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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: _____

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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 kelloggii*), 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 (*Brodiaea 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.

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Attachment A: List of Potentially Occurring Sensitive Plant Species

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

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

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

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 (serpentine).

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 (serpentine).

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: vernal 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: Serpentine, Lower montane coniferous forest, Upper montane coniferous forest.

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

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

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

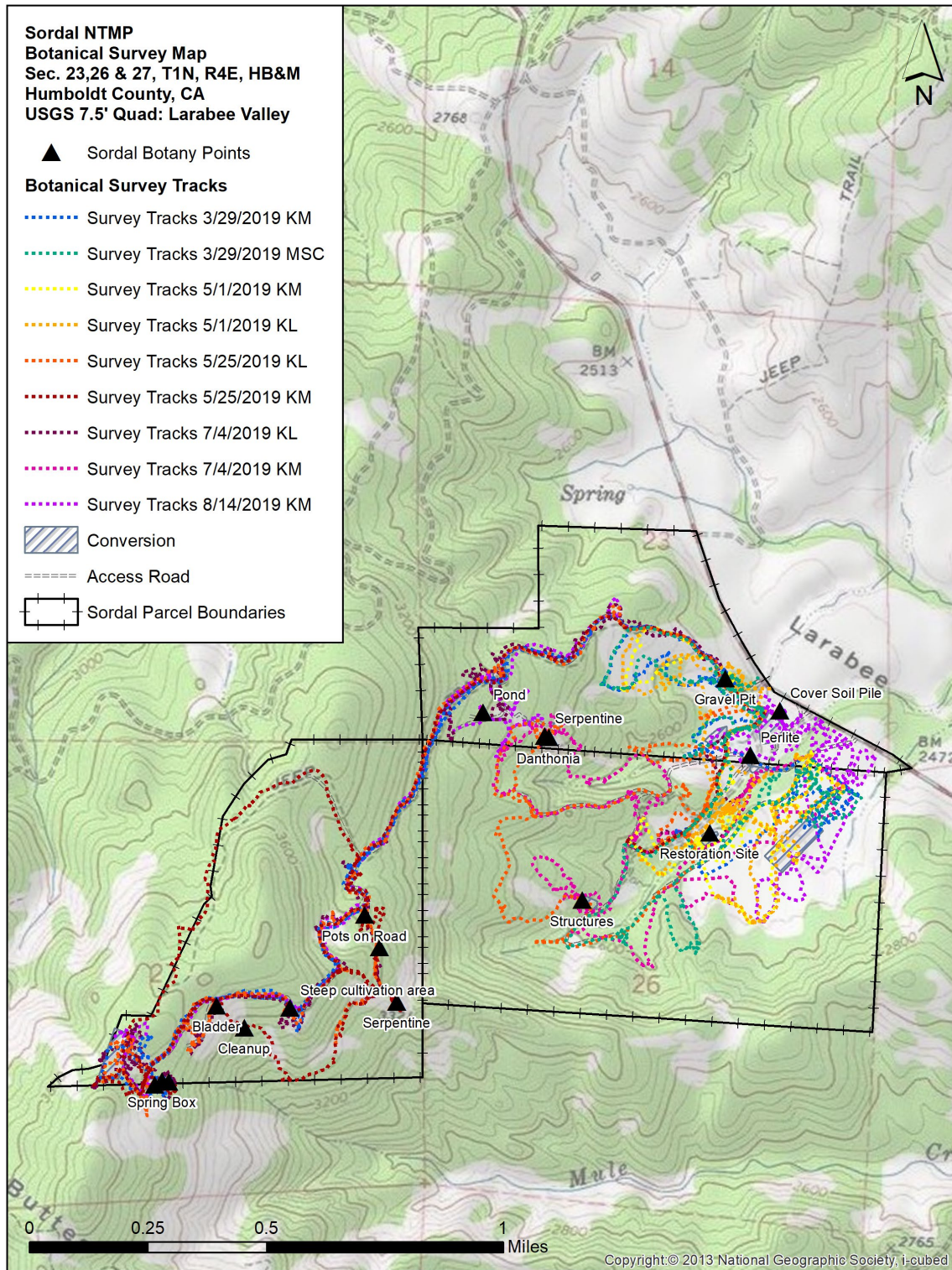
<i>Erodium botrys</i>	big heron bill	Geraniaceae	Non-native	5/1/2019
<i>Erodium cicutarium</i>	coastal heron's bill	Geraniaceae	Non-native	5/1/2019
<i>Erysimum capitatum</i>	Western wallflower	Brassicaceae	Native	7/4/2019
<i>Erythranthe guttata</i>	Yellow monkey flower	Phrymaceae	Native	5/1/2019
<i>Erythranthe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

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

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

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

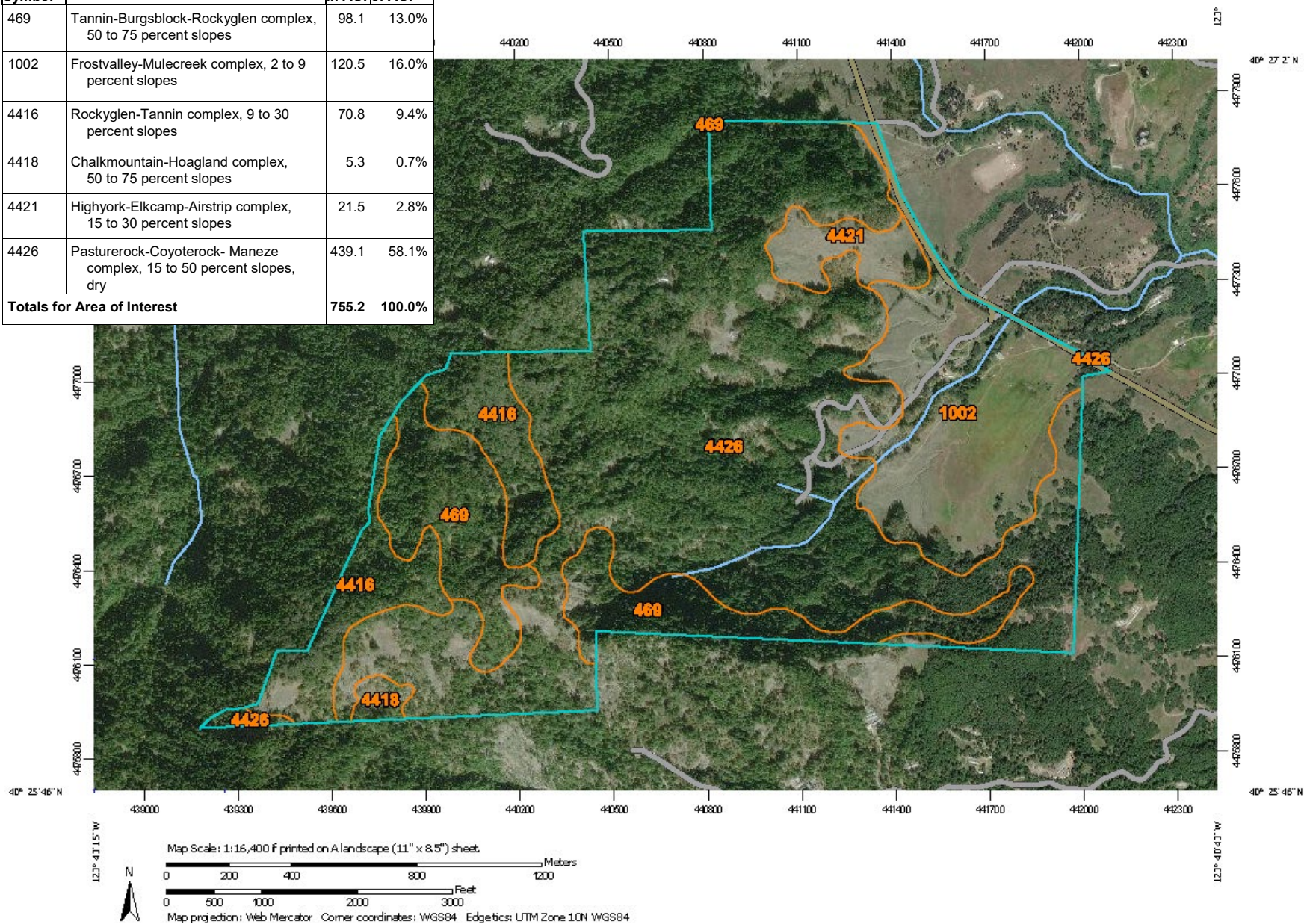
Regional Dominant Alliance

- 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



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 rank (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).

Intraspecific Taxon Conservation Status Ranks

- T#** **Intraspecific Taxon** (trimonial) – The status of intraspecific 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 intraspecific 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)