposes. A generator housed within a sound-insulated containment box with proper ventilation will be used for running the generator, as well for lighting the temporary trailer used as a residence.

Future plans include grading a flat where the residence currently exists for the installation of a 30-foot by 100-foot (3,000 square feet) greenhouse, requiring some grading. In addition, the landowner is working towards the development of a solar system capable of generating 80 percent of electricity needs by November 2020 and anticipates little to no generator use after that.

Water for irrigation will provided by the onsite, permitted well (October 2016, Appendix B). Water is pumped (solar run) from the well to five 3,500-gallon tanks (17,500 gallons total capacity) located on the hill above the house, and gravity-fed to greenhouses. Plants will be watered by drip-system to avoid overwatering.



Figure 2. Project map (topographic)



Figure 3. Project map (Survey Route in pink).

IV. Environmental Setting

Topography and Hydrology

The 20-acre project parcel occupies the west side of north-south trending Mail Ridge, with elevations ranging from approximately 2,980 feet along the eastern border of the parcel to 2,660 feet at the northwest corner. The developed area of the parcel is between 2,750 feet and 2,800 feet in elevation. Situated nearly equidistant from the mainstem Eel River to the east (5.5 air miles) and the South Fork Eel River to the west (5 air miles) on a west-facing slope, this odd-shaped parcel has an approximate 320 feet in elevation change from east to west (Figure 2).

The mainstem Eel River, a Class I fish bearing watercourse, flows northwest to the confluence with South Fork Eel River at Dyerville, continuing another 20 air miles to the confluence with the Van Duzen River, then flows approximately 12 additional air miles to the Pacific Ocean. There are two watercourses on the parcel. An unnamed Class III, running east to west south of the cultivation area, and an unnamed Class II that runs east to west along the northern property boundary. The Class II is a tributary to Dean Creek, which flows into the South Fork Eel River just north of Redway approximately 1.5 miles in Humboldt Redwoods State Park (HRSP). The Class III (Photo 6) was not flowing at the time of the site visit but there some areas of standing water. This watercourse has a culvert where the old ranch road continues to the south parcel boundary (Figure 2). Just east of the greenhouses is an artificial ditch approximately 50 feet long that parallels the Class III watercourse before joining it; the purpose is unknown and no water was flowing at the time of the site visit.

The landscape in this area of southern Humboldt County is characterized by dominant ridges of open prairie grassland habitats interspersed with patches of oak woodland, mixed evergreen forest, and forested watercourses.

Historic Land Use

The project area has been used historically as an illegal cultivation site, and the entire project footprint has been significantly disturbed and altered.

Vegetation

The project site is within the USDA Ecoregion Section M261Bb: Sierran Forest - Alpine Meadows Province/ Northern California Coast Ranges Section/ Central Franciscan subsection (CALVEG 2004).

The Study Area lies within an oak-woodland portion of a regional mosaic of cismontane oak woodland, mixed evergreen forest, and foothill and valley grassland (Holland 1986).

The directly adjacent oak woodlands are made up of approximately 10% California black oak (*Quercus kelloggii*) and 90% Oregon white oak (*Quercus garryana*), with California Buckeye (*Aesculus californica*) Douglas-fir (*Pseudotsuga menziesii*), madrone (*Arbutus menziesii*), and California bay (*Umbellularia californica*) also present.

Mixed evergreen forests in the area are largely comprised of Douglas-fir, tanoak (*Notholithocarpus densiflorus*) and California bay.

Soils

Soils within the Study Area are mapped by the Natural Resources Conservation Service (NRCS) as Map Unit 673—Coolyork-Yorknorth complex, 30 to 50 percent slopes and 451—Burgsblock-Coolyork-Tannin complex, 15 to 30 percent slopes (NRCS 2020) See NRCS soil map in Appendix D. The NRCS describes these soil series as follows:

“The Coolyork series consists of very deep, moderately well drained soils formed in residuum and colluvium derived from chloritic schist, mudstone and sandstone. Coolyork soils are on mountains and slopes range from 5 to 75 percent. The mean annual precipitation is about 1500 mm and the mean annual air temperature is about 13 degrees C” (NRCS 2020).

“The Yorknorth series consists of very deep, moderately well drained soils that formed in material weathered from chloritic schist and other sedimentary and metamorphic rocks. Yorknorth soils are on hills and mountains and have slopes of 2 to 50 percent. The mean annual precipitation is about 1650 millimeters and the mean annual temperature is about 14 degrees C” (NRCS 2020).

“The Burgsblock series consists of very deep, well drained soils that formed in colluvium and residuum derived from sandstone and mudstone. Burgsblock soils are on mountains and have slopes of 15 to 75 percent. The mean annual precipitation is about 2160 mm and the mean annual temperature is about 13 degrees C” (NRCS 2020).

“The Tannin series consists of very deep, well drained soils formed in colluvium and residuum derived from sandstone and mudstone. Tannin soils are on mountains. Slope ranges from 9 to 75 percent. Mean annual precipitation is about 2160 mm and the mean annual temperature is about 13 degrees C” NRCS 2020).

V. Methods

Pre-Field Review

Wildlife

Prior to initiating field surveys, a query of the CDFW California Natural Diversity Data Base (CNDDB 2020) for wildlife species occurrences within a nine-quad topographic 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. Potential special status wildlife species from the nine-quad area surrounding the project parcel

Common Name	Scientific Name	Federal / State Listing
golden eagle	<i>Aquila chrysaetos</i>	Fully Protected, Watch List, USFWS Bird of Conservation Concern (BCC)
American peregrine falcon	<i>Falco peregrinus anatum</i>	Fully Protected
Cooper’s hawk	<i>Accipiter cooperii</i>	Watch List
osprey	<i>Pandion haliaetus</i>	Watch List

little willow flycatcher	<i>Empidonax traillii brewsteri</i>	State Endangered
fisher- west coast DPS	<i>Pekania pennanti</i>	State Threatened, Species of Special Concern (SSC)
pallid bat	<i>Antrozous pallidus</i>	SSC
northern red-legged frog	<i>Rana aurora</i>	SSC
foothill yellow-legged frog	<i>Rana boylei</i>	Candidate State Threatened, SSC
western pond turtle	<i>Emys marmorata</i>	SSC
southern torrent salamander	<i>Rhyacotriton variegatus</i>	SSC

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. The nearest AC (HUM0515) to the nearest project area is over 3 miles northwest (Figure 4). A CNDDDB database query for all special status wildlife species within a 1-mile radius of the project parcels returned no records; the nearest is for foothill yellow-legged frog (*Rana boylei*) in the Dean Creek area (Figure 5).

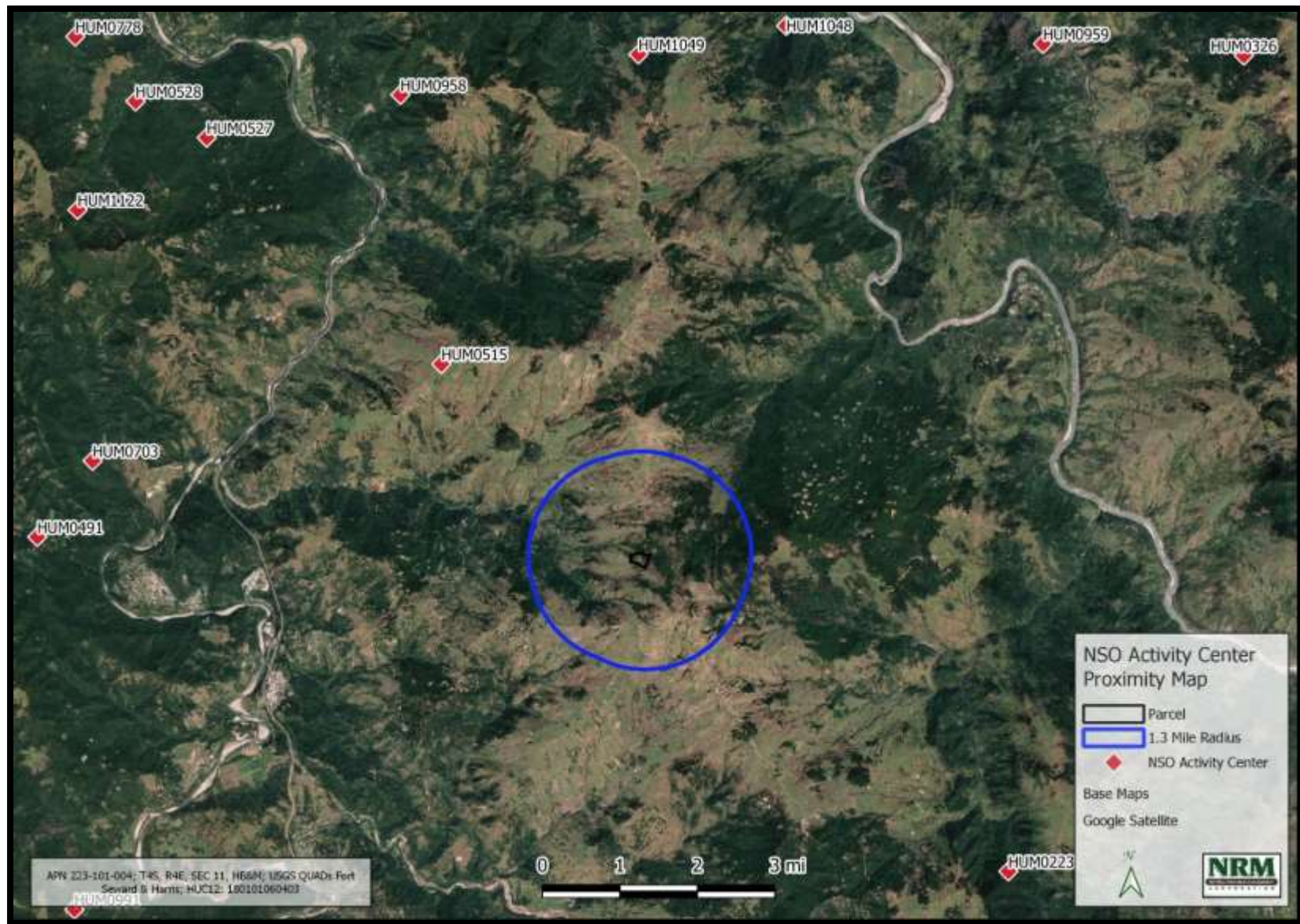


Figure 4. NSO Activity Centers in the vicinity of APN 223-101-004

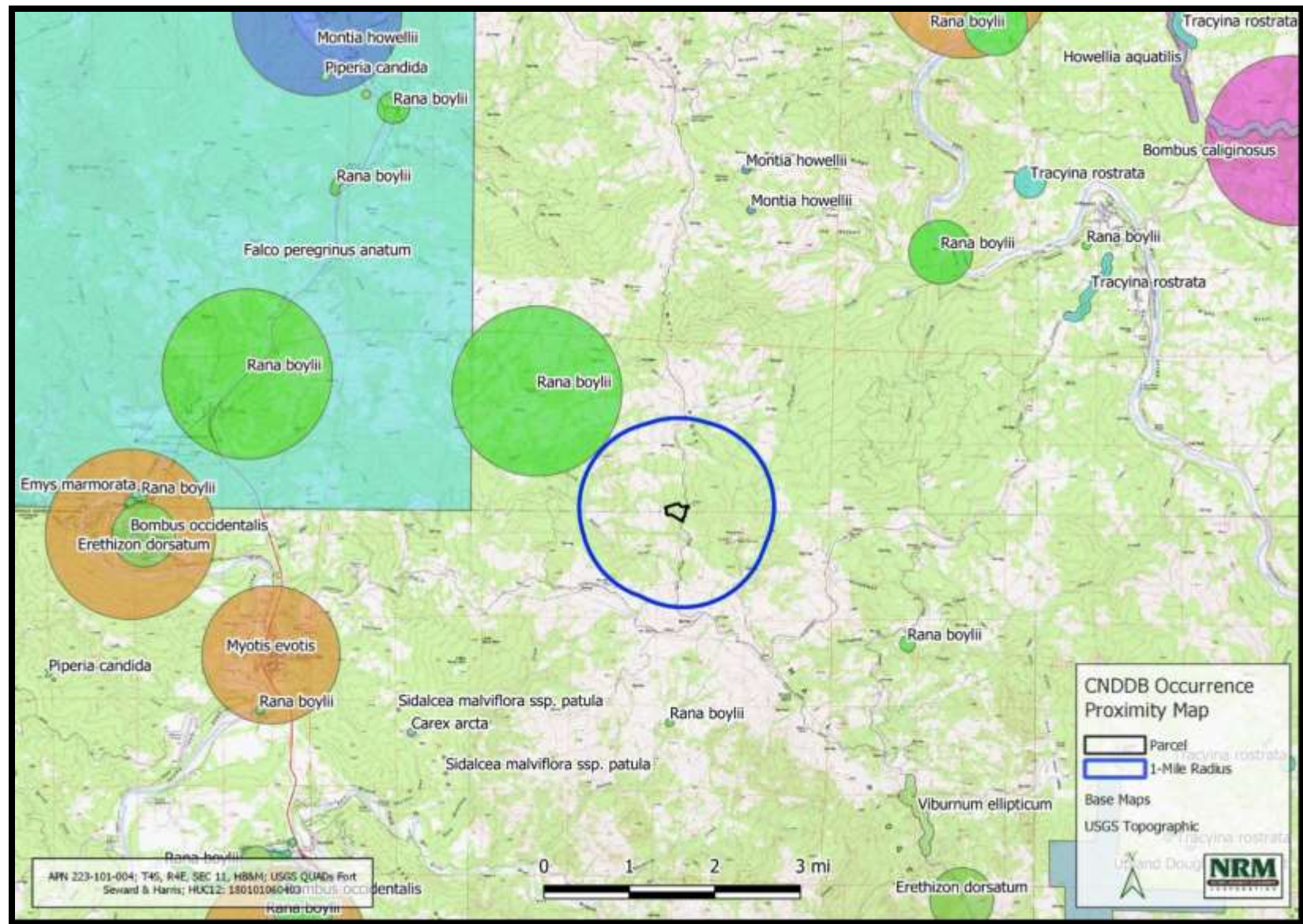


Figure 5. CNDDDB occurrences in the vicinity of APN 223-101-004

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 2020a) and the California Natural Diversity Database CNDDDB (CNDDDB 2020) were consulted to determine which special status plant species may occur within the project area and to compile a target species list. A nine-quad query of CNDDDB and CNPS Inventory records resulted in 51 listed vascular and nonvascular plant species (Table 2). 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 2020).

Other Sources:

- The Jepson Manual, 2nd Edition (Baldwin et al. 2012);
- Jepson eFlora (Jepson Flora Project 2020);
- The California Native Plant Society's Online Inventory of Rare and Endangered Plants of California (CNPS 2020a);
- A Manual of California Vegetation (Sawyer et al. 2009)
- A Manual of California Vegetation, Online Edition (CNPS 2020b);
- Consortium of California Herbaria (CCH 2020);
- Calflora online database (Calflora 2020).

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 2020). Common names of plant species are derived from The Calflora Database (Calflora 2020). Nomenclature for special-status plant species conforms to the Inventory of Rare and Endangered Plants of California (CNPS 2020) 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 2020b), and/or the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), where applicable.

Reference Populations

The following reference populations were visited preceding surveys:

Coast Fawn Lily (*Erythronium revolutum*): Lord Ellis Quad, on Chezam Rd; elevation 800 ft; visited 2019-03-20. Population 70% in bloom, 10% In bud, 20% vegetative.

Howell's Montia (*Montia howellii*): Korbel Quad, at the logger's palace; 150 ft elevation; visited 2020-04-20; plants senescing but detectable

Pacific Gilia (*Gilia capitata ssp. pacifica*): Lord Ellis Summit Quad, Snow Camp Rd; 2800 ft elevation; visited 2020-06-01; plants 80% in flower, 20% in bud.

Table 2. Special status plant species from nine-quad area surrounding project (CNDDDB 2020, CNPS 2019a).

Scientific Name	Common Name	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Elevation Low (ft)	Elevation High (ft)
<i>Allium hoffmanii</i>	Beegum onion	4.3	G4	S4	None	None	Jun-Jul	Lower montane coniferous forest (serpentinite)		3605	5905
<i>Anisocarpus scabridus</i>	scabrid alpine tarplant	1B.3	G3	S3	None	None	(Jun)Jul-Aug(Sep)	Upper montane coniferous forest (metamorphic, rocky)		5410	7545
<i>Arabis mcdonaldiana</i>	McDonald's rockcress	1B.1	G3	S3	CE	FE	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest	serpentinite	440	5905
<i>Arctostaphylos hispidula</i>	Howell's manzanita	4.2	G4	S3	None	None	Mar-Apr	Chaparral (serpentinite or sandstone)		390	4100
<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	Raiche's manzanita	1B.1	G3T2	S2	None	None	Feb-Apr	Chaparral, Lower montane coniferous forest (openings)	rocky, often serpentinite	1475	3395
<i>Arnica spathulata</i>	Klamath arnica	4.3	G3?	S3	None	None	May-Aug	Lower montane coniferous forest (serpentinite)		2095	5905
<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>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	4.3	G4T4	S4	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest	gravelly streambanks	95	2705
<i>Calamagrostis bolanderi</i>	Bolander's reed grass	4.2	G4	S4	None	None	May-Aug	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Meadows and seeps (mesic), Marshes and swamps	mesic	0	1495

								(freshwater), North Coast coniferous forest			
<i>Calystegia atriplicifolia ssp. buttensis</i>	Butte County morning-glory	4.2	G5T3	S3	None	None	May-Jul	Chaparral, Lower montane coniferous forest, Valley and foothill grassland	rocky, sometimes roadside	1850	5000
<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>Carex praticola</i>	northern meadow sedge	2B.2	G5	S2	None	None	May-Jul	Meadows and seeps (mesic)		0	10500
<i>Carex scabriuscula</i>	Siskiyou sedge	4.3	G4G5	S4	None	None	May-Jul	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	mesic, sometimes serpentinite seeps	2325	7695
<i>Ceanothus foliosus var. vineatus</i>	Vine Hill ceanothus	1B.1	G3T1	S1	None	None	Mar-May	Chaparral		145	1000
<i>Collomia tracyi</i>	Tracy's collomia	4.3	G4	S4	None	None	Jun-Jul	Broadleafed upland forest, Lower montane coniferous forest	rocky, sometimes serpentinite	980	6890
<i>Cryptantha rostellata</i>	red-stemmed cryptantha	4.2	G4	S3	None	None	Apr-Jun	Cismontane woodland, Valley and foothill grassland	Often gravelly, volcanic openings; often roadsides	130	2625
<i>Cypripedium californicum</i>	California lady's- slipper	4.2	G4	S4	None	None	Apr- Aug(Sep)	Bogs and fens, Lower montane coniferous forest	seeps and streambanks, usually serpentinite	95	9020

<i>Epilobium oreganum</i>	Oregon fireweed	1B.2	G2	S2	None	None	Jun-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	mesic	1640	7350
<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>Erigeron biolettii</i>	streamside daisy	3	G3?	S3?	None	None	Jun-Oct	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest	rocky, mesic	95	3610
<i>Eriogonum kelloggii</i>	Kellogg's buckwheat	1B.2	G2	S2	CE	None	(May)Jun-Aug	Lower montane coniferous forest (rocky, serpentinite)		1895	4100
<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>Eucephalus glabratus</i>	Siskiyou aster	4.3	G4	S3	None	None	Jul-Sep	Lower montane coniferous forest, Upper montane coniferous forest	rocky openings	390	8875
<i>Fritillaria glauca</i>	Siskiyou fritillaria	4.2	G3G4	S3	None	None	(Apr-May)Jun-Jul	Alpine boulder and rock field, Subalpine coniferous forest, Upper montane coniferous forest	serpentinite, talus slopes	5690	8005
<i>Gentiana setigera</i>	Mendocino gentian	1B.2	G2	S2	None	None	(Apr-Jul)Aug-Sep	Lower montane coniferous forest, Meadows and seeps	mesic	1095	3495
<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
<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>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>Lomatium engelmannii</i>	Engelmann's lomatium	4.3	G4	S3	None	None	May-Aug	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest	Serpentinite	2850	8990
<i>Lupinus constancei</i>	The Lassics lupine	1B.1	G1	S1	None	None	Jul	Lower montane coniferous forest (serpentinite)		4920	6560
<i>Micranthes marshallii</i>	Marshall's saxifrage	4.3	G5	S3	None	None	Mar-Aug	Riparian forest	rocky streambanks	295	6990
<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>Navarretia leucocephala ssp. bakeri</i>	Baker's navarretia	1B.1	G4T2	S2	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	Mesic	15	5710
<i>Packera bolanderi var. 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>Ptilidium californicum</i>	Pacific fuzz wort	4.3	G4G5	S3S4	None	None	May-Aug	Lower montane coniferous forest, Upper montane coniferous forest	Usually epiphytic on trees, fallen and decaying logs, and stumps; rarely on humus over boulders	3740	5905
<i>Sabulina decumbens</i>	The Lassics sandwort	1B.2	G1	S1	None	None	Jul	Lower montane coniferous forest, Upper montane coniferous forest	serpentinite	4920	5495
<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>Sedum laxum ssp. eastwoodiae</i>	Red Mountain stonecrop	1B.2	G5T2	S2	None	None	May-Jul	Lower montane coniferous forest (serpentinite)		1965	3935
<i>Sedum laxum ssp. flavidum</i>	pale yellow stonecrop	4.3	G5T3Q	S3	None	None	May-Jul	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	Serpentinite or volcanic	1490	6560

<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 ssp. 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>Silene campanulata ssp. campanulata</i>	Red Mountain catchfly	4.2	G5T3Q	S3	CE	None	Apr-Jul	Chaparral, Lower montane coniferous forest	usually serpentinite, rocky	1390	6840
<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		Broadleafed upland forest, North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers	160	4790
<i>Viburnum ellipticum</i>	oval-leaved viburnum	2B.3	G4G5	S3?	None	None	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest		705	4595

*Listing codes are as follows (CNPS 2020a):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 Survey

On April 15th, 2020 NRM wildlife biologist Michelle McKenzie, and botanist Claire Brown conducted a site visit to assess potential biological impacts of cannabis cultivation, habitat for sensitive and special status plant and animal species, and sensitive natural communities. Michelle has a B.S in Wildlife Management from Humboldt State University, with over twenty-five years of experience surveying for wildlife species across all taxa, primarily on the North Coast. Claire has a B.S. in Ecology and Evolutionary Biology from the University of Tennessee, has eight years of experience as a botanist in California, including three and a half years of experience conducting rare plant surveys on the North Coast. The project was surveyed for all terrestrial and aquatic plant and animal species present (Figure 3, survey route in pink). This was conducted for approximately 3 hours on a mild (67°F/19°C), partly sunny afternoon. Claire brown visited the site again on June 17th, 2020 for a late season botanical survey. The general habitat of the parcel can be seen in Photos 8-11.

While walking the Study 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.

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 survey was timed to identify potential habitat for the target species with potential to occur at the site elevation and within habitat and soil types present. See Table 2. The Study Area (Figure 3) 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 species list was recorded and is found in Appendix C.

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 2020b), 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.

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 3, 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 4. No spotted owl nesting or foraging habitat exists on the parcel; the nearest NSO habitat appears to be associated with known ACs, the closest of which is over 3 miles northwest of the Study Area (Figure 4). It has been determined that the project and operations will have no effect on northern spotted owls if they are present at historic ACs due to the distance from the proposed projects. Impacts to species from the proposed projects either directly or indirectly are expected to be minimal to non-existent.

Wildlife: Survey Results and Discussion

Special status and the potential for project impacts are presented in Table 3, 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 no NSO ACs in the general area of the proposed projects; the nearest over 3 miles from the Study Area. There is no suitable habitat for northern spotted owls within the 1.3 miles analysis buffer; the few forest patches within this radius either appear to have insufficient canopy cover or are limited in size.

The general area is dominated by open grassland prairie habitat-oak woodland mosaic, but the parcel is within a woodland portion. Although there is habitat optimal for golden eagle north along Mail Ridge as well as in areas to the south, no habitat exists on the parcel for nesting or foraging. Golden eagle will likely utilize open grasslands in the vicinity 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. The nearest CNDDDB record for this species is greater than 4 miles north, within a drainage that is tributary to the Eel River.

The edge habitats provided by interspersed forested patches are ideal hunting for Cooper's hawk; this species will likely utilize more dense, interior forested areas for nesting. 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 is expected by this wide-ranging species, with the most likely nesting habitat occurring within the Eel River corridor; this is expected to be the nearest nesting habitat for osprey as well.

There are no well-developed riparian vegetation areas associated with the watercourse on the parcel that would support species utilizing these habitats or vegetation, such as little willow flycatcher, yellow-legged frog, and red-legged frogs. The nearest habitat for foothill yellow-legged frog is within the Dean Creek

drainage over a mile northwest of the parcel. For little willow flycatcher, the nearest CNDDDB record is from Humboldt Redwoods State Park (HRSP), in a dense willow thicket on the South Fork Eel, approximately 6 air miles west of the parcel. The nearest CNDDDB record for pallid bat is also from HRSP. Although typically found in more open, arid habitats, this species can be found night roosting under bridges during warmer months in more forested habitats. Mostly a visual forager, this species is expected to occur in the vicinity of open grasslands during summer months.

Breeding habitat for fisher is expected in the general areas of NSO Activity Centers, where larger trees for denning structures may be available, however, suitably-sized black oak and other oak species are also adequate and are likely patchily distributed over the landscape. The nearest CNDDDB records are greater than 7 miles east of the parcel in forested habitat adjacent to watercourses on Six Rivers National Forest. Although a high percentage of canopy cover is required for this wide-ranging species, it may still occur in the larger, denser forest patches in the vicinity, and utilizing these patches to cover greater territory.

The western pond turtle is expected to occur within the major watersheds where adequate sunning is available on riverbanks, rocks and logs, such as the mainstem Eel and South Fork Eel Rivers.

Table 3. Special status species, suitable habitat in project area, and potential impacts

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
BIRDS					
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. Expected to forage in general vicinity, no nearby nesting habitat
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 preferred riparian habitat available off parcel adjacent to Eel River
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	No	No	No impact, given available habitat in general area; suitable woodland habitat for foraging or nesting greater than 500 feet

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	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 the nearest habitat that would support this species, approximately 5 miles east
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 likely found at Eel River and SF Eel 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	No	No	No impact; project area too open; denning habitat likely in vicinity of NSO Activity Centers, the nearest over 3 miles northwest of parcel; no nearby CNDDB records

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
pallid bat	SSC	Frequents open habitats for foraging, often taking prey on the ground; day roosts in caves, crevices and occasionally hollow trees and buildings; night roosts more open sites such as bridges and open buildings; prefers rocky outcrops, cliffs to access open habitats	No	No	No impact; optimal foraging available in general vicinity of grasslands and watercourses
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; primarily a pond-related species but also likely found in backwaters of the Eel River, approximately 5 miles from the project area
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	No	No	No impact; Dena Creek, Eel River and tributary waters likely provide optimal habitat for this species

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	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	No	No	No impact; Eel River and SF Eel River provide optimal habitat

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 4. Conditions were mild with temperatures around 70°C.

Table 4. Species detected at APN 223-101-004 on April 15, 2020

Common Name	Scientific Name	Federal / State Listing	Detection Method
turkey vulture	<i>Cathartes aura</i>	None	visual
pileated woodpecker	<i>Dryocopus pileatus</i>	None	visual
downy woodpecker	<i>Picoides pubescens</i>	None	visual
northern flicker	<i>Colaptes auratus</i>	None	auditory
acorn woodpecker	<i>Melanerpes formicivorus</i>	None	visual, auditory
sooty grouse	<i>Dendragapus fuliginosus</i>	None	auditory
golden-crowned kinglet	<i>Regulus satrapa</i>	None	visual, auditory
black phoebe	<i>Sayornis nigricans</i>	None	visual
dark-eyed junco	<i>Junco hyemalis</i>	None	visual
common raven	<i>Corvus corax</i>	None	visual, auditory
Steller's jay	<i>Cyanocitta stelleri</i>	None	visual
Pacific slope flycatcher	<i>Empidonax difficilis</i>	None	auditory
hermit gray warbler	<i>Setophaga occidentalis</i>	None	auditory
American goldfinch	<i>Spinus tristis</i>	None	visual
yellow-rumped warbler	<i>Setophaga coronata</i>	None	visual
warbling vireo	<i>Vireo gilvus</i>	None	auditory
Cassin's vireo	<i>Vireo cassinii</i>	None	auditory
western fence lizard	<i>Sceloporus occidentalis</i>	None	visual
Pacific chorus frog	<i>Pseudacris regilla</i>	None	visual

VII. Botany: Survey Results and Discussion

Special Status Plants

Results

No special status plants were identified during surveys. Overall results are summarized in Table 5.

Discussion

Special emphasis was placed on surveying for beaked tracyina (*Tracyina rostrata*) and Pacific gilia (*Gilia capitata ssp. pacifica*), as the Study Area presents likely habitat. However, no populations were found. Survey timing should have been such as to detect these species if present. However, there is always a possibility, especially with annual plants, that species could be present in the seed bank and not visible in any given year. However, weather patterns in 2020 were not outside the realm of normal and this scenario is unlikely. Table 5 summarizes survey results.

Table 5. Summary of botanical survey results (Table Data: CNPS 2020a)

Scientific Name	Common Name	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Elevation Low (ft)	Elevation High (ft)	Habitat present in Study Area?	Habitat present in Project Footprint?	Species Detected?
Allium hoffmanii	Beegum onion	4.3	G4	S4	None	None	Jun-Jul	Lower montane coniferous forest (serpentine)	3605	5905	No	No	No
Anisocarpus scabridus	scabrid alpine tarplant	1B.3	G3	S3	None	None	(Jun)Jul-Aug(Sep)	Upper montane coniferous forest (metamorphic, rocky)	5410	7545	No	No	No
Arabis mcdonaldiana	McDonald's rockcress	1B.1	G3	S3	CE	FE	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest	440	5905	No	No	No
Arctostaphylos hispidula	Howell's manzanita	4.2	G4	S3	None	None	Mar-Apr	Chaparral (serpentine or sandstone)	390	4100	No	No	No
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	1B.1	G3T2	S2	None	None	Feb-Apr	Chaparral, Lower montane coniferous forest (openings)	1475	3395	No	No	No
Arnica spathulata	Klamath arnica	4.3	G3?	S3	None	None	May-Aug	Lower montane coniferous forest (serpentine)	2095	5905	No	No	No
Astragalus agnicidus	Humboldt County milk-vetch	1B.1	G2	S2	CE	None	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest	390	2625	Marginal-possible in roadsides and areas in surrounding oak woodland habitat	No	No

Astragalus rattanii var. rattanii	Rattan's milk- vetch	4.3	G4T4	S4	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest	95	2705	Yes- Possible along streamsides and roadcuts	No	No
Calamagrostis bolanderi	Bolander's reed grass	4.2	G4	S4	None	None	May-Aug	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Meadows and seeps (mesic), Marshes and swamps (freshwater), North Coast coniferous forest	0	1495	No	No	No
Calystegia atriplicifolia ssp. buttensis	Butte County morning-glory	4.2	G5T3	S3	None	None	May-Jul	Chaparral, Lower montane coniferous forest, Valley and foothill grassland	1850	5000	No	No	No
Carex arcta	northern clustered sedge	2B.2	G5	S1	None	None	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)	195	4595	No	No	No
Carex praticola	northern meadow sedge	2B.2	G5	S2	None	None	May-Jul	Meadows and seeps (mesic)	0	10500	Marginal- possible along seepy Class III waterway	No	No
Carex scabriuscula	Siskiyou sedge	4.3	G4G5	S4	None	None	May-Jul	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	2325	7695	No	No	No

Ceanothus foliosus var. vineatus	Vine Hill ceanothus	1B.1	G3T1	S1	None	None	Mar-May	Chaparral	145	1000	No	No	No
Collomia tracyi	Tracy's collomia	4.3	G4	S4	None	None	Jun-Jul	Broadleafed upland forest, Lower montane coniferous forest	980	6890	Marginal-some rocky areas in oak woodland	No	No
Cryptantha rostellata	red-stemmed cryptantha	4.2	G4	S3	None	None	Apr-Jun	Cismontane woodland, Valley and foothill grassland	130	2625	Marginal-some rocky areas in oak woodland	No	No
Cypripedium californicum	California lady's-slipper	4.2	G4	S4	None	None	Apr-Aug(Sep)	Bogs and fens, Lower montane coniferous forest	95	9020	No	No	No
Epilobium oreganum	Oregon fireweed	1B.2	G2	S2	None	None	Jun-Sep	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	1640	7350	Marginal-Possible along Class III	No	No
Epilobium septentrionale	Humboldt County fuchsia	4.3	G4	S4	None	None	Jul-Sep	Broadleafed upland forest, North Coast coniferous forest	145	5905	No	No	No
Erigeron biolettii	streamside daisy	3	G3?	S3?	None	None	Jun-Oct	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest	95	3610	Marginal-Possible along Class III	No	No
Eriogonum kelloggii	Kellogg's buckwheat	1B.2	G2	S2	CE	None	(May)Jun-Aug	Lower montane coniferous forest (rocky, serpentinite)	1895	4100	No	No	No
Erythronium oregonum	giant fawn lily	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	325	3775	Yes- Possible along Class III and in oak woodland	No	No

Erythronium revolutum	coast fawn lily	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	0	5250	Yes- Possible along Class III and in oak woodland	No	No
Eucephalus glabratus	Siskiyou aster	4.3	G4	S3	None	None	Jul-Sep	Lower montane coniferous forest, Upper montane coniferous forest	390	8875	No	No	No
Fritillaria glauca	Siskiyou fritillaria	4.2	G3G4	S3	None	None	(Apr-May)Jun-Jul	Alpine boulder and rock field, Subalpine coniferous forest, Upper montane coniferous forest	5690	8005	No	No	No
Gentiana setigera	Mendocino gentian	1B.2	G2	S2	None	None	(Apr-Jul)Aug-Sep	Lower montane coniferous forest, Meadows and seeps	1095	3495	No	No	No
Gilia capitata ssp. pacifica	Pacific gilia	1B.2	G5T3	S2	None	None	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	15	5465	Yes- Possible in Oak Woodlands	Yes- Possible in disturbed margins	No
Howellia aquatilis	water howellia	2B.2	G3	S2	None	FT	Jun	Marshes and swamps (freshwater)	3555	4230	No	No	No
Kopsiopsis hookeri	small groundcone	2B.3	G4?	S1S2	None	None	Apr-Aug	North Coast coniferous forest	295	2905	No	No	No
Lilium rubescens	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	Yes-Possible in oak woodlands and along roads	No	No

Listera cordata	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	No
Lomatium engelmannii	Engelmann's lomatium	4.3	G4	S3	None	None	May-Aug	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest	2850	8990	No	No	No
Lupinus constancei	The Lassics lupine	1B.1	G1	S1	None	None	Jul	Lower montane coniferous forest (serpentine)	4920	6560	No	No	No
Micranthes marshallii	Marshall's saxifrage	4.3	G5	S3	None	None	Mar-Aug	Riparian forest	295	6990	No	No	No
Mitellastra caulescens	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	No
Montia howellii	Howell's montia	2B.2	G3G4	S2	None	None	(Jan- Feb)Mar- May	Meadows and seeps, North Coast coniferous forest, Vernal pools	0	2740	Yes- Possible in disturbed margins and roads	Yes- Possible in disturbed margins and roads	No
Navarretia leucocephala ssp. bakeri	Baker's navarretia	1B.1	G4T2	S2	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	15	5710	No	No	No

Packera bolanderi var. bolanderi	seacoast ragwort	2B.2	G4T4	S2S3	None	None	(Jan- Apr)May- Jul(Aug)	Coastal scrub, North Coast coniferous forest	95	2135	No	No	No
Piperia candida	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	Marginal- Possible in oak woodland	No	No
Pityopus californicus	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	Marginal- Possible in oak woodland	No	No
Ptilidium californicum	Pacific fuzz wort	4.3	G4G5	S3S4	None	None	May-Aug	Lower montane coniferous forest, Upper montane coniferous forest	3740	5905	No	No	No
Sabulina decumbens	The Lassics sandwort	1B.2	G1	S1	None	None	Jul	Lower montane coniferous forest, Upper montane coniferous forest	4920	5495	No	No	No
Sanicula tracyi	Tracy's sanicle	4.2	G4	S4	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	325	5200	Yes- Possible in oak woodlands	No	No
Sedum laxum ssp. eastwoodiae	Red Mountain stonecrop	1B.2	G5T2	S2	None	None	May-Jul	Lower montane coniferous forest (serpentine)	1965	3935	No	No	No

Sedum laxum ssp. flavidum	pale yellow stonecrop	4.3	G5T3Q	S3	None	None	May-Jul	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	1490	6560	No		No
Sidalcea malachroides	maple-leaved checkerbloom	4.2	G3	S3	None	None	(Mar)Apr-Aug	Broadleaved upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	0	2395	Marginal-more typically found in lower elevation coastal forests	Marginal-more typically found in lower elevation coastal forests	No
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	1B.2	G5T2	S2	None	None	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	45	2885	Yes- Possible in oak woodlands	No	No
Silene campanulata ssp. campanulata	Red Mountain catchfly	4.2	G5T3Q	S3	CE	None	Apr-Jul	Chaparral, Lower montane coniferous forest	1390	6840	No		No
Tracyina rostrata	beaked tracyina	1B.2	G2	S2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	295	2590	Yes- Possible in oak woodlands	Yes- Possible in disturbed margins and along roads	No
Usnea longissima	Methuselah's beard lichen	4.2	G4	S4	None	None		Broadleaved upland forest, North Coast coniferous forest	160	4790	Yes- Possible in oak woodlands and in creek drainages	No	No
Viburnum ellipticum	oval-leaved viburnum	2B.3	G4G5	S3?	None	None	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	705	4595	Yes- Possible in oak woodlands	No	No

*Listing codes are as follows (CNPS 2020a): 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 and Discussion

The project area lies within a matrix of Oregon white oak woodland, or *Quercus garryana* (tree) Forest & Woodland Alliance, a sensitive natural community with a rank of S3. Historical satellite imagery (1998-2019) available in Google Earth (Google Earth Pro 2020), indicates some Oregon white oak woodland was cleared for cultivation between 2010 and 2012. However, no additional tree clearing is proposed, and so there will be no impacts to this sensitive community from the proposed project.

VIII. Management Recommendations

- Strict adherence to Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO) 2.0 regarding performance standard for noise at cultivation sites (55.4.12.6) for generator use, when implemented into operations in the future. Generator will need to be housed in a ventilated and sound-insulated box to reduce noise pollution.
- 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. For example (not endorsement), see this product made in southern Humboldt: <https://consciousgardeners.com/>
- No rodenticides shall be used.
- No further wildlife surveys are needed.

IV. References Cited

- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken [editors]. 2012. *The Jepson Manual: Vascular Plants of California, 2nd edition, thoroughly revised and expanded*. University of California Press, Berkeley, CA.
- Calflora Database, The. 2020. *Information on Wild California Plants for Conservation, Education, and Appreciation*. Accessed from <http://www.calflora.org/>.
- California Department of Fish and Wildlife (CDFW). 2018a. *California Natural Communities List*. The Vegetation Classification and Mapping Program. Wildlife and Habitat Data Analysis Branch. Sacramento, CA.
- California Department of Fish and Wildlife (CDFW). 2018b. *State and Federally Listed Endangered, Threatened and Rare Plants of California*. California Natural Diversity Database. Biogeographic Data Branch, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW). 2018c. *Special Vascular Plants, Bryophytes, Lichens List*. California Natural Diversity Database. Habitat Conservation Division. Wildlife and Habitat Data Analysis Branch, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW). 2018d. *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities*. Wildlife and Habitat Data Analysis Branch, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW). 2018e. Survey of California Vegetation Classification and Mapping Standards. January 11, 2018
- California Native Plant Society (CNPS). 2020a. *Inventory of Rare and Endangered Plants* (online edition, v8). California Native Plant Society. Sacramento, CA. Accessed from <http://rareplants.cnps.org/> in May, 2019.
- California Native Plant Society (CNPS). 2020b. A Manual of California Vegetation, Online Edition. <http://www.cnps.org/cnps/vegetation/>; searched on June 11, 2019.
- California Natural Diversity Database (CNDDB). 2020. Rare Find 5 [Internet]. California Department of Fish and Wildlife [Version 5.2.14]. Accessed November 2019.

California State Water Resources Control Board (SWRCB). 2017. General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Dischargers of Waste Associated with Cannabis Cultivation Activities. California Water Boards. Sacramento, CA.

California Wildlife Habitat Relationships (CWHR). 2020. California Department of Fish and Wildlife [Internet] <https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range> Accessed April 2020.

Consortium of California Herbaria (CCH). 2020. Consortium database: Data provided by the participants of the Consortium of California Herbaria. Accessed from <http://www.ucjeps.berkeley.edu/consortium/>.

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 131 pp.

Google Earth Pro. 2020. Aerial historical imagery 1998-2019. Website <https://www.google.com/earth/>. Accessed April 2020.

Holland, R.F. Unpublished report 1986. *Preliminary Descriptions of the Terrestrial Plant Communities of California*. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Sacramento, CA.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published 28 April 2016.

Natural Resources Conservation Service (NRCS), United States Department of Agriculture. 2020. Web Soil Survey. Available online at the following link: <https://websoilsurvey.sc.egov.usda.gov/>. Accessed June 10, 2019.

Sawyer, J.O., T. Keeler-Wolf, J. Evans. 2009. *A Manual of California Vegetation*. California Native Plant Society Press, Sacramento, CA.

United States Fish and Wildlife Service (USFWS). (Revised) 2012. Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls.

United States Fish and Wildlife Service (USFWS). 2008. Attachment B: Take and Avoidance Analysis- Interior. Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls.

Appendix A: Photos taken April 15, 2020



Photo 1. Looking north towards access (at truck), residence to be removed, storage building and greenhouses



Photo 2. Taken from old road leading to south parcel boundary



Photo 3. Looking southwest at solar panel for well pump; Photo 2 taken from area near center



Photo 4. Northern cultivation area with 2 greenhouses, looking southeast towards cultivation area near house



Photo 5. Northern cultivation area, looking northeast; plastic netting (foreground) not to be used



Photo 6. Looking east up Class III channel



Photo 7. Ditch just north of Class III that connects to watercourse, (starts at left) purpose unknown, had some standing water



Photo 8. Looking northeast at slope, oak habitat with some emergent Douglas-fir



Photo 9. Looking east at oak woodland habitat



Photo 10. Old ranch road leading to south parcel boundary



Photo 11. Downstream of Class III culvert with some erosion issues

Appendix B: Well Report

State of California
Well Completion Report
WCR Form In Review 11/29/2016
WCR2016-007753

Owner's Well Number 1 Date Work Began 10/13/2016 Date Work Ended 10/21/2016
Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
Secondary Permit Agency _____ Permit Number 16/17 123 Permit Date 09/22/2016

Name <u>Mitchell Leffel</u>		Activity <u>New Well</u>
Mailing Address <u>1643 Tompkins Hill Rd</u>		Planned Use <u>Water Supply Domestic</u>
City <u>Fortuna</u>	State <u>CA</u>	Zip <u>95540</u>

Address <u>1400 Rose RD</u>		APN <u>223-104-004</u>
City <u>Garderville</u>	Zip <u>95500</u>	County <u>Humboldt</u>
Latitude <u>40.1294868</u>	Longitude <u>-123.7086637</u>	Township <u>04 S</u>
Dec. Lat. <u>40.1294868</u>	Dec. Long. <u>-123.7086637</u>	Range <u>04 E</u>
Vertical Datum _____	Horizontal Datum <u>WGS84</u>	Section <u>11</u>
Location Accuracy _____	Location Determination Method _____	Baseline Meridian <u>Humboldt</u>
		Ground Surface Elevation _____
		Elevation Accuracy _____
		Elevation Determination Method _____

Orientation <u>Vertical</u>	Specify _____
Drilling Method <u>Direct Rotary</u>	Drilling Fluid <u>Air</u>
Total Depth of Boring <u>200</u> Feet	
Total Depth of Completed Well <u>200</u> Feet	

Depth to first water <u>50</u> (Feet below surface)
Depth to Static _____
Water Level _____ (Feet)
Estimated Yield* <u>25</u>
Test Length <u>2</u>
Date Measured _____
Test Type <u>Air Lift</u>
Total Drawdown _____ (Feet)

*May not be representative of a well's long term yield.

Depth from Surface Feet to Feet	Description
0 5	Top Soil
5 25	Sand & Gravel w/Clay
25 75	Brown Serpentine Gravel
75 80	Blue Clay
80 200	Fractured/Broken Franciscan Sandstone

Casing #	Depth from Surface Feet to Feet	Casing Type	Material	Casings Specifications	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0 21	Blank	Low Carbon Steel	Grade: ASTM A53	0.25	8			
2	0 40	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
2	40 75	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.125	Knife Cut
2	75 95	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
2	95 155	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.125	
2	155 175	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
2	175 200	Screen	Low Carbon Steel	Grade: ASTM A53	0.25	6	Milled Slots	0.125	

Appendix C. Floristic Plant List

FAMILY	SCIENTIFIC NAME	COMMON NAME	LIFEFORM	STATUS
AGAVACEAE	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Common soaproot	Perennial herb	native
APIACEAE	<i>Anthriscus caucalis</i>	Bur chevril	Annual herb, Vine	non-native
	<i>Osmorhiza</i> sp.	Sweet cicely	Perennial herb	native
	<i>Sanicula crassicaulis</i>	Pacific sanicle	Perennial herb	native
	<i>Torilis arvensis</i>	Field hedge parsley	Annual herb	invasive
ASTERACEAE	<i>Agoseris apargioides</i> var. <i>eastwoodiae</i>	Eastwood's seaside agoseris	Perennial herb	native
	<i>Anisocarpus madioides</i>	Woodland madia	Perennial herb	native
	<i>Anthemis</i> c.f. <i>cotula</i>	Dog fennel	Annual herb	invasive
	<i>Baccharis pilularis</i> ssp. <i>pilularis</i>	Coyote brush	Shrub	native
	<i>Bellis perennis</i>	English lawn daisy	Perennial herb	invasive
	<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian thistle	Annual herb	non-native
	<i>Centaurea solstitialis</i>	Yellow starthistle	Annual herb	invasive
	<i>Cirsium vulgare</i>	Bullthistle	Perennial herb	invasive
	<i>Crepis capillaris</i>	Smooth hawksbeard	Annual, Perennial herb	non-native
	<i>Hypochaeris glabra</i>	Smooth cats ear	Annual herb	invasive
	<i>Hypochaeris radicata</i>	Hairy cats ear	Perennial herb	invasive
	<i>Lactuca virosa</i>	Prickly lettuce	Annual herb	invasive
	<i>Madia</i> c.f. <i>gracilis</i>	Gumweed	Annual herb	native
	<i>Matricaria discoidea</i>	Pineapple weed	Annual herb	native
	<i>Senecio vulgaris</i>	Common groundsel	Annual herb	non-native
	<i>Silybum marianum</i>	Milk thistle	Annual, Perennial herb	invasive
	<i>Soliva sessilis</i>	South american soliva	Annual herb	non-native
	<i>Taraxacum</i> c.f. <i>erythrospermum</i>	Red-seeded dandelion	Perennial herb	non-native
	<i>Taraxacum officinale</i>	Red seeded dandelion	Perennial herb	invasive
BORAGINACEAE	<i>Cynoglossum grande</i>	Houndstongue	Perennial herb	native
	<i>Nemophila heterophylla</i>	nemophila	Annual herb	native
BRASSICACEAE	<i>Brassica</i> c.f. <i>nigra</i>	Black mustard	Annual herb	invasive
	<i>Capsella bursa-pastoris</i>	Shepherd's purse	Annual herb	non-native
	<i>Cardamine</i> c.f. <i>californica</i>	Bitter cress	Perennial herb	native
	<i>Cardamine hirsuta</i>	Hairy bitter cress	Annual herb	non-native
	<i>Draba verna</i>	Whitlow grass	Annual herb	native

	<i>Sisymbrium officinale</i>	Hedge mustard	Annual herb	non-native
CAPRIFOLIACEAE	<i>Lonicera hispidula</i>	Pink honeysuckle	Vine, Shrub	native
CARYOPHYLLACEAE	<i>Cerastium glomeratum</i>	Large mouse ears	Annual herb	non-native
	<i>Spergularia rubra</i>	Purple sand spurry	Annual, Perennial herb	non-native
	<i>Stellaria media</i>	Chickweed	Annual herb	non-native
CYPERACEAE	<i>Carex c.f. multicaulis</i>	Forest sedge	Perennial grasslike herb	native
	<i>Carex c.f. tumulicola</i>	Split awn sedge	Perennial grasslike herb	native
	<i>Carex multicaulis</i>	Forest sedge	Perennial grasslike herb	native
	<i>Cyperus eragrostis</i>	Tall cyperus	Perennial grasslike herb	native
ERICACEAE	<i>Arbutus menziesii</i>	Madrono	Tree	native
FABACEAE	<i>Acemispson wrangelianus</i>	Chilean trefoil	Annual herb	native
	<i>Lupinus bicolor</i>	Lupine	Annual, Perennial herb	native
	<i>Medicago polymorpha</i>	California burclover	Annual herb	invasive
	<i>Melilotus albus</i>	White sweetclover	Annual, Biennial herb	invasive
	<i>Trifolium dubium</i>	Shamrock	Annual herb	non-native
	<i>Trifolium subterraneum</i>	Subterranean clover	Annual herb	non-native
	<i>Vicia americana</i>	American vetch	Perennial herb, Vine	native
	<i>Vicia sativa</i>	Spring vetch	Annual herb, Vine	non-native
	<i>Vicia tetrasperma</i>	Four seeded vetch	Annual herb	non-native
	<i>Vicia villosa</i>	Hairy vetch	Annual herb, Vine	invasive
FAGACEAE	<i>Notholithocarpus densiflorus</i> var. <i>densiflorus</i>	Tanoak	Tree, Shrub	native
	<i>Quercus chrysolepis</i>	Gold cup live oak	Tree	native
FAGACEAE	<i>Quercus garryana</i>	Oregon oak	Tree	native
GERANIACEAE	<i>Erodium cicutarium</i>	Coastal heron's bill	Annual herb	invasive
	<i>Geranium dissectum</i>	Wild geranium	Annual herb	invasive
	<i>Geranium molle</i>	Crane's bill geranium	Annual, Perennial herb	invasive
GROSSULARIACEAE	<i>Ribes roezlii</i> var. <i>roezlii</i>	Sierra gooseberry	Shrub	native
HYPERICACEAE	<i>Hypericum perforatum</i> ssp. <i>perforatum</i>	Klamathweed	Perennial herb	non-native
IRIDACEAE	<i>Iris c.f. purdyi</i>	Purdy's iris	Perennial herb	native
	<i>Sisyrinchium bellum</i>	Blue eyed grass	Perennial herb	native
JUNCACEAE	<i>Juncus patens</i>	Rush	Perennial grasslike herb	native
	<i>Luzula comosa</i>	Hairy wood rush	Perennial grasslike herb	native
LAMIACEAE	<i>Stachys rigida</i> var. <i>quercetorum</i>	Rough hedgenettle	Perennial herb	native
LAURACEAE	<i>Umbellularia californica</i>	California bay	Tree	native
LILIACEAE	<i>Fritillaria affinis</i>	Checker lily	Perennial herb (bulb)	native

MONTIACEAE	<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	Claytonia	Annual herb	native
ONAGRACEAE	<i>Epilobium</i> c.f. <i>brachycarpum</i>	Willow herb	Annual herb	native
	<i>Epilobium</i> c.f. <i>ciliatum</i>	Slender willow herb	Perennial herb	native
PHRYMACEAE	<i>Erythranthe guttata</i>	Yellow monkey flower	Annual, Perennial herb (rhizomatous)	native
PINACEAE	<i>Pseudotsuga menziesii</i>	Douglas fir	Tree	native
PLANTAGINACEAE	<i>Plantago lanceolata</i>	Ribwort	Perennial herb	invasive
	<i>Veronica serpyllifolia</i>	Thymeleaf speedwell	Perennial herb	native
POACEAE	<i>Alopecurus pratensis</i>	Meadow foxtail	Perennial grass	invasive
	<i>Anthoxanthum odoratum</i>	Sweet vernal grass	Annual, Perennial grass	invasive
	<i>Avena barbata</i>	Slim oat	Annual, Perennial grass	invasive
	<i>Bromus carinatus</i>	California brome	Perennial grass	native
	<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	Perennial grass	native
	<i>Bromus diandrus</i>	Ripgut brome	Annual grass	invasive
	<i>Bromus madritensis</i> ssp. <i>rubens</i>	Foxtail brome	Annual grass	invasive
	<i>Bromus racemosus</i>	Smooth brome	Annual grass	non-native
	<i>Cynosurus echinatus</i>	Dogtail grass	Annual grass	invasive
	<i>Dactylis glomerata</i>	Orchardgrass	Perennial grass	invasive
	<i>Deschampsia elongata</i>	Hairgrass	Perennial grass	native
	<i>Elymus glaucus</i>	Blue wildrye	Perennial grass	native
	<i>Festuca arundinacea</i>	Reed fescue	Perennial grass	invasive
	<i>Festuca myuros</i>	Rattail sixweeks grass	Annual grass	invasive
	<i>Festuca perennis</i>	Italian rye grass	Annual, Perennial grass	invasive
	<i>Festuca subuliflora</i>	Coast range fescue	Perennial grass	native
	<i>Holcus lanatus</i>	Common velvetgrass	Perennial grass	invasive
	<i>Hordeum marinum</i>	Seaside barley	Annual grass	invasive
	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Farmer's foxtail	Annual grass	non-native
	<i>Melica harfordii</i>	Harford's melic	Perennial grass	native
	<i>Poa annua</i>	Annual blue grass	Annual grass	non-native
	<i>Poa bulbosa</i> ssp. <i>vivipara</i>	Bulbous blue grass	Perennial grass	non-native
	<i>Poa trivialis</i>	Rough blue grass	Perennial grass	non-native
	<i>Trisetum canescens</i>	Nodding trisetum	Perennial grass	native
POLEMONIACEAE	<i>Collomia heterophylla</i>	Varied leaved collomia	Annual herb	native
	<i>Navarretia squarrosa</i>	Skunkweed	Annual herb	native

POLYGONACEAE	<i>Rumex acetosella</i>	Sheep sorrel	Perennial herb	invasive
	<i>Rumex crispus</i>	Curly dock	Perennial herb	invasive
POLYPODIACEAE	<i>Polypodium c.f californicum</i>	California polypody	Fern	native
PRIMULACEAE	<i>Primula hendersonii</i>	Mosquito bill	Perennial herb	native
PTERIDACEAE	<i>Pentagramma triangularis</i>	Gold back fern	Fern	native
RANUNCULACEAE	<i>Ranunculus occidentalis</i>	Western buttercup	Perennial herb	native
ROSACEAE	<i>Rosa gymnocarpa</i> var. <i>gymnocarpa</i>	Wood rose	Shrub	native
RUBIACEAE	<i>Galium aparine</i>	Cleavers	Annual herb	native
	<i>Galium c.f parisiense</i>	Wall bedstraw	Annual herb	non-native
THEMIDACEAE	<i>Dichelostemma ida-maia</i>	Firecracker flower	Perennial herb	native
	<i>Triteleia laxa</i>	Ithuriel's spear	Perennial herb	native
VERBENACEAE	<i>Verbena lasiostachys</i>	Western vervain	Perennial herb	native

Appendix D. NRCS Soil Map (NRCS 2020)