Botanical Survey Results

Riveridge Farms
(APN: 033-271-021)

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1. INTRODUCTION

This botanical survey report was prepared to address potential impacts to sensitive botanical resources, including special status plants and plant communities, at Riveridge Farms (APN: 033-271-021) near Benbow. This report also addresses wetlands and invasive plants.

The project includes expanding the existing 8,760 square feet of cultivation by 24,680 square feet and construction of 5,000 square foot commercial building and a 7,740 square foot pond.

2. DEFINITIONS

2.1. Special Status Plants

Special status plants include those listed as rare, threatened, or endangered under the federal Endangered Species Act and/or the California Endangered Species Act. Additionally, impacts to taxa with California Rare Plant Ranks (CRPR) of 1A, 1B, 2A, and 2B must be analyzed in environmental documents related to the California Environmental Quality Act (CEQA), or those considered functionally equivalent to CEQA. Impacts to plants with CRPRs of 3 and 4 should also be addressed. Protection measures for populations of these taxa may be warranted if they are determined to have local or biological significance.

2.2. Special Status Plant Communities

Special status plant communities are communities with limited distribution that may be vulnerable to environmental impacts. Updated information on California natural communities, including rarity rankings, is provided in *A Manual of California Vegetation Online Edition* (CNPS 2021). Natural communities with G or S ranks of 3 or lower are considered sensitive.

2.3. Wetlands

The Army Corps of Engineers defines wetlands as:

> "…areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

2.4. Invasive Plants

Invasive species are non-native plants and animals whose introduction causes or is likely to cause environmental or economic damage or harm to human health. Invasive species can cause a decline of endangered species and native diversity through direct competition and by alteration of ecological processes. The California Invasive Plant Council (Cal-IPC) maintains a list of plants considered invasive in California (Cal-IPC 2021). For the purposes of this report only plants with Cal-IPC ratings of "High" were considered.

3. ENVIRONMENTAL SETTING

3.1. Project Location

The parcel is located off Milkyway Loop near Benbow on the Garberville USGS quadrangle in Humboldt County (Figure 1).

3.2. Soil, Topography, Hydrology

There are no serpentine, volcanic, or other unique soil types on the parcel. The soil on the lower terrace is mapped as Gschwend-Frenchman complex, which is composed of alluvium derived from sandstone (United States Department of Agriculture, Natural Resource Conservation Service 2021) (Appendix A). The upper portion of the parcel is mapped as Sproulish Canoecreek-Redwohly complex, which is derived from sandstone, mudstone, and conglomerate parent material.

The parcel includes relatively flat upper and lower terraces above the South Fork Eel River. There are no streams on the parcel. The elevation ranges from approximately 500-700 feet above sea level.

3.3. Vegetation

The project area is generally disturbed grassy and ruderal habitat with non-native grasses including wild oat (*Avena barbata*), rattlesnake grass (*Briza maxima*), soft chess (*Bromus hordeaceus*), and dogtail grass (*Cynosurus echinatus*). The area around the residence is landscaped with fruit trees and ornamental plants. The lower terrace also includes open disturbed habitat with primarily non-native herbaceous vegetation.

The forest adjacent to the openings includes a canopy of Douglas-fir (*Pseudotsuga menziesii*), canyon live oak (*Quercus chrysolepis*), and tanoak (*Notholithocarpus densiflrous* var. *densiflorus*). Other trees include madrone (*Arbutus menziesii*), Oregon white oak (*Quercus garryana*), and California-bay (*Umbelullaria californica*). Common understory plants include sword fern (*Polystichum munitum*), hairy honeysuckle (*Lonicera hispidula*), poison oak (*Toxicodendron diversilobum*), and woodland madia (*Anisocarpus madioides*).

4. METHODS

4.1. Scoping

A list of special status plants that could potentially occur on the parcel was generated by consulting the *California Natural Diversity Database* (CDFW 2021) and the CNPS *Inventory of Rare and Endangered Plants* (CNPS 2021a). The scoping list includes special status plants with documented occurrences on the Garberville USGS quadrangle or adjacent quadrangles (Table 1).

Figure 1. Location Map.

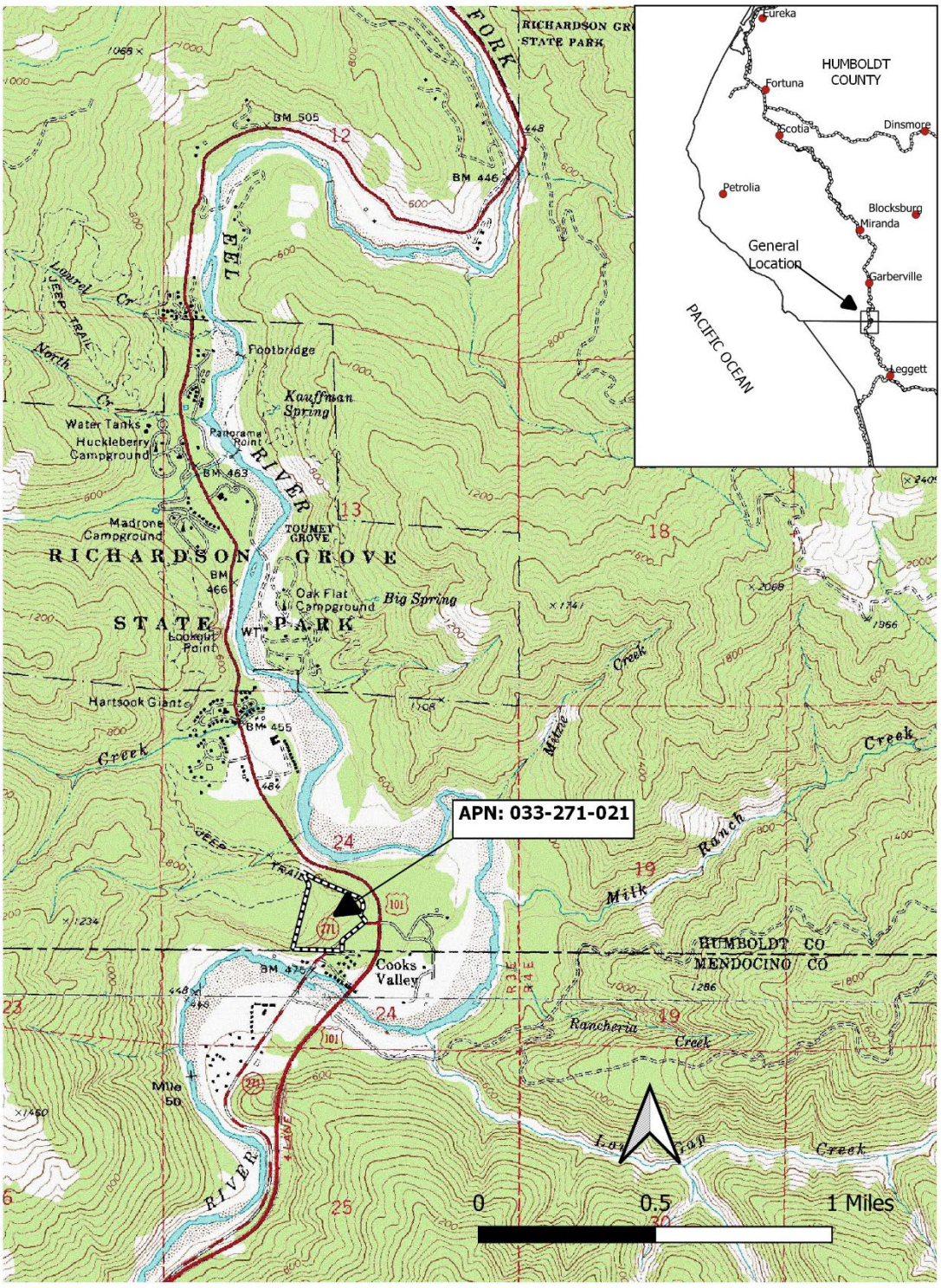


Table 1. Special Status Plant Scoping List.

Scientific Name **Common Name**	**Listing Status**	**Blooming Period**	**Habitat**	**Potential to Occur in Project Area**
Arabis mcdonaldiana McDonald's rockcress	1B.1, CE, FE	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest-Serpentinite	None-occurs on serpentine
Arctostaphylos stanfordiana ssp. raichei Raiche's manzanita	1B.1	Feb-Apr	Chaparral, Lower montane coniferous forest-Rocky, Serpentinite (often)	Unlikely-not typical habitat
Astragalus agnicidus Humboldt County milk-vetch	1B.1,CE	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest-Disturbed areas, Openings, Roadsides (sometimes)	High-along roads and disturbed areas
Astragalus rattanii var. rattanii Rattan's milk-vetch	4.3	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest-	Unlikely-not typical habitat
Calamagrostis bolanderi Bolander's reed grass	4.2	May-Aug	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest-Mesic	Moderate-along roads but site is likely too dry
Calamagrostis foliosa leafy reed grass	4.2	May-Sep	Coastal bluff scrub, North Coast coniferous forest-Rocky	Unlikely-not typical habitat
Carex arcta northern clustered sedge	2B.2	Jun-Sep	Bogs and fens, North Coast coniferous forest	None-occur in wetlands
Castilleja litoralis Oregon coast paintbrush	2B.2	Jun	Coastal bluff scrub, Coastal dunes, Coastal scrub-Sandy	None-occurs in immediate coastal habitat
Castilleja mendocinensis Mendocino Coast paintbrush	1B.2	Apr-Aug	Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub	None-occurs in immediate coastal habitat
Ceanothus foliosus var. vineatus Vine Hill ceanothus	1B.1	Mar-May	Chaparral	Unlikely-not typical habitat
Ceanothus gloriosus var. exaltatus glory brush	4.3	Mar-Jun(Aug)	Chaparral	Moderate-along roads and forest edges
Coptis laciniata Oregon goldthread	4.2	(Feb)Mar-May(Sep-Nov)	Meadows and seeps, North Coast coniferous forest-Mesic	Unlikely-usually in riparian habitat
Cypripedium californicum California lady's-slipper	4.2	Apr-Aug(Sep)	Bogs and fens, Lower montane coniferous forest-Seeps, Serpentinite (usually), Streambanks	Unlikely-site is likely to dry
Epilobium septentrionale Humboldt County fuchsia	4.3	Jul-Sep	Broadleafed upland forest, North Coast coniferous forest-Rocky (sometimes), Sandy (sometimes)	Unlikely-not typical habitat

Scientific Name **Common Name**	**Listing Status**	**Blooming Period**	**Habitat**	**Potential to Occur in Project Area**
Erigeron biolettii streamside daisy	3	Jun-Oct	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest-Mesic, Rocky	Unlikely-site is likely to dry
Erigeron robustior robust daisy	4.3	Jun-Jul	Lower montane coniferous forest, Meadows and seeps-Serpentinite (sometimes)	Unlikely-not typical habitat
Eriogonum kelloggii Kellogg's buckwheat	1B.2, CE	(May)Jun-Aug	Lower montane coniferous forest	Unlikely-not typical habitat
Erythronium citrinum var. citrinum lemon-colored fawn lily	4.3	Mar-May	Chaparral, Lower montane coniferous forest-Serpentinite (usually)	Unlikely-not typical habitat
Erythronium oregonum giant fawn lily	2B.2	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps-Openings, Rocky, Serpentinite (sometimes)	Unlikely-site lacks streams mesic rocky habitat
Erythronium revolutum coast fawn lily	2B.2	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest-Mesic, Streambanks	Unlikely-site lacks streams mesic rocky habitat
Gentiana setigera Mendocino gentian	1B.2	(Apr-Jul)Aug-Sep	Lower montane coniferous forest, Meadows and seeps-Mesic	Unlikely-not typical habitat
Gilia capitata ssp. pacifica Pacific gilia	1B.2	Apr-Aug	haparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	Unlikely-not typical habitat, maybe some potential in grassy and more open areas
Hemizonia congesta ssp. tracyi Tracy's tarplant	4.3	(Mar)May-Oct	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest-Openings, Serpentinite (sometimes)	Unlikely-not typical habitat, maybe some potential in grassy and more open areas
Hosackia gracilis harlequin lotus	4.2	Mar-Jul	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland-Roadsides	Moderate-in grassy or open disturbed areas
Howellia aquatilis water howellia	2B.2, FD	Jun	Marshes and swamps	None-no suitable aquatic habitat
Kopsiopsis hookeri small groundcone	2B.3	Apr-Aug	North Coast coniferous forest	Moderate-in adjacent forest undertory

Scientific Name **Common Name**	**Listing Status**	**Blooming Period**	**Habitat**	**Potential to Occur in Project Area**
Leptosiphon acicularis bristly leptosiphon	4.2	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland	Moderate-High. In open or disturbed areas, along roads
Leptosiphon latisectus broad-lobed leptosiphon	4.3	Apr-Jun	Broadleafed upland forest, Cismontane woodland	Moderate-High. In open or disturbed areas, along roads
Leptosiphon rattanii Rattan's leptosiphon	4.3	May-Jul	Cismontane woodland, Lower montane coniferous forest- Gravelly (sometimes), Rocky (sometimes)	Moderate-High. In open or disturbed areas, along roads
Lilium rubescens redwood lily	4.2	Apr-Aug(Sep)	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest- Roadsides (sometimes), Serpentinite (sometimes)	High-along roads, forest edges
Listera cordata heart-leaved twayblade	4.2	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	High-in adjacent forest understory
Lomatium engelmannii Engelmann's lomatium	4.3	May-Aug	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest- Serpentinite	None-occur on serpentine
Lycopus uniflorus northern bugleweed	4.3	Jul-Sep	Bogs and fens, Marshes and swamps	None-occurs in wetland
Mitellastra caulescens leafy-stemmed mitrewort	4.2	(Mar)Apr-Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest- Mesic, Roadsides (sometimes)	Unlikely-occur in riparian habitat
Montia howellii Howell's montia	2B.2	(Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools- Roadsides (sometimes), Vernally Mesic	Moderate-along roads and disturbed areas, typically more mesic sites
Piperia candida white-flowered rein orchid	1B.2	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	High-along roads and adjacent forest understory
Pityopus californicus California pinefoot	4.2	(Mar-Apr)May-Aug	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	High-in adjacent forest understory
Pleuropogon hooverianus North Coast semaphore grass	1B.1,CT	Apr-Jun	Broadleafed upland forest, Meadows and seeps, North Coast coniferous forest	Unlikley-site is too dry

Scientific Name **Common Name**	**Listing Status**	**Blooming Period**	**Habitat**	**Potential to Occur in Project Area**
Sedum eastwoodiae Red Mountain stonecrop	1B.2	May-Jul	Lower montane coniferous forest	Unlikely-not typical habitat
Sidalcea malachroides maple-leaved checkerbloom	4.2	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Moderate-along roads and open areas
Sidalcea malviflora ssp. patula Siskiyou checkerbloom	1B.2	(Mar)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	Moderate-along roads and open areas
Silene bolanderi Bolander's catchfly	1B.2	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest-Openings (usually), Roadsides (sometimes), Rocky (sometimes), Serpentinite (sometimes)	Unlikely-not typical habitat
Silene greenei ssp. angustifolia Red Mountain catchfly	1B.2	May-Jun	Chaparral, Lower montane coniferous forest-Peridotite, Rocky, Serpentinite (usually)	Unlikely-not typical habitat
Tracyina rostrata beaked tracyina	1B.2	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Unlikely-maybe some potential in open grassy areas.
Usnea longissima Methuselah's beard lichen	4.2		Broadleafed upland forest, North Coast coniferous forest	High-on tree branches
Viburnum ellipticum oval-leaved viburnum	2B.3	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	Unlikely-not typical habitat

SPECIAL STATUS PLANT LISTING STATUS

Endangered Species Act (ESA)
FE: Federally Endangered
FT: Federally Threated
FR: Federally Rare

California Endangered Species Act (CESA)
CE: California Endangered
CT: California Threated
CR: California Rare

California Rare Plant Ranks
1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2A: Plants Presumed Extirpated in California, But Common Elsewhere
2B: California Rare Plant Rank 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3. Review List: Plants about which more information is needed.
4. Watch List: Plants of limited distribution

Threat Ranks
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)

Special status natural communities that have potential to occur on the parcel include, but are not limited to, oak woodlands and special status native grassland communities. A full list of special status natural communities that occur in northwestern California queried from *A Manual of California Vegetation Online Edition* (CNPS 2021b) is provided in Appendix B.

4.2. Survey

The survey was conducted by Kyle Wear, M.A. Mr. Wear has over 25 years of experience conducting botanical surveys, wetland delineations, and other biological work in northern California and is trained in wetland delineation by the Wetland Training Institute.

The survey was floristic and followed methods outlined in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). The project area was surveyed on April 18, May 25, and June 23, 2021. A survey coverage map is provided in Figure 2. All plants were identified to the taxonomic level necessary to determine whether they are special status. Plant taxonomy generally follows *The Jepson Manual Vascular Plants of California, Second Edition* (Baldwin et. al. 2012), however the plant list may include more recent name changes. Plant communities were classified according to *A Manual of California Vegetation Online Edition* (CNPS 2021b).

The surveys were conducted at the time of year when plants on the scoping list with potential to occur on the parcel would be recognizable and identifiable (generally, but not necessarily during the blooming period) and when other common plants would be identifiable so that a comprehensive plant list of the project area could be compiled.

5. RESULTS

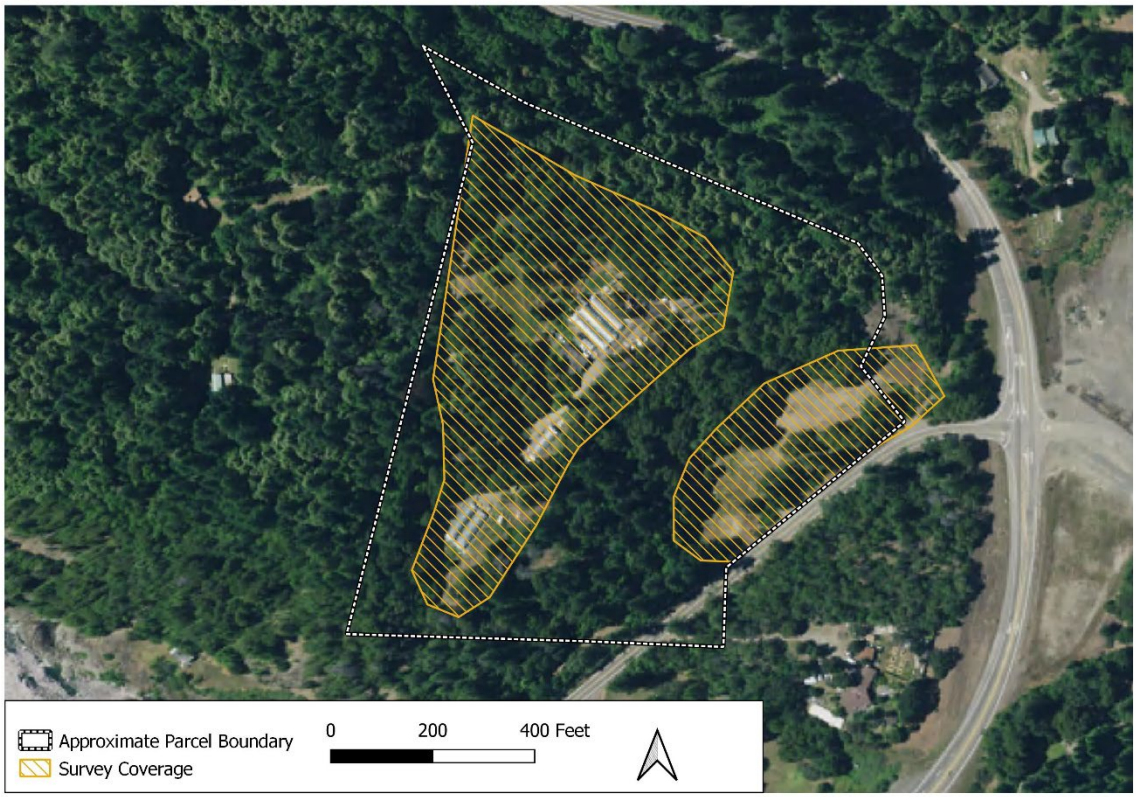
5.1. Special Status Plants

No special status plants were encountered on the surveys. A list of all plants observed is provided in Table 2. The plant list does not include all the ornamental and horticultural plants on the property.

5.2. Special Status Natural Communities

The vegetation described in Section 3.3 above is not consistent with any special status natural communities. Two native grasses were observed on the parcel, California oatgrass (*Danthonia californica*) and blue wildrye (*Elymus glaucus*), however, the cover was too low (less than 1%) to meet the membership rules of special status grasslands. Cover of *Danthonia californica* would need to be at least 10% and *Elymus glaucus* would need to be at least 30% to meet the membership criteria. Additionally, the grasses occur in cleared areas, not natural grassland habitat. Oregon white oak (*Quercus garryana*) occurs on the parcel in small groups of trees or mixed with other hardwoods and Douglas-fir and does not represent Oregon white oak forest and woodland. The forest on the parcel is consisted with Douglas-fir forest and woodland (*Pseudstsuga menziesii* Forest and Woodland Alliance), and common natural community with a rarity ranking of G5 S4.

Figure 2. Survey Coverage Map.



5.3. Wetlands

No indicators of wetlands such as standing water, soil saturation, or stands of wetland plants such as sedges (*Carex* spp.) or rushes (*Juncus* spp.) were observed on the flats or in the adjacent forest.

5.4. Invasive Plants

The following plants with Cal-IPC ratings of high were observed on the parcel:

French broom (*Cytisus scoparius*)
Scotch broom (*Genista monspessulana*)
Himalayan blackberry (*Rubus armeniacus*)

6. POTENTIAL FOR FALSE NEGATIVE SURVEYS

Potential factors that could result in lack of detection of special status plants include plants that have a seed bank on the site but currently no above ground individuals, grazing, disease, disturbance, and adverse climatic conditions.

Table 2. Plant List.

Scientific Name	Common Name
Acer macrophyllum	bigleaf maple
Acmispon americanus var. americanus	lotus
Agrostis sp.	bent grass
Ailanthus altissima	tree of heaven
Anaphalis margaritacea	pearly everlasting
Anisocarpus madioides	woodland madia
Anthoxanthum odoratum	sweet vernal grass
Apocynum sp.	dogbane
Aquilegia formosa	crimson columbine
Arbutus menziesii	Pacific madrone
Arctostaphylos columbiana	hairy manzanita
Arctostaphylos manzanita ssp. *manzanita*	common manzanita
Arrhenatherum elatius	tall oatgrass
Asclepias sp.	milkweed
Asyneuma prenanthoides	harebell
Baccharis pilularis	coyote brush
Bellis perennis	English daisy
Briza maxima	rattlesnake grass
Briza minor	small rattlesnake grass
Bromus carinatus	California brome
Bromus diandrus	ripgut grass
Bromus hordeaceus	soft chess
Bromus laevipes	woodland brome
Bromus madritensis	foxtail chess
Calocedrus decurrens	incense cedar
Cardamine californica	milk maids
Carduus pycnocephalus	Italian thistle
Carex rossii	Ross' sedge
Ceanothus thyrsiflorus	blue blossom
Cerastium glomeratum	mouse ear chickweed
Chamomilla suaveolens	pineapple weed
Chloroglaum pomeridianum	soaproot
Cirsium vulgare	bull thistle
Claytonia perfoliata	miner's lettuce
Clinopodium douglasii	yerba buena
Collomia heterophylla	varied-leaf collomia
Corylus cornuta ssp. californica	California hazelnut
Cynoglossum grande	hound's-tongue

Scientific Name	Common Name
Cynosurus echinatus	dogtail grass
Cytisus scoparius	Scotch broom
Dactylis glomerata	orchard grass
Danthonia californica	California oatgrass
Daucus carota	Queen Anne's lace
Deschampsia elongata	slender hairgrass
Diplacus aurantiacus	orange bush monkey-flower
Dryopteris arguta	coastal wood fern
Elymus glaucus ssp. *glaucus*	blue wildrye
Erigeron canadensis	horseweed
Erodium botrys	long-beaked storksbill
Eschscholzia californica	California poppy
Eucalyptus globulus	blue gum
Festuca myuros	rattail sixweeks grass
Festuca perennis	rye grass
Foeniculum vulgare	fennel
Fragaria vesca	wood strawberry
Galium aparine	goose grass
Galium sp.	bedstraw
Genista monspessulana	French broom
Geranium sp.	geranium
Heteromeles arbutifolia	toyon
Hieracium albiflorum	white hawkweed
Holcus lanatus	common velvet grass
Hordeum jubatum	foxtail barley
Hypericum perforatum	St. John's-wort
Hypochaeris radicata	hairy cat's-ear
Iris douglasiana	Douglas iris
Iris purdyi	Purdy's iris
Juncus patens	spreading rush
Kniphofla uvaria	redhot poker
Lactuca sp.	wild lettuce
Laministrum galeobdolon	yellow archangel
Lathyrus vestitus	wood pea
Leucanthemum vulgare	ox-eye daisy
Lonicera hispidula	hairy honeysuckle
Lotus corniculatus	birdfoot trefoil
Lupinus bicolor	miniature lupine
Luzula parviflora	small-flowered wood rush

Scientific Name	Common Name
Lysimachia arvensis	scarlet pimpernel
Lysimachia latifolia	Pacific star flower
Madia exigua	small tarweed
Malva nicaeenis	bull mallow
Medicago polymorpha	bur clover
Melica sp.	oniongrass
Mentha pulegium	pennyroyal
Navarretia intertexta	interwoven navarretia
Nemophila parviflora	small-flowered nemophila
Notholithocarpus densiflorus var. *densiflorus*	tanoak
Osmorhiza berteroi	sweet-cicely
Oxalis corniculata	creeping wood sorrel
Pedicularis densiflora	Indian warrior
Pentagramma triangularis ssp. *triangularis*	goldback fern
Pinus sp.	pine (non-native)
Plantago lanceolata	English plantain
Poa annua	annual bluegrass
Polygala californica	California milkwort
Polygonum aviculare	prostrate knotweed
Polypodium glycyrrhiza	licorice fern
Polystichum munitum	sword fern
Prosartes hookeri	Hooker's fairy bells
Prunella vulgaris	self-heal
Pseudognaphalium stramineum	cudweed
Pseudotsuga menziesii	Douglas-fir
Pteridium aquilinum var. *pubescens*	bracken fern
Quercus chrysolepis	canyon live oak
Quercus garryana	Oregon white oak
Ranunculus sp.	buttercup
Ribes roezlii var. cruentum	Sierra gooseberry
Rosa sp.	rose
Rubus armeniacus	Himalayan blackberry
Rubus leucodermis	white-stemmed raspberry
Rubus parviflorus	thimbleberry
Rubus ursinus	California blackberry
Rumex acetosella	sheep sorrel
Sanicula crassicaulis	Pacific snakeroot
Silybum marianum	milk thistle
Sonchus oleraceus	common sow thistle

Scientific Name	Common Name
Spergularia rubra	purple sand spurry
Stachys ajugoides	hedge nettle
Torilis arvensis	rattlesnake weed
Toxicodendron diversilobum	poison-oak
Triflolium incarnatum	crimson clover
Trifolium campestre	hop clover
Trifolium microcephalum	maiden clover
Trifolium repens	white clover
Trifolium subterraneum	subterranean clover
Trifolium variegatum	variagated clover
Umbellularia californica	California-bay
Vaccinium ovatum	evergreen huckleberry
Vancouveria sp.	inside-out flower
Verbascum sp.	mullein
Vicia americana var. *americana*	American vetch
Vicia hirsuta	hairy vetch
Vicia sativa ssp. nigra	narrow-leaved vetch
Whipplea modesta	modesty

Seeds of some species can persist for years or decades in the soil until suitable conditions occur for germination. Legumes such as Humboldt County milk-vetch (*Astragalus agnicidus*) can persist for years or decades in seed bank and emerge after logging or other environmental changes. Plants that grow from underground structures such as bulbs and tubers, including white-flowered rein orchid (*Piperia candida*) and lilies (*Lilium* spp.), can remain dormant or suppressed under unfavorable conditions.

Plants can also be consumed by livestock, deer, or invertebrates or succumb to disease. These factors could damage identifying characters such as flowers and leaves or remove entire above ground portions of the plants resulting in negative detections.

The climatic conditions were relatively dry in the spring of 2021 with lower-than-normal rainfall accumulation. Temperature, which is the primary factor controlling plant phenology, was within normal ranges. Although the spring was dry, plant phenology in general did not seem to be affected, many species were at peak bloom during typical timing.

7. IMPACT ASSEMENT AND RECOMMENDATIONS

The proposed project will impact already disturbed habitat and will not impact special status plants, natural communities, or wetlands.

Information on the control of invasive plants on the property can be found at:

French broom
https://wric.ucdavis.edu/information/natural%20areas/wr_G/Genista.pdf

Scotch broom
https://wric.ucdavis.edu/information/natural%20areas/wr_C/Cytisus.pdf

Himalayan blackberry
https://wric.ucdavis.edu/information/natural%20areas/wr_R/Rubus.pdf

8. REFERENCES

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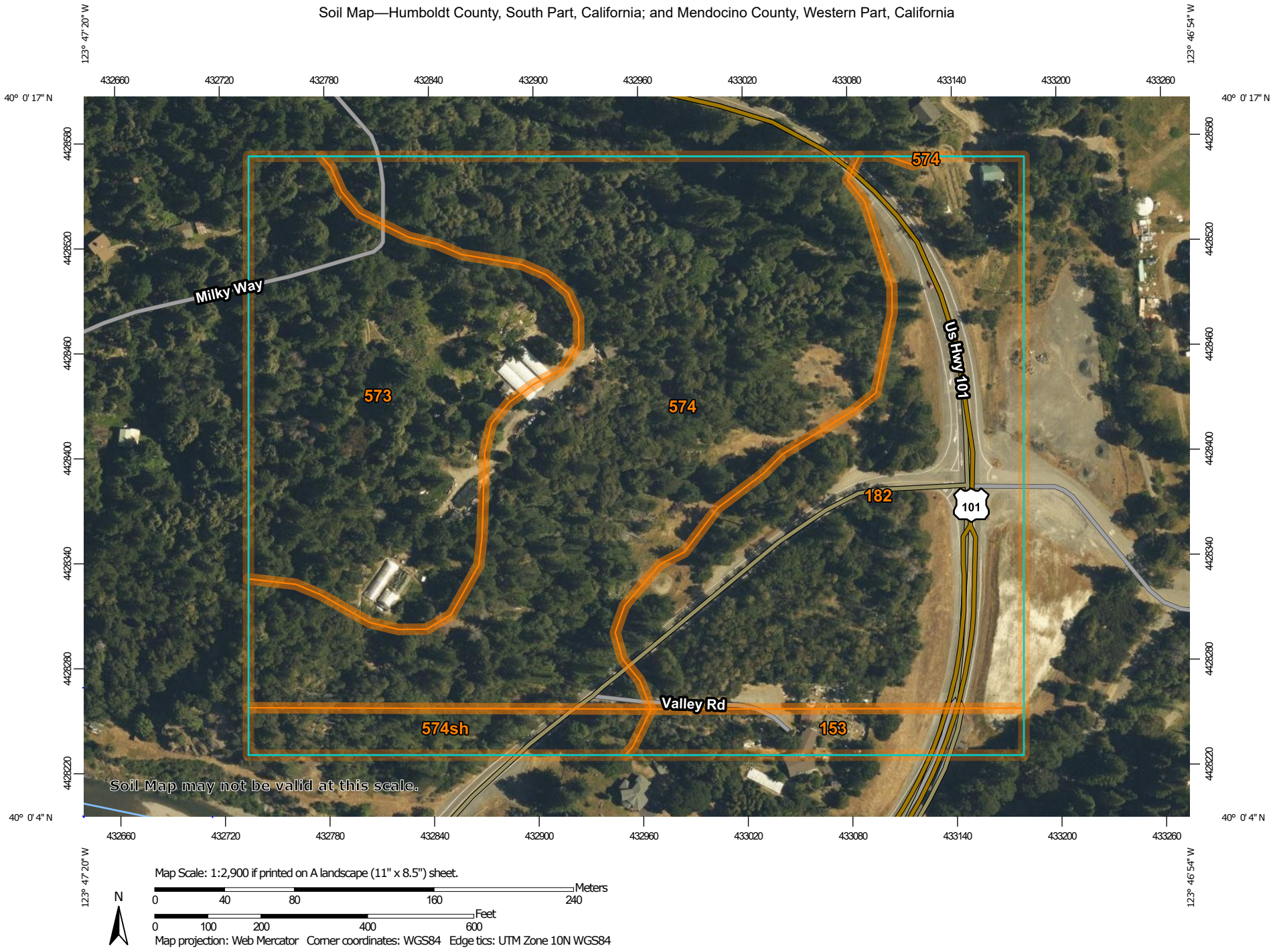
APPENDIX A NRCS Soil Map



Map Scale: 1:2,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Humboldt County, South Part, California
Survey Area Data: Version 10, Sep 6, 2021

Soil Survey Area: Mendocino County, Western Part, California
Survey Area Data: Version 16, Sep 6, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
182	Gschwend-Frenchman complex, 0 to 9 percent slopes	11.1	29.3%
573	Sproulish-Canoecreek-Redwohly complex, 15 to 30 percent slopes, warm	8.5	22.6%
574	Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm	15.3	40.4%
Subtotals for Soil Survey Area		**34.9**	**92.2%**
Totals for Area of Interest		**37.8**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
153	Gschwend-Frenchman complex, 0 to 9 percent slopes	1.5	3.8%
574sh	Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm	1.5	3.9%
Subtotals for Soil Survey Area		**2.9**	**7.8%**
Totals for Area of Interest		**37.8**	**100.0%**

APPENDIX B Special Status Natural Communities Scoping List

Scientific Name	Common Name	Global rarity	State rarity
Abies grandis	Grand fir forest	G4	S2.1
Abronia latifolia - Ambrosia chamissonis	Dune mat	G3	S3
Acer macrophyllum	Bigleaf maple forest and woodland	G4	S3
Acer negundo	Box-elder forest and woodland	G5	S2.2
Aesculus californica	California buckeye groves	G3	S3
Alnus incana	Mountain alder thicket	G4	S3
Alnus viridis	Sitka alder thickets	G5	S3?
Alopecurus geniculatus	Water foxtail meadows	G3?	S3?
Arbutus menziesii	Madrone forest	G4	S3.2
Arctostaphylos bakeri	Stands of Baker manzanita	G1	S1.2
Arctostaphylos (canescens, manzanita, stanfordiana)	Hoary, common, and Stanford manzanita chaparral	G3	S3
Arctostaphylos montana	Mount Tamalpais manzanita chaparral	G2	S2
Arctostaphylos (nummularia, sensitiva)	Glossy leaf manzanita chaparral	G2	S2
Arctostaphylos patula - Arctostaphylos nevadensis	Green leaf manzanita - Pinemat manzanita chaparral	G5	S3
Argentina egedii	Pacific silverweed marshes	G4	S2
Bolboschoenus maritimus	Salt marsh bulrush marshes	G4	S3
Bromus carinatus - Elymus glaucus	California brome - blue wildrye prairie	G3	S3
Calamagrostis nutkaensis	Pacific reed grass meadows	G4	S2
Calocedrus decurrens	Incense cedar forest and woodland	G4	S3.2
Carex (aquatilis, lenticularis)	Water sedge and lakeshore sedge meadows	G5	S3
Carex barbarae	White-root beds	G2?	S2?
Carex densa	Dense sedge marshes	G2?	S2?
Carex echinata	Star sedge fens	G4?	S3?
Carex integra	Small-fruited sedge meadows	G4?	S2?
Carex luzulina	Woodland sedge fens	G3	S2?
Carex nudata	Torrent sedge patches	G3	S3
Carex obnupta	Slough sedge swards	G4	S3
Carex (pansa, praegracilis)	Sand dune sedge swaths	G4?	S3?
Carex serratodens	Twotooth sedge seeps	G3	S3?
Ceanothus (oliganthus, tomentosus)	Hairy leaf - woolly leaf ceanothus chaparral	G3	S3
Cephalanthus occidentalis	Button willow thickets	G5	S2
Chamaecyparis lawsoniana	Port Orford cedar forest and woodland	G3	S3.1
Chrysolepis chrysophylla	Golden chinquapin thickets	G2	S2
Chrysolepis sempervirens	Bush chinquapin chaparral	G4	S3.3

Scientific Name	Common Name	Global rarity	State rarity
Corylus cornuta var. californica	Hazelnut scrub	G3	S2?
Darlingtonia californica	California pitcher plant fens	G4?	S3
Deschampsia cespitosa - Hordeum brachyantherum - Danthonia californica	Coastal tufted hair grass - Meadow barley - California oatgrass wet meadow	GNR	S3
Equisetum (arvense, variegatum, hyemale)	Field horsetail - scouringrush horsetail - variegated scouringrush wet meadow	GNR	S3
Eriophyllum staechadifolium - Erigeron glaucus - Eriogonum latifolium	Seaside woolly-sunflower - seaside daisy - buckwheat patches	G3	S3
Festuca idahoensis - Danthonia californica	Idaho fescue - California oatgrass grassland	GNR	S3
Frangula californica - Rhododendron occidentale - Salix breweri	California coffee berry - western azalea scrub - Brewer's willow	G3	S3
Frankenia salina	Alkali heath marsh	G4	S3
Fraxinus latifolia	Oregon ash groves	G4	S3.2
Garrya elliptica	Coastal silk tassel scrub	G3?	S3?
Glyceria Ã—occidentalis	Northwest manna grass marshes	G3?	S3?
Grindelia (camporum, stricta)	Gum plant patches	G2	S2
Hesperocyparis macnabiana	McNab cypress woodland and forest	G3	S3.2
Hesperocyparis pigmaea	Mendocino pygmy cypress woodland	G1	S1
Hesperocyparis sargentii	Sargent cypress woodland	G3	S3.2
Heterotheca (oregona, sessiliflora)	Goldenaster patches	G3	S3
Hydrocotyle (ranunculoides, umbellata)	Mats of floating pennywort	G4	S3?
Isoetes (bolanderi, echinospora, howellii, nuttallii, occidentalis)	Quillwort beds	G3	S3?
Juglans hindsii and Hybrids	Hindsâ€™s walnut and related stands	G1	S1.1
Juncus lescurii	Salt rush swales	G3	S2?
Juncus (oxymeris, xiphioides)	Iris-leaf rush seeps	G2?	S2?
Leymus cinereus - Leymus triticoides	Ashy ryegrass - creeping ryegrass turfs	G3	S3
Leymus mollis	Sea lyme grass patches	G4	S2
Lupinus chamissonis - Ericameria ericoides	Silver dune lupine - mock heather scrub	G3	S3
Morella californica	Wax myrtle scrub	G3	S3
Nassella spp. - Melica spp.	Needle grass - Melic grass grassland	G3	S3
Notholithocarpus densiflorus	Tanoak forest	G4	S3.2
Nuphar lutea	Yellow pond-lily mats	G5	S3?
Oenanthe sarmentosa	Water-parsley marsh	G4	S2?
Picea sitchensis	Sitka spruce forest and woodland	G5	S2
Pinus balfouriana	Foxtail pine woodland	G3	S3

Scientific Name	Common Name	Global rarity	State rarity
Pinus contorta ssp. contorta	Beach pine forest and woodland	G5	S3
Pinus muricata - Pinus radiata	Bishop pine - Monterey pine forest and woodland	G3	S3.2
Populus fremontii - Fraxinus velutina - Salix gooddingii	Fremont cottonwood forest and woodland	G4	S3.2
Populus trichocarpa	Black cottonwood forest and woodland	G5	S3
Pseudotsuga menziesii - Calocedrus decurrens	Douglas fir - incense cedar forest and woodland	G3	S3
Pseudotsuga menziesii - Notholithocarpus densiflorus	Douglas fir - tanoak forest and woodland	G3	S3
Quercus garryana (tree)	Oregon white oak woodland and forest	G4	S3
Quercus lobata	Valley oak woodland and forest	G3	S3
Quercus parvula var. shrevei	Shreve oak forests	G2	S2
Quercus wislizeni - Quercus chrysolepis (shrub)	Canyon live oak - Interior live oak chaparral	G4	S3
Rhododendron columbianum	Western Labrador-tea thickets	G4	S2?
Rubus (parviflorus, spectabilis, ursinus)	Coastal brambles	G4	S3
Ruppia (cirrhosa, maritima)	Ditch-grass or widgeon-grass mats	G4?	S2
Salix gooddingii - Salix laevigata	Goodding's willow - red willow riparian woodland and forest	G4	S3
Salix hookeriana	Coastal dune willow thickets	G4	S3
Salix lucida ssp. lasiandra	Shining willow groves	G4	S3.2
Salix sitchensis	Sitka willow thickets	G4	S3?
Sarcocornia pacifica (Salicornia depressa)	Pickleweed mats	G4	S3
Schoenoplectus (acutus, californicus)	Hardstem and California bulrush marshes	GNR	S3
Schoenoplectus americanus	American bulrush marsh	G5	S3.2
Scirpus microcarpus	Small-fruited bulrush marsh	G4	S2
Selaginella (bigelovii, wallacei)	Bushy spikemoss mats	G4	S3
Sequoia sempervirens	Redwood forest and woodland	G3	S3.2
Sparganium (angustifolium)	Mats of bur-reed leaves	G4	S3?
Spartina foliosa	California cordgrass marsh	G3	S3.2
Stuckenia (pectinata) - Potamogeton spp.	Pondweed mats	G3	S3?
Torreyochloa pallida	Floating mats of weak manna grass	G3	S3?
Trifolium variegatum	White-tip clover swales	G3?	S3?
Tsuga heterophylla	Western hemlock forest	G5	S2
Umbellularia californica	California bay forest and woodland	G4	S3
Vaccinium uliginosum	Bog blueberry wet meadows	G4	S3

Scientific Name	Common Name	Global rarity	State rarity
Vitis arizonica - Vitis girdiana	Wild grape shrubland	G3	S3
Zostera (marina, pacifica) Pacific Aquatic	Eelgrass beds	GNR	S3

Global (G) Rankings

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 (S) Rankings

S1 = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres

- S1.1 = very threatened
- S1.2 = threatened
- S1.3 = no current threats known

S2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres

- S2.1 = very threatened
- S2.2 = threatened
- S2.3 = no current threats known

S3 = 21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres

- S3.1 = very threatened
- S3.2 = threatened
- S3.3 = no current threats known

S4 = Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat.

S5 = Demonstrably secure to ineradicable in California.