

PROTOCOL-LEVEL BOTANICAL SURVEY MEMORANDUM



Date: May 4, 2024

To: Empress Farms, LLC
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Petroia, CA 95558

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in conjunction with: Naiad Biological Consulting
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RE: Early Season Protocol-Level Botanical Survey

Project Description

A recommended follow-up spring botanical survey, with special focus on Howell's montia, (*Montia howellii*) was conducted at APN: 104-321-001 and 104-291-005 by Sarah Mason on April 27, 2024. The initial botanical field survey was completed by Sean Rowe on June 30, 2023.

This memorandum has been prepared to report on the results and findings of a follow-up botanical survey conducted at 37593 Mattole Road in Petroia, California. Due to the timing of the initial botanical survey and given the likelihood of Howell's montia occurring in the project area, an additional spring botanical survey was performed with special focus on Howell's montia. The purpose of the botanical survey is to assess potential impacts to botanical resources from the activities associated with cannabis cultivation operations in accordance with the California Environmental Quality Act (CEQA) using the California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018).

Surveyor's Qualifications

The early season botanical field survey was completed by Sarah Mason. Sarah holds a BS in Botany from Humboldt State University and is currently working towards a MSc in Biology. She has 10 years of botanical survey experience having worked as a Scientific Aide with Caltrans and a Botanical Technician for the US Forest Service. She currently is employed as the Rare Plants Crew Lead for California State Parks, North Coast Redwoods District. She has experience in rare plant identification, rare plant monitoring, vegetation and habitat mapping, and teaching plant taxonomy at the university level.

Survey Methods

This survey was completed as a measure to assess biological habitat quality, presence of sensitive and special status species, with Howell's montia as a target species, and sensitive communities and the impacts associated with the proposed cannabis cultivation at the project site at APN: 104-321-001 and 104-291-005. A list of special-status plants considered to be potentially present within the project site was downloaded from the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB, CDFW, 2024) BIOS and CNPS Rare Plant Inventory (CNPS, 2024) for the associated Buckeye Mtn. 7.5 minutes USGS quadrangle and the 8 adjacent quadrangles.

The botanical field survey followed protocols recommended by CDFW and are in accordance with the guidelines established by CNPS, from the document *Protocols for Surveying and Evaluating Impacts to Specie Status Native Plant Populations and Sensitive Natural Communities* (CDFW, 2018).

Summary of Findings and Conclusion

Howell's montia was not encountered during the botanical field survey of the project area. No other sensitive plant species or habitats were encountered during the botanical field survey of the project area. Therefore, this project can proceed without any harm or take of special status plant species and/or habitats.

Below are the results of the follow up botanical survey conducted on April 27, 2024.

Botanical Species	Common Name	Origin
Trees		
<i>Arbutus menziesii</i>	madrone	Native
<i>Mallus</i> sp.	apple	Non-native
<i>Notholithocarpus densiflorus</i>	tanoak	Native
<i>Pseudotsuga menziesii</i>	Doug-fir	Native
Shrubs		
<i>Baccharis pilularis</i>	coyote brush	Native
<i>Ceanothus thyrsiflorus</i>	blue blossom	Native
<i>Rosa</i> sp.	rose	Non-native
<i>Rubus armeniacus</i>	Himalayan blackberry	Cal IPC: High
<i>Rubus ursinus</i>	California blackberry	Native
<i>Toxicodendron diversilobum</i>	poison oak	Native
Grasses & Graminoids		
<i>Aira caryophyllaea</i>	silver hair grass	Non-native
<i>Anthoxanthum odoratum</i>	sweet vernal grass	Cal IPC: Limited
<i>Avena barbata</i>	slender wild oat	Cal IPC: Moderate
<i>Briza maxima</i>	rattlesnake grass	Non-native

<i>Bromus diandrus</i>	ripgut brome	Cal IPC: Moderate
<i>Bromus hordeaceus</i>	soft chess	Cal IPC: Limited
<i>Cynosurus echinatus</i>	hedgehog dogtail	Cal IPC: Moderate
<i>Elymus glaucus</i>	blue wild rye	Native
<i>Festuca arundinacea</i>	tall fescue	Cal IPC: Moderate
<i>Festuca bromoides</i>	brome fescue	Non-native
<i>Juncus bufonius</i>	toad rush	Native
<i>Luzula comosa</i>	common wood rush	Native
<i>Poa annua</i>	annual blue grass	Cal IPC: Limited
Forbs		
<i>Acmispon americanus</i>	American deervetch	Native
<i>Acmispon parviflorus</i>	hill lotus	Native
<i>Calandrinia menziesii</i>	red maids	Native
<i>Carduus pycnocephalus</i>	Italian thistle	Cal IPC: Moderate
<i>Cerastium glomeratum</i>	sticky mouse-eared chickweed	Non-native
<i>Cirsium vulgare</i>	bull thistle	Cal IPC: Moderate
<i>Digitalis purpurea</i>	foxglove	Cal IPC: Limited
<i>Erodium botrys</i>	big heron bill	Non-native
<i>Eschscholzia californica</i>	California poppy	Native
<i>Geranium dissectum</i>	cutleaf geranium	Cal IPC: Limited
<i>Hirschfeldia incana</i>	mustard	Cal IPC: Moderate
<i>Hypericum perforatum</i>	Klamathweed	Cal IPC: Limited
<i>Hypochaeris glabra</i>	smooth cat's ear	Cal IPC: Limited
<i>Hypochaeris radicata</i>	rough cat's ear	Cal IPC: Moderate
<i>Leontodon saxatilis</i>	hawkbit	Non-native
<i>Linum bienne</i>	flax	Non-native
<i>Logfia gallica</i>	narrowleaf cottonrose	Non-native
<i>Lupinus nanus</i>	sky lupine	Native
<i>Lysimachia arvensis</i>	scarlet pimpernel	Non-native
<i>Matricaria discoidea</i>	pineapple weed	Native
<i>Mentha pulegium</i>	pennyroyal	Cal IPC: Moderate
<i>Plantago lanceolata</i>	English plantain	Non-native
<i>Rumex acetosella</i>	sheep sorell	Cal IPC: Moderate
<i>Sherardia arvensis</i>	field madder	Non-native
<i>Soliva sessilis</i>	South American soliva	Non-native
<i>Sonchus</i> sp.	sow thistle	Non-native
<i>Spergularia rubra</i>	red sand spurry	Non-native
<i>Stachys</i> sp.	hedge nettle	Native
<i>Trifolium cernuum</i>	nodding clover	Non-native
<i>Trifolium dubium</i>	little hop clover	Non-native
<i>Trifolium subterraneum</i>	subterranean clover	Non-native
<i>Verbascum thapsus</i>	wooly mullein	Cal IPC: Limited

<i>Vicia sativa</i>	spring vetch	Non-native
Ferns		
<i>Pteridium aquilinum</i>	Western brackenfern	Native

Certification: I hereby certify that the statements furnished in this report present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

X *Sarah Mason*.

Sarah Mason, BS, Botany

Consulting Botanist for Naiad Biological Consulting

REFERENCES

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BOTANICAL SURVEY REPORT: OF SPECIAL STATUS NATIVE PLANT POPULATIONS AND NATURAL COMMUNITIES

**APN: 104-321-001 and 104-291-005
Petrolia, Humboldt County, CA**

Prepared For:

Empress Farms, LLC

37593 Mattole Road
Petrolia, CA 95558

Prepared by:

Native Ecosystems Inc.

625 11th St.
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Date Prepared:

October 11th, 2023



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CA CONTRACTORS LICENSE NO. 1038624

Table of Contents

Summary Information	3
Introduction and Project Description	3
Purpose and Need	3
Project Description and Setting.....	3
Soil, Topography, and Hydrology	3
Definitions	4
Special Status Plants and Plant Communities	4
Methods	5
Pre-Site Visit Data Compilation and Preparation.....	5
Reference Populations	5
Botanical Field Survey and Habitat Investigation	6
Results	6
Habitats Observed	6
Species Observed.....	7
Conclusion and Discussion	7
Conclusion	7
Recommendations.....	7
References.....	8
Appendix A. Results from database search	10
Appendix B. Plant Species Observed	15
Appendix C. Maps.....	16
Appendix D. Project Area and Habitat	18

Summary Information

Legal description:	Portions of Section 19 & 30, T2S, R1W, H.B.&M.
APN:	104-321-001 and 104-291-005
USGS 7.5' Quad:	Buckeye Mtn.
Dates of survey:	June 30 th , 2023
Surveyed by:	Sean Rowe
Field survey effort:	3 hours
Results:	<u>No CRPR 1 or 2 plants were observed</u>

Introduction and Project Description

Purpose and Need

This botanical survey report was prepared to assess potential impacts to botanical resources and summarizes the results of a survey conducted at 37593 Mattole Road in Petrolia, California. The survey was performed to identify special status plants and sensitive plant communities that could be impacted by operations associated with cannabis cultivation operations in accordance with the California Environmental Quality Act (CEQA) using the California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018).

Project Description and Setting

This Botanical Survey Report has been prepared for Empress Farms, LLC in relation to agricultural activities. The project proposes new structures and relocation of existing operation related to cannabis cultivation.

The project location address is 37593 Mattole Road in Petrolia, California, within the Buckeye Mtn, USGS 7.5-minute quadrangle, within Section 19 & 30, T2S, R1W, H.B.&M. The project area occurs within two legal parcels: APN 104-321-001 and 104-291-005. APN 104-321-001 is 17.85 acres and has a centroid location of latitude 40.2727, longitude -124.2175 and APN 104-291-005 is 24.16 acres and has a centroid location of latitude 40.2743, longitude -124.2169 (Figure 1). The elevation of these parcels occurs between 310 ft to 400 ft (Google Earth Pro, 2023).

Soil, Topography, and Hydrology

The project property encompasses second-growth mixed hardwood and coniferous forest, along with agricultural and grassland fields (Naiad Biological Consulting, 2019).

Soil types within the project area, as per the Web Soil Survey (NRCS, 2023), are as follows:

1. Parkland-Garberville complex, with slopes of 2 to 9 percent (map unit 151). These soils are moderately well-drained, originating from mixed sedimentary sources like sandstone and mudstone. Mean annual precipitation is around 2160 mm, and the mean annual air temperature is about 14 degrees C.
2. Crazycoyote-Sproulsh-Canoeecreek complex, featuring slopes of 30 to 50 percent (map unit 5505). Crazycoyote soils are well-drained and formed from colluvium and residuum derived from sandstone and mudstone, with a mean annual precipitation of approximately 2160 mm and a mean annual temperature of about 13 degrees C. Sproulsh soils are also well-drained and formed in colluvium and residuum from various sedimentary rocks, with varying precipitation and temperature conditions. Canoeecreek soils, formed in colluvium and residuum, have slopes ranging from 15 to 110 percent, with a mean annual precipitation of around 2160 mm and a mean annual air temperature of about 11 degrees C.

Wetland features in the southern parcel were previously identified and detailed in the associated Wetland Delineation Report prepared by Naiad Biological Consulting (2021). The delineation was based on the presence of hydric soil, wetland hydrology, hydrophytic vegetation, and other criteria outlined by the USACE. Wetland boundaries were determined using plot data, LiDAR-derived elevation contour maps, redoximorphic soil features, and indicators of wetland hydrology. It was noted that much of the vegetation in the project area has been disturbed and consists mainly of non-native grasses, which do not strongly indicate wetland boundaries. Historical imagery from the Humboldt County GIS website revealed changes in wetland features over time, including the disappearance of a Class III channel observed in 2005 imagery.

Definitions

Special Status Plants and Plant Communities

Special status plants include taxa that are listed under the Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA) in addition to plants which meet the definition of rare or endangered under the California Environmental Quality Act (CEQA). CDFW recommends that plants on California Rare Plant Ranks (CRPR) Lists 1A (presumed extinct or extirpated), 1B (rare, threatened, or endangered in California and elsewhere), 2A (presumed extirpated) and 2B (rare, threatened, or endangered in California but more common elsewhere), or other species that warrant consideration based on local or biological significance, be addressed during California Environmental Quality Act (CEQA) review of proposed projects. Plants of rank 3 and 4, which are under review and watch lists respectively, are addressed by Native Ecosystems Inc., and may warrant consideration under CEQA if potential or cumulative impacts to the plant exist.

CDFW's natural community rarity rankings follow NatureServe's 2012 *NatureServe Conservation Status Assessment: Methodology for Assigning Ranks*, in which all alliances are listed with a global (G) and (S) rank. NCSC are those natural communities that are ranked S1 to S3 (CDFW, 2023), where 1 is critically imperiled, 2 is imperiled, and 3 is vulnerable. However, they may not warrant protection under CEQA unless they are considered high quality. Human disturbance, invasive species, logging, and

grazing are common factors considered when judging whether the stand is high quality and warrants protection.

Methods

Pre-Site Visit Data Compilation and Preparation

Prior to conducting the field surveys, the following database information was reviewed to determine the location and types of botanical resources that possibly exist in the survey area. This pre-field investigation included searches of the California Natural Diversity Database (CNDDDB, 2023) and the California Native Plant Society's *Inventory of Rare and Endangered Plants* (CNPS, 2023). This list includes CRPR (California Rare Plant Rank) species that have been observed within a 9-quad search centered on the Buckeye Mtn. quadrangle. USGS quadrangles within the search area include Honeydew, Shubrick Peak, Bull Creek, Petrolia, Scotia, Capetown, and Taylor Peak. The results of the project's scoping are presented below in Table 1.

Each species was evaluated for its potential to occur on the study area according to the following criteria:

None. Species listed as having “none” are those species for which there is no suitable habitat present in the study area (that is, habitats in the study area are unsuitable for the species requirements [for example, elevation, hydrology, plant community, disturbance regime, etc.]).

Low. Species listed as having a “low” potential to occur in the study area are those species for which there is no known record of occurrence in the vicinity, and there is marginal or very limited suitable habitat present within the study area.

Moderate. Species listed as having a “moderate” potential to occur in the study area are those species for which: there are known records of occurrence in the vicinity, and there is suitable habitat present in the study area.

High. Species listed as having a “high” potential to occur on the study area are those species for which: there are known records of occurrence in the vicinity (there are many records and/or records in close proximity), and there is highly suitable habitat present in the study area.

Present. Species listed as “present” in the study area are those species for which the species was observed in the study area.

Reference Populations

Reference populations were used to determine the timing of seasonally appropriate surveys. The following reference populations of rare plants were used for this project:

- *Montia howellii* located 11.50 miles northeast of the project area, near the Baxter Environmental Camp in Humboldt Redwoods State Park, was observed in bloom April 15th.
- *Erythronium revolutum* located 11.50 miles northeast of the project area, near the Baxter Environmental Camp in Humboldt Redwoods State Park, was observed in bloom April 24th, 2023.

- *Lilium rubescens* located 10.50 miles northeast of the project area, along Pole Line Road in Humboldt Redwoods State Park, was observed in bloom on June 27th.
- *Lathyrus glandulosa* located approximately 8 miles east of the project area, along Mattole Road in Humboldt Redwoods State Park, was observed in bloom April 24th.
- *Gilia capitata* ssp. *pacifica* located 30 miles north to northeast of the project area, near Lone Star Junction along Kneeland Road, was observed in bloom on June 25th.

Botanical Field Survey and Habitat Investigation

The survey was carried out by Sean Rowe, an experienced senior botanist from Native Ecosystems Inc. Mr. Rowe has over nine years of expertise in conducting floristic surveys and various botanical projects in the northern California region. His educational background is in Environmental Science with a focus on Ecological Restoration and a minor in Botany.

Surveys were floristic in nature and conducted in a manner consistent with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). Plants were identified to the lowest taxonomic level necessary to ensure that they were not a species of concern. Plants not identifiable in the field were identified off site with the use of *The Jepson Manual, Vascular Plants of California*. Other resources used to identify plants can be found in the reference section towards the end of this report.

A botanical survey was conducted throughout the areas proposed for development operations and the associated road system. Surveys were conducted in an intuitive meander focused on areas likely to provide habitat for rare plant species and/or potentially affected (directly or indirectly) by construction operations. These areas include but are not limited to existing permanent and seasonal roads, new road construction, road points and crossings, forest openings, springs and surrounding watercourses. Refer to Figure 2 for the survey route.

Results

Habitats Observed

The parcels surveyed encompass a variety of habitats, with the project area situated within open agricultural and grassland fields (Photo 1 & 2). The mixed second growth hardwood and coniferous forest, typical of southern Humboldt, is primarily composed of species such as Douglas fir, tanoak, white oak, and Pacific madrone, with Douglas fir and tanoak being the most prevalent (Photo 1 & 2). In this habitat, poison oak, coastal woodfern, Scotch broom, Himalayan blackberry, and foxgloves are found along the edges and scattered throughout the understory. This habitat type borders the parcel and is not anticipated to be impacted by this project. The previously cultivated field in the southern parcel is dominated by coastal woodfern, turkey mullein, common mullein, spear thistle, and oxeye daisy. The open pasture in the northern parcel features a mix of grasses and forbs, with scattered shrubs. This field has a history of animal grazing, leading to disturbance, introduced nonnative species, and soil compaction. The grasslands are generally dominated by non-native grasses and other herbaceous plants including dogtail grass, wild oat, Mediterranean barley, English plantain, and rough

cat's ear, while scattered throughout the field were coastal woodfern, Queen Anne's lace, coyote brush, Scotch broom, and some very old apple trees.

Species Observed

No special-status plant species were encountered during the June 30th 2023 survey.

Conclusion and Discussion

Conclusion

While the field survey did not yield observations of listed species, it's essential to consider that past land use practices and prevailing climate conditions could have influenced the survey outcomes. Anomalies like heatwaves or drought during the growing season, whether in the current year or previous ones, may impact the timing of plant development and the probability of detection. Notably, the spring in this region experienced uncharacteristic coolness and precipitation, even receiving late spring snowfall, potentially causing a delay in the flowering of certain species, rendering them more challenging to identify. Consequently, the documented taxa may not offer an exhaustive account of the special status species present in the project area.

Furthermore, the project timeline did not permit an early season survey. Given the moderate likelihood of Howell's montia (*Montia howellii*) occurring in the project area and considering its blooming period, a follow-up spring survey should be conducted in April or May to confirm or refute the presence of this species.

Additionally, it is noteworthy that the parcel features a grassland component characterized as a California brome – blue wildrye prairie (*Bromus sitchensis* var. *carinatus* – *Elymus glaucus* alliance [G3S3]). The boundaries of this area were established through previous survey efforts associated with the project, and these delineations align with the findings of those earlier assessments (Figure 3).

Recommendations

A subsequent spring survey, to be conducted between March and May, is advised to verify the presence or absence of Howell's montia (*Montia howellii*) within the project area. If this species is not found within the project area during a follow up spring survey, no further botanical surveys are recommended.

For the California brome - blue wildrye prairie (*Bromus sitchensis* var. *carinatus* - *Elymus glaucus* alliance [G3S3]), it is advisable to erect a protective fence around this habitat element during any construction activities (please refer to Figure 3 for its location). No impact should occur to this habitat in association with the proposed project.

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Appendix A. Results from database search

Table 1. Special-Status Plant Species –Buckeye Mtn. and surrounding 7.5 min quadrangles.

Scientific Name	Common Name	CRPR	7.5 USGS Quad Occurance	Bloom Period	Lifeform	Habitat	Micro Habitat	Elevation (m)	Potential of Occurrence
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	Honeydew Shubrick Peak Bull Creek Buckeye Mtn. Scotia Taylor Peak	NA	fruticose lichen (epiphytic)	Broadleafed upland forest; North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers.	50 - 1460 meters	Low
<i>Erigeron biolettii</i>	streamside daisy	3	Petrolia	Jun-Oct	perennial herb	Broadleafed upland forest; Cismontane woodland; North Coast coniferous forest	Rocky, mesic	30 - 1100 meters	Low
<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracy's tarplant	4.3	Petrolia Scotia Capetown	May-Oct	annual herb	Coastal prairie; Lower montane coniferous forest; North Coast coniferous forest	openings, sometimes serpentinite.	120 - 1200 meters	None due to elevation range.
<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	1B.2	Capetown Taylor Peak Petrolia	Mar-Jun	annual herb	Coastal Strand, Northern Coastal Scrub	dunes, coastal	0 - 215 meters	None.
<i>Layia carnosa</i>	beach layia	1B.1	Petrolia	Mar-Jul	annual herb	Coastal Strand, Northern Coastal Scrub (sandy)	dunes, coastal	0 - 60 meters	None.
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	Scotia Taylor Peak	May-Jul	perennial rhizomatous herb	Coastal scrub; North Coast coniferous forest	Sometimes roadsides.	30 - 650 meters	Moderate
<i>Erysimum concinnum</i>	bluff wallflower	1B.2	Petrolia	Feb-Jul	annual / perennial herb	Coastal bluff scrub, coastal dunes, coastal prairie	dunes, coastal	0 - 185 meters	None.
<i>Astragalus pycnostachyus</i>	coastal marsh milk-vetch	1B.2	Petrolia Capetown	(Apr)Jun-Oct	perennial herb	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	dunes, coastal	0 - 30 meters	None

<i>var. pycnostachyus</i>									
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	4.3	Scotia	Apr-Jul	perennial herb	Chaparral; Cismontane woodland; Lower montane coniferous forest	gravelly streambanks.	30 - 825 meters	Moderate
<i>Hosackia gracilis</i>	harlequin lotus	4.2	Capetown Taylor Peak	Mar-Jul	perennial rhizomatous herb	Broadleafed upland forest; Coastal bluff scrub; Closed-cone coniferous forest; Cismontane woodland; Coastal prairie; Coastal scrub; North Coast coniferous forest; Valley and foothill grassland	Wetlands; Roadsides; Meadows and seeps; Marshes and swamps;	0 - 700 meters	Moderate.
<i>Lathyrus glandulosus</i>	sticky pea	4.3	Taylor Peak Scotia Buckeye Mtn. Bull Creek	Apr-Jun	perennial rhizomatous herb	Cismontane woodland	NA	300 - 800 meters	None due to elevation range.
<i>Ribes roezlii</i> var. <i>amictum</i>	hoary gooseberry	4.3	Bull Creek Scotia Taylor Peak	Mar-Apr	perennial deciduous shrub	Broadleafed upland forest; Cismontane woodland; Lower montane coniferous forest; Upper montane coniferous forest	NA	120 - 2300 meters	None due to elevation range.
<i>Iris longipetala</i>	coast iris	4.2	Cooskie Creek	Mar-May	perennial rhizomatous herb	Coastal prairie, Lower montane coniferous forest, Meadows and seeps.	Mesic sites, heavy soils	0 - 600 meters	Low
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	1B.1	Capetown	Jun	perennial rhizomatous herb	Cismontane woodland (openings), Valley and foothill grassland	Known in CA from only one occurrence near Cape Ridge.	NA	Moderate
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	Taylor Peak Scotia	Mar-Jun	perennial bulbiferous herb	Cismontane woodland	sometimes serpentinite, rocky, openings; Meadows and seeps	100 - 1150 meters	None due to elevation range.
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	Scotia Buckeye Mtn. Bull Creek Taylor Peak	Mar-Jul	perennial bulbiferous herb	Broadleafed upland forest; North Coast coniferous forest	Mesic, streambanks; Bogs and fens	0 - 1600 meters	Low

<i>Lilium rubescens</i>	redwood lily	4.2	Taylor Peak Bull Creek Scotia	Apr-Aug	perennial bulbiferous herb	Broadleafed upland forest; Chaparral; Lower montane coniferous forest; North Coast coniferous forest; Upper montane coniferous forest	Sometimes serpentinite, sometimes roadsides.	30 - 1910 meters	Low.
<i>Lycopodium clavatum</i>	running-pine	4.1	Scotia	Jun-Aug	perennial rhizomatous herb	Lower montane coniferous forest (mesic); North Coast coniferous forest (mesic)	often edges, openings, and roadsides; Marshes and swamps	45 - 1225 meters	Low
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	4.2	Scotia Petrolia Taylor Peak	Apr-Aug	perennial herb	Broadleafed upland forest; Coastal prairie; Coastal scrub; North Coast coniferous forest; Riparian woodland	Often in disturbed areas.	0 - 730 meters	Moderate.
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	1B.2	Taylor Peak Capetown Petrolia Scotia	May-Aug	perennial rhizomatous herb	Coastal bluff scrub; Coastal prairie; North Coast coniferous forest	often roadcuts.	15 - 880 meters	Moderate
<i>Pityopus californicus</i>	California pinefoot	4.2	Scotia Bull Creek Taylor Peak	May-Aug	perennial herb (achlorophyllous)	Broadleafed upland forest; Lower montane coniferous forest; North Coast coniferous forest; Upper montane coniferous forest	mesic.	15 - 2225 meters	Low
<i>Montia howellii</i>	Howell's montia	2B.2	Taylor Peak Capetown Bull Creek Buckeye Mtn. Scotia	Mar- May	annual herb	North Coast coniferous forest	Vernally mesic, sometimes roadsides; Meadows and seeps; Vernal pools	0 - 835 meters	Moderate.
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	4.3	Petrolia Buckeye Mtn. Shubrick Peak	Jul-Sep	perennial herb	Broadleafed upland forest; North Coast coniferous forest	sandy or rocky.	45 - 1800 meters	Low
<i>Oenothera wolfii</i>	Wolf's evening- primrose	1B.1	Capetown	May-Oct	perennial herb	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	sandy, usually mesic.	3 - 800 meters	None.

<i>Listera cordata</i>	heart-leaved twayblade	4.2	Taylor Peak Bull Creek Scotia	Feb-Jul	perennial herb	Lower montane coniferous forest; North Coast coniferous forest	Bogs and fens	5 - 1370 meters	None.
<i>Piperia candida</i>	white- flowered rein orchid	1B.2	Scotia Buckeye Mtn. Bull Creek Honeydew	May-Sep	perennial herb	Broadleafed upland forest; Lower montane coniferous forest; North Coast coniferous forest	sometimes serpentinite	30 - 1310 meters	None.
<i>Castilleja litoralis</i>	Oregon coast paintbrush	2B.2	Petrolia Capetown	Jun-Jul	perennial herb (hemiparasitic)	Coastal bluff scrub, Coastal dunes, Coastal scrub	Sandy	15 - 100 meters	None.
<i>Calamagrostis foliosa</i>	leafy reed grass	4.2	Petrolia Buckeye Mtn. Shubrick Peak Cooskie Creek Bull Creek	May-Sep	perennial herb	Coastal bluff scrub, North Coast coniferous forest	rocky	0 - 1220 meters	Moderate.
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	Bull Creek Scotia Capetown Taylor Peak	Apr-Aug	perennial rhizomatous herb	Lower montane coniferous forest; Meadows and seeps; North Coast coniferous forest	mesic; riparian forest	0 - 1600 meters	Low.
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	1B.2	Taylor Peak Scotia Petrolia Bull Creek Buckeye Mtn. Shubrick Peak	Apr-Aug	annual herb	Coastal bluff scrub; Chaparral (openings); Coastal prairie; Valley and foothill grassland	NA	5 - 1665 meters	Moderate.
<i>Gilia millefoliata</i>	dark-eyed gilia	1B.2	Petrolia	Apr - Jul	annual herb	Coastal Dunes	Sandy	0 - 30 meters	None due to elevation range.
<i>Leptosiphon latisectus</i>	broad-lobed leptosiphon	4.3	Honeydew	Apr - Jun	annual herb	Broadleafed upland forest, Cismontane woodland	NA	170 - 1500 meters	None due to elevation range.

<i>Polemonium carneum</i>	Oregon polemonium	2B.2	Taylor Peak Capetown	Apr-Sep	perennial herb	Coastal prairie, Coastal scrub, Lower montane coniferous forest	NA	0 - 1830 meters	Low.
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	4.3	Taylor Peak	Feb-Jun(Jul)	perennial herb	North Coast coniferous forest, Riparian forest	Streambanks, sometimes seeps, sometimes roadsides.	10 - 455 meters	None.
<i>Mitellastracaulescens</i>	leafy-stemmed mitrewort	4.2	Scotia	Apr-Oct	perennial rhizomatous herb	Broadleafed upland forest; Lower montane coniferous forest; Meadows and seeps; North Coast coniferous forest	mesic, sometimes roadsides.	5 - 1700 meters	Low.
<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	trifoliate laceflower	3.2	Scotia	Jun-Aug	perennial rhizomatous herb	Lower montane coniferous forest; North Coast coniferous forest	edges, moist shady banks, streambanks.	170 - 1500 meters	None due to elevation range.

California Rare Plant Ranks (CRPR):

1A: Plants with a California Rare Plant Rank of 1A are presumed extirpated or extinct because they have not been seen or collected in the wild in California for many years.

1B: Plants with a California Rare Plant Rank of 1B are rare throughout their range with the majority of them endemic to California.

2A: Plants with a California Rare Plant Rank of 2A are presumed extirpated because they have not been observed or documented in California for many years.

2B: Except for being common beyond the boundaries of California, plants with a California Rare Plant Rank of 2B would have been ranked 1B.

3: Plants with a California Rare Plant Rank of 3 are united by one common theme – we lack the necessary information to assign them to one of the other ranks or to reject them.

4: Plants with a California Rare Plant Rank of 4 are of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly.

Threat Ranks

Ranks at each level also include a threat rank (e.g., CRPR 4.3) and are determined as follows:

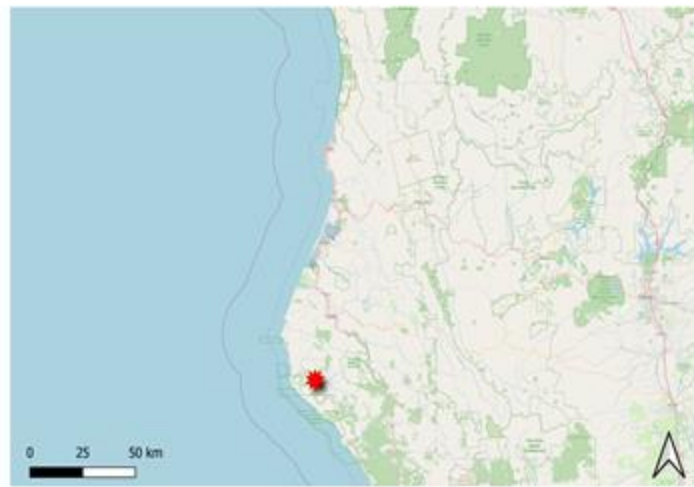
- **0.1**-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- **0.2**-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- **0.3**-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Appendix B. Plant Species Observed

Table 2. List of plant species encountered during June 30th, 2023 survey.

Scientific Name	Common Name	Family	Native?
Trees			
<i>Pinus attenuata</i>	knobcone pine	Pinaceae	N
<i>Pseudotsuga menziesii</i>	Douglas fir	Pinaceae	Y ¹
Shrubs			
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae	Y
<i>Rubus armeniacus</i>	Himalayan berry	Rosaceae	N ²
Sedges and Rushes			
<i>Cyperus eragrostis</i>	tall flat sedge	Cyperaceae	Y
<i>Juncus bufonius</i>	toad rush	Juncaceae	Y
Grasses			
<i>Agrostis stolonifera</i>	creeping bentgrass	Poaceae	N
<i>Aira caryophyllaea</i>	silver hairgrass	Poaceae	N
<i>Anthoxanthum odoratum</i>	sweet vernal grass	Poaceae	N
<i>Bromus hordeaceus</i>	soft chess	Poaceae	N
<i>Elymus glaucus</i>	blue wild rye	Poaceae	Y
<i>Festuca arundinacea</i>	tall fescue	Poaceae	Y
<i>Festuca bromoides</i>	brome fescue	Poaceae	N
<i>Festuca microstachys</i>	small fescue	Poaceae	Y
<i>Festuca Perennis</i>	perennial rye grass	Poaceae	N
<i>Hordeum brachyantherum</i>	meadow barley	Poaceae	Y
Herbs			
<i>Anthriscus caucalis</i>	bur chevil	Apiaceae	N
<i>Bellis perenne</i>	English daisy	Asteraceae	N
<i>Epilobium ciliatum</i>	fringed willow herb	Onagraceae	N
<i>Euphorbia peplans</i>	petty spurge	Euphorbiaceae	N
<i>Galium aparine</i>	cleaver plant	Rubiaceae	Y
<i>Geranium dissectum</i>	cutleaf geranium	Geraniaceae	N
<i>Hypochaeris radicata</i>	hairy cat's-ear	Asteraceae	N
<i>Leontodon saxatilis</i>	hawkbit	Asteraceae	N
<i>Lotus corniculatus</i>	birds-foot trifol	Fabaceae	N
<i>Lysimachia arvensis</i>	scarlet pimpernel	Myrsinaceae	N
<i>Malva parviflora</i>	cheeseweed mallow	Malvaceae	N
<i>Matricaria discoidea</i>	pineapple weed	Asteraceae	Y
<i>Plantago lanceolata</i>	English plantain	Plantaginaceae	N
<i>Raphanus sativa</i>	wild radish	Onagraceae	N
<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae	N
<i>Rumex crispus</i>	curly dock	Polygonaceae	N
<i>Sonchus oleraceus</i>	sow thistle	Asteraceae	N
<i>Stachys ajugoides</i>	bugle hedge-nettle	Lamiaceae	Y
<i>Trifolium fragiferum</i>	strawberry clover	Fabaceae	N
<i>Trifolium repens</i>	white clover	Fabaceae	N
<i>Trifolium subterraneum</i>	subterranean clover	Fabaceae	N
<i>Vicia sativa</i> ssp. <i>sativa</i>	spring vetch	Fabaceae	N
Vines			
<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae	N
<i>Hedera helix</i>	English ivy	Araliaceae	N

Appendix C. Maps



Project Location

Figure 1. Locator Map of Project Area (red star) located in Petrolia, Humboldt County, California.



Empress Farms Study Area

Figure 2. Map of project area and survey tracks.

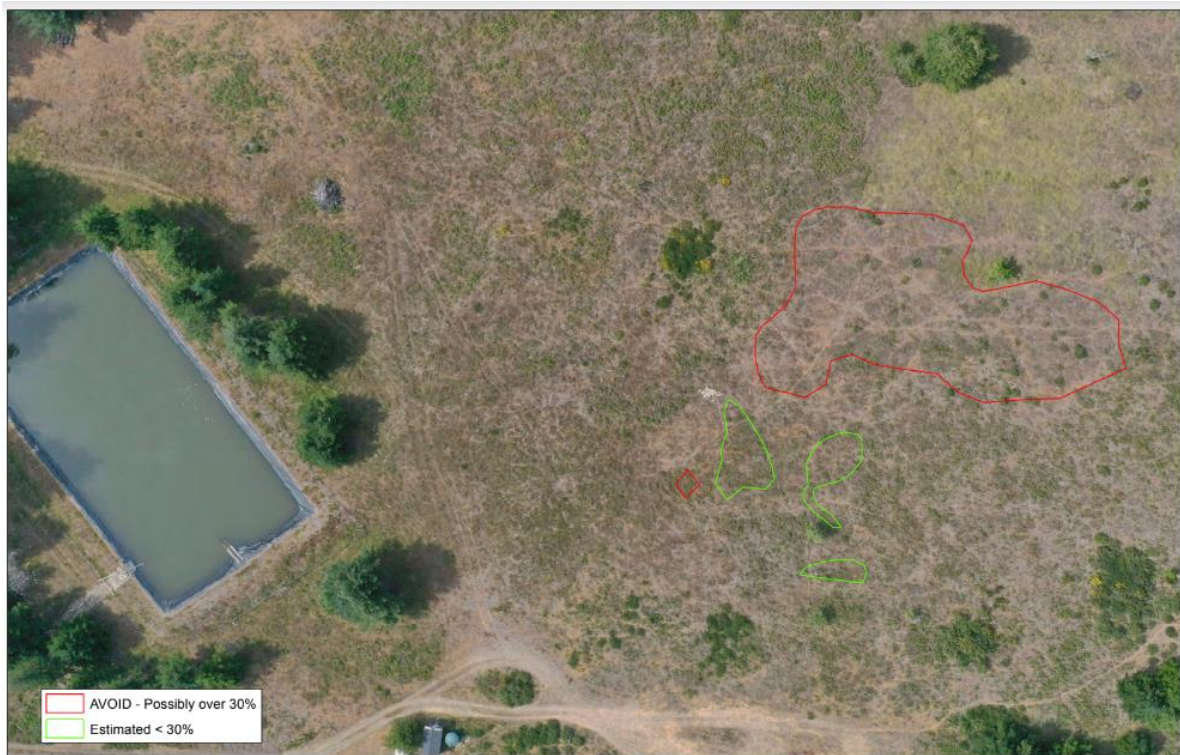


Figure 3. *Bromus sitchensis* var. *carinatus* - *Elymus glaucus* alliance [G3S3].

Appendix D. Project Area and Habitat



Photo 1. Open grasslands surrounded by mixed second growth hardwood and coniferous forest.



Photo 2. Open grasslands surrounded by mixed second growth hardwood and coniferous forest.