PROTOCOL-LEVEL BOTANICAL SURVEY MEMORANDUM

Date: May 4, 2024

To: Empress Farms, LLC
37593 Mattole Rd.
Petrolia, CA 95558

From: Sarah Mason
Consulting Botanist
1198 P St., Unit A
Arcata, Ca 95521

in conjunction with: Naiad Biological Consulting
PO Box 121
Samoa, CA 95564

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 Petrolia, 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		
Arbutus menziesii	madrone	Native
Mallus sp.	apple	Non-native
Notholithocarpus densiflorus	tanoak	Native
Pseudotsuga menziesii	Doug-fir	Native
Shrubs		
Baccharis pilularis	coyote brush	Native
Ceanothus thyrsiflorus	blue blossom	Native
Rosa sp.	rose	Non-native
Rubus armeniacus	Himalayan blackberry	Cal IPC: High
Rubus ursinus	California blackberry	Native
Toxicodendron diversilobum	poison oak	Native
Grasses & Graminoids		
Aira caryophyllea	silver haior grass	Non-native
Anthoxanthum odoratum	sweet vernal grass	Cal IPC: Limited
Avena barbata	slender wild oat	Cal IPC: Moderate
Briza maxima	rattlesnake grass	Non-native

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

Vicia sativa	spring vetch	Non-native
Ferns		
Pteridium aquilinum	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

Baldwin, B. C., D. H. Goldman, D. J. Keili, R. Patterson, and T. J. Roasatti. Eds. 2012. *The Jepson Manual, Vascular Plants of California, Second Edition.* University of California Press. Berkeley, CA

California Department of Fish and Wildlife. 2024 “California Natural Diversity Database” (CNDDB) https://www.wildlife.ca.gov/Data/CNDDB [Accessed April 2024]

California Native Plant Society, Rare Plant Program. 2024. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [Accessed April 2024]

CDFW. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.* California Department of Fish and Wildlife, Sacramento, CA.

County of Humboldt. 2024. *Humboldt Planning & Building: Humboldt GIS Portal*. https://humboldtgov.org/1357/Web-GIS [Accessed April 2024]

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.
Arcata, CA 95521
(707) 599-7814

Date Prepared:

October 11th, 2023

625 11th Street, Arcata, CA nat-eco.net 707.599.7814
Ecological Restoration Design · Planning · Implementation
Rivers · Riparian · Wetlands · Grasslands · Forests · Oaks
CA CONTRACTORS LICENSE NO. 1038624

Table of Contents

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 30th, 2023
Surveyed by:	Sean Rowe
Field survey effort:	3 hours
Results:	**No CRPR 1 or 2 plants were observed**

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-Sproulish-Canoecreek 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. Sproulish soils are also well-drained and formed in colluvium and residuum from various sedimentary rocks, with varying precipitation and temperature conditions. Canoecreek 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 NatureServes'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 (CNDDB, 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 pant 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.

References

Baldwin, B. C., D. H. Goldman, D. J. Keili, R. Patterson, and T. J. Roasatti. Eds. 2012. *The Jepson Manual, Vascular Plants of California, Second Edition.* University of California Press. Berkeley, CA.

California Department of Fish and Wildlife (CDFW). 2023. *California Natural Diversity Database* (CNDDB), Wildlife and Habitat Data Branch, Sacramento, CA. https://apps.wildlife.ca.gov/bios6/ [Accesses April – July 2023]

California Department of Fish and Wildlife (CDFW). 2023. *California Natural Community List.* Biogeographic Branch, Vegetation Classification and Mapping Program, Sacramento, CA.

California Native Plant Society (CNPS). 2023. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Sacramento, CA. http://www.rareplants.cnps.org. [Accessed April – July 2023].

Calflora. 2023. Information on California plants for education, research, and conservation. *The Calflora Database*. Berkley, CA. https://www.calflora.org/ [Accessed April-July 2023].

CDFW. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.* California Department of Fish and Wildlife, Sacramento, CA.

County of Humboldt. 2023. *Humboldt Planning & Building: Humboldt GIS Portal*. https://humboldtgov.org/1357/Web-GIS [Accesses April - July 2023].

Jepson Flora Project (eds.) 2023. Jepson eFlora. https://ucjeps.berkeley.edu.eflora/ [accessed April -July 2023].

London, M. 2019. *Biological Resource Assessment Report*. [Unpublished].

Sawyer, J.O., T. Keeler-Wold and J.M. Evans. 2009. *A Manual of California Vegetation, 2nd Edition.* California Native Plant Society. Sacramento, CA.

Smith, J. P. Jr. 2014. *Field Guide to Grasses of California.* University of California Press. Berkeley, CA.

United States Department of Agriculture, Natural Resource Conservation Service (USDA, NRCS). 2023. *Web Soil Survey.* http://websoilsurvey.sc.egov.usda.gov [Accessed July 25, 2023].

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
Usnea longissima	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
Erigeron biolettii	streamside daisy	3	Petrolia	Jun-Oct	perennial herb	Broadleafed upland forest; Cismontane woodland; North Coast coniferous forest	Rocky, mesic	30 - 1100 meters	Low
Hemizonia congesta ssp. tracyi	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.
Hesperevax sparsiflora var. brevifolia	short-leaved evax	1B.2	Capetown Taylor Peak Petrolia	Mar-Jun	annual herb	Coastal Strand, Northern Coastal Scrub	dunes, coastal	0 - 215 meters	None.
Layia carnosa	beach layia	1B.1	Petrolia	Mar-Jul	annual herb	Coastal Strand, Northern Coastal Scrub (sandy)	dunes, coastal	0 - 60 meters	None.
Packera bolanderi var. bolanderi	seacoast ragwort	2B.2	Scotia Taylor Peak	May-Jul	perennial rhizomatous herb	Coastal scrub; North Coast coniferous forest	Sometimes roadsides.	30 - 650 meters	Moderate
Erysimum concinnum	bluff wallflower	1B.2	Petrolia	Feb-Jul	annual / perennial herb	Coastal bluff scrub, coastal dunes, coastal prairie	dunes, coastal	0 - 185 meters	None.
Astragalus pycnostachyus	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

var. pycnostachyus									
Astragalus rattanii var. rattanii	Rattan's milk-vetch	4.3	Scotia	Apr-Jul	perennial herb	Chaparral; Cismontane woodland; Lower montane coniferous forest	gravelly streambanks.	30 - 825 meters	Moderate
Hosackia gracilis	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.
Lathyrus glandulosus	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.
Ribes roezlii var. amictum	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.
Iris longipetala	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
Sisyrinchium hitchcockii	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
Erythronium oregonum	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.
Erythronium revolutum	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

Lilium rubescens	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.
Lycopodium clavatum	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
Sidalcea malachroides	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.
Sidalcea malviflora ssp. patula	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
Pityopus californicus	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
Montia howellii	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.
Epilobium septentrionale	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
Oenothera wolfii	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.

Listera cordata	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.
Piperia candida	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.
Castilleja litoralis	Oregon coast paintbrush	2B.2	Petrolia Capetown	Jun-Jul	perennial herb (hemiparasitic)	Coastal bluff scrub, Coastal dunes, Coastal scrub	Sandy	15 - 100 meters	None.
Calamagrostis foliosa	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.
Pleuropogon refractus	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.
Gilia capitata ssp. pacifica	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.
Gilia millefoliata	dark-eyed gilia	1B.2	Petrolia	Apr - Jul	annual herb	Coastal Dunes	Sandy	0 - 30 meters	None due to elevation range.
Leptosiphon latisectus	broad-lobed leptosiphon	4.3	Honeydew	Apr - Jun	annual herb	Broadleafed upland forest, Cismontane woodland	NA	170 - 1500 meters	None due to elevation range.

Polemonium carneum	Oregon polemonium	2B.2	Taylor Peak Capetown	Apr-Sep	perennial herb	Coastal prairie, Coastal scrub, Lower montane coniferous forest	NA	0 - 1830 meters	Low.
Chrysospleniu m glechomifolium	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.
Mitellastra caulescens	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.
Tiarella trifoliata var. trifoliata	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:

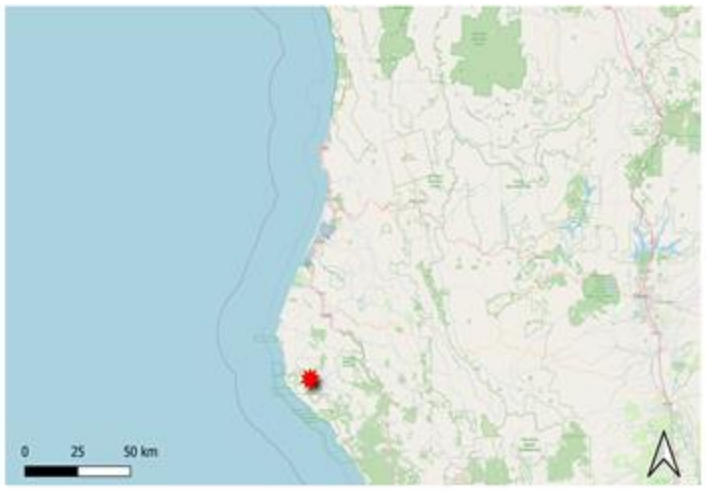
- **0.1**-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- **0.2**-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- **0.3**-Not very threatened in California (less than 20% of 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.

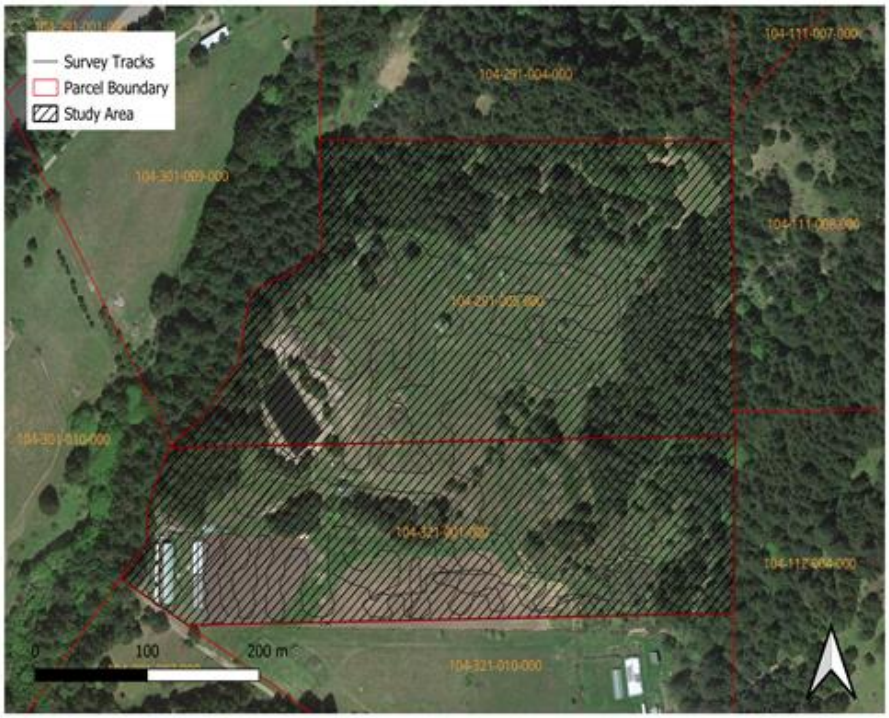
Scientific Name	Common Name	Family	Native?
Trees			
Pinus attenuata	knobcone pine	Pinaceae	N
Pseudotsuga menziesii	Douglas fir	Pinaceae	Y[1]
Shrubs			
Salix lasiolepis	arroyo willow	Salicaceae	Y
Rubus armeniacus	Himalayan berry	Rosaceae	N[2]
Sedges and Rushes			
Cyperus eragrostis	tall flat sedge	Cyperaceae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

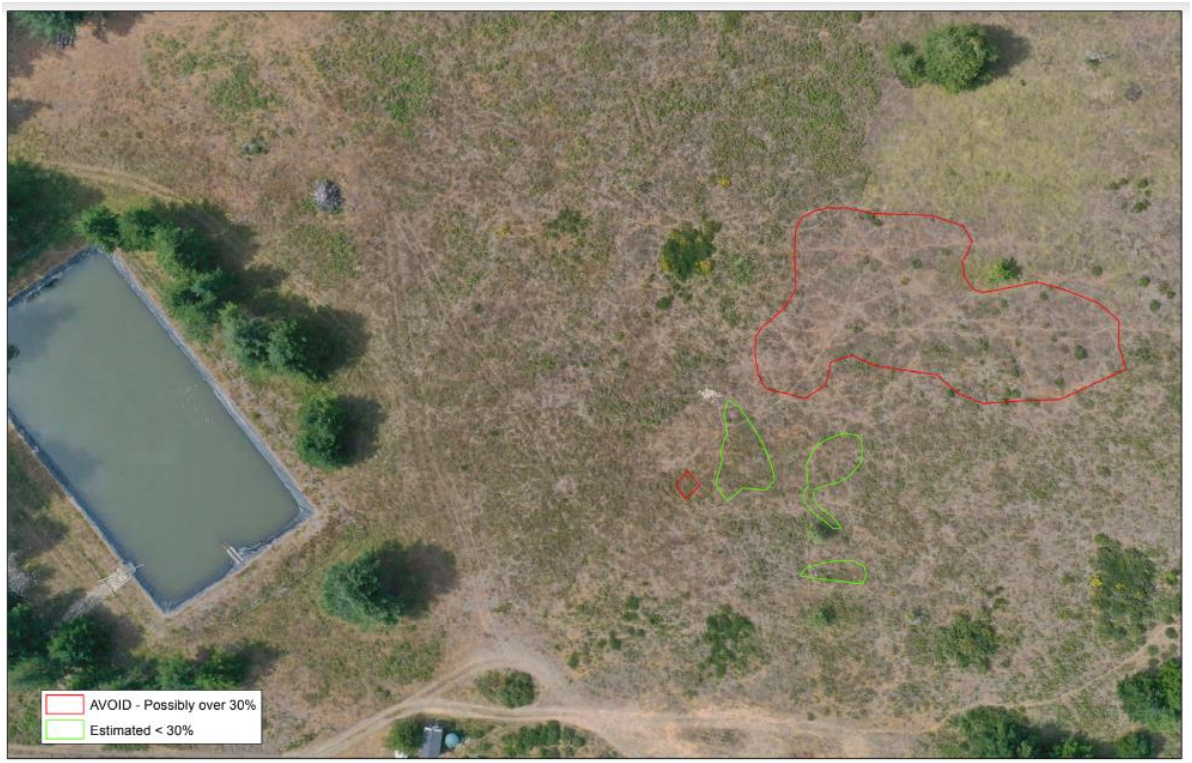


Figure 3. *Bromus sitchensis var. carinatus - Elymus glaucus* alliance [G3S3].

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.