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Botanical Survey Report
Sordal Cannabis Cultivation Project

Prepared by
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8/28/2019

For
Hohman and Associates
Hydesville, CA

Signature: Kelsey McDonald **Date:** 8/28/2019

Setting

The Sordal parcels are located in Sections 23, 26 and 27, Township 1 North, Range 4 East HB&M; Humboldt County, on the Larabee Valley USGS 7.5' quadrangle. The project area consists of three assessor's parcels (APNs: 210-071-001, 210-054-008, 210-062-007), southeast of the town of Bridgeville, CA. The area requires botanical surveys to be conducted for both cannabis cultivation permitting and timber harvest. The biogeographic region can be described using a three-tiered hierarchy of province, region and sub-region. This site lies within the California Floristic Province, Northwestern California region, and North Coast sub-region. Elevation ranges from approximately 2400 to 2900 feet. The area contains open grasslands and mixed coniferous forest dominated by Douglas fir (*Pseudotsuga menziesii*) and tanoak (*Notholithocarpus densiflorus*) with some oak woodland. Slopes on the property range from very gentle to steep, and the aspect is variable.

Methods

Kelsey McDonald led the early and late spring botanical surveys for the Sordal project on 3/19/19, 5/1/19, 5/25/19, 7/4/19, and 8/14/19. Kelsey is a CNPS Certified Consulting Botanist and she holds a M.S. in Natural Resources with a concentration in Environmental Science from Humboldt State University. Kelsey has taken relevant courses including plant taxonomy, field botany, and plant biology, and she wrote her thesis on the seed dispersal of invasive cordgrass *Spartina densiflora* in Humboldt Bay. She has 5 years of botany experience in Northern California. Monique Silva Crossman assisted with the survey on 3/29/2019. Monique also has a M.S. in Natural Resources with a concentration in Environmental Science from Humboldt State University, and she wrote her thesis on the restoration of Humboldt dunes invaded by European beachgrass (*Ammophila arenaria*). Kevin Landaw assisted with surveys and plant identification on 5/1/19, 5/25/19, and 7/4/2019. Kevin holds a B.S. in Botany from Humboldt State University, where he is currently a graduate student.

Surveys were spread throughout the spring and summer to identify early-blooming and late-blooming species. Surveys covered cultivation areas, roads, and other areas potentially affected by cultivation-related activities on the property. Approximately 55 field hours have been spent on surveys. Surveys included systematic assessment of all potential habitats in the area based on maps, aerial photos, and visible environmental features such as canopy cover, slope, soil texture, aspect, hydrologic features, and associated vegetation. This survey protocol is based on the Protocol for Surveying and Evaluating Impacts to Special Status native Plant Populations and Natural Communities (CDFW 2018).

A list of potential rare and limited-distribution plants found within the 9-quad area from CDFW BIOS and CNPS Inventory of Rare and Endangered Plants is available in Attachment A. Attachment B provides details on potential rare plants. Attachment C contains photos of the property, including photos of vegetation communities and other observations. Attachment D lists all plants identified from botanical surveys. Attachment E contains a map of the botanical survey routes, a USFS CalVeg Vegetation Map, and a NRCS Custom Soil Map. Attachment F contains rare plant rank definitions.

Results

No Threatened, Endangered, or CNPS rare plants on List 1 or 2 were found during botanical surveys at the Sordal Property. The limited-distribution broad lobed leptosiphon (*Leptosiphon latisectus,* CNPS 4.3) was widespread in higher-elevation meadows near the old roadbed and serpentine areas. Initial spring surveys revealed a few vegetative potential rare plants on the Sordal property that were later identified as common species. The vegetative fawn lily found on the rock pit on 3/29/2019 was observed while blooming on 5/1/2019. The fawn lily was identified as the common California fawn lily (*Erythronium californicum*), with short stigma lobes and threadlike filaments (Photo 8). Vegetative rein orchids (*Piperia* sp.) and lilies (*Lilium* sp.) found during spring surveys were later identified as common Alaska rein orchid (*Piperia unalascensis*) and leopard lily (*Lilium pardalinaum* ssp. *pardalinum*).

The area is primarily mixed coniferous forest dominated by Douglas fir (*Pseudotsuga menziesii*) and tanoak (*Notholithocarpus densiflorus*) (Rank G3 S3) (Photo 2), with large meadows that support many native species and a fringe of high-quality oak woodlands (Photo 1). Most oak woodlands on the property are highly diverse, with black oak (*Quercus kellogii*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Quercus garryana*), and madrone (*Arbutus menziesii*). (G4 S4), with some areas of strong Oregon white oak dominance (G4 S3). Serpentine outcrops also occur on the property, and these areas support a diversity of uncommon native plants that are specially adapted to these conditions (Photos 3 and 4). The cultivation area on the southwestern slope of the 008 parcel is located in an opening between oak woodlands and coniferous forest (Photo 5). The opening contains serpentine soils and an area ~100ft from cultivation dominated by California oatgrass (*Danthonia californica*) (G4 S3) with yellow mariposa lily (*Calochortus vestidae*), harvest brodiaea (*Bodiaea elegans*), blue wild rye (*Elymus glaucus*), spreading rush (*Juncus patens*), and invasive hedgehog dogtail grass (*Cynosurus echinatus*). Lower elevation areas contain open grasslands, riparian woodlands, and seasonal and perennial wetlands mapped by Wetland Ecologist Jonathan Foster.

Mitigation

Initial recommendations to minimize potential impacts on potential rare plant habitat and vegetation communities include some remediation as well as implementing best practices. Some cultivation-related debris was found in natural areas (see Botanical Survey Map), and this should be removed and properly stored. Restoration and erosion control may also be necessary around the westernmost pond and spring box area, where sedimentation was observed in the watercourse (Photos 9 and 10). Restoration is recommended for the former cultivation on the creek terrace by revegetating the area with native riparian species (Photo 11). Wetland areas should be avoided (Photo 12).

Implementing best practices such as covering all cultivation soils, containing waste, and preventing runoff is important for protecting botanical resources as well. Invasive species may thrive in areas of disturbance, especially where cultivators have brought in nutrient-rich non-native soils. Invasive grasses, Himalayan blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), bull thistle (*Cirsium vulgare*), and Italian thistle (*Carduus pycnocephalus*) all occur on the property, but have not yet overwhelmed the native vegetation communities. Cultivators

should follow a plan to keep invasive species under control, including minimizing the area of disturbance, preventing the introduction of nutrients from potting soil and other cultivation materials, and removing invasive plants from cultivation areas before they spread into natural vegetation communities. In particular, the large uncovered pile of potting soil near the entrance from Hwy 36 contained invasive bull thistle (*Cirsium vulgare*) and ripgut brome (*Bromus diandrus*) (Photo 14). All soil and compost piles need to be kept covered and surrounded by a barrier to runoff and erosion. It is recommended that cultivation areas are also surrounded by a barrier to runoff and erosion, especially in steep areas and near the California oatgrass-dominated serpentine area.

Surveys were suitably distributed throughout the survey season to observe early, middle, and late-blooming potentially occurring rare plants. All known cultivation areas and areas potentially affected by cultivation activities were surveyed. All plants encountered were identified to the taxonomic level necessary to determine rarity status, and false negatives are unlikely. No additional surveys for potentially occurring rare plants are needed for planned cultivation activities. A Restoration and Monitoring Plan and Invasive Species Management Plan are recommended to further address the potential impacts to the diverse native communities on the property.

References

Baldwin, B.G., D.H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California, second edition*. University of California Press, Berkeley.

[CDFW] California Department of Fish and Wildlife, 2018. "Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" State of California.

[CDFG] California Department of Fish and Game. 2010. "List of Vegetation Alliances and Associations," Vegetation Classification and Mapping Program. Sacramento, CA. Accessed August 2019. < http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp>

California Department of Fish and Wildlife, Natural Diversity Database, BIOS. 2018. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. Accessed October 2018.

CNPS (California Native Plant Society). 2018. *Inventory of Rare and Endangered Plants.* (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed October 2018.

Kauffmann, M.E., V. T. Parker, and M. C. Vasey. 2015. Field guide to manzanitas: California, North America, and Mexico. Backcountry Press, Kneeland, CA, in association with California Native Plant Society, North Coast Chapter.

Niehaus, T.F., 1976. A field guide to Pacific States wildflowers: Washington, Oregon, California and adjacent areas. Houghton Mifflin.

Pojar, J. and MacKinnon, A., 1994. Plants of the Pacific Northwest coast. Lone Pine, Vancouver, BC.

Sawyer, J. O., T. Keeler- Wolf, and J. M. Evens. 2009. A Manual of California Vegetation Online, 2nd edition. California Native Plant Society, Sacramento, CA. Accessed August 2019. <http://vegetation.cnps.org/>.

Smith Jr, J.P., 2014. Field guide to grasses of California (Vol. 110). Univ of California Press.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/. Accessed August 2019.

Stuart, J.D. and Sawyer, J.O., 2001. Trees and shrubs of California (Vol. 62). Univ of California Press.

U.S. Forest Service (USFS) Pacific Southwest Region - Remote Sensing Lab, 2007. CALVEG (Classification and Assessment with LANDSAT of Visible Ecological Groupings), Digital Data Layer: ExistingVegNorCoastWest_2000_2007_v1. <https://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5367950>.

Wilson, B.L., 2008. Field guide to the Sedges of the Pacific Northwest/by Barbara L. Wilson...[et al.]. Oregon State University Press.

Attachment A: List of Potentially Occurring Sensitive Plant Species

Scientific Name	Common Name	CESA	FESA	CRPR	Blooming Period	Habitat Potential
Anisocarpus scabridus	scabrid alpine tarplant	None	None	1B.3	Jul-Aug(Sep)	Yes
Arctostaphylos manzanita ssp. *elegans*	Konocti manzanita	None	None	1B.3	(Jan)Mar-May(Jul)	Yes
Astragalus agnicidus	Humboldt County milk-vetch	CE	None	1B.1	Apr-Sep	Yes
Astragalus umbraticus	Bald Mountain milk-vetch	None	None	2B.3	May-Aug	Yes
Calycadenia micrantha	small-flowered calycadenia	None	None	1B.2	Jun-Sep	Yes
Carex praticola	northern meadow sedge	None	None	2B.2	May-Jul	Yes
Epilobium oreganum	Oregon fireweed	None	None	1B.2	Jun-Sep	Yes
Erigeron maniopotamicus	Mad River fleabane daisy	None	None	1B.2	May-Aug	Yes
Erythronium oregonum	giant fawn lily	None	None	2B.2	Mar-Jun(Jul)	Yes
Erythronium revolutum	coast fawn lily	None	None	2B.2	Mar-Jul(Aug)	Yes
Gilia capitata ssp. *pacifica*	Pacific gilia	None	None	1B.2	Apr-Aug	Yes
Hosackia yollabolliensis	Yolla Bolly Mtns. bird's-foot trefoil	None	None	1B.2	Jun-Aug	Yes
Howellia aquatilis	water howellia	None	FT	2B.2	Jun	Yes
Iliamna latibracteata	California globe mallow	None	None	1B.2	Jun-Aug	Yes
Kopsiopsis hookeri	small groundcone	None	None	2B.3	Apr-Aug	Yes
Lathyrus biflorus	two-flowered pea	None	None	1B.1	Jun-Aug	Yes
Lupinus constancei	The Lassics lupine	None	None	1B.1	Jul	Yes
Lupinus elmeri	South Fork Mountain lupine	None	None	1B.2	Jun-Jul(Aug)	Yes
Montia howellii	Howell's montia	None	None	2B.2	(Feb)Mar-May	Yes
Packera bolanderi var. *bolanderi*	seacoast ragwort	None	None	2B.2	(Jan-Apr)May-Jul(Aug)	Yes

Piperia candida	white-flowered rein orchid	None	None	1B.2	(Mar)May-Sep	Yes
Sabulina decumbens	The Lassics sandwort	None	None	1B.2	Jul	Yes
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	None	None	1B.2	May-Aug	Yes
Thermopsis robusta	robust false lupine	None	None	1B.2	May-Jul	Yes
Allium hoffmanii	Beegum onion	None	None	4.3	Jun-Jul	Yes
Arctostaphylos hispidula	Howell's manzanita	None	None	4.2	Mar-Apr	Yes
Arnica spathulata	Klamath arnica	None	None	4.3	May-Aug	Yes
Astragalus rattanii var. *rattanii*	Rattan's milk-vetch	None	None	4.3	Apr-Jul	Yes
Carex scabriuscula	Siskiyou sedge	None	None	4.3	May-Jul	Yes
Collomia tracyi	Tracy's collomia	None	None	4.3	Jun-Jul	Yes
Coptis laciniata	Oregon goldthread	None	None	4.2	(Feb)Mar-May(Sep-Nov)	Yes
Cypripedium fasciculatum	clustered lady's-slipper	None	None	4.2	Mar-Aug	Yes
Cypripedium montanum	mountain lady's-slipper	None	None	4.2	Mar-Aug	Yes
Epilobium septentrionale	Humboldt County fuchsia	None	None	4.3	Jul-Sep	Yes
Erigeron robustior	robust daisy	None	None	4.3	Jun-Jul	Yes
Fritillaria glauca	Siskiyou fritillaria	None	None	4.2	(Apr-May)Jun-Jul	Yes
Fritillaria purdyi	Purdy's fritillary	None	None	4.3	Mar-Jun	Yes
Hemizonia congesta ssp. *tracyi*	Tracy's tarplant	None	None	4.3	May-Oct	Yes
Lathyrus glandulosus	sticky pea	None	None	4.3	Apr-Jun	Yes
Leptosiphon acicularis	bristly leptosiphon	None	None	4.2	Apr-Jul	Yes
Leptosiphon latisectus	broad-lobed leptosiphon	None	None	4.3	Apr-Jun	Yes
Lilium rubescens	redwood lily	None	None	4.2	Apr-Aug(Sep)	Yes
Listera cordata	heart-leaved twayblade	None	None	4.2	Feb-Jul	Yes
Lycopodium clavatum	running-pine	None	None	4.1	Jun-	Yes

					Aug(Sep)	
Lycopus uniflorus	northern bugleweed	None	None	4.3	Jul-Sep	Yes
Meesia triquetra	three-ranked hump moss	None	None	4.2	Jul	Yes
Mitellastra caulescens	leafy-stemmed mitrewort	None	None	4.2	(Mar)Apr-Oct	Yes
Pityopus californicus	California pinefoot	None	None	4.2	(Mar-Apr)May-Aug	Yes
Platanthera stricta	slender bog-orchid	None	None	4.2	May-Aug	Yes
Pleuropogon refractus	nodding semaphore grass	None	None	4.2	(Mar)Apr-Aug	Yes
Ptilidium californicum	Pacific fuzz wort	None	None	4.3	May-Aug	Yes
Ribes laxiflorum	trailing black currant	None	None	4.3	Mar-Jul(Aug)	Yes
Sanicula tracyi	Tracy's sanicle	None	None	4.2	Apr-Jul	Yes
Sedum laxum ssp. *flavidum*	pale yellow stonecrop	None	None	4.3	May-Jul	Yes
Sidalcea malachroides	maple-leaved checkerbloom	None	None	4.2	(Mar)Apr-Aug	Yes
Usnea longissima	Methuselah's beard lichen	None	None	4.2	N/A	Yes
Veratrum insolitum	Siskiyou false-hellebore	None	None	4.3	Jun-Aug	Yes
Wyethia longicaulis	Humboldt County wyethia	None	None	4.3	May-Jul	Yes

Attachment B: Potential Rare Plant Details

1. Scabrid alpine tarplant (*Anisocarpus scabridus*)
Status: CNPS List 1 rare, threatened, or endangered in CA and elsewhere; .3 not very endangered in CA. No state or federal listing. State Rank S3: Vulnerable. Global Rank G3: Vulnerable.
Family: Asteraceae
Flowering: July – September
Habitat: Upper montane coniferous forest (metamorphic, rocky).
Status within project Area: Potential habitat exists in forested areas in high elevation.

2. Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*)
Status: CNPS List 1 rare, threatened, or endangered in CA and elsewhere; .3 not very endangered in CA. No state or federal listing. State Rank S3: Vulnerable. Global Rank G5T3: Secure.
Family: Ericaceae
Flowering: January – July
Habitat: Volcanic, Chaparral, Cismontane woodland, Lower montane coniferous forest
Status within project Area: Potential habitat exists in forested and woodland areas.

3. Humboldt County milk-vetch (*Astragalus agnicidus*)
Status: CNPS List 1, seriously endangered in CA. State listed as endangered, no federal listing. State S3, Global rank G3.
Family: Fabaceae
Flowering: April - September
Habitat: openings, disturbed areas, sometimes roadsides. Broadleafed upland forest, North Coast coniferous forest
Status within Project Area: Potential habitat exists along roads and in openings and disturbed areas.

4. Bald Mountain milk-vetch (Astragalus umbraticus)
Status: CNPS List 2 rare, threatened, or endangered in CA, .3 not very endangered in CA. Not federally or state listed. State rank S2: imperiled. Global rank G4: apparently secure.
Family: Fabaceae
Flowering: May - August
Habitat: Roadsides, Cismontane woodland, Lower montane coniferous forest
Status within Project Area: Roadsides, and forested areas.

5. Small-flowered calycadenia (*Calycadenia micrantha*)
Status: CNPS List 1 rare, threatened, or endangered in CA and elsewhere; .2, fairly endangered in CA. No state or federal listing. State rank S2: Imperiled. Global Rank G2: Imperiled.
Family: Asteraceae
Flowering: June – September
Habitat: Roadsides, rocky, talus, scree, sometimes serpentinite, sparsely vegetated areas, Chaparral, Meadows and seeps (volcanic), Valley and foothill grassland.
Status within Project Area: Potential habitat exists along roadsides, rocky and sparsely vegetated areas.

6. Northern meadow sedge (*Carex praticola*)
Status: CNPS List 2 Plants Rare, Threatened or Endangered in California, .2, fairly endangered in CA. No state or federal listing. S2: Imperiled. Global rank G5: Secure.
Family: Cyperaceae
Flowering: May-July
Habitat: Streams, Meadows and seeps (mesic)
Status within Project Area: Wet areas, along streams and in meadows.

7. Oregon fireweed (*Epilobium oreganum*)
Status: CNPS List 1 rare, threatened, or endangered; .2, fairly endangered in CA. No state or federal listing. State rank S2: Imperiled. Global rank G2: Imperiled.
Family: Onagraceae
Flowering: June – September
Habitat: Mesic, Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest
Status within Project Area: Potential habitat exists in mesic areas, wetlands, forested areas and meadows.

8. Giant fawn lily (*Erythronium oregonum*)
Status: CNPS List 2, fairly endangered in CA. No state or federal listing. State Rank S2, Global Rank G5.
Family: Liliaceae
Flowering: March - July
Habitat: Sometimes serpentinite, rocky, openings, Cismontane woodland, Meadows and seeps.
Status within Project Area: Potential habitat might exist in woodlands or openings in the forest.

9. Coast fawn lily (*Erythronium revolutum*)
Status: CNPS List 2, fairly endangered in CA. No state or federal listing. State Rank S3, Global Rank G4.
Family: Liliaceae
Flowering: March - August
Habitat: Mesic, streambanks, Bogs and fens, Broadleafed upland forest, North Coast coniferous forest
Status within Project Area: Potential habitat exists in forested and wet areas.

10. Pacific gilia (*Gilia capitata* ssp. *pacifica*)
Status: CNPS List 1, fairly endangered in CA. No state or federal listing. State Rank S2, Global Rank G5T3T4.
Family: Polemoniaceae
Flowering: April - August
Habitat: Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland
Status within Project Area: Potential habitat might be found in grassy openings.

11. Yolla Bolly Mtns. bird's-foot trefoil (*Hosackia yollabolliensis*)
Status: CNPS List 1 rare, threatened, or endangered in CA and elsewhere; .2, fairly endangered in CA. No state or federal listing. State rank S2: Imperiled. Global Rank G2: Imperiled.

Family: Fabaceae
Flowering: June – August
Habitat: Dry barren exposed slopes, often gravelly, Meadows and seeps, Upper montane coniferous forest (openings).
Status within project Area: Potential habitat exists in open areas, and exposed slopes

12. Water howellia (*Howellia aquatilis*)
Status: CNPS List 2 rare, threatened, or endangered in California, .2 fairly endangered in CA. Federally listed as threatened; no state listing. State rank S2: imperiled. Global rank G3: vulnerable.
Family: Campanulaceae
Flowering: June
Habitat: Marshes and swamps (freshwater)
Status within in project area: In wetland areas.

13. California globe mallow (*Iliamna latibracteata*)
Status: CNPS List 1 rare, threatened, or endangered; .2, fairly endangered in CA. No state or federal listing. State rank S2: Imperiled. Global Rank G2G3: Imperiled /Vulnerable.
Family: Malvaceae
Flowering: June - August
Habitat: Often in burned areas, Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks)
Status within project Area: Potential habitat exists in forested areas, and along streams.

14. Small groundcone (*Kopsiopsis hookeri*)
Status: CNPS List 2, not very endangered in CA. Not federally or state listed. State rank S1S2, Global rank G4G5.
Family: Orobanchaceae
Flowering: April - August
Habitat: North Coast coniferous forest
Status within Project Area: Potential habitat might exist in forested areas.

15. Two-flowered pea (*Lathyrus biflorus*)
Status: CNPS List 1 Rare or Endangered in California and elsewhere, .1 seriously threatened in California. No state or federal listing. State Rank S1: Critically Imperiled. Global Rank G1: Critically Imperiled.
Family: Fabaceae
Flowering: June - August
Habitat: Lower montane coniferous forest (serpentinite).
Status within Project Area: May exist within project area in mountainous forested areas.

16. The Lassics lupine (*Lupinus constancei*)
Status: CNPS List 1 Rare or Endangered in California and elsewhere, .1 seriously threatened in California. No state or federal listing. State Rank S1: Critically Imperiled. Global Rank G1: Critically Imperiled.
Family: Fabaceae

Flowering: July
Habitat: Lower montane coniferous forest (serpentinite).
Status within Project Area: May exist within project area in mountainous forested areas.

17. South Fork Mountain lupine (*Lupinus elmeri*)
Status: CNPS List 1 rare, threatened, or endangered in CA and elsewhere; .2, fairly endangered in California. No state or federal listing. State rank S2: Imperiled. Global Rank G2: Imperiled.
Family: Fabaceae
Flowering: June - August
Habitat: Lower montane coniferous forest
Status within Project Area: Potential habitat exists in mountainous forested areas.

18. Howell's montia (*Montia howellii*)
Status: CNPS List 2, Plants Rare, Threatened or Endangered in California, .2 Moderately threatened in California. No state or federal listing. State Rank S2: Imperiled. Global Rank G3G4: Vulnerable/ Apparently Secure.
Family: Montiaceae
Flowering: February - May
Habitat: vernally mesic, sometimes roadsides, Meadows and seeps, North Coast coniferous forest, Vernal pools.
Status within Project Area: Potential habitat exists in forested areas and along roadsides.

19. Seacoast ragwort (*Packera bolanderi* var. *bolanderi*)
Status: CNPS List 2, Plants Rare, Threatened or Endangered in California, .2 Moderately threatened in California. No state or federal listing. State Rank S2S3: Imperiled/Vulnerable. Global Rank G4T4: Apparently Secure.
Family: Asteraceae
Flowering: January - August
Habitat: Sometimes roadsides, Coastal scrub, North Coast coniferous forest
Status within Project Area: Potential habitat exists within the forested areas and along roadsides.

20. White-flowered rein orchid (*Piperia candida*)
Status: CNPS List 1 Rare or Endangered in California and elsewhere, .2 moderately endangered in California. No state or federal listing. State Rank S3: Vulnerable. Global Rank G3: Vulnerable.
Family: Orchidaceae
Flowering: March - September
Habitat: Sometimes serpentine, Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest
Status within Project Area: Potential habitat exists in the area within the forested area.

21. The Lassics sandwort (*Sabulina decumbens*)
Status: CNPS List 1 Rare or Endangered in California and elsewhere, .2 fairly endangered in California. No state or federal listing. State Rank S1: Critically Imperiled. Global Rank G1: Critically Imperiled.
Family: Caryophyllaceae

Flowering: July
Habitat: Serpentinite, Lower montane coniferous forest, Upper montane coniferous forest.
Status within Project Area: Potential habitat exist in mountainous forested areas, especially serpentinite soils.

22. Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*)
Status: CNPS List 1 Rare or Endangered in California and elsewhere, .2 moderately endangered in California. No state or federal listing, State Rank S2: Imperiled. Global Rank G5T2: Secure.
Family: Malvaceae
Flowering: May - August
Habitat: Often roadcuts, Coastal bluff scrub, Coastal prairie, North Coast coniferous forest.
Status within Project Area: Potential habitat exists within the forested area and along roadsides.

23. Robust false lupine (*Thermopsis robusta*)
Status: CNPS List 1 rare, threatened, or endangered in CA and elsewhere; .2, fairly endangered in CA. No state or federal listing. State rank S2: Imperiled. Global Rank G2: Imperiled.
Family: Fabaceae
Flowering: May - July
Habitat: Broadleafed upland forest, North Coast coniferous forest.
Status within project Area: Potential habitat exists in forested areas.

Attachment C. Photos

Photo 1. Lower elevation areas of the property contained pastures with emergent wetlands and a diversity of native and non-native forbs.

Photo 2. Higher elevation areas were primarily mixed coniferous forest with a fringe of oak woodlands.

Photo 3. Serpentine outcrops occurred along ridges on the property.

Photo 4. Chaparral dominated by buckbrush (*Ceanothus cuneatus*) also occurred in these areas.

Photo 5. Serpentine soil and California oatgrass prairie near the southwestern cultivation area on the 008 parcel.

Photo 6. Grasslands on the hillslope supported a high diversity of native wildflowers, especially along seasonal watercourses.

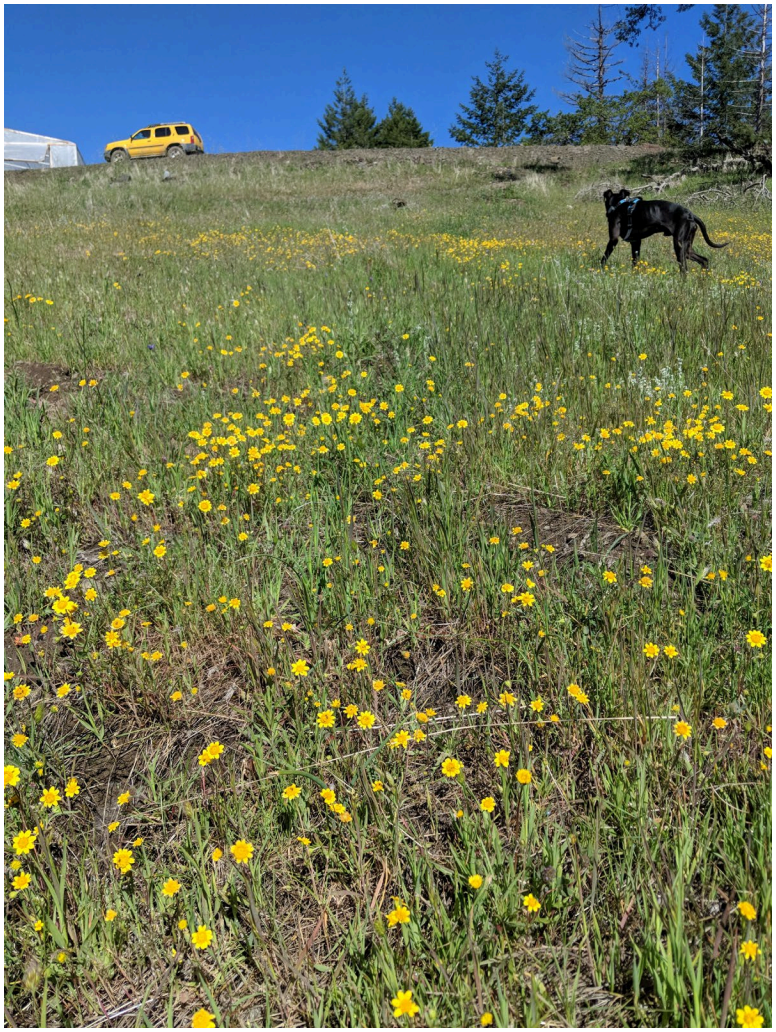


Photo 7. An abundance of California goldfields was in bloom below the cultivation area on the peak of the property.

Photo 8. The California fawn lily was identified by its short stigma lobes (<2mm), long style (>10mm), and threadlike filaments.

Photo 9. Erosion was observed around the upper pond on the west side of the property and appeared to be causing sedimentation in the stream course. Revegetation is recommended after work on the stream crossing is completed.

Photo 10. Bare earth was also observed near the spring box diversion, and revegetation with native species is recommended.

Photo 11. The lower riparian area near the stream crossing.

Photo 12. Perennial wetlands on the 001 parcel.

Photo 13. An in-stream pond on the forested slope.

Photo 14. Bull thistle (*Cirsium vulgare*) invading the uncovered soil pile near the entrance to the property.

Attachment D. Plant Species Observed

	Scientific Name	Common Name	Family	Native Status	Date
Trees	*Acer macrophyllum*	bigleaf maple	Sapindiaceae	Native	9/17/2018
	Aesculus californica	California buckeye	Sapindaceae	Native	7/4/2019
	Alnus rhombifolia	White alder	Betulaceae	Native	7/4/2019
	Arbutus menziesii	Pacific madrone	Ericaceae	Native	3/29/2019
	Chamaecyparis lawsoniana	Port Orford cedar	Cupressaceae	Cultivated	8/14/2019
	Notholithocarpus densiflorus	tanoak	Fagaceae	Native	9/17/2018
	Pinus ponderosa	Ponderosa pine	Pinaceae	Native	3/29/2019
	Populus trichocarpa	Black cottonwood	Salicaceae	Native	5/1/2019
	Pseudotsuga menziesii	Douglas fir	Pinaceae	Native	3/29/2019
	Quercus chrysolepis	canyon live oak	Fagaceae	Native	5/25/2019
	Quercus garryana	Oregon white oak	Fagaceae	Native	3/29/2019
	Quercus kelloggii	California black oak	Fagaceae	Native	3/29/2019
	Robinia pseudoacacia	black locust	Fabaceae	Invasive	8/14/2019
	Salix babylonica	weeping willow	Salicaceae	Cultivated	8/14/2019
	Salix lasiandra	shining Pacific willow	Salicaceae	Native	5/1/2019
	Salix lasiolepis	arroyo willow	Salicaceae	Native	8/14/2019
	Salix sitchensis	Sitka willow	Salicaceae	Native	5/1/2019
	Umbellularia californica	California bay laurel	Lauraceae	Native	5/1/2019
Shrubs	*Amelanchier utahensis*	Western serviceberry	Rosaceae	Native	5/1/2019
	Arctostaphylos manzanita	common manzanita	Ericaceae	Native	3/29/2019
	Berberis aquifolium	mountian grape	Berberidaceae	Native	3/29/2019
	Ceanothus cuneatus var. cuneatus	buckbrush	Rhamnaceae	Native	5/25/2019
	Ceanothus integerrimus	deer brush	Rhamnaceae	Native	5/25/2019
	Corylus cornuta	California hazel	Betulaceae	Native	5/1/2019
	Cytisus scoparius	Scotch broom	Fabaceae	Invasive	3/29/2019
	Holodiscus discolor	oceanspray	Rosaceae	Native	3/29/2019
	Keckiella corymbosa	Red beardtongue	Plantaginaceae	Native	7/4/2019
	Lonicera hispidula	pink honeysuckle	Caprifoliaceae	Native	7/4/2019
	Lupinus albifrons	Silver bush lupine	Fabaceae	Native	5/25/2019
	Prunus subcordata	Sierra plum	Rosaceae	Native	5/25/2019
	Prunus virginiana	choke cherry	Rosaceae	Native	8/14/2019
	Ribes inerme	White stemmed gooseberry	Grossulariaceae	Native	5/1/2019
	Ribes roezlii	Sierra gooseberry	Grossulariaceae	Native	3/29/2019
	Ribes sanguineum	Flowering currant	Grossulariacea	Native	5/1/2019
	Rosa gymnocarpa	dwarf woodland rose	Rosaceae	Native	5/1/2019
	Rosa rubiginosa	sweetbriar	Rosaceae	Non-native	9/17/2018
	Rubus armeniacus	Himalayan blackberry	Rosaceae	Invasive	9/17/2018
	Rubus leucodermis	whitestem raspberry	Rosaceae	Native	3/29/2019
	Rubus parviflorus	Western thimbleberry	Rosaceae	Native	5/1/2019
	Sambucus nigra	black elderberry	Adoxaceae	Native	9/17/2018
	Symphoricarpos albus	common snowberry	Caprifoliaceae	Native	9/17/2018

	Toxicodendron diversilobum	poison oak	Anacardiaceae	Native	3/29/2019
Herbaceous Layer	*Achillea millefolium*	common yarrow	Asteraceae	Native	3/29/2019
	Achlys triphylla	Sweet after death	Berberidaceae	Native	7/4/2019
	Acmispon americanus	American bird's foot trefoil	Fabaceae	Native	9/17/2018
	Acmispon americanus	American bird's foot trefoil	Fabaceae	Native	9/17/2018
	Acmispon brachycarpus	Short podded lotus	Fabaceae	Native	5/1/2019
	Adenocaulon bicolor	Trail plant	Asteraceae	Native	5/1/2019
	Agoseris grandiflora	large flowered agoseris	Asteraceae	Native	7/4/2019
	Agrostis idahoensis	Idaho bentgrass	Poaceae	Native	7/4/2019
	Aira caryophyllea	silvery hairgrass	Poaceae	Non-native	5/25/2019
	Anisocarpus madioides	woodland madia	Asteraceae	Native	3/29/2019
	Anthemis cotula	Dog fennel	Asteraceae	Non-native	7/4/2019
	Anthoxanthum odoratum	sweet vernal grass	Poaceae	Invasive	9/17/2018
	Aquilegia formosa	Western columbine	Ranunculaceae	Native	5/1/2019
	Asarum caudatum	wild ginger	Aristolochiaceae	Native	7/4/2019
	Asyneuma prenanthoides	California harebell	Campanulaceae	Native	7/4/2019
	Athyrium filix-femina	common ladyfern	Woodsiaceae	Native	5/25/2019
	Avena barbata	slim oat	Poaceae	Non-Native	5/25/2019
	Balsamorhiza deltoidea	Balsam deltoid	Asteraceae	Native	5/25/2019
	Bellardia trixago	Mediterranean lineseed	Orobanchaceae	Non-native	7/4/2019
	Bellis perennis	English daisy	Asteraceae	Non-native	5/1/2019
	Boechera breweri	Brewer's rockcress	Brassicaceae	Native	5/25/2019
	Brassica rapa	Common mustard	Brassicaceae	Non-native	7/4/2019
	Briza minor	little quaking grass	Poaceae	Invasive	9/17/2018
	Brodiaea elegans	Harvest brodiaea	Themidaceae	Native	7/4/2019
	Bromus carinatus	California brome	Poaceae	Native	7/4/2019
	Bromus diandrus	ripgut brome	Poaceae	Invasive	9/17/2018
	Bromus hordaceus	soft chess	Poaceae	Native	5/25/2019
	Bromus laevipes	Narrow flowered brome	Poaceae	Native	7/4/2019
	Calandrinia menziesii	red maids	Montiaceae	Native	3/29/2019
	Callitriche sp.	starwort	Plantaginaceae	Native	3/29/2019
	Calochortus tolmiei	Hairy star tulip	Lilaceae	Native	5/25/2019
	Calochortus vestae	Yellow mariposa	Liliaceae	Native	7/4/2019
	Calypso bulbosa	Fairy slipper	Orchidaceae	Native	5/1/2019
	Calystegia occidentalis ssp. occidentalis	Western morning glory	Convolvulaceae	Native	7/4/2019
	Cardamine californica	Bitter cress	Brassicaceae	Native	5/1/2019
	Carduus pycnocephalus	Italian thistle	Asteraceae	Invasive	5/1/2019
	Carex cf. subfusca	sedge	Cyperaceae	Native	9/17/2018
	Carex leptopoda	slender-footed sedge	Cyperaceae	Native	7/4/2019
	Carex spectabilis	showy sedge	Cyperaceae	Native	5/1/2019
	Centaurea solstitialis	Yellow star thiste	Asteraceae	Invasive	7/4/2019
	Cephalanthera austiniae	Phantom orchid	Orchidaceae	Native	7/4/2019
	Cerastium glomeratum	Large mouse ears	Caryophyllaceae	Non-native	5/1/2019

	Chimaphila umbellata	pipsissewa	Ericaceae	Native	5/25/2019
	Chlorogalum pomeridianum	purple soaproot	Agavaceae	Native	3/29/2019
	Circaea alpina	Enchanter's nightshade	Onagraceae	Native	5/1/2019
	Cirsium occidentale	Cobweb thistle	Asteraceae	Native	5/25/2019
	Cirsium vulgare	bull thistle	Asteraceae	Invasive	9/17/2018
	Clarkia affinis	Chaparral clarkia	Onagraceae	Native	5/25/2019
	Clarkia amoena ssp. huntiana	Farewell to spring	Onagraceae	Native	7/4/2019
	Clarkia purpurea ssp. quadrivulnera	Purple clarkia	Onagraceae	Native	7/4/2019
	Clarkia rhomboidea	Tongue clarkia	Onagraceae	Native	7/4/2019
	Claytonia perfoliata	miner's lettuce	Montiaceae	Native	5/1/2019
	Claytonia rubra	red stemmed spring beauty	Montiaceae	Native	3/29/2019
	Clinopodium douglasiana	yerba buena	Lamiaceae	Native	7/4/2019
	Collomia grandiflora	Grand collomia	Polemonaceae	Native	7/4/2019
	Collomia heterophylla	variable leaved collomia	Polemoniaceae	Native	5/25/2019
	Conium maculatum	Poison hemlock	Apiaceae	Non-Native	5/25/2019
	Convolvulus arvensis	Field bindweed	Convolvulaceae	Non-native	7/4/2019
	Corallorhiza maculata	Spotted coralroot	Orchidaceae	Native	5/25/2019
	Cynodon dactylon	Bermuda grass	Poaceae	Invasive	3/29/2019
	Cynoglossum grande	Giant hound's tongue	Boraginaceae	Native	5/1/2019
	Cynosurus echinatus	hedgehog dogtail grass	Poaceae	Invasive	9/17/2018
	Dactylis glomerata	orchard grass	Poaceae	Invasive	9/17/2018
	Danthonia californica	California oatgrass	Poaceae	Native	7/4/2019
	Daucus carota	Queen Anne's lace	Apiaceae	Non-native	7/4/2019
	Daucus pusillus	American carrot	Apiaceae	Native	3/29/2019
	Delphinium decorum	Larkspur	Ranunculaceae	Native	5/1/2019
	Delphinium nudicaule	Canyon larkspur	Ranunculaceae	Native	5/25/2019
	Dichelostemma capitatum	Blue dicks	Themidaceae	Native	5/1/2019
	Dichelostemma congestum	Ookow	Themidaceae	Native	7/4/2019
	Dichelostemma ida-maia	Firecracker flower	Themidaceae	Native	7/4/2019
	Diplacus kelloggii	Kellogg's monkeyflower	Phrymaceae	Native	5/25/2019
	Dipsacus fullonum	teasel	Dipsacaceae	Invasive	3/29/2019
	Dryopteris arguta	California wood fern	Dryopteridaceae	Native	5/1/2019
	Elymus elymoides	Squirrel tail grass	Poaceae	Native	7/4/2019
	Elymus glaucus	blue wild rye	Poaceae	Native	9/17/2018
	Epilobium brachycarpum	annual fireweed	Onagraceae	Native	8/14/2019
	Epilobium ciliatum	Slender willow herb	Onagraceae	Native	7/4/2019
	Epilobium densiflorum	Dense boisduvalia	Onagraceae	Native	7/4/2019
	Equisetum arvense	Common horsetail	Equisetaceae	Native	5/1/2019
	Eriogonum compositum var. compositum	Arrowleaf buckwheat	Polygonaceae	Native	7/4/2019
	Eriogonum nudum var. nudum	Naked buckwheat	Polygonaceae	Native	7/4/2019
	Eriophyllum lanatum	Common woolly sunflower	Asteraceae	Native	5/25/2019

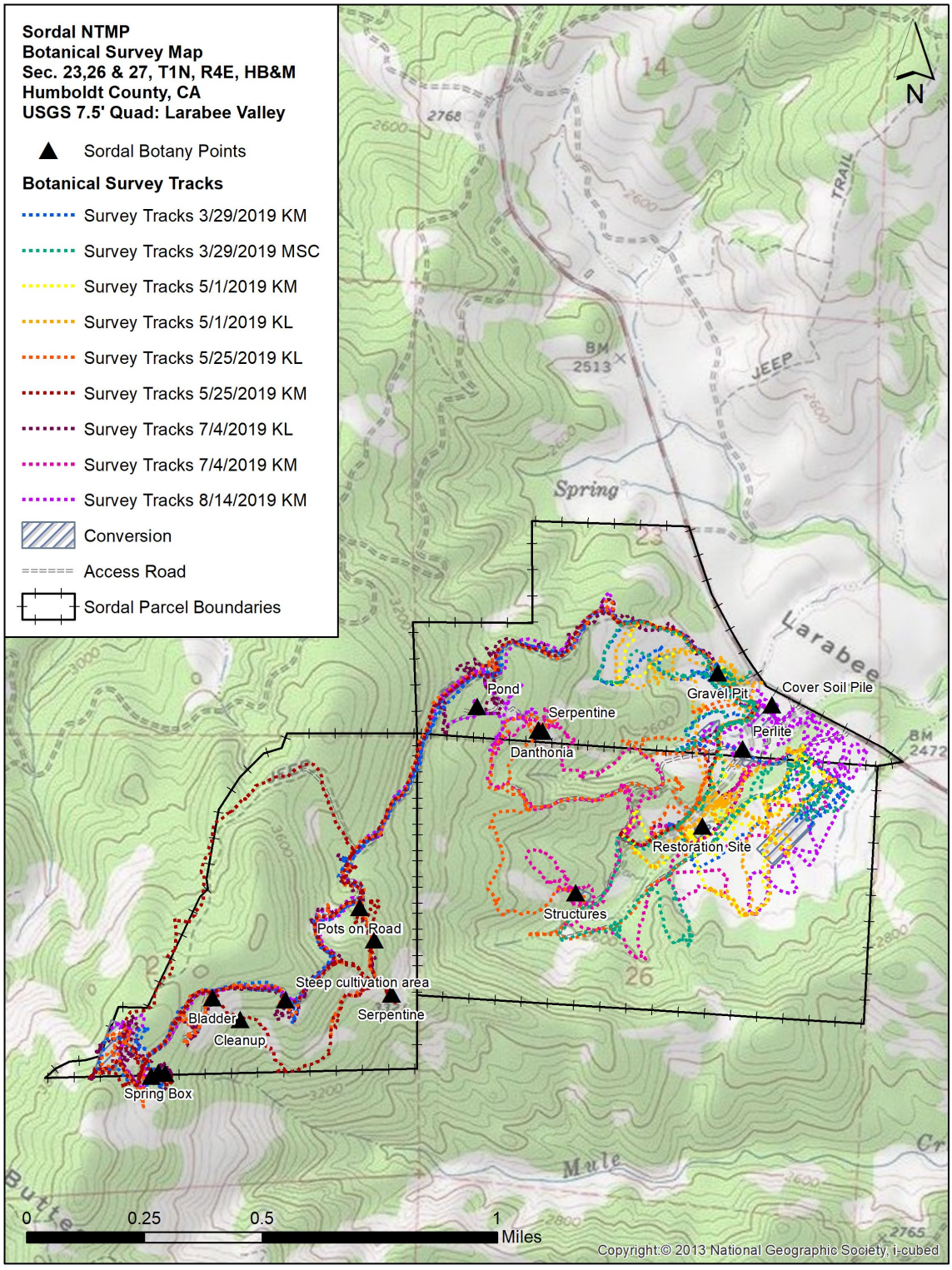
	Erodium botrys	big heron bill	Geraniaceae	Non-native	5/1/2019
	Erodium cicutarium	coastal heron's bill	Geraniaceae	Non-native	5/1/2019
	Erysimum capitatum	Western wallflower	Brassicaceae	Native	7/4/2019
	Erythranthe guttata	Yellow monkey flower	Phrymaceae	Native	5/1/2019
	Erythranthe ptilota	Muskflower	Phyrmaceae	Native	7/4/2019
	Erythronium californicum	California fawn lily	Liliaceae	Native	5/1/2019
	Eschscholzia californica	California poppy	Papaveraceae	Native	3/29/2019
	Festuca arundinacea	reed fescue	Poaceae	Invasive	9/17/2018
	Festuca bromoides	brome fescue	Poaceae	Non-native	9/17/2018
	Festuca californica	California fescue	Poaceae	Native	5/25/2019
	Festuca perennis	perennial rye grass	Poaceae	Non-native	7/4/2019
	Fragaria vesca	California strawberry	Rosaceae	Native	3/29/2019
	Fritillaria affinis	Checker lily	Lilaceae	Native	5/1/2019
	Galium aparine	common bedstraw	Rubiaceae	Native	3/29/2019
	Gnaphalium palustre	Lowland cudweed	Asteraceae	Native	7/4/2019
	Hemizonia congesta	Hayfield tarweed	Asteraceae	Native	7/4/2019
	Heuchera micrantha	alumroot	Saxifragaceae	Native	5/25/2019
	Hieracium albiflorum	White hawkweed	Asteraceae	Native	5/1/2019
	Holcus lanatus	purple velvetgrass	Poaceae	Invasive	9/17/2018
	Hordeum marinum	Seaside Barley	Poaceae	Non-Native	5/25/2019
	Hydrophyllum occidentale	Western waterleaf	Boraginaceae	Native	5/25/2019
	Hypericum anagalloides	creeping St. John's wort	Hypericaceae	Native	9/17/2018
	Hypericum perforatum	Klamathweed	Hypericaceae	Invasive	3/29/2019
	Hypochaeris radicata	hairy cat's ear	Asteraceae	Invasive	3/29/2019
	Iris purdyi	Purdy's iris	Iridaceae	Native	5/25/2019
	Juncus bolanderi	Bolander's rush	Juncaceae	Native	7/4/2019
	Juncus bufonius	Toad rush	Juncaceae	Native	7/4/2019
	Juncus effusus	common bog rush	Juncaceae	Native	3/29/2019
	Juncus ensifolius	Sword leaved rush	Juncaceae	Native	7/4/2019
	Juncus occidentalis	Slender juncus	Juncaceae	Native	7/4/2019
	Juncus patens	spreading rush	Juncaceae	Native	3/29/2019
	Juncus tenuis	Slender rush	Juncaceae	Native	7/4/2019
	Lasthenia californica	California goldfields	Asteraceae	Native	5/25/2019
	Leontodon saxatilis	hawkbit	Asteraceae	Non-native	9/17/2018
	Lepidium campestre	field peppergrass	Brassicaceae	Non-native	5/1/2019
	Leptosiphon bolanderi	Bolander's linanthus	Polemoniaceae	Native	5/25/2019
	Leptosiphon latisectus	broad lobed leptosiphon	Polemoniaceae	Native (CNPS 4.3)	5/25/2019
	Leptosiphon minimus	true babystars	Polemoniaceae	Native	5/25/2019
	Leucanthemum vulgare	Oxe eye daisy	Asteraceae	Non-native	7/4/2019
	Lilium pardalinum ssp. pardalinum	Leopard lily	Liliaceae	Native	7/4/2019
	Limnanthes douglasii ssp. nivea	snow white meadowfoam	Limnanthaceae	Native	5/1/2019
	Linum bienne	pale flax	Linaceae	Non-native	3/29/2019
	Lithophragma affine	Common woodland star	Saxifragaceae	Native	5/25/2019

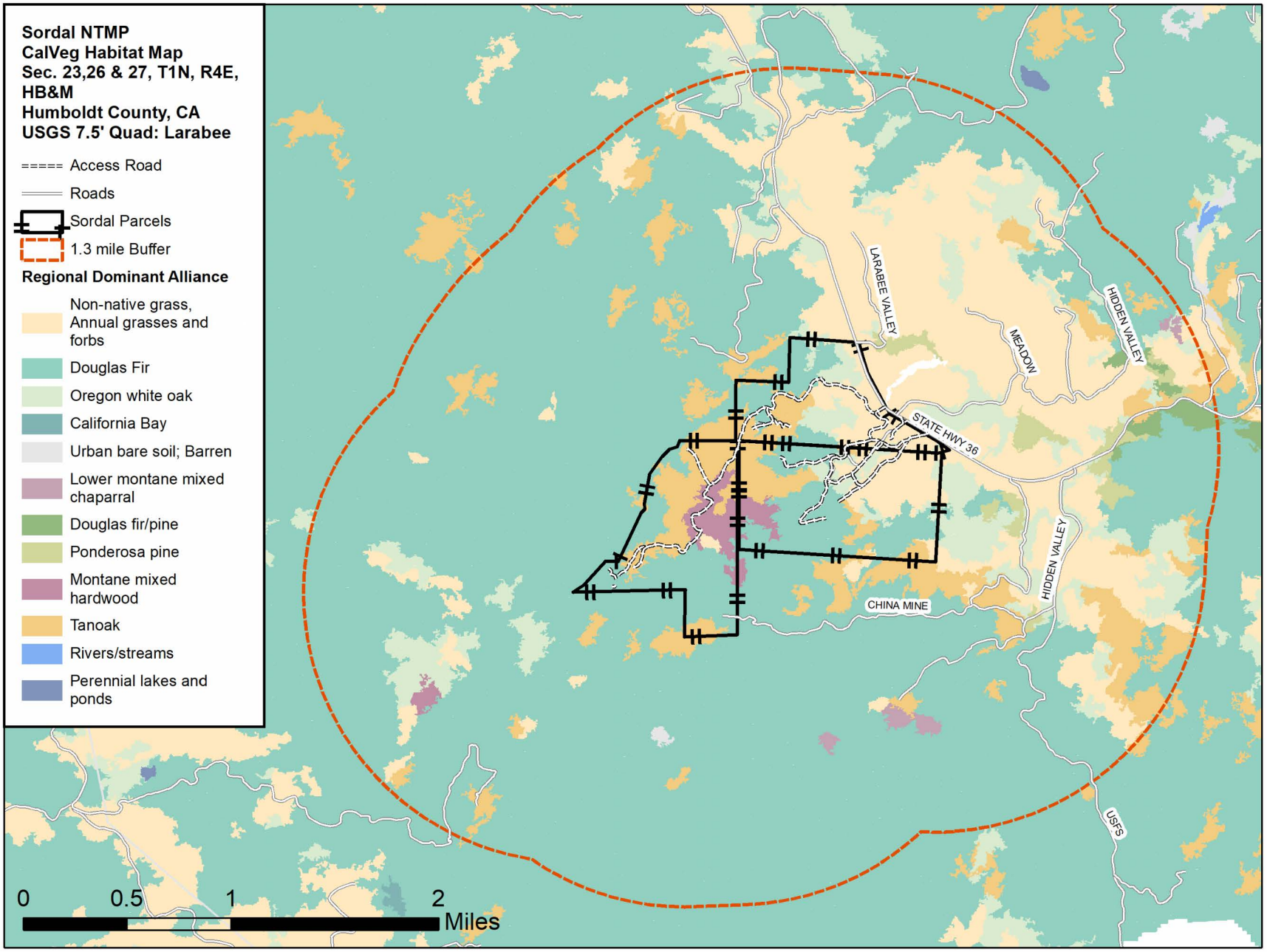
	Lomatium utriculatum	Bladder parsnip	Apiaceae	Native	5/1/2019
	Lupinus bicolor	miniature lupine	Fabaceae	Native	3/29/2019
	Lupinus latifolius var. columbianus	Broad leaved lupine	Fabaceae	Native	7/4/2019
	Luzula comosa	common wood rush	Juncaceae	Native	9/17/2018
	Lysimachia arvensis	Scarlet pimpernel	Myrsinaceae	Non-native	5/1/2019
	Lythrum salicaria	Purple loosestrife	Lythraceae	Non-native	7/4/2019
	Madia gracilis	gumweed	Asteraceae	Native	7/4/2019
	Maianthemum stellatum	Starry false lily of the valley	Ruscaceae	Native	5/1/2019
	Marah oregana	Coast man-root	Cucurbritacea	Native	5/1/2019
	Matricaria discoidea	Pineapple weed	Asteraceae	Native	5/1/2019
	Medicago polymorpha	Burr clover	Fabaceae	Non-native	7/4/2019
	Mentha pulegium	pennyroyal	Lamiaceae	Invasive	9/17/2018
	Micropus californicus	Q-tips	Asteraceae	Native	5/25/2019
	Minuartia californica	California sandwort	Caryophyllaceae	Native	7/4/2019
	Moehringia macrophylla	Large leaved sandwort	Caryophyllaceae	Native	5/25/2019
	Montia fontana	water montia	Montiaceae	Native	3/29/2019
	Montia linearis	Linear leaved montia	Montiaceae	Native	5/1/2019
	Montia parvifolia	Showy rock montia	Montiaceae	Native	7/4/2019
	Myosotis discolor	yellow and blue forget-me-not	Boraginaceae	Non-native	5/1/2019
	Myriopteris gracillima	Lace lip fern	Pteridaceae	Native	7/4/2019
	Navarretia intertexta	Needleleaf navarretia	Polemanaceae	Native	7/4/2019
	Nemophila menziesii	Baby blue eyes	Boraginaceae	Native	5/1/2019
	Nemophila parviflora	small flowered nemophila	Boraginaceae	Native	3/29/2019
	Osmorhiza berteroi	Sweet cicely	Apiaceae	Native	5/1/2019
	Oxalis oregana	redwood sorrel	Oxalidaceae	Native	5/1/2019
	Pedicularis densiflora	Warrior's plume	Orobanchaceae	Native	7/4/2019
	Penstemon heterophyllus	Bunchleaf penstemon	Plantaginaceae	Native	7/4/2019
	Pentagramma triangularis	Goldback fern	Pteridaceae	Native	5/25/2019
	Petasites frigidus	Coltsfoot	Asteraceae	Native	5/25/2019
	Phoradendron leucarpum	American mistletoe	Viscaceae	Native	3/29/2019
	Piperia unalascensis	Alaska piperia	Orchidaceae	Native	7/4/2019
	Plagiobothrys cognatus	Sleeping popcorn flower	Boraginaceae	Native	5/1/2019
	Plagiobothrys nothofulvus	Rusty haired popcorn flower	Boraginaceae	Native	5/1/2019
	Plantago lanceolata	English plantain	Plantaginaceae	Invasive	3/29/2019
	Platystemon californicus	Cream cups	Papaveraceae	Native	5/1/2019
	Plectritis congesta	Sea blush	Valerianaceae	Native	5/25/2019
	Polygonum aviculare	Prostrate knotweed	Polygonaceae	Non-native	7/4/2019
	Polypodium glycyrrhiza	licorice fern	Polypodiaceae	Native	3/29/2019
	Polystichum imbricans	rock swordfern	Dryopteridaceae	Native	3/29/2019
	Polystichum munitum	western swordfern	Dryopteridaceae	Native	3/29/2019
	Potamogeton nodosus	Long leaved pondweed	Potamogetonaceae	Native	5/1/2019
	Potentilla gracilis	Northwest cinquefoil	Ranunculaceae	Native	5/1/2019

	Primula hendersonii	Mosquito bill	Primulaceae	Native	5/1/2019
	Prosartes hookeri	Drops of gold	Liliaceae	Native	7/4/2019
	Prunella vulgaris	self-heal	Lamiaceae	Native	3/29/2019
	Pteridium aquilinum	western bracken fern	Dennstaedtiaceae	Native	3/29/2019
	Pyrola aphylla	Leafless wintergreen	Ericaceae	Native	7/4/2019
	Ranunculus aquatilis	aquatic buttercup	Ranunculaceae	Native	5/1/2019
	Ranunculus hebecarpus	Delicate buttercup	Ranunculaceae	Native	5/1/2019
	Ranunculus occidentalis	Western buttercup	Ranunculaceae	Native	5/1/2019
	Ranunculus orthorhynchus	Bloomer's buttercup	Ranunculaceae	Native	5/1/2019
	Raphanus sativus	Wild radish	Brassicaceae	Non-native	7/4/2019
	Rigiopappus leptocladus	wire weed	Asteraceae	Native	5/25/2019
	Rumex acetosella	sheep sorrel	Polygonaceae	Invasive	3/29/2019
	Rumex crispus	curly dock	Polygonaceae	Invasive	3/29/2019
	Sanicula bipinnatifida	Purple sanicle	Apiaceae	Native	5/1/2019
	Sanicula crassicaulis	Pacific sanicle	Apiaceae	Native	3/29/2019
	Sanicula graveolens	Sierra sanicle	Apiaceae	Native	5/25/2019
	Scirpus microcarpus	small-fruited bulrush	Cyperaceae	Native	9/17/2018
	Scutellaria antirrhinoides	Snapdragon skullcap	Lamiaceae	Native	7/4/2019
	Sedum obtusatum ssp. obtusatum	Sierra stonecrop	Crassulaceae	Native	5/25/2019
	Sedum spathulifolium	Broadleaf stonecrop	Crassulaceae	Native	7/4/2019
	Silene bolanderi	Bolander's silene	Caryophyllaceae	Native	5/25/2019
	Silene laciniata ssp. laciniata	Cardinal catchfly	Caryophyllaceae	Native	7/4/2019
	Sisyrinchium bellum	Western blue eyed grass	Iridaceae	Native	5/1/2019
	Sonchus asper	prickly sow thistle	Asteraceae	Non-native	9/17/2018
	Spergularia rubra	red sandspurry	Caryophyllaceae	Non-native	5/1/2019
	Spiranthes romanzoffiana	Hooded ladies tresses	Orchidaceae	Native	7/4/2019
	Stachys rigida	rigid hedgenettle	Lamiaceae	Native	9/17/2018
	Taraxacum officinale	common dandelion	Asteraceae	Invasive	3/29/2019
	Tauschia kelloggii	Kellogg's tauschia	Apiaceae	Native	7/4/2019
	Tellima grandiflora	Fringe cups	Saxifragaceae	Native	5/1/2019
	Thalictrum fendleri	meadow rue	Ranunculaceae	Native	5/1/2019
	Torreyochloa pallida var. pauciflora	weak manna grass	Poaceae	Native	5/1/2019
	Toxicoscordion micranthum	small flowered star lily	Melanthiaceae	Native	5/25/2019
	Trifolium albopurpureum	Indian clover	Fabaceae	Native	5/25/2019
	Trifolium fucatum	Bull clover	Fabaceae	Native	5/25/2019
	Trifolium oliganthum	few flowered clover	Fabaceae	Native	5/25/2019
	Trifolium subterraneum	Subterranean clover	Fabaceae	Non-native	5/1/2019
	Trifolium willdenovii	Tomcat clover	Fabaceae	Native	7/4/2019
	Trillium albidum	Giant white wakerobin	Melanthiaceae	Native	5/1/2019
	Triphysaria pusilla	little owl's clover	Orobanchaceae	Native	3/29/2019
	Triteleia hyacinthina	Wild hyacinth	Themidaceae	Native	7/4/2019
	Triteleia laxa	Ithuriel's spear	Themidaceae	Native	7/4/2019
	Vancouveria hexandra	Inside out flower	Berberidaceae	Native	5/25/2019
	Verbascum thapsus	Woolly mullein	Scrophulariaceae	Non-native	7/4/2019

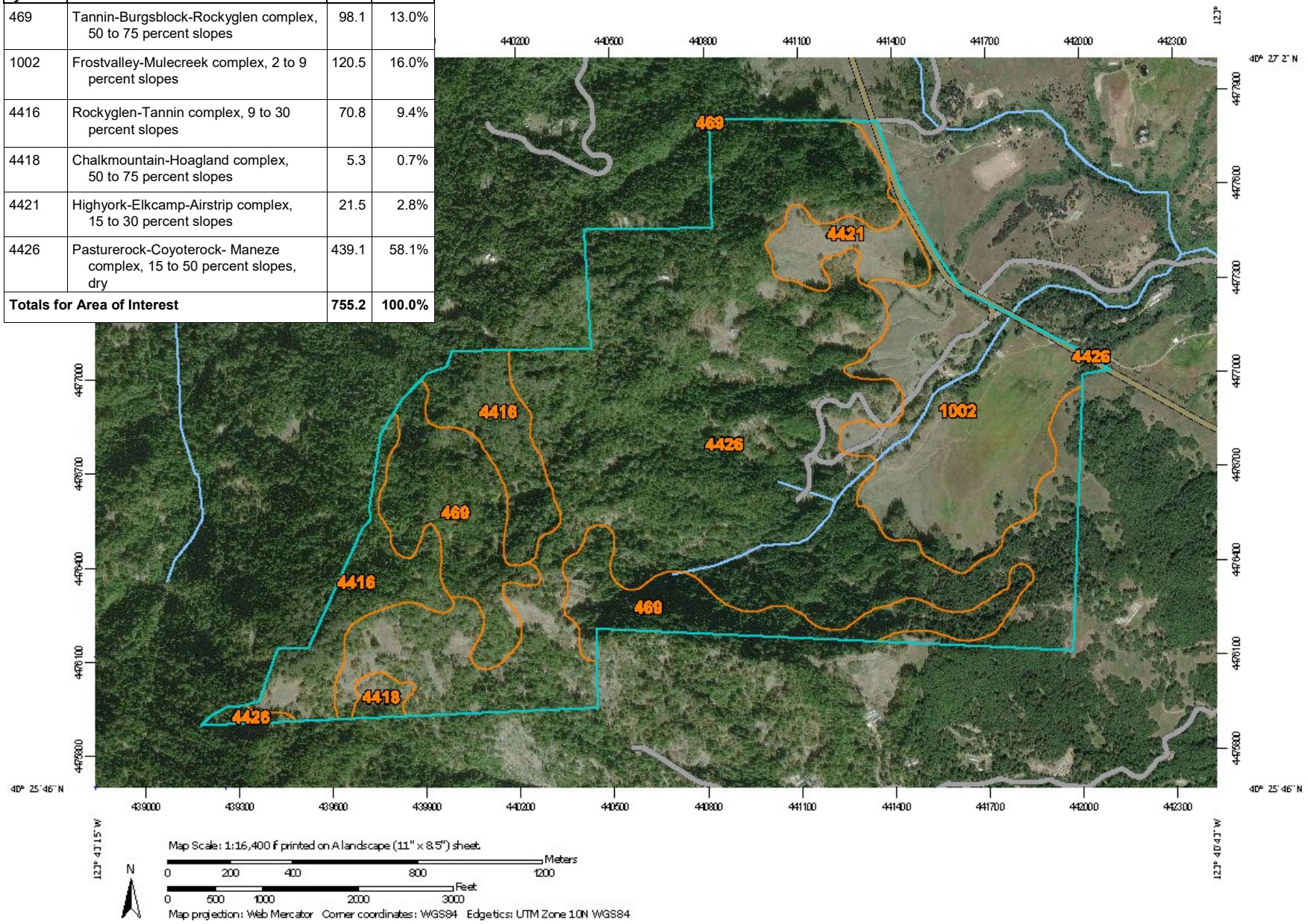
	Verbena lasiostachys var. lasiostachys	Western vervain	Verbenacea	Native	7/4/2019
	Veronica americana	American brooklime	Plantaginaceae	Native	7/4/2019
	Veronica serpillifolia	thyme-leaved veronica	Plantaginaceae	Native	5/1/2019
	Vicia gigantea	Giant vetch	Fabaceae	Native	7/4/2019
	Vicia sativa	garden vetch	Fabaceae	Non-native	5/1/2019
	Viola glabella	Pioneer violet	Violaceae	Native	5/1/2019
	Viola ocellata	two-eyed violet	Violaceae	Native	3/29/2019
	Viola praemorsa	Astoria violet	Violaceae	Native	5/1/2019
	Whipplea modesta	modesty	Hydrangeaceae	Native	5/25/2019
	Zeltnera muehlenbergii	Muehlenberg's centaury	Gentianaceae	Native	7/4/2019

Attachment E. Botanical Survey Maps




Sordal NTMP
CalVeg Habitat Map
Sec. 23,26 & 27, T1N, R4E, HB&M
Humboldt County, CA
USGS 7.5' Quad: Larabee
Access Road
Roads
Sordal Parcels
1.3 mile Buffer
Regional Dominant Alliance
Non-native grass, Annual grasses and forbs
Douglas Fir
Oregon white oak
California Bay
Urban bare soil; Barren
Lower montane mixed chaparral
Douglas fir/pine
Ponderosa pine
Montane mixed hardwood
Tanoak
Rivers/streams
Perennial lakes and ponds
LARABEE VALLEY
MEADOW
HIDDEN VALLEY
STATE HWY 36
HIDDEN VALLEY
CHINA MINE
USFS
0
0.5
1
2
Miles

NRCS Custom Soil Report Map			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
469	Tannin-Burgsblock-Rockyglen complex, 50 to 75 percent slopes	98.1	13.0%
1002	Frostvalley-Mulecreek complex, 2 to 9 percent slopes	120.5	16.0%
4416	Rockyglen-Tannin complex, 9 to 30 percent slopes	70.8	9.4%
4418	Chalkmountain-Hoagland complex, 50 to 75 percent slopes	5.3	0.7%
4421	Highyork-Elkcamp-Airstrip complex, 15 to 30 percent slopes	21.5	2.8%
4426	Pasturerock-Coyoterock- Maneze complex, 15 to 50 percent slopes, dry	439.1	58.1%
Totals for Area of Interest		**755.2**	**100.0%**



Attachment F. Rank Definitions
Global Conservation Status Definition

Listed below are definitions for interpreting NatureServe global (range-wide) conservation status ranks. These ranks are assigned by NatureServe scientists or by a designated lead office in the NatureServe network.

G1 **Critically Imperiled** – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2 **Imperiled** – At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.

G3 **Vulnerable** – At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.

G4 **Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5 **Secure** – Common; widespread and abundant.

G#G# **Range Rank** – A numeric range range (e.g. G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

Infraspecific Taxon Conservation Status Ranks

T# **Infraspecific Taxon** (trimonial) – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species. For example, a G1T2 subrank should not occur. A vertebrate animal population, (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T-rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

Subnational (S) Conservation Status Ranks

S1 **Critically Imperiled** – Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.

S2 **Imperiled** – Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.

S3 **Vulnerable** – Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 **Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 **Secure** – Common, widespread, and abundant in the jurisdiction.

S#S# **Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).

Rank Qualifiers

? **Inexact Numeric Rank** – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status

Q **Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a

lower-priority (numerically higher) conservation status rank. The "Q" modifier is only used at a global level and not at a national or subnational level.

The California Rare Plant Ranks

1A. Presumed extirpated in California and either rare or extinct elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extirpated in California, but more common elsewhere
2B. Rare or Endangered in California, but more common elsewhere
3. Plants for which we need more information – Review list
4. Plants of limited distribution – Watch list

1A: Plants Presumed Extirpated in California and either rare or extinct elsewhere
The plants of Rank 1A are presumed extirpated because they have not been seen or collected in the wild in California for many years. This rank includes those plant taxa that are both presumed extinct, as well as those plants which are presumed extirpated in California and rare elsewhere. A plant is extinct if it no longer occurs anywhere. A plant that is extirpated from California has been eliminated from California, but may still occur elsewhere in its range.

1B: Plants Rare, Threatened or Endangered in California and Elsewhere
(Includes Rare Plant Ranks 1B.1, 1B.2, 1B.3)
The plants of Rank 1B are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the majority of plant taxa tracked by the CNDDB, with more than 1,000 plants assigned to this category of rarity.

2A: Plants Presumed Extirpated in California, but more common elsewhere
The plants of Rank 2A are presumed extirpated because they have not been seen or collected in the wild in California for many years. This rank includes only those plant taxa that are presumed extirpated in California, but that are more common elsewhere in their range. Note: Plants of both Rank 1A and 2A are presumed extirpated in California; the only difference is the status of the plants outside of the state.

2B: Plants Rare, Threatened or Endangered in California, but More Common Elsewhere
(Includes Rare Plant Ranks 2B.1, 2B.2 2B.3)
The plants of Rank 2B are rare, threatened or endangered in California, but more common elsewhere. Plants common in other states or countries are not eligible for consideration under the provisions of the Federal Endangered Species Act; however they are eligible for consideration under the California Endangered Species Act. This rank is meant to highlight the importance of protecting the geographic range and genetic diversity of more widespread species by protecting those species whose ranges just extend into California. Note: Plants of both Rank 1B and 2B are rare, threatened or endangered in California; the only difference is the status of the plants outside of the state.

Threat Ranks:
The California Rare Plant Ranks (CRPR) use a decimal-style threat rank. The threat rank is an extension added onto the CRPR and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. So most CRPRs read as 1B.1, 1B.2, 1B. 3, etc. Note that some Rank 3 plants do not have a threat code extension since there are no known extant populations of the plants in California.
Threat Code extensions and their meanings:
.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
.3 – Not very threatened in California (<20% of occurrences threatened / low degree of immediacy of threat or no current threats known)