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Botanical Survey Report
PDCON Enterprises, LLC.
APN: 222-156-013
Cannabis Cultivation Project

Prepared by

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9/26/23

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Hydesville, CA

Signature: Caitlyn Allchin **Date: 9/26/23**

Setting

The PDCON Enterprises, LLC. Cannabis Cultivation Project (APN: 222-156-013) (Fig. 1-6, Pg 26-31) is located in Section 23, Township 4 South, Range 3 East, HB&M; Humboldt County, on the Garberville USGS 7.5' quadrangle. The project area is approximately 0.45 air miles due north of Garberville Airport, and approximately 0.74 air miles west of the town of Garberville, CA, off Connick Creek Road. To the east lies the South Fork Eel River approximately 0.25 air miles away. The John B. Dewitt Redwoods State Natural Reserve lies 1 air mile to the northwest, and the Benbow State Recreation Area sits 1.6 air miles to the south of the project area. 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 Outer North Coast Ranges (NCoRO) sub-region. The property is currently designated as Residential Agriculture (RA40,AP) under Humboldt County General Plan. The ownership has gentle to moderate southeast facing slopes and ranges in elevation from 520-880 ft, or 158-268 m. The project area sits relatively flat at about 500 ft elevation. The geology consists of marine sedimentary and metasedimentary rocks composed of sandstone with smaller amounts of shale, chert, limestone, conglomerate, and Franciscan mélange. The property is a mosaic of habitat types, including open pasturelands and minor amounts of mixed coniferous forest with a Douglas fir (*Pseudotsuga menziesii*) - tanoak forest (*Notholithocarpus densiflorus*) - madrone (*Arbutus menziesii*) Forest & Woodland Alliance (G4 S4) growing with Oregon white oak (*Quercus garryana*) and black oak (*Quercus kelloggii*). The PDCON Enterprises, LLC. Cannabis Cultivation project has 30,480 sq ft of space dedicated to outdoor growing activities spread out across < 1.5 acres, and the property is approximately 43.39 acres in size.

Methods

The PDCON Project area was visited by Caitlyn Allchin on 23 April 2023 for a botanical survey and site assessment. Caitlyn holds a B.S. in Botany from Cal Poly Humboldt, where she is currently a biology graduate student. Caitlyn has taken relevant courses including plant taxonomy, lichens and bryophytes, biology of fleshy fungi, introductory soils, introductory geology, and principles of ecology, and conducted her senior directed study on the pollination biology of Western coltsfoot (*Petasites frigidus* var*. palmatus)* in Arcata, CA. She has 5 years of botany experience in Northern California.

The survey was floristic in nature and seasonally appropriate. For the 2023 field season, approximately 1 field hour was spent conducting field surveys, with a survey rate of 1.5 acres/hour for the project area. 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 threatened, endangered, rare, or limited distribution plants on CNPS lists 1 - 4 found within the 9 – quad

area as listed in CNPS Rare Plant Inventory and CDFW BIOS is available in Attachment A. Attachment B contains habitat photos. Attachment C lists all plants identified during the botanical survey. Attachment D contains rare plant rank definitions. Attachment E contains several maps for reference, including a general location map, overview map, CALVEG map, CNDDB Map, and a map of botanical survey routes taken. Attachment F contains a soil map of the project area.

Project Description

The PDCON Enterprises, LLC. Cannabis Cultivation project has 30,480 sq ft of space dedicated to outdoor cultivation activities spread out across < 1.5 acres of land. The project area is located in the southeastern corner of the property, to the west of the South Fork Eel River. The outdoor cultivation space will consist of six greenhouses of various sizes, including: 1 - 30' x 150, 2 - 30' x 200', 1 - 30' x 66', and 2 - 30' x 200'. There will be 1 – 500-gallon mixing tank and 15 – 5000-gallon water tanks, as well as a rain catchment area on the roof of a pre-existing structure.

Results

The PDCON Enterprises, LLC. Cannabis Cultivation Project contains no rare, threatened, or endangered species or sensitive natural communities within the project area footprint or surrounding area.

The property is predominantly open pasturelands with minor components of mixed coniferous forest consisting of a Douglas fir (*Pseudotsuga menziesii*) - tanoak forest (*Notholithocarpus densiflorus*) - madrone (*Arbutus menziesii*) Forest & Woodland Alliance (G4 S4) with Oregon white oak (*Quercus garryana*), and California black oak (*Quercus kelloggii*) (Photo 1-2, Pg 16-17). The pasturelands on the property have a history of being heavily grazed and as a result are composed of a variety of non-native and invasive plant species.

Non-native invasive species found growing within and surrounding the cultivation footprint include sweet vernal grass (*Anthoxanthum odoratum*), slim oat (*Avena barbata*), rattlesnake grass (*Briza maxima*), soft chess (*Bromus hordeaceus*), dogtail grass (*Cynosurus echinatus*), coastal heron's bill (*Erodium cicutarium*), wild geranium (*Geranium dissectum*), common velvetgrass (*Holcus lanatus*), Klamathweed (*Hypericum perforatum*), pennyroyal (*Mentha pulegium*), harding grass (Phalaris aquatica), ribwort (*Plantago lanceolata*), kentucky blue grass (*Poa pratensis*), sheep sorrel (*Rumex acetosella*), curly dock (*Rumex crispus*), hairy cats ear (*Hypochaeris radicata*), and milk thistle (*Silybum marianum*).

All potential rare plant habitats were surveyed, and false negative surveys are unlikely.

Mitigations

This project has already been assessed for invasive plant species and is currently being managed for non-native and invasive species present on the property (Allchin, 2021).

It is recommended that the perimeter of the project area is monitored for at least 5 years to minimize the spread of the invasive species on the parcel. Regular mowing of the entrance to the project area during the spring and summer (every 3 – 4 weeks) can help reduce carbohydrate reserves of many invasive species to reduce their vigor. If tillage is implemented, it is recommended to be done every 3 – 4 weeks. If done less frequently, tillage can encourage re-propagation from stem and root fragments of invasive species.

Bare earth from removal of invasive species and ground disturbance should be mitigated by reseeding. According to CAL FIRE, it is recommended that an area of 1 acre receive no less than 50 pounds of "State Mix" or a similar seed mix. For instance, Pacific Coast Seed Co.'s California native grass mix, such as the Native Erosion Control Mix, is readily available online. Seed mixes should not contain annual rye grass seed (*Festuca perennis*) as this is a known invasive, non-native grass species that spreads rapidly in native habitats.

No additional surveys are recommended at this time.

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Attachment A. Potentially Occurring Sensitive Plant Species

Rare Plant Table

#	Species	Status					Blooming Period	Family and Lifeform	Habitat and Elevation	Potential for Occurrence
		Federal	State	CRPR	Global Rank	State Rank				
1	*Arabis mcdonaldiana* McDonald's rockcress	FE	CE	1B.1	G3	S3	May – July	Brassicaceae Perennial herb	**General Habitat**: lower montane coniferous forest, upper montane coniferous forest **Micro Habitat**: serpentinite **Elevation**: 135 – 1800 m	**No Potential**. No lower montane coniferous forest, upper montane coniferous forest, or serpentine habitat occurs on the property; no potential habitat exists.
2	*Arctostaphylos stanfordiana ssp. raichei* Raiche's manzanita	--	--	1B.1	G3 T2	S2	February – April	Ericaceae Perennial evergreen shrub	**General Habitat**: chaparral, lower montane coniferous forest (openings) **Micro Habitat**: rocky, serpentinite (often) **Elevation**: 450 - 1035 m	**No Potential**. No chaparral, lower montane coniferous forest openings, rocky or serpentinite areas within the project area or adjacent habitat; no potential habitat exists.
3	*Astragalus agnicidus* Humboldt County milk-vetch	--	CE	1B.1	G2	S2	April – September	Fabaceae Perennial herb	**General Habitat**: broadleaved upland forest, North Coast coniferous forest **Micro Habitat**: disturbed areas, openings, roadsides (sometimes) **Elevation**: 120 – 800 m	**Potential**. Potential habitat exists within disturbed areas as well as roadsides of the project area.

4	*Astragalus rattanii var. rattanii* Rattan's milk-vetch	--	--	4.3	G4 T4	S4	April – July	Fabaceae Perennial herb	**General Habitat**: chaparral, cismontane woodland, lower montane coniferous forest **Micro Habitat**: gravelly, streambanks **Elevation**: 30 – 825 m	**No Potential**. No chaparral, cismontane woodland, lower montane coniferous forest, riverine or gravelly streambank habitat within the project area, no potential habitat exists.
5	*Calamagrostis bolanderi* Bolander's reed grass	--	--	4.2	G4	S4	May – August	Poaceae Perennial rhizomatous herb	**General Habitat**: bogs and fens, broadleaved upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), North Coast coniferous forest **Micro Habitat**: mesic **Elevation**: 0 – 455 m	**No Potential**. No bogs or fens, broadleaved upland forest, closed-cone coniferous forest, coastal scrub, meadows or seeps (mesic), marshes or swamps (freshwater), or mesic North Coast coniferous forest habitat within the project area.
6	*Calamagrostis foliosa* Leafy reed grass	--	CR	4.2	G3	S3	May – September	Poaceae Perennial herb	**General Habitat**: coastal bluff scrub, North Coast coniferous forest **Micro Habitat**: rocky **Elevation**: 0 – 1220 m	**No Potential**. No coastal bluff scrub, no rocky, North Coast coniferous forest habitat within the project area; no potential habitat exists.
7	*Carex arcta* Northern clustered sedge	--	--	2B.2	G5	S1	June – September	Cyperaceae Perennial herb	**General Habitat**: bogs and fens, North Coast coniferous forest (mesic). **Elevation**: 60 – 1400 m	**No Potential**. No bogs or fens or mesic North Coast coniferous forest habitat within the project area; no potential habitat exists.
8	*Castilleja litoralis* Oregon coast paintbrush	--	--	2B.2	G3	S3	June	Orobanchaceae Perennial herb (hemiparasitic)	**General Habitat**: coastal bluff scrub, coastal dunes, coastal scrub **Micro Habitat**: sandy **Elevation**: 15 – 100 m	**No Potential**. No coastal habitat occurs on the property, no coastal bluff scrub, no coastal dunes, and no coastal scrub; no sandy areas; no potential habitat exists.

9	*Castilleja mendocinensis* Mendocino Coast paintbrush	--	--	1B.2	G2	S2	April – August	Orobanchaceae Perennial herb (hemiparasitic)	**General Habitat**: coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal prairie, coastal scrub **Elevation**: 0 – 160 m	**No Potential**. No coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal prairie, or coastal scrub; no potential habitat exists.
10	*Ceanothus foliosus var. vineatus* Vine Hill ceanothus	--	--	1B.1	G3 T1	S1	March – May	Rhamnaceae Perennial evergreen shrub	**General Habitat**: chaparral **Elevation**: 45 – 305 m	**No Potential**. No chaparral habitat within the project area; no potential habitat exists.
11	*Ceanothus gloriosus var. exaltatus* Glory brush	--	--	4.3	G4 T4	S4	March – June (August)	Rhamnaceae Perennial evergreen shrub	**General Habitat**: chaparral **Elevation**: 30 – 610 m	**No Potential**. No chaparral habitat within the project area; no potential habitat exists.
12	*Coptis laciniata* Oregon goldthread	--	--	4.2	G4 ?	S3 ?	(February) March – May (September – November)	Ranunculaceae Perennial rhizomatous herb	**General Habitat**: meadows and seeps, North Coast coniferous forest (streambanks) **Micro Habitat**: mesic **Elevation**: 0 – 1000 m	**No Potential**. No meadows, seeps, or streambanks within North Coast coniferous forest habitat within the project area; no potential habitat exists.
13	*Cypripedium californicum* California lady's-slipper	--	--	4.2	G3	S4	April – August (September)	Orchidaceae Perennial rhizomatous herb	**General Habitat**: bogs and fens, lower montane coniferous forest **Micro Habitat**: seeps, serpentinite (usually), streambanks **Elevation**: 30 – 2750 m	**No Potential**. No bogs or fens, lower montane coniferous forest, or seeps, serpentinite, or streambanks within the project area; no potential habitat exists.
14	*Epilobium septentrionale* Humboldt County fuchsia	--	--	4.3	G4	S4	July – September	Onagraceae Perennial herb	**General Habitat**: broadleaved upland forest, North Coast coniferous forest **Micro Habitat**: rocky (sometimes), sandy (sometimes) **Elevation**: 45 – 1800 m	**No Potential**. No broadleaved upland forest, North Coast coniferous forest, rocky, or sandy habitat within the project area; no potential habitat exists.

15	*Erigeron biolettii* Streamside daisy	--	--	3	G3 ?	S3 ?	June – October	Asteraceae Perennial herb	**General Habitat**: broadleaved upland forest, cismontane woodland, North Coast coniferous forest **Micro Habitat**: mesic, rocky **Elevation**: 30 – 1100 m	**No Potential**. No broadleaved upland forest, cismontane woodland, North Coast coniferous forest, mesic, or rocky habitat within the project area; no potential habitat exists.
16	*Erigeron robustior* Robust daisy	--	--	4.3	G3	S3	June – July	Asteraceae Perennial herb	**General Habitat**: lower montane coniferous forest, meadows and seeps; serpentinite (sometimes) **Elevation**: 200 – 610 m	**No Potential**. No lower montane coniferous forest, meadows and seeps, or serpentinite habitat within the project area; no potential habitat exists.
17	*Eriogonum kelloggii* Kellogg's buckwheat	--	CE	1B.2	G2	S2	(May) June – August	Polygonaceae Perennial herb	**General Habitat**: lower montane coniferous forest (rocky, serpentinite) **Elevation**: 579 – 1250 m	**No Potential**. No rocky or serpentinite habitat, no lower montane coniferous forest within the project area, no potential habitat exists.
18	*Erythronium citrinum var. citrinum* Lemon-colored fawn lily	--	--	4.3	G4 T4	S3	March – May	Liliaceae Perennial bulbiferous herb	**General Habitat**: chaparral, lower montane coniferous forest **Micro Habitat**: serpentinite (usually) **Elevation**: 150 – 1300 m	**No Potential**. No chaparral, lower montane coniferous forest, or serpentinite habitat within the project area, no potential habitat exists.
19	*Erythronium oregonum* Giant fawn lily	--	--	2B.2	G5	S2	March – June (July)	Liliaceae Perennial herb	**General Habitat**: cismontane woodland, meadows and seeps **Micro Habitat**: openings, rocky, serpentinite (sometimes) **Elevation**: 100 – 1150 m	**No Potential**. No cismontane woodland, meadows or seeps, forest openings, rocky areas, or serpentinite habitat within the project area, no potential habitat exists.

20	*Erythronium revolutum* Coast fawn lily	--	--	2B.2	G4 G5	S3	March – July (August)	Liliaceae Perennial bulbiferous herb	**General Habitat**: bogs and fens, broadleaved upland forest, North Coast coniferous forest **Micro Habitat**: mesic, streambanks **Elevation**: 0 – 1600 m	**No Potential**. No bogs or fens, broadleaved upland forest, North Coast coniferous forest**,** mesic areas, or streambanks within the project area, no potential habitat exists.
21	*Gentiana setigera* Mendocino gentian	--	--	1B.2	G2	S2	(April – July) August – September	Gentianaceae Perennial herb	**General Habitat**: lower montane coniferous forest, meadows and seeps **Micro Habitat**: mesic **Elevation**: 335 – 1065 m	**No Potential**. No lower montane coniferous forest, meadows or seeps, or mesic habitat within the project area, no potential habitat exists.
22	*Gilia capitata ssp. pacifica* Pacific gilia	--	--	1B.2	G5 T3	S2	April – August	Polemoniaceae Annual herb	**General Habitat**: coastal bluff scrub, chaparral (openings), coastal prairie, valley and foothill grassland **Elevation**: 5 – 1665 m	**Potential**. Potential habitat exists within the grasslands of the project area; however, the high degree of disturbance reduces the likeliness of suitable habitat.
23	*Hemizonia congesta ssp. tracyi* Tracy's tarplant	--	--	4.3	G5 T4	S4	(March) May – October	Asteraceae Annual herb	**General Habitat**: coastal prairie, lower montane coniferous forest, North Coast coniferous forest **Micro Habitat**: openings, serpentinite (sometimes) **Elevation**: 120 – 1200 m	**Potential**. Potential habitat exists within the grasslands of the project area; however, the high degree of disturbance reduces the likeliness of suitable habitat.

24	*Hosackia gracilis* Harlequin lotus	--	--	4.2	G3 G4	S3	March – July	Fabaceae Perennial rhizomatous herb	**General Habitat**: broadleaved upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, North Coast coniferous forest, valley and foothill grassland **General Micro Habitat**: wetlands **Micro Habitat**: roadsides **Elevation**: 0 – 700 m	**Potential**. Potential habitat exists within the grasslands and roadsides of the project area.
25	*Howellia aquatilis* Water howellia	FD	--	2B.2	G3	S2	June	Campanulaceae Annual herb (aquatic)	**General Habitat**: marshes and swamps (freshwater) **Elevation**: 1085 – 1290 m	**No Potential**: No marshes or freshwater swamps within the ownership; no potential habitat exists.
26	*Kopsiopsis hookeri* Small groundcone	--	--	2B.3	G4 ?	S1 S2	April – August	Orobanchaceae Perennial rhizomatous herb (parasitic)	**General Habitat**: North Coast coniferous forest **Elevation**: 90 – 885 m	**No Potential**. No North Coast coniferous forest within the project area, no potential habitat exists.
27	*Leptosiphon aureus* Bristly leptosiphon	--	--	4.2	G4 ?	S4 ?	April – July	Polemoniaceae Annual herb	**General Habitat**: chaparral, cismontane woodland, coastal prairie, valley and foothill grassland **Elevation**: 55 - 1500 m	**Potential**: Although grasslands occur on the property, frequent disturbance within the cultivation footprint and surrounding habitat indicates low quality habitat and therefore potential habitat is unlikely.
28	*Leptosiphon latisectus* Broad-lobed leptosiphon	--	--	4.3	G4	S4	April – June	Polemoniaceae Annual herb	**General Habitat**: broadleaved upland forest, cismontane woodland **Elevation**: 170 – 1500 m	**No Potential**. No broadleaved upland forest or cismontane woodland within the project area, no potential habitat exists.

29	*Leptosiphon rattanii* Rattan's leptosiphon	--	--	4.3	G4	S4	May – July	Polemoniaceae Annual herb	**General Habitat**: cismontane woodland, lower montane coniferous forest **Micro Habitat**: gravelly (sometimes), rocky (sometimes) **Elevation**: 1700 – 2000 m	**No Potential**. No cismontane woodland, lower montane coniferous forest**,** gravelly, or rocky habitat within the project area, no potential habitat exists.
30	*Lilium rubescens* Redwood lily	--	--	4.2	G3	S3	April – August (September)	Liliaceae Perennial bulbiferous herb	**General Habitat**: broadleaved upland forest, chaparral, lower montane coniferous forest, North Coast coniferous forest, upper montane coniferous forest **Micro Habitat**: roadsides (sometimes), serpentinite (sometimes) **Elevation**: 30 – 1910 m	**Potential**. Potential habitat exists within roadsides within the project area.
31	*Listera cordata* Heart-leaved twayblade	--	--	4.2	G5	S4	February – July	Orchidaceae Perennial herb	**General Habitat**: bogs and fens, lower montane coniferous forest, North Coast coniferous forest **Elevation**: 5 – 1370 m	**No Potential**. No bogs or fens, lower montane coniferous forest, or North Coast coniferous forest habitat within the project area, no potential habitat exists.
32	*Lomatium engelmannii* Engelmann's lomatium	--	--	4.3	G3	S3	May – august	Apiaceae Perennial herb	**General Habitat**: chaparral, lower montane coniferous forest, upper montane coniferous forest **Micro Habitat**: serpentinite **Elevation**: 870 – 2740 m	**No Potential**. No chaparral, lower montane coniferous forest, upper montane coniferous forest, or serpentinite habitat within the project area, no potential habitat exists.
33	*Lycopus uniflorus* Northern bugleweed	--	--	4.3	G5	S4	July – September	Lamiaceae Perennial herb	**General Habitat**: bogs and fens, marshes and swamps **Elevation**: 5 – 2000 m	**No Potential**. No bogs or fens, marshes or swamp habitat within the project area, no potential habitat exists.

34	*Mitellastra caulescens* Leafy-stemmed mitrewort	--	--	4.2	G5 S4	S4	(March) April – October	Saxifragaceae Perennial rhizomatous herb	**General Habitat**: broadleaved upland forest, lower montane coniferous forest, meadows and seeps, North Coast coniferous forest **Micro Habitat**: mesic, roadsides (sometimes) **Elevation**: 5 – 1700 m	**Potential**. Potential habitat exists within roadsides within the project area.
35	*Montia howellii* Howell's montia	--	--	2B.2	G3 G4	S2	(February) March – May	Montiaceae Annual herb	**General Habitat**: meadows and seeps, North Coast coniferous forest, vernal pools **Micro Habitat**: vernally mesic, sometimes roadsides **Elevation**: 0 – 835 m	**Potential**. Potential habitat exists in vernally mesic areas and roadsides.
36	*Piperia candida* White-flowered rein orchid	--	--	1B.2	G3	S3	(March) May – September	Orchidaceae Perennial herb	**General Habitat**: broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest **Micro Habitat**: serpentinite (sometimes) **Elevation**: 30 – 1310 m	**No Potential**. No broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest, or serpentinite habitat within the project area, no potential habitat exists.
37	*Pityopus californicus* California pinefoot	--	--	4.2	G4 G5	S4	(March – April) May – August	Ericaceae Perennial herb (achlorophyllous)	**General Habitat**: broadleaved upland forest, lower montane coniferous, North Coast coniferous forest, upper montane coniferous forest **Micro Habitat**: mesic **Elevation**: 15 – 2225 m	**No Potential**. No broadleaved upland forest, lower montane coniferous, North Coast coniferous forest, upper montane coniferous forest, or mesic habitat within the project area, no potential habitat exists.

38	*Pleuropogon hooverianus* North Coast semaphore grass	--	CT	1B.1	G2	S2	April – June	Poaceae Perennial rhizomatous herb	**General Habitat**: broadleaved upland forest, meadows and seeps, North Coast coniferous forest **Micro Habitat**: mesic, openings **Elevation**: 10 – 671 m	**No Potential**. No broadleaved upland forest, meadows and seeps, North Coast coniferous forest, mesic habitat, or openings within the project area, no potential habitat exists.
39	*Sedum eastwoodiae* Red Mountain stonecrop	--	--	1B.2	G5 T2	S2	May – July	Crassulaceae Perennial herb	**General Habitat**: lower montane coniferous forest (serpentinite) **Elevation**: 600 – 1200 m	**No Potential**. No lower montane coniferous forest (serpentinite) within the project area, no potential habitat exists.
40	*Sidalcea malachroides* Maple-leaved checkerbloom	--	--	4.2	G3	S3	(March) April – August	Malvaceae Perennial herb	**General Habitat**: broadleaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland **Micro Habitat**: disturbed areas (often) **Elevation**: 0 – 730 m	**Potential**. Potential habitat exists in disturbed areas.
41	*Sidalcea malviflora ssp. patula* Siskiyou checkerbloom	--	--	1B.2	G5 T2	S2	(March) May – August	Malvaceae Perennial rhizomatous herb	**General Habitat**: coastal bluff scrub, coastal prairie, North Coast coniferous forest **General Micro Habitat**: often roadcuts **Micro Habitat**: roadsides (often) **Elevation**: 15 – 1230 m	**Potential**. Potential habitat exists within the roadsides.

42	*Silene bolanderi* Bolander's catchfly	--	--	1B.2	G2	S2	May – June	Caryophyllaceae Perennial herb	**General Habitat**: chaparral (edges), cismontane woodland, lower montane coniferous forest, meadows and seeps, North Coast coniferous forest **General Micro Habitat**: usually in grassy openings, sometimes dry rocky slopes, canyons, or roadsides **Micro Habitat**: openings (usually), roadsides (sometimes), rocky (sometimes), serpentinite (sometimes) **Elevation**: 420 – 1150 m	**No Potential**. No habitat above 268 meters, no potential habitat exists.
43	*Silene greenei ssp. angustifolia* Red Mountain catchfly	--	CE	1B.2	G5 T1	S1	May – June	Caryophyllaceae Perennial herb	**General Habitat**: chaparral, lower montane coniferous forest **Micro Habitat**: peridotite, rocky, serpentinite (usually) **Elevation**: 425 – 2085 m	**No Potential**. No chaparral, lower montane coniferous forest, peridotite, rocky areas, serpentinite, or habitat above 268 meters; no potential habitat exists.
44	*Tiarella trifoliata var. trifoliata* Trifoliate laceflower	--	--	3.2	G5 T5	S2 S3	(May) June – August	Saxifragaceae Perennial rhizomatous herb	**General Habitat**: lower montane coniferous forest, North Coast coniferous forest **General Micro Habitat**: moist shady banks **Micro Habitat**: edges, streambanks **Elevation**: 170 – 1500 m	**No Potential**. No lower montane coniferous forest, North Coast coniferous forest, moist shady banks**,** edges, or streambanks; no potential habitat exists.
45	*Tracyina rostrata* Beaked tracyina	--	--	1B.2	G2	S2	May – June	Asteraceae Annual herb	**General Habitat**: chaparral, cismontane woodland, valley and foothill grassland **Elevation**: 90 – 1270 m	**No Potential**: Although grasslands occur on the property, frequent disturbance within the cultivation footprint indicates low quality habitat and therefore no potential habitat present.

46	*Usnea longissima* Methuselah's beard lichen	--	--	4.2	G4	S4	--	Parmeliaceae Fruticose lichen (epiphytic)	**General Habitat**: broadleaved upland forest, North Coast coniferous forest **General Micro Habitat**: on tree branches; usually on old growth hardwoods and conifers **Elevation**: 50 - 1460 m	**Potential**. Potential habitat exists within the mixed coniferous forest surrounding the project area.
47	*Viburnum ellipticum* Oval-leaved viburnum	--	--	2B.3	G4 G5	S3 ?	May – June	Viburnaceae Perennial deciduous shrub	**General Habitat**: chaparral, cismontane woodland, lower montane coniferous forest **Elevation**: 215 – 1400 m	**No Potential**. No chaparral, cismontane woodland, or lower montane coniferous forest; no potential habitat exists.

Attachment B. Habitat Photos

Photo 1. The PDCON Enterprises, LLC. Cannabis Cultivation Project was surrounded by a mosaic of habitats, including pastureland being actively grazed by livestock, and minor components of Douglas fir – Tanoak – madrone forest & woodland alliance (S4 G4). Photo taken looking northwest on 8 December 2020, by C. Allchin.

Photo 2. The proposed cultivation area, looking northeast, occurring within open disturbed grasslands surrounded by Douglas-fir (*Pseudotsuga menziesii*), madrone (*Arbutus menziesii*), Oregon white oak (*Quercus garryana*), and California black oak (*Quercus kelloggii*). Photo taken 8 December 2020, by C. Allchin.

Photo 3. The proposed rain catchment roof on a preexisting structure. Photo taken 8 December 2020, by C. Allchin.

Attachment C. Plant Species Observed

Form	Scientific Name	Common Name	Status	Family
Tree	*Arbutus menziesii*	Madrono	native	Ericaceae
	Pseudotsuga menziesii	Douglas fir	native	Pinaceae
	Quercus garryana	Oregon oak	native	Fagaceae
	Quercus kelloggii	California black oak	native	Fagaceae
	Sequoia sempervirens	Coast redwood	native	Cupressaceae
	Umbellularia californica	California bay	native	Lauraceae
Shrubs	*Arctostaphylos manzanita ssp. manzanita*	Common manzanita	native	Ericaceae
	Baccharis pilularis	Coyote brush	native	Asteraceae
	Heteromeles arbutifolia	Toyon	native	Rosaceae
	Lonicera hispidula	Pink honeysuckle	native	Caprifoliaceae
	Rubus armeniacus	Himalayan blackberry	invasive non-native	Rosaceae
	Toxicodendron diversilobum	Poison oak	native	Anacardiaceae
Herbaceous	*Anthoxanthum odoratum*	Sweet vernal grass	invasive non-native	Poaceae
	Aphanes occidentalis	Ladie's mantle	native	Rosaceae
	Avena barbata	Slim oat	invasive non-native	Poaceae
	Bellis perennis	English lawn daisy	non-native	Asteraceae
	Briza maxima	Rattlesnake grass	invasive non-native	Poaceae
	Bromus hordeaceus	Soft chess	invasive non-native	Poaceae
	Cerastium glomeratum	Large mouse ears	non-native	Caryophyllaceae
	Claytonia perfoliata	Miner's lettuce	native	Montiaceae
	Cynosurus echinatus	Dogtail grass	invasive non-native	Poaceae
	Daucus pusillus	Wild carrot	native	Apiaceae
	Erodium botrys	Big heron bill	non-native	Geraniaceae
	Erodium cicutarium	Coastal heron's bill	invasive non-native	Geraniaceae
	Fragaria vesca	Wild strawberry	native	Rosaceae
	Galium aparine	Cleavers	native	Rubiaceae
	Geranium dissectum	Wild geranium	invasive non-native	Geraniaceae
	Holcus lanatus	Common velvetgrass	invasive non-native	Poaceae
	Hordeum brachyantherum	Meadow barley	native	Poaceae
	Hypericum perforatum	Klamathweed	invasive non-native	Hypericaceae
	Hypochaeris radicata	Hairy cats ear	invasive non-native	Asteraceae
	Juncus bufonius	Common toad rush	native	Juncaceae
	Juncus effusus	Common bog rush	native	Juncaceae
	Linum bienne	Flax	non-native	Linaceae
	Luzula comosa	Hairy wood rush	native	Juncaceae
	Matricaria discoidea	Pineapple weed	native	Asteraceae
	Mentha pulegium	Pennyroyal	invasive non-native	Lamiaceae
	Nemophila parviflora	Small flowered nemophila	native	Boraginaceae
	Phalaris aquatica	Harding grass	invasive non-native	Poaceae
	Plantago lanceolata	Ribwort	invasive non-native	Plantaginaceae
	Poa bulbosa	Bulbous blue grass	non-native	Poaceae
	Poa pratensis	Kentucky blue grass	invasive non-native	Poaceae
	Ranunculus muricatus	Buttercup	non-native	Ranunculaceae
	Ranunculus occidentalis var. occidentalis	Western buttercup	native	Ranunculaceae

Herbaceous	*Rumex acetosella*	Sheep sorrel	invasive non-native	Polygonaceae
	Rumex crispus	Curly dock	invasive non-native	Polygonaceae
	Sanicula crassicaulis	Pacific sanicle	native	Apiaceae
	Sherardia arvensis	Field madder	non-native	Rubiaceae
	Silybum marianum	Milk thistle	invasive non-native	Asteraceae
	Sonchus asper	Spiny sowthistle	non-native	Asteraceae
	Stachys rigida	Rough hedgenettle	native	Lamiaceae
	Stellaria media	Chickweed	non-native	Caryophyllaceae
	Taraxia ovata	Golden eggs	native	Onagraceae
	Trifolium dubium	Shamrock	non-native	Fabaceae
	Trifolium subterraneum	Subterranean clover	non-native	Fabaceae
	Triphysaria pusilla	Little owl's clover	native	Orobanchaceae
	Vicia sativa	Spring vetch	non-native	Fabaceae

Attachment D: Rank Definitions

CONSERVATION STATUS DEFINITIONS

Fed List*
This field indicates the plant's legal status under the Federal Endangered Species Act (ESA).

FE **Federally Endangered**: The classification provided to a plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.
FT **Federally Threatened**: The classification provided to a plant which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range.
PE **Proposed Endangered**: The classification provided to a plant that is proposed for federal listing as Endangered in the Federal Register under Section 4 of the Endangered Species Act.
PT **Proposed Threatened**: The classification provided to a plant that is proposed for federal listing as Threatened in the Federal Register under Section 4 of the Endangered Species Act.
FC **Federal Candidate**: The classification provided to a plant that has been studied by the United States Fish and Wildlife Service, and the Service has concluded that it should be proposed for addition to the list of Federally Endangered and Threatened species.
None The plant has no federal listing status under ESA.
FD **Federally Delisted**: The plant was previously listed as Endangered or Threatened but is no longer on the list of Federally Endangered and Threatened species.

State List*
This field indicates the plant's legal status under the California Endangered Species Act (CESA).

CE **State Listed as Endangered**: The classification provided to a native species or subspecies in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.
CT **State Listed as Threatened**: The classification provided to a native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
CR **State Listed as Rare**: The classification provided to a native plant species, subspecies, or variety when, although not presently threatened with extinction, it occurs in such small numbers throughout its range that it may become endangered if its present environment worsens. This designation stems from the Native Plant Protection Act of 1977.
CC **Candidate for State Listing**: The classification provided to a native species or subspecies that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered or threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered or threatened species.
None The plant has no state listing status under CESA.
CD **State Delisted**: The plant was previously listed as Endangered, Threatened or Rare but is no longer listed by the State of California.

Global Rank*
The Global Rank (G-rank) is an indication of the overall condition and imperilment of an element throughout its global range. It is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, with weighting being heavier on the rarity factors. The Global Ranks are assigned by NatureServe in coordination with the state program(s) where the element occurs.

GX **Presumed Extinct** — Not located despite intensive searches and virtually no likelihood of rediscovery.
GH **Possibly Extinct** — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty. Examples of such evidence include 1) that a species has not been documented in approximately 20–40 years despite some searching or some evidence of significant habitat loss or degradation; 2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

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 due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

G3 **Vulnerable** — At moderate risk of extinction or elimination due to a restricted range, relatively few populations (often 80 or fewer), 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.

GNR **Unranked** — Global rank not yet assessed.

GU **Unrankable** — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.

G#G# **Range Rank** — A numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty about the exact status of a taxon or community.

G#T# **Infraspecific Taxon** — 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 as those for Global Ranks. However, a T-rank cannot imply the subspecies or variety is more abundant than the species. In such cases, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety.

? **Qualifier: Inexact Numeric Rank** — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.

Q **Qualifier: Questionable Taxonomy** — The distinctiveness of this entity as a taxon or community 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.

C **Qualifier: Captive or Cultivated Only** — The taxon or community at present is presumed or possibly extinct or eliminated in the wild across its entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside its native range, or as a reintroduced population or ecosystem restoration, not yet established.

State Rank*

The State Rank (S-rank) is an indication of the condition and imperilment of an element throughout its range within the state. As with the G-rank, it is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, weighted more heavily on rarity. The State Ranks are assigned by the CNDDB biologists using standard natural heritage methodology.

SX **Presumed Extirpated** — Species is believed to be extirpated from the state. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH **Possibly Extirpated (Historical)** — Species occurred historically in the state, and there is some possibility that it may be rediscovered. All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists.

S1 **Critically Imperiled** — Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

S2 **Imperiled** — Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state.

S3 **Vulnerable** — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), 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 state.

SNR **Unranked** — State conservation status not yet assessed.

SU **Unrankable** — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.

S#S# **Range Rank** — A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community.

? **Qualifier: Inexact or Uncertain** — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.

Note: References to older ranks may contain a decimal "threat" rank of .1, .2, or .3, where .1 indicates very threatened status, .2 indicates moderate threat, and .3 indicates few or no current known threats.

CA Rare Plant Rank (CRPR)
California Rare Plant Ranks (CRPRs) are a ranking system developed by the California Native Plant Society (CNPS) to define and categorize rarity in the California flora. All plants that are assigned to a California Rare Plant Rank category are tracked by the CNDDB; however, element occurrence (EO) information is only maintained for CRPR 1 and 2 plants, and some CRPR 3 plants. Most CRPR 3 and 4 plants that have EO information in this Inventory and the CNDDB were previously assigned to CRPR 1 or 2; their EO data reflect their prior rank and have generally not been updated since the date of their change to CRPR 3 or 4.

Major changes to California Rare Plant Ranks (e.g., additions, changes, and deletions) undergo the CNPS Rare Plant Status Review process. This is a joint effort by CNPS, the CNDDB, Regional Plant Status Review Groups, the Status Review Forum, and botanical experts throughout the world. Once consensus is reached, then additions, changes, or deletions in California Rare Plant Ranks are made to this Inventory and the CNDDB. For a flow chart of the status review process, see Rare Plant Data in California: The Cooperative Relationship between the California Natural Diversity Database and the California Native Plant Society.

1A **Presumed Extirpated or Extinct** — Plants presumed extirpated in California and either rare or extinct elsewhere. These plants have not been seen or collected in the wild in California for many years. 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.

All of the plants constituting California Rare Plant Rank 1A meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Should these taxa be rediscovered, any impacts to individual plants or their habitat must be analyzed during preparation of environmental documents relating to the California Environmental Quality Act (CEQA), or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

1B **Rare or Endangered — Plants rare, threatened, or endangered in California and elsewhere.** These plants are rare throughout their entire range with the majority also being 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 taxa in the CNPS Inventory, with more than 1,000 plants assigned to this category of rarity.

All of the plants constituting California Rare Plant Rank 1B meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

2A **Extirpated in California — Plants presumed extirpated in California but common elsewhere**. These plants are presumed extirpated because they have not been observed or documented in California for many years. This list only includes plants that are presumed extirpated in California but are common elsewhere in their range outside of the state.

All of the plants constituting California Rare Plant Rank 2A meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Should these species be rediscovered, any impacts proposed to individuals, or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

2B **Rare or Endangered in California — Plants rare, threatened, or endangered in California but common elsewhere.** Except for being common beyond the boundaries of California, 2B plants would have been ranked 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the Federal Endangered Species Act. With California Rare Plant Rank 2B, we recognize the importance of protecting the geographic range of widespread species. In this way we protect the diversity of our own state's flora and help maintain evolutionary processes and genetic diversity within species.

All of the plants constituting California Rare Plant Rank 2B meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered

to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

3 **Needs Review — Plants about which more information is needed.** These plants are united by one common theme—we lack the necessary information to assign them to one of the other ranks or to reject them. Nearly all of the plants constituting California Rare Plant Rank 3 are taxonomically problematic, yet if taxonomically valid would demonstrably qualify for rank 1B or 2B. For each California Rare Plant Rank 3 plant we have provided the known information and indicated in the "Notes" section of the Inventory record where assistance is needed. Data regarding distribution, endangerment, ecology, and taxonomic validity are welcomed and can be submitted by emailing the Rare Plant Program at rareplants@cnps.org.

Many of the plants constituting California Rare Plant Rank 3 meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat should be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they may meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

4 **Uncommon in California — Plants of limited distribution, a watch list**. These plants are of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly. Should the degree of endangerment or rarity of a California Rare Plant Rank 4 plant change, we will transfer it to a more appropriate rank.
Some of the plants constituting California Rare Plant Rank 4 meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and we strongly recommend that California Rare Plant Rank 4 plants be evaluated for significant impacts during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, based on CEQA Guidelines §15125 (c) and/or §15380. This may be particularly appropriate for:

The type locality of a California Rare Plant Rank 4 taxon;
Occurrences at the periphery of a species' range;
Areas where the taxon is especially uncommon;
Areas where the taxon has sustained heavy losses (declining);
Occurrences exhibiting unusual morphology or occurring on unusual substrates;
Species maintained on BLM, USFWS, or USFS sensitive species lists; and
Taxa associated with a habitat that is declining in California at a significant rate.
To assist in evaluating CRPR 4 taxa for CEQA consideration, see the technical memorandum on Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis prepared by the Rare Plant Program Committee.

Threat Rank
California Rare Plant Ranks at each level also include a threat rank (e.g., CRPR 4.3) and are assigned as follows:

0.1 **Seriously threatened in California** — Over 80% of occurrences threatened / high degree and immediacy of threat.
0.2 **Moderately threatened in California** — 20-80% of occurrences threatened / moderate degree and immediacy of threat.
0.3 **Not very threatened in California** — Less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known.

Notes:

Threat ranks do not are provided for general research purposes only and do not indicate differences in conservation assessment. For example, a CRPR 1B.3 plant has the same conservation status as a CRPR 1B.1 plant, and it is mandatory that both be fully considered during preparation of environmental documents relating to CEQA.

The threat ranking criteria described above represent only the starting point for the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in assigning threat ranks.

In many cases, the threat rank has not been reassessed since the date the taxon was first added to this Inventory or underwent its last Status Review. For these taxa, the assigned threat ranking may not accurately reflect the current level of threat.

Considered but Rejected

A category of Considered but Rejected (CBR) exists for plants that either previously had a CRPR, or that were considered for addition to this Inventory but were rejected for one or more reasons. Any plant that is deleted from a CRPR category in this Inventory is not fully removed and is instead changed to the CBR category. Rejected plants are searchable by selecting the "Considered But Rejected" button in the California Rare Plant Rank section of simple and advanced search. A brief description of the reason why the plant was rejected is included for each CBR entry.

Attachment E. General Location Map, CALVEG Map, CNDDB Map, & Botanical Survey Map

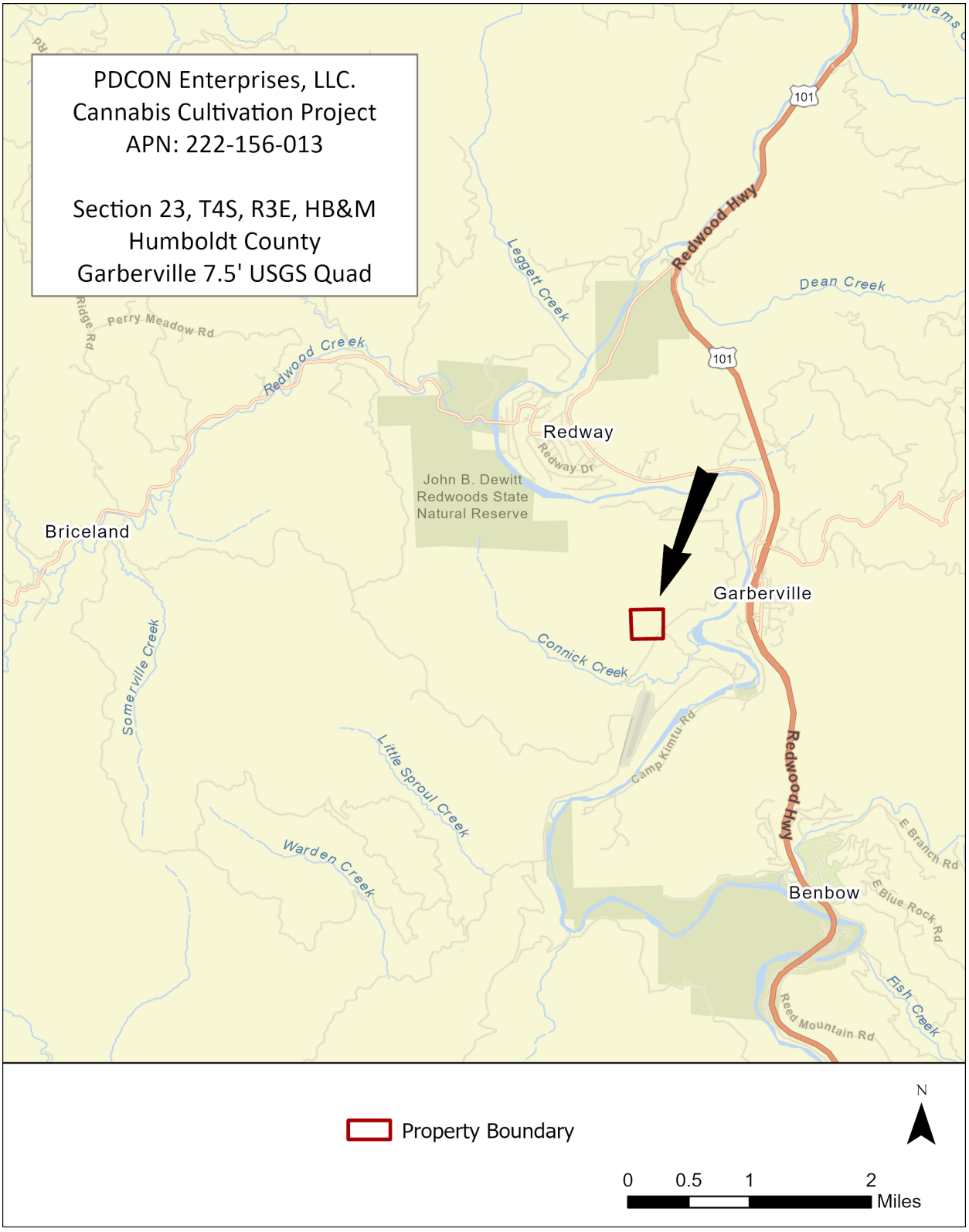


Figure 1. General location map for PDCON Enterprises, LLC. Cannabis Cultivation Project.

Figure 2. Overview map for PDCON Enterprises, LLC. Cannabis Cultivation Project.

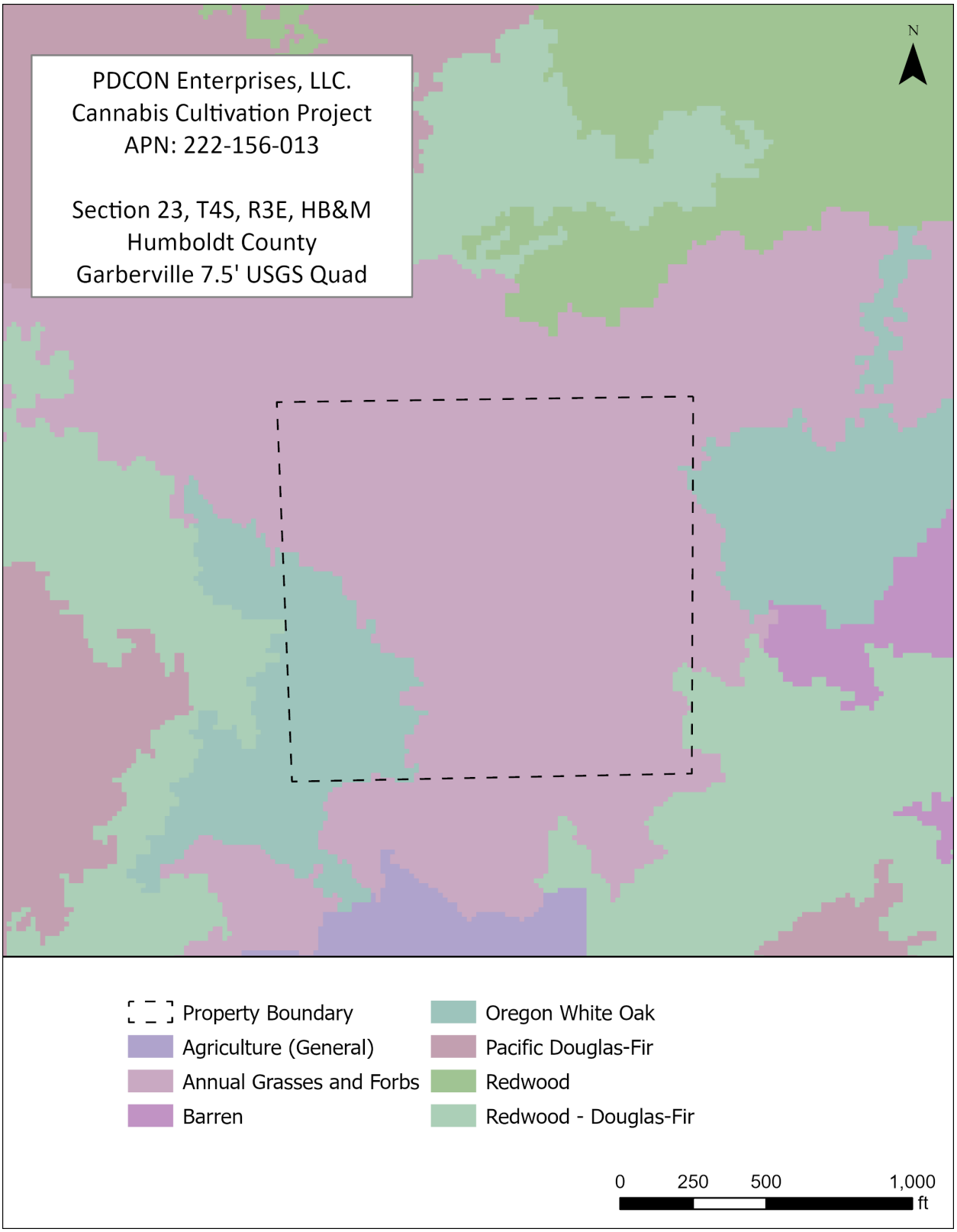


Figure 3. CALVEG Map of the PDCON Enterprises, LLC. Cannabis Cultivation Project.

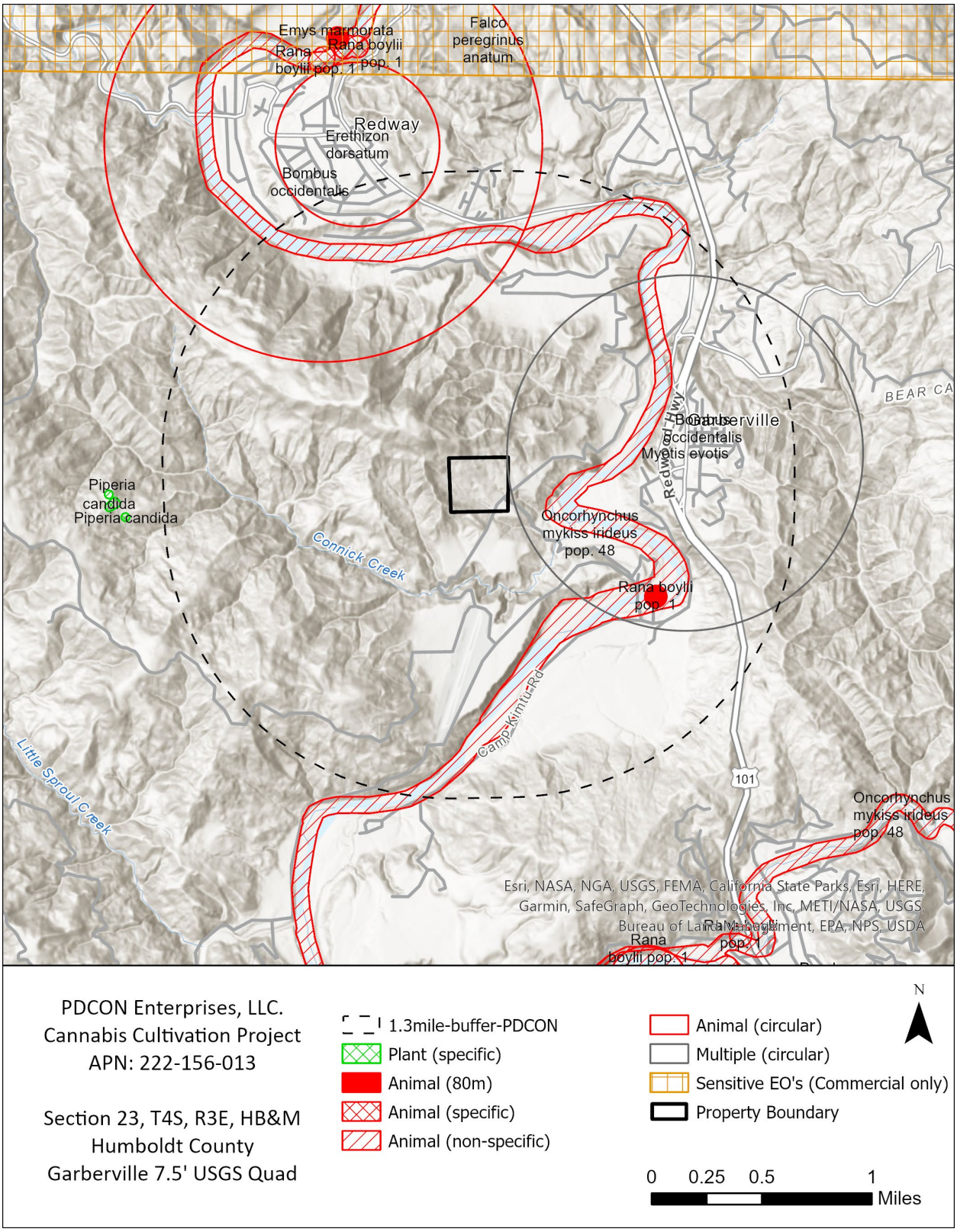


Figure 4. CNDDB Map of the PDCON Enterprises, LLC. Cannabis Cultivation Project. The dashed line represents a 1.3-mile buffer surrounding the property boundary.

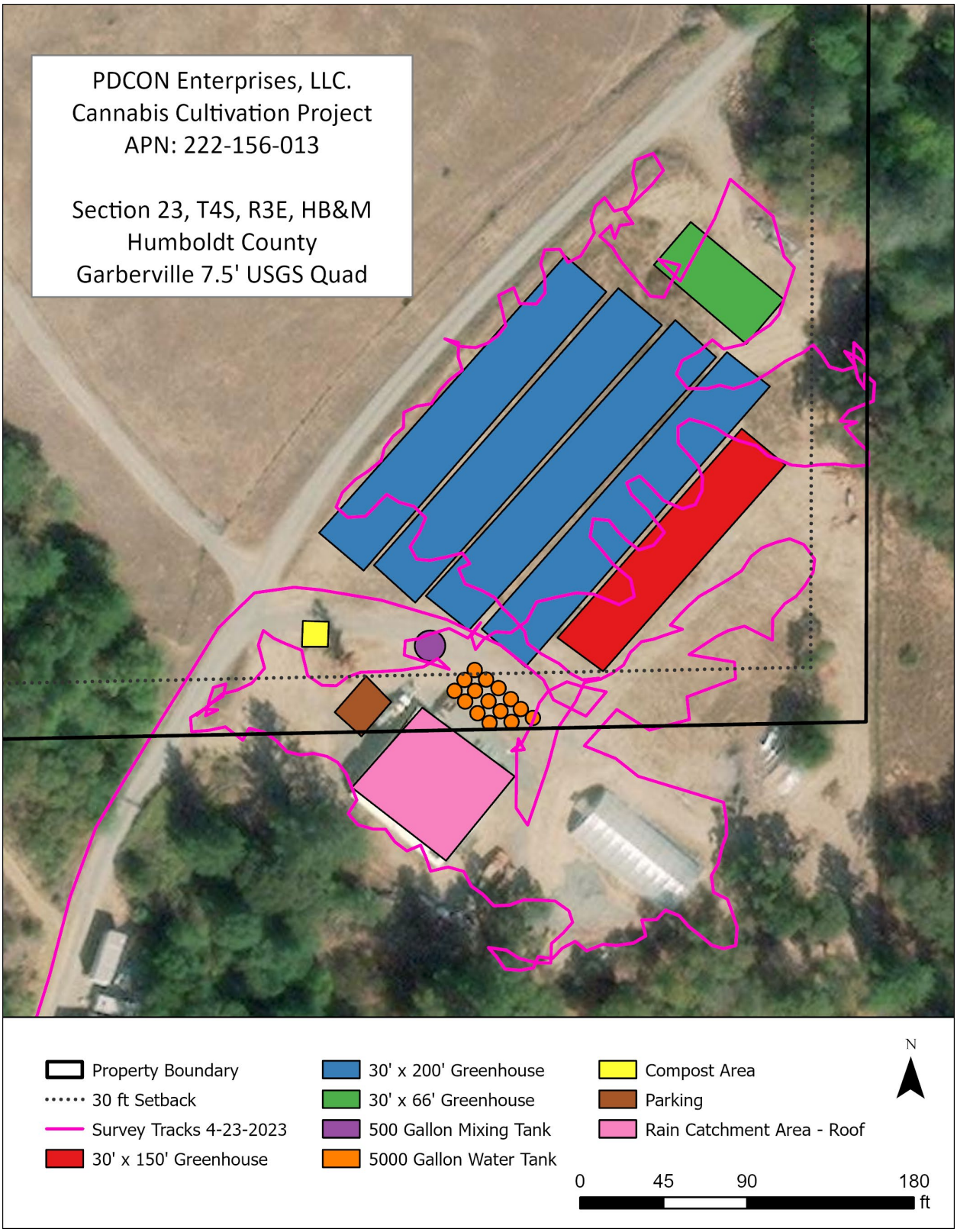


Figure 5. Map of the PDCON Enterprises, LLC. Cannabis Cultivation Project with the April 23, 2023, botanical survey route taken.

Attachment F: Soil Map

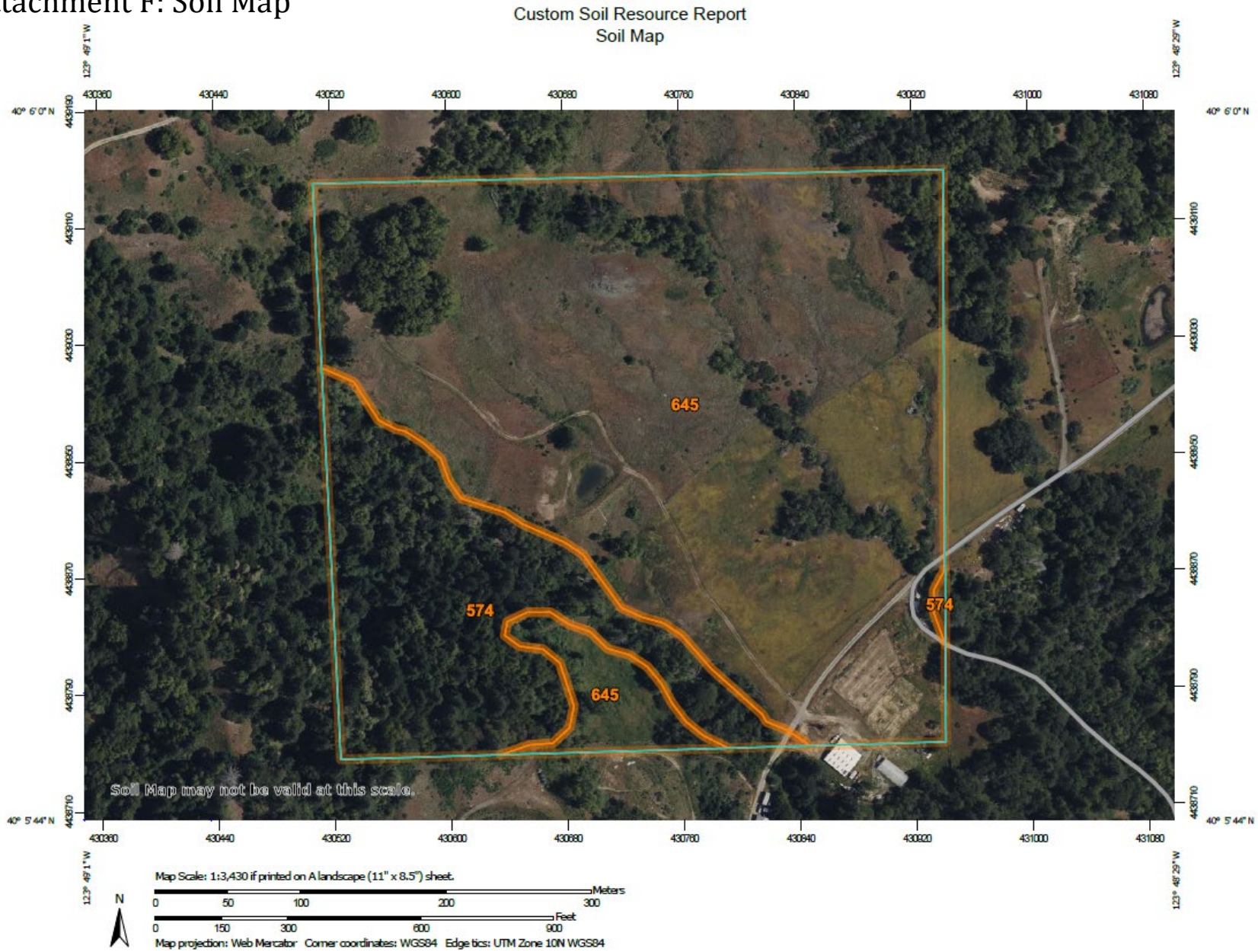
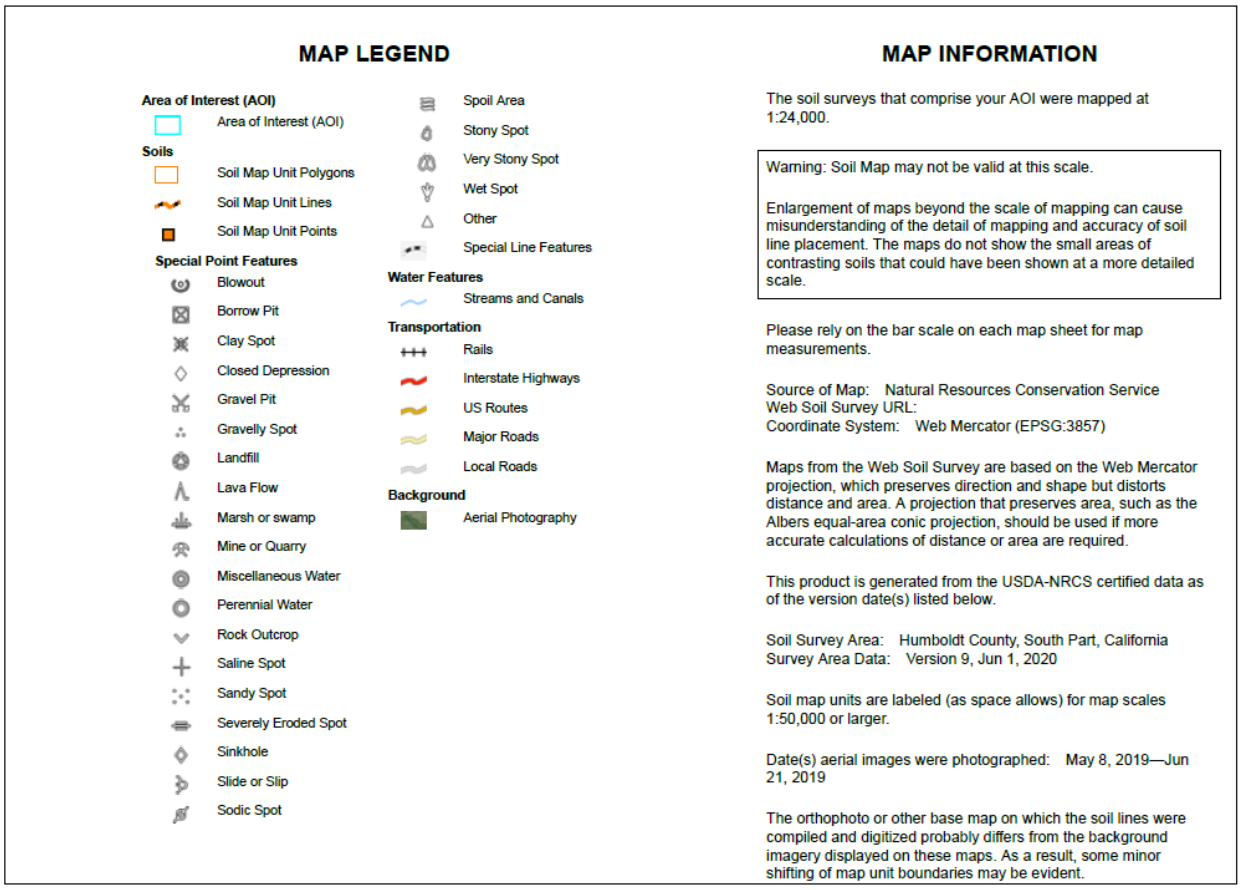


Figure 6. Soil map of the PDCON Enterprises, LLC. Cannabis Cultivation Project.



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
574	Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm	9.2	22.2%
645	Briceland-Tankridge complex, 15 to 50 percent slopes	32.3	77.8%
Totals for Area of Interest		**41.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series. Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

574—Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm

Map Unit Setting
National map unit symbol: 2ml27
Elevation: 100 to 3,280 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland
Map Unit Composition
*Sproulish, warm, and similar soils:*50 percent
*Canoecreek, warm, and similar soils:*20 percent
*Redwohly, warm, and similar soils:*15 percent
*Minor components:*15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.
Description of Sproulish, Warm
Setting
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Backslope
*Landform position (three-dimensional):*Mountainflank
*Down-slope shape:*Linear
*Across-slope shape:*Concave, convex, linear
*Parent material:*Colluvium derived from mudstone and/or colluvium derived from sandstone and/or residuum weathered from mudstone and/or residuum weathered from sandstone
Typical profile
Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 6 inches: gravelly silt loam
Bt1 - 6 to 13 inches: paragravelly clay loam
Bt2 - 13 to 21 inches: gravelly loam
Bt3 - 21 to 47 inches: clay loam
Bt4 - 47 to 63 inches: paragravelly silty clay loam
Bt5 - 63 to 79 inches: paragravelly silty clay loam
Properties and qualities
*Slope:*30 to 50 percent
*Depth to restrictive feature:*More than 80 inches
*Drainage class:*Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.06 to 2.00 in/hr)
*Depth to water table:*More than 80 inches
*Frequency of flooding:*None
*Frequency of ponding:*None
*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F004BJ101CA - Fog-influenced, low elevation slopes and footslopes
Hydric soil rating: No
Description of Canoecreek, Warm
Setting
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Shoulder
*Landform position (three-dimensional):*Mountainflank
*Down-slope shape:*Linear
*Across-slope shape:*Convex
*Parent material:*Colluvium and residuum derived from sandstone and mudstone
Typical profile
Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 9 inches: gravelly loam
Bw1 - 9 to 15 inches: very cobbly loam
Bw2 - 15 to 31 inches: extremely cobbly loam
Bw3 - 31 to 49 inches: very cobbly sandy loam
C - 49 to 71 inches: extremely stony loamy sand
Properties and qualities
*Slope:*30 to 50 percent
*Surface area covered with cobbles, stones or boulders:*1.0 percent
*Depth to restrictive feature:*More than 80 inches
*Drainage class:*Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:*More than 80 inches
*Frequency of flooding:*None
*Frequency of ponding:*None
*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.9 inches)
Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BJ102CA - Dry, steep mountain slopes
Hydric soil rating: No
Description of Redwohly, Warm
Setting
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Shoulder, backslope
*Landform position (three-dimensional):*Mountainflank
*Down-slope shape:*Convex
*Across-slope shape:*Convex
*Parent material:*Residuum weathered from sandstone and/or residuum weathered from mudstone

Typical profile
Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 5 inches: paragravelly loam
Bt1 - 5 to 16 inches: very paragravelly loam
Bt2 - 16 to 33 inches: extremely paragravelly loam
C - 33 to 63 inches: paragravel
Properties and qualities
*Slope:*30 to 50 percent
*Depth to restrictive feature:*20 to 39 inches to strongly contrasting textural stratification
*Drainage class:*Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to moderately high (0.14 to 1.42 in/hr)
*Depth to water table:*More than 80 inches
*Frequency of flooding:*None
*Frequency of ponding:*None
*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)
Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F004BJ101CA - Fog-influenced, low elevation slopes and footslopes
Hydric soil rating: No
Minor Components
Crazycoyote
*Percent of map unit:*5 percent
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Backslope
*Landform position (three-dimensional):*Mountainflank
*Down-slope shape:*Concave, convex, linear
*Across-slope shape:*Linear
Hydric soil rating: No
Canoecreek
*Percent of map unit:*4 percent
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Backslope
*Landform position (three-dimensional):*Mountainflank
*Down-slope shape:*Linear
*Across-slope shape:*Convex
Hydric soil rating: No
Caperidge, warm
*Percent of map unit:*4 percent
*Landform:*Ridges
*Landform position (two-dimensional):*Summit, shoulder
*Landform position (three-dimensional):*Mountaintop
*Down-slope shape:*Convex, linear
*Across-slope shape:*Linear, convex
Hydric soil rating: No

Rock outcrop
*Percent of map unit:*2 percent
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Backslope
*Landform position (three-dimensional):*Center third of mountainflank
*Down-slope shape:*Convex
*Across-slope shape:*Convex
Hydric soil rating: No

645—Briceland-Tankridge complex, 15 to 50 percent slopes

Map Unit Setting
National map unit symbol: 17mvx
Elevation: 200 to 3,280 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Not prime farmland
Map Unit Composition
*Briceland and similar soils:*70 percent
*Tankridge and similar soils:*15 percent
*Minor components:*15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.
Description of Briceland
Setting
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Backslope
*Landform position (three-dimensional):*Mountainflank
*Down-slope shape:*Concave
*Across-slope shape:*Linear
*Parent material:*Colluvium derived from mudstone and/or residuum weathered from mudstone
Typical profile
A1 - 0 to 5 inches: silt loam
A2 - 5 to 13 inches: silt loam
Bt1 - 13 to 21 inches: silty clay loam
Bt2 - 21 to 30 inches: silty clay loam
Bt3 - 30 to 49 inches: silty clay
Bt4 - 49 to 59 inches: silty clay
BCt - 59 to 79 inches: paragravelly silty clay loam
Properties and qualities
*Slope:*15 to 50 percent
*Depth to restrictive feature:*More than 80 inches
*Drainage class:*Moderately well drained
Runoff class: High
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.06 to 2.00 in/hr)
*Depth to water table:*About 20 to 39 inches
*Frequency of flooding:*None
*Frequency of ponding:*None
*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R004BI201CA - Fine-loamy Uplands
Hydric soil rating: No
Description of Tankridge
Setting
*Landform:*Ridges, mountain slopes
*Landform position (two-dimensional):*Shoulder
*Landform position (three-dimensional):*Center third of mountainflank
*Down-slope shape:*Convex, linear
*Across-slope shape:*Linear, concave
*Parent material:*Residuum weathered from mudstone
Typical profile
A - 0 to 6 inches: silt loam
Bt1 - 6 to 12 inches: clay loam
Bt2 - 12 to 20 inches: clay loam
Ct - 20 to 71 inches: paragravel
Properties and qualities
*Slope:*15 to 50 percent
*Depth to restrictive feature:*20 to 39 inches to strongly contrasting textural stratification
*Drainage class:*Well drained
Runoff class: Very high
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:*More than 80 inches
*Frequency of flooding:*None
*Frequency of ponding:*None
*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)
Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R004BI201CA - Fine-loamy Uplands
Hydric soil rating: No
Minor Components
Devilshole
*Percent of map unit:*10 percent
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Shoulder
*Landform position (three-dimensional):*Upper third of mountainflank
*Down-slope shape:*Convex, linear
*Across-slope shape:*Linear, convex
Hydric soil rating: No
Crazycoyote
*Percent of map unit:*5 percent
*Landform:*Mountain slopes
*Landform position (two-dimensional):*Backslope
*Landform position (three-dimensional):*Center third of mountainflank
*Down-slope shape:*Concave, convex, linear
*Across-slope shape:*Linear
Hydric soil rating: No

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