Attachment B

Biological Resources

CalVTP ID 2020-14

Special-Status Plant Species Known to Occur in the Vicinity of the Treatment Areas and Their Potential for Occurrence in the Treatment Areas

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence[2]
Blasdale's bent grass *Agrostis blasdalei*	–	–	1B.2	Coastal dunes, coastal bluff scrub, coastal prairie. Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 16–1,198 feet in elevation. Blooms May–July.	Not expected to occur. Treatment areas do not contain coastal dune, coastal bluff scrub, or coastal prairie habitat.
Bent-flowered fiddleneck *Amsinckia lunaris*	–	–	1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 10–2,608 feet in elevation. Blooms March–June.	May occur. Treatment areas contain woodland habitat potentially suitable for this species.
Anderson's manzanita *Arctostaphylos andersonii*	–	–	1B.2	Open sites, redwood forest. 197–2,493 feet in elevation. Blooms November–May.	May occur. Treatment areas contain redwood forest habitat potentially suitable for this species.
Schreiber's manzanita *Arctostaphylos glutinosa*	–	–	1B.2	Mudstone or diatomaceous shale outcrops; often with *Pinus attenuata*. 558–2,247 feet in elevation. Blooms March–April.	Not expected to occur. This species has a limited range which does not overlap with the treatment areas (Kauffmann et al. 2015).
Ohlone manzanita *Arctostaphylos ohloneana*	–	–	1B.1	Coastal scrub, closed cone coniferous forests. Monterey shale. 1,476–1,739 feet in elevation. Blooms February–March.	Not expected to occur. This species has a limited range which does not overlap with the treatment areas (Kauffmann et al. 2015).
Kings Mountain manzanita *Arctostaphylos regismontana*	–	–	1B.2	Granitic or sandstone outcrops. 787–2,313 feet in elevation. Blooms December–April.	Not expected to occur. This species has a limited range which does not overlap with the treatment areas (Kauffmann et al. 2015).
Pajaro manzanita *Arctostaphylos pajaroensis*	–	–	1B.1	Chaparral. Sandy soils. 98–509 feet in elevation. Blooms December–March.	Not expected to occur. This species has a limited range which does not overlap with the treatment areas (Kauffmann et al. 2015).
Bonny Doon manzanita *Arctostaphylos silvicola*	–	–	1B.2	Only known from Zayante (inland marine) sands in Santa Cruz County. 492–1,706 feet in elevation. Blooms January–March.	Not expected to occur. Treatment areas do not contain Zayante soils. This species has a limited range which does not overlap with the treatment areas (Kauffmann et al. 2015).
Marsh sandwort *Arenaria paludicola*	FE	SE	1B.1	Growing up through dense mats of *Typha*, *Juncus*, *Scirpus*, etc. in freshwater marsh. Sandy soil. 10–558 feet in elevation. Blooms May–August.	Not expected to occur. Treatment areas do not contain freshwater marsh habitat.
Santa Cruz Mountains pussypaws *Calyptridium parryi* var. *hesseae*	–	–	1B.1	Chaparral, cismontane woodland. Sandy or gravelly openings. 984–5,036 feet in elevation. Blooms May–August.	May occur. Treatment areas contain woodland habitat potentially suitable for this species.
Swamp harebell *Campanula californica*	–	–	1B.2	Bogs and marshes in a variety of habitats; uncommon where it occurs. 3–1,329 feet in elevation. Blooms June–October.	Not expected to occur. Treatment areas do not contain bog or marsh habitat.
Bristly sedge *Carex comosa*	–	–	2B.1	Lake margins, wet places; site below sea level is on a Delta island. -16–5,315 feet in elevation. Blooms May–September.	Not expected to occur. Treatment areas do not contain lake margin habitat.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence[2]
Deceiving sedge *Carex saliniformis*	–	–	1B.2	Coastal prairie, coastal scrub, meadows and seeps, swamps, saltmarsh. Mesic sites. 10–755 feet in elevation. Blooms June.	Not expected to occur. Treatment areas do not contain costal, swamp, or marsh habitat for this species.
Coyote ceanothus *Ceanothus ferrisiae*	FE	–	1B.1	Serpentine sites in the Mt. Hamilton range. 490–1,500 feet in elevation. Blooms January–May.	Not expected to occur. Treatment areas do not contain serpentine soils.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	–	–	1B.1	Alkaline soils sometimes described as heavy white clay. 0–755 feet in elevation. Blooms May–October.	Not expected to occur. Treatment areas do not contain alkaline soils.
Ben Lomond spineflower *Chorizanthe pungens* var. *hartwegiana*	FE	–	1B.1	Zayante coarse sands in maritime ponderosa pine sandhills. 344–1,558 feet in elevation. Blooms April–July.	Not expected to occur. Treatment areas do not contain Zayante soils.
Monterey spineflower *Chorizanthe pungens* var. *pungens*	FT	–	1B.2	Sandy soils in coastal dunes or more inland within chaparral or other habitats. 0–558 feet in elevation. Blooms April–June.	Not expected to occur. Treatment areas do not contain coastal dune or chaparral habitat.
Scotts Valley spineflower *Chorizanthe robusta* var. *hartwegii*	FE	–	1B.1	In grasslands with mudstone and sandstone outcrops. 344–804 feet in elevation. Blooms April–July.	Not expected to occur. Treatment areas are outside of the range of this species.
Robust spineflower *Chorizanthe robusta* var. *robusta*	FE	–	1B.1	Sandy terraces and bluffs or in loose sand. 30–804 feet in elevation. Blooms April–September.	May occur. Treatment areas contain woodland and coyote brush scrub habitat potentially suitable for this species.
Mt. Hamilton fountain thistle *Cirsium fontinale* var. *campylon*	–	–	1B.2	In seasonal and perennial drainages on serpentine. 328–2,920 feet in elevation. Blooms April–October.	Not expected to occur. Treatment areas do not contain serpentine soils.
Lost thistle *Cirsium praeteriens*	–	–	1A	Little information exists on this plant; it was collected from the Palo Alto area at the turn of the 20th Century. 0–100 feet in elevation. Blooms June–July.	Not expected to occur. Treatment areas are outside of the known, historic range of this species.
San Francisco collinsia *Collinsia multicolor*	–	–	1B.2	On decomposed shale (mudstone) mixed with humus; sometimes on serpentine. 98–820 feet in elevation. Blooms March–May.	May occur. Treatment areas contain forest and coyote brush scrub habitats potentially suitable for this species.
Tear drop moss *Dacryophyllum falcifolium*	–	–	1B.3	Limestone substrates and rock outcrops. 164–902 feet in elevation.	May occur. Treatment areas contain forest habitat potentially suitable for this species.
Western leatherwood *Dirca occidentalis*	–	–	1B.2	On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 82–1,394 feet in elevation. Blooms January–March.	May occur. Treatment areas contain forest and woodland habitat potentially suitable for this species.
Santa Clara Valley dudleya *Dudleya abramsii* ssp. *setchellii*	FE	–	1B.1	On rocky serpentine outcrops and on rocks within grassland or woodland. 197–1,493 feet in elevation. Blooms April–October.	Not expected to occur. Treatment areas do not contain serpentine soils.
Ben Lomond buckwheat *Eriogonum nudum* var. *decurrens*	–	–	1B.1	Ponderosa pine sandhills in Santa Cruz County. 164–2,625 feet in elevation. Blooms June–October.	Not expected to occur. Treatment areas do not contain sandhills habitat.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence[2]
San Mateo woolly sunflower *Eriophyllum latilobum*	FE	SE	1B.1	Foothill (oak) woodland; often on roadcuts; found primarily on serpentine. 98–2,001 feet in elevation. Blooms May–June. Perennial.	Not expected to occur. Treatment areas contain forest and coyote brush scrub habitat potentially suitable for this species.
Santa Cruz wallflower *Erysimum teretifolium*	FE	SE	1B.1	Inland marine sands (Zayante coarse sand). 591–1,690 feet in elevation. Blooms March–July.	Not expected to occur. Treatment areas do not contain Zayante soils.
Minute pocket moss *Fissidens pauperculus*	–	–	1B.2	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 33–3,360 feet in elevation.	May occur. Treatment areas contain forest habitat potentially suitable for this species.
Fragrant fritillary *Fritillaria liliacea*	–	–	1B.2	Often on serpentine; various soils reported though usually on clay, in grassland. 10–1,312 feet in elevation. Blooms February–April.	May occur. Treatment areas contain grassland habitat potentially suitable for this species.
Toren's grimmia *Grimmia torenii*	–	–	1B.3	Openings, rocky, boulder and rock walls, carbonate, volcanic. 1,066–3,806 feet in elevation.	May occur. Treatment areas contain forest habitat potentially suitable for this species.
Vaginulate grimmia *Grimmia vaginulata*	–	–	1B.1	Openings; rocky, boulder and rock walls, carbonate. 2,247–3,724 feet in elevation.	Not expected to occur. Treatment areas do not contain rocky areas of carbonate origin.
Short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	–	–	1B.2	Sandy bluffs and flats. 0–705 feet in elevation. Blooms March–June.	Not expected to occur. Treatment areas do not contain coastal bluff habitat.
Santa Cruz cypress *Hesperocyparis abramsiana* var. *abramsiana*	FT	SE	1B.2	Restricted to the Santa Cruz Mountains, on sandstone and granitic-derived soils; often with *Pinus attenuata*, redwoods. 984–3,560 feet in elevation.	Not expected to occur. Treatment areas are outside of the known range of this species.
Butano Ridge cypress *Hesperocyparis abramsiana* var. *butanoensis*	FT	SE	1B.2	Sandstone. 1,312–1,608 feet in elevation. Blooms October.	Not expected to occur. Treatment areas are outside of the known range of this species.
Loma Prieta hoita *Hoita strobilina*			1B.1	Serpentine; mesic sites. 197–3,199 feet in elevation. Blooms May–July.	Not expected to occur. Treatment areas do not contain serpentine soils.
Santa Cruz tarplant *Holocarpha macradenia*	FT	SE	1B.1	Light, sandy soil or sandy clay; often with nonnatives. 33–722 feet in elevation. Blooms June–October.	Not expected to occur. Treatment areas are outside of the known range of this species.
Kellogg's horkelia *Horkelia cuneata* var. *sericea*	–	–	1B.1	Old dunes, coastal sandhills; openings. 16–705 feet in elevation. Blooms April–September.	Not expected to occur. Treatment areas do not contain coastal sandhills or dune habitat.
Point Reyes horkelia *Horkelia marinensis*	–	–	1B.2	Sandy flats and dunes near coast; in grassland or scrub plant communities. 7–2,543 feet in elevation. Blooms May–September.	Not expected to occur. Treatment areas do not contain coastal dune habitat.
Contra Costa goldfields *Lasthenia conjugens*	FE	–	1B.1	Vernal pools, swales, low depressions, in open grassy areas. 3–1,480 feet in elevation. Blooms March–June.	Not expected to occur. Treatment areas do not contain vernal pool habitat.
Legenere *Legenere limosa*	–	–	1B.1	In beds of vernal pools. 3–2887 feet in elevation. Blooms April–June.	Not expected to occur. Treatment areas do not contain vernal pool habitat.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence[2]
Smooth lessingia *Lessingia micradenia* var. *glabrata*	–	–	1B.2	Serpentine; often on roadsides. 394–1,378 feet in elevation. Blooms July–November.	Not expected to occur. Treatment areas do not contain serpentine habitat.
Arcuate bush-mallow *Malacothamnus arcuatus*	–	–	1B.2	Gravelly alluvium in chaparral, coastal sage scrub, or woodland. 3–2,411 feet in elevation. Blooms April–September. Perennial.	May occur. Treatment areas contain woodland habitat potentially suitable for this species.
Davidson's bush-mallow *Malacothamnus davidsonii*	–	–	1B.2	Sandy washes in chaparral, northern coastal scrub, and coastal sage scrub. 492–5,003 feet in elevation. Blooms June–January. Perennial.	Not expected to occur. Treatment areas do not contain sandy wash habitat.
Hall's bush-mallow *Malacothamnus hallii*	–	–	1B.2	Chaparral, coastal scrub. 33–2,395 feet in elevation. Blooms May–September.	May occur. Treatment areas contain coyote brush scrub habitat potentially suitable for this species.
Marsh microseris *Microseris paludosa*	–	–	1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 16–984 feet in elevation. Blooms April–June.	May occur. Treatment areas contain woodland and grassland habitat potentially suitable for this species.
Northern curly-leaved monardella *Monardella sinuata* ssp. *nigrescens*	–	–	1B.2	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest. Sandy soils. 0–984 feet in elevation. Blooms May–July.	Not expected to occur. Treatment areas do not contain dune habitat or sandy soils.
Woodland woollythreads *Monolopia gracilens*	–	–	1B.2	Grassy sites, openings in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest; valley and foothill grassland; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. 328–3,937 feet in elevation. Blooms March–July. Annual.	May occur. Treatment areas contain grassland habitat potentially suitable for this species.
Kellman's bristle moss *Orthotrichum kellmanii*	–	–	1B.2	Rock outcrops in small openings within dense chaparral with overstory of scattered *Pinus attenuata*. 1,125–2,247 feet in elevation. Blooms January–February.	Not expected to occur. Treatment areas do not contain rocky chaparral habitat suitable for this species.
Dudley's lousewort *Pedicularis dudleyi*	–	SR	1B.2	Deep shady woods of older coast redwood forests; also in maritime chaparral. 197–2,953 feet in elevation. Blooms April–June.	Not expected to occur. Treatment areas are outside of the known range of this species.
Santa Cruz Mountains beardtongue *Penstemon rattanii* var. *kleei*	–	–	1B.2	Sandy shale slopes; sometimes in the transition between forest and chaparral. 1,312–3,609 feet in elevation. Blooms May–June.	May occur. Treatment areas contain forest habitat potentially suitable for this species.
White-rayed pentachaeta *Pentachaeta bellidiflora*	FE	SE	1B.1	Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 115–2,001 feet in elevation. Blooms March–May.	May occur. Treatment areas contain grassland habitat potentially suitable for this species.
Monterey pine *Pinus radiata*	–	–	1B.1	Closed-cone coniferous forest, cismontane woodland. Three primary stands are native to California. Dry bluffs and slopes. 197–410 feet in elevation.	May occur. Treatment areas contain woodland habitat potentially suitable for this species.
White-flowered rein orchid *Piperia candida*	–	–	1B.2	Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 148–5,299 feet in elevation. Blooms May–September.	May occur. Treatment areas contain forest duff habitat potentially suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence[2]
Choris' popcornflower *Plagiobothrys chorisianus* var. *chorisianus*	–	–	1B.2	Wetlands in chaparral, coastal scrub, coastal prairie. 49–525 feet in elevation. Blooms March–June. Annual.	May occur. Treatment areas may contain wetland habitat potentially suitable for this species.
Hickman's popcornflower *Plagiobothrys chorisianus* var. *hickmanii*	–	–	4.2	Wetland. 49–607 feet in elevation. Blooms April–June.	Known to occur. This species was detected during protocol-level special-status plant surveys conducted in the Preserve in 2008 (EcoSystems West 2008).
San Francisco popcornflower *Plagiobothrys diffusus*	–	SE	1B.1	Historically from grassy slopes with marine influence. 148–1,181 feet in elevation. Blooms March–June.	Not expected to occur. Treatment areas are outside of the known range of this species.
Hairless popcornflower *Plagiobothrys glaber*	–	–	1A	Coastal salt marshes and alkaline meadows. 16–591 feet in elevation. Blooms March–May.	Not expected to occur. Treatment areas do not contain salt marsh or alkaline meadow habitat.
Scotts Valley polygonum *Polygonum hickmanii*	FE	SE	1B.1	Purisima sandstone or mudstone with a thin soil layer; vernally moist due to runoff. 689–755 feet in elevation. Blooms May–August.	Not expected to occur. Treatment areas are outside of the known range of this species and do not contain Purisima soils.
Rock sanicle *Sanicula saxatilis*	–	SR	1B.2	Bedrock outcrops and talus slopes in chaparral or oak woodland habitat. 2,198–4,101 feet in elevation. Blooms April–May.	May occur. Treatment areas contain oak woodland habitat potentially suitable for this species.
Chaparral ragwort *Senecio aphanactis*	–	–	2B.2	Drying alkaline flats. 66–2,805 feet in elevation. Blooms January–April.	Not expected to occur. Treatment areas are outside of the known range of this species and do not contain alkaline soils.
San Francisco campion *Silene verecunda* ssp. *verecunda*	–	–	1B.2	Often on mudstone or shale; one site on serpentine. 98–2,116 feet in elevation. Blooms March–June.	Not expected to occur. Treatment areas are outside of the known range of this species.
Santa Cruz microseris *Stebbinsoseris decipiens*	–	–	1B.2	Open areas in loose or disturbed soil, usually derived from sandstone, shale, or serpentine, on seaward slopes. 33–1,640 feet in elevation. Blooms April–May.	Not expected to occur. Treatment areas are outside of the known range of this species.
Metcalf Canyon jewelflower *Streptanthus albidus* ssp. *albidus*	FE	–	1B.1	Relatively open areas in dry grassy meadows on serpentine soils; also on serpentine balds. 148–2,625 feet in elevation. Blooms April–July.	Not expected to occur. Treatment areas do not contain serpentine soils.
Most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	–	–	1B.2	Serpentine outcrops, on ridges and slopes. 312–3,281 feet in elevation. Blooms April–September.	Not expected to occur. Treatment areas do not contain serpentine soils.
Santa Cruz clover *Trifolium buckwestiorum*	–	–	1B.1	Moist grassland. Gravelly margins. 344–2,001 feet in elevation. Blooms April–October.	May occur. Treatment areas contain grassland habitat potentially suitable for this species.
Saline clover *Trifolium hydrophilum*	–	–	1B.2	Mesic, alkaline sites. 0–984 feet in elevation. Blooms April–June.	Not expected to occur. Treatment areas do not contain marsh, swamp, or vernal pool habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence[2]
Pacific Grove clover *Trifolium polyodon*	–	SR	1B.1	Along small springs and seeps in grassy openings. 16–394 feet in elevation. Blooms April–June.	Not expected to occur. Treatment areas are outside of the known range of this species.
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	–	–	1B.1	Valley and foothill grassland. Alkaline clay. 0–1,181 feet in elevation. Blooms March–April.	May occur. Treatment areas contain grassland habitat potentially suitable for this species.

Notes: CRPR = California Rare Plant Rank; CEQA = California Environmental Quality Act; ESA = Endangered Species Act; NPPA = Native Plant Protection Act

1 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected by ESA)

FT Federally Listed as Threatened (legally protected by ESA)

State:

SE State Listed as Endangered (legally protected by CESA)

SR State Listed as Rare (legally protected by NPPA)

California Rare Plant Ranks (CRPR):

1A Plant species that are presumed extirpated or extinct because they 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.

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA).

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA).

4 Plant species with limited distribution or infrequent throughout a broader area in California.

CRPR Threat Ranks:

0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)

0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)

0.3 Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

2 Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present because of poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available and there have been nearby recorded occurrences of the species.

Known to occur: The species has been observed within the treatment areas.

Sources: CNDDB 2020; CNPS 2020; EcoSystems West 2008; Kauffmann et al. 2015

Special-Status Wildlife Species Known to Occur in the Vicinity of the Treatment Areas and Their Potential for Occurrence in the Treatment Areas

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Amphibians and Reptiles				
California giant salamander *Dicamptodon ensatus*	–	SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	May occur. There are several known occurrences of this species within approximately 5 miles of the treatment areas (CNDDB 2020). Habitat suitable for California giant salamander is present within forest habitat near streams in the treatment areas.
California red-legged frog *Rana draytonii*	FT	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	May occur. California red-legged frogs have not been detected within the treatment areas; however, there are several known occurrences of the species within approximately 2 miles of the treatment areas (CNDDB 2020, Biosearch Environmental Consulting 2018). Recent surveys of potential breeding habitat (e.g., ponds) adjacent to the treatment areas did not result in detection of California red-legged frogs (Biosearch 2018). This species is not expected to breed within ponds adjacent to the treatment areas; however, individuals may use upland habitat in the treatment areas for dispersal.
California tiger salamander *Ambystoma californiense*	FT	ST	Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Not expected to occur. Treatment areas do not contain habitat suitable for this species.
Coast horned lizard *Phrynosoma blainvillii*	–	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not expected to occur. Treatment areas do not contain wash habitat or low bushes suitable for this species.
Foothill yellow-legged frog *Rana boylii*	–	SE SSC	Partly-shaded, shallow streams, and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	May occur. The nearest known occurrence of foothill yellow-legged frog is approximately 3 miles west of the treatment areas (CNDDB 2020). Treatment areas contain habitat potentially suitable for this species within streams and drainages.
Northern California legless lizard *Anniella pulchra*	–	SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Not expected to occur. Treatment areas are outside of the known range of this species.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Red-bellied newt *Taricha rivularis*	–	SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean rocky substrate.	Not expected to occur. Treatment areas are outside of the known range of this species.
San Francisco gartersnake *Thamnophis sirtalis tetrataenia*	FE	SE FP	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	Not expected to occur. Treatment areas are outside of the known range of this species.
Santa Cruz black salamander *Aneides niger*	–	SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties. Adults found under rocks, talus, and damp woody debris.	May occur. There are several known occurrences of Santa Cruz black salamander within approximately three miles of the treatment areas (CNDDB 2020). Treatment areas contain habitat potentially suitable for this species within woodlands and forests.
Western pond turtle *Actinemys marmorata*	–	SSC	Ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	May occur. Habitat suitable for western pond turtle is present within ponds adjacent to the treatment area. Individual western pond turtles were detected during live-trapping surveys conducted in 2017. All captured turtles were located at Lower lake and were determined to be male. (Biosearch Environmental Consulting 2018, HT Harvey 2006). No breeding attempts, nesting or young have been observed to date. While the Preserve likely does not support a viable population of the species, there have been individual detections of pond turtles within the vicinity of the treatment areas (Biosearch Environmental Consulting 2018b).
Birds				
American peregrine falcon *Falco peregrinus anatum*	FD	SD FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	May occur. Peregrine falcons may forage within the treatment areas; however, nesting habitat suitable for the species is not present.
Bald eagle *Haliaeetus leucocephalus*	FD	SE FP	Lower montane coniferous forest, old growth. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	May occur. Nesting habitat potentially suitable for bald eagle is present within forest habitat in the treatment areas.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Black swift *Cypseloides niger*	–	SSC	Coastal belt of Santa Cruz and Monterey Co; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely	Not expected to occur. Treatment areas do not contain coastal canyon or sea bluff habitat suitable for colonial nesting of this species.
Burrowing owl *Athene cunicularia*	–	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Not expected to occur. Treatment areas do not contain grassland habitat and burrowing owls have not been detected within the treatment areas.
Golden eagle *Aquila chrysaetos*	–	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	May occur. Golden eagles may forage within the treatment areas; however, nesting habitat suitable for the species is not present.
Grasshopper sparrow *Ammodramus savannarum*	–	SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Not expected to occur. Treatment areas do not contain grassland habitat suitable for this species.
Least Bell's vireo *Vireo bellii pusillus*	FE	SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	Not expected to occur. Treatment areas do not contain riparian forest habitat and are not within the current range of least Bell's vireo does is not within the
Loggerhead shrike *Lanius ludovicianus*	–	SSC	Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	May occur. Treatment areas contain habitat potentially suitable for this species within brushy areas.
Long-eared owl *Asio otus*	–	SSC	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	May occur. Treatment areas contain habitat potentially suitable for this species within forested portions of the treatment areas.
Marbled murrelet *Brachyramphus marmoratus*	FT	SE	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	Not expected to occur. The nearest known marbled murrelet occurrence is approximately 8 miles southwest of the treatment areas within Henry Cowell Redwoods State Park (CNDDB 2020). Treatment areas are outside of the known range of this species and this species.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Northern harrier *Circus hudsonius*	–	SSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	May occur. Habitat potentially suitable for this species is present adjacent to the treatment areas near freshwater marsh or pond habitat.
Olive-sided flycatcher *Contopus cooperi*	–	SSC	Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir and lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes, or other open terrain.	May occur. Treatment areas contain habitat potentially suitable for olive-sided flycatcher in forest habitat and there are several recent observations of the species in the vicinity of the treatment areas (eBird 2020).
Purple martin *Progne subis*	–	SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	May occur. Treatment areas contain habitat potentially suitable for purple martin within large conifer trees.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	–	SSC	Resident of the San Francisco Bay region, in fresh and salt marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not expected to occur. Treatment areas do not contain marsh habitat.
Swainson's hawk *Buteo swainsoni*	–	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Not expected to occur. Treatment areas are outside of the known range of this species.
Tricolored blackbird *Agelaius tricolor*	–	ST SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Not expected to occur. Treatment areas do not contain nesting habitat adjacent to open water suitable for this species.
Vaux's swift *Chaetura vauxi*	–	SSC	Redwood, Douglas-fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	May occur. Treatment areas contain forest habitat potentially suitable for this species and there have been several recent observations of the species in the vicinity of the treatment areas (eBird 2020).

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Western snowy plover *Charadrius alexandrinus nivosus*	FT	SSC	Great Basin standing waters, sand shore, wetland. Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	Not expected to occur. Treatment areas do not contain wetland or beach habitat suitable for this species.
White-tailed kite *Elanus leucurus*	–	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	May occur. Treatment areas contain nesting habitat potentially suitable within woodlands and there have been several recent observations of the species in the vicinity of the treatment areas (eBird 2020).
Willow flycatcher *Empidonax traillii*	–	SE	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2,000-8,000 feet elevation Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.	Not expected to occur. Treatment areas do not contain riparian forest habitat suitable for this species.
Yellow rail *Coturnicops noveboracensis*	–	SSC	Summer resident in eastern Sierra Nevada in Mono County. Fresh-water marshlands.	Not expected to occur. Treatment areas do not contain marshland habitat suitable for this species.
Yellow warbler *Setophaga petechia*	–	SSC	Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Not expected to occur. Treatment areas do not contain riparian forest habitat suitable for this species.
Yellow-breasted chat *Icteria virens*	–	SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Not expected to occur. Treatment areas do not contain riparian forest habitat suitable for this species.
Fish				
Chinook salmon - Central Valley fall / late fall-run ESU *Oncorhynchus tshawytscha* pop. 13	–	SSC	Populations spawning in the Sacramento and San Joaquin rivers and their tributaries.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Coho salmon - central California coast ESU *Oncorhynchus kisutch* pop. 4	FE	SE	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Monterey roach *Lavinia symmetricus subditus*	–	SSC	Tributaries to Monterey Bay, specifically the Salinas, Pajaro, and San Lorenzo drainages.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Pacific lamprey *Entosphenus tridentatus*	–	SSC	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning with water temperatures between 12-18 degrees C. Ammocoetes need soft sand or mud.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Riffle sculpin *Cottus gulosus*	–	SSC	Found in headwater streams with cold water and rocky or gravelly substrate. They prefer permanent streams where the water does not exceed 25-26°C, and where ample flow keeps the dissolved oxygen level near saturation. Riffle sculpins may occupy riffles or pools, though they tend to favor areas that have adequate cover in the form of rocks, logs, or overhanging banks.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Sacramento hitch *Lavinia exilicauda exilicauda*	–	SSC	Inhabits warm, lowland, waters including clear streams, turbid sloughs, lakes, and reservoirs. In streams they are generally found in pools or runs among aquatic vegetation, although small individuals will also use riffles. Sacramento hitch prefer shallow stream habitats with smaller gravel to mud substrates.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
San Joaquin roach *Lavinia symmetricus* ssp. 1	–	SSC	Tributaries to the San Joaquin River from the Cosumnes River south.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Steelhead - central California coast DPS *Oncorhynchus mykiss irideus* pop. 8	FT	–	From Russian River, south to Soquel Creek and to, but not including Pajaro River. Also San Francisco and San Pablo Bay basins.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Tidewater goby *Eucyclogobius newberryi*	FE	SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.
Invertebrates				
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT	–	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *Orthocarpus purpurscens* are the secondary host plants.	Not expected to occur. Treatment areas do not contain serpentine soils and are outside of the known range of this species.
Black abalone *Haliotis cracherodii*	FE	–	Marine intertidal and splash zone communities. Mid to low rocky intertidal areas.	Not expected to occur. Treatment areas do not contain aquatic habitat suitable for this species.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	–	Restricted to the northern coastal scrub of the San Francisco peninsula. Hostplant is *Viola pedunculata*. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	Not expected to occur. Treatment areas are outside of the known range of this species.
Crotch bumble bee *Bombus crotchii*	–	–	Coastal California east to the Sierra-Cascade crest and south into Mexico. Preferred habitat is open grassland and scrub (Williams et al. 2014). Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia,* and *Eriogonum*.	Not expected to occur. There is one recent (2019) occurrence of crotch bumble bee in open grassland habitat in Santa Teresa County Park in San Jose, CA approximately 11 miles east of the treatment areas (CNDDB 2020). The treatment areas do not contain open grassland and scrub habitat suitable for this species. Treatment activities may, however, result in improved habitat conditions for this species by treating invasive plant infestations, restoring native vegetation, and creating openings in dense forest habitat that may promote the growth of native floral resources.
Monarch - California overwintering population *Danaus plexippus* pop. 1	–	–	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (Eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	Not expected to occur. Winter roost habitat for this species is largely limited to coastal areas, and there are no documented roosts in the vicinity of the treatment areas.
Mount Hermon (=barbate) June beetle *Polyphylla barbata*	FE	–	Interior dunes. Known only from Zayante sand hills in vicinity of Mt. Hermon, Santa Cruz County.	Not expected to occur. Treatment areas do not contain Zayante soils.
Ohlone tiger beetle *Cicindela ohlone*	FE	–	Coastal prairie. Remnant native grasslands with California oatgrass and purple needlegrass in Santa Cruz County. Substrate is poorly-drained clay or sandy clay soil over bedrock of Santa Cruz mudstone.	Not expected to occur. Treatment areas do not contain coastal prairie habitat.
Smith's blue butterfly *Euphilotes enoptes smithi*	FE	–	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. Hostplant: *Eriogonum latifolium* and *Eriogonum parvifolium* are utilized as both larval and adult foodplants.	Not expected to occur. Treatment areas do not contain coastal dune or coastal scrub habitat.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Western bumble bee *Bombus occidentalis*	–	SC	Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens.	Not expected to occur. Treatment areas are within the historic range of this species. However, western bumble bee has recently undergone a dramatic decline in abundance and distribution and is no longer present across much of its historic range. In California, western bumble bee populations are currently largely restricted to high elevation sites in the Sierra Nevada (Xerces Society 2018). It is unlikely that the range of western bumble bee would expand into the Santa Cruz Mountains region during the life of the project. Treatment activities may, however, result in improved habitat conditions for this species by treating invasive plant infestations, restoring native vegetation, and creating openings in dense forest habitat that may promote the growth of native floral resources.
Zayante band-winged grasshopper *Trimerotropis infantilis*	FE	–	Chaparral, interior dunes. Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem). Mostly on sand parkland habitat but also in areas with well-developed ground cover and in sparse chaparral with grass.	Not expected to occur. Treatment areas do not contain suitable Zayante Sand Hills habitat for this species.
Mammals				
American badger *Taxidea taxus*	–	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not expected to occur. Treatment areas do not contain grassland habitat and are not contiguous with other grassland habitat in surrounding areas.
Mountain lion Puma concolor	–	SC	Mountain lions inhabit a wide range of ecosystems, including mountainous regions, forests, deserts, and wetlands. Mountain lions establish and defend large territories and can travel large distances in search of prey or mates. The Central Coast and Southern California Evolutionarily Significant Units (ESUs) were granted emergency listing status in April of 2020, and CDFW is currently reviewing a petition to list these ESUs as threatened under CESA.	Known to occur. Mountain lions have been documented traversing through the treatment areas, and it is likely that the treatment areas comprise a portion of the home range for many individual lions (Midpen 2020, Yovovich et. al., 2020). Potential den habitat (e.g., caves, cavities, thickets) may be present within treatment areas.
Pallid bat *Antrozous pallidus*	–	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Known to occur. Pallid bats have been detected in the vicinity of the treatment areas during surveys conducted at Alma College (HT Harvey 2016). Habitat potentially suitable for pallid bat is present within large trees and rocky areas in treatment areas.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence[2]
Ringtail *Bassariscus astutus*	–	FP	Suitable habitat for ringtails consists of a mixture of forest and shrubland in close association with rocky areas or riparian habitats. Hollow trees, logs, snags, cavities in talus and other rocky areas, and other recesses are used for cover. Usually found within 0.6 mile of a permanent water source.	May occur. Habitat potentially suitable for ringtail is present within riparian areas and forested areas near streams and drainages in the treatment areas.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	–	SSC	Chaparral, redwood. Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	Known to occur. San Francisco dusky-footed woodrat nests have been observed in the Preserve, and habitat suitable for this species is present throughout forest and brushy areas within the treatment areas (HT Harvey 2006).
Southern sea otter *Enhydra lutris nereis*	FT	FP	Nearshore marine environments from about Ano Nuevo, San Mateo County to Point Sal, Santa Barbara County. Needs canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates.	Not expected to occur. Treatment areas do not contain marine habitat suitable for this species.
Townsend's big-eared bat *Corynorhinus townsendii*	–	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Known to occur. Townsend's big-eared bats have been detected in the vicinity of the treatment areas during surveys conducted at Alma College (HT Harvey 2016). Habitat potentially suitable for Townsend's big-eared bat is present within large trees and human-made structures (e.g., buildings, bridges) in the treatment areas.
Western red bat *Lasiurus blossevillii*	–	SSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	May occur. Western red bats have not been detected during previous surveys conducted in the vicinity of the treatment areas (HT Harvey 2016). Habitat potentially suitable for western red bat is present within trees in the treatment areas.

Notes: CNDDB = California Natural Diversity Database; CEQA = California Environmental Quality Act

1 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected)
FT Federally Listed as Threatened (legally protected)
FD Federally Delisted

State:

FP Fully protected (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
SE State Listed as Endangered (legally protected)
ST State Listed as Threatened (legally protected)
SC State Candidate for listing (legally protected)
SD State Delisted

2 Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present because of poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.
May occur: Suitable habitat is available; however, there are little to no other indicators that the species might be present.
Known to occur: Species has been documented within the treatment site.

Sources: Biosearch Environmental Consulting 2018; CNDDB 2020; eBird 2020; HT Harvey 2016; Williams et al. 2014; Xerces Society 2018

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