

# ***McMullen Creek Coho Stream Enhancement Project - Large Wood Implementation (Project ID: 1729968) 2023***

## **Introduction:**

The California Conservation Corps (Grantee) will implement the McMullen Creek Coho Stream Enhancement Project - Large Wood Implementation (Project) to improve instream habitat for salmonids in McMullen Creek. The Project is necessary because the lack of large wood (LW) in the stream channel has negatively affected the quality and quantity of salmonid habitat within McMullen Creek by reducing the amount of large channel forming features and limiting complex cover for salmonids.

The specific objective of this Project is to install 156 pieces of LW at approximately 50 feature locations within 4,900 feet (0.92 miles) of McMullen Creek. The goal is to address a lack of salmonid habitat complexity in McMullen Creek by installing features that will provide complex cover and velocity refugia, promote sinuosity and increase floodplain connectivity, increase size and frequency of pools, sort gravel, and enhance overall stream function. Installation of LW features aims to create habitat diversity, supporting salmonid resiliency to stressors associated with climate change, such as drought and high-intensity wildfire.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvements will follow techniques in the California Department of Fish and Wildlife (CDFW) *California Salmonid Stream Habitat Restoration Manual, Volume I, Part VII*, (<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

Does the project involve the construction of beaver analogs?

Yes  or No

Is the project located in a tidally influenced [California coastal zone](#)?

Yes  or No

## **Project Description:**

### **Location:**

The Project is located on McMullen Creek in the County of Mendocino, State of California. The McMullen Creek project reach starts 7.5 miles upstream from the confluence of the North Fork of the Noyo River and the Noyo River and extends from McMullen Creek's confluence with the Noyo River to a point 5,920 feet upstream at the wet crossing of Mendocino Redwood Company Road 70-B-012. The center point for the Project reach is

39.43477° north latitude, -123.45374° west longitude and is located on the Burbeck 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map.

### **Project Set Up:**

Grantee will move LW into place utilizing wire rope rigging techniques, grip hoists, and other hand tools. Grantee will also anchor and/or pin the features according to designs, conduct forest floor rehab, and install small wood as instructed.

Qualified subcontractors (to be determined) will conduct environmental compliance surveys, fell approved redwood and Douglas-fir trees at feature locations and perform aquatic species surveys and monitoring required for mitigation.

### **Materials:**

A total of 50 large wood features consisting of 156 logs and root-wads (LW). Trees left unanchored will be at least 1.5 times the average bankfull width per CDFW Stream Restoration Manual specifications for unanchored large wood.

One-inch diameter Threadbar, steel hex nuts and plates will be used for anchoring instream LW structures.

Epoxy: Used for securing cable to rock for LW/rock anchoring.

### **Tasks:**

#### **Task 1: Project Oversight, Monitoring, and Environmental Compliance**

Project oversight and administrative activities will be conducted by the Grantee, including but not limited to, acquiring permits, subcontracts, access agreements, invoicing, data collection, water quality monitoring and reporting. Qualified subcontractor will conduct a site assessment for aquatic species and conduct on-site monitoring during construction as needed. Qualified subcontractors will conduct archeological, botanical, and paleontological surveys within the Project reach.

#### **Task 2. Large Wood Acquisition**

Qualified subcontractor will fell flagged trees near project features as specified in CDFW approved conceptual designs, with oversight from Grantee. Trees and felling position will be selected to minimize impacts on stream canopy, bank stability, and effects on wildlife. Most trees will be felled away from the channel and later pulled into the channel with the larger diameter end of log in the water.

#### **Task 3: Final Design and Construction of Large Wood Features**

Final feature locations and designs will be prepared if stream channel conditions have changed, and applicable metrics will be collected. Trees will be selected with consideration for riparian canopy, wildlife value, and positioning once felled for efficient manipulation to feature locations. Trees will be marked and flagged in

preparation of felling operations. Prior to moving logs, felled trees will be cut to length according to feature specific work plans. Logs and root-wads will be moved into place and anchored, per design, to living trees and/or stumps along the stream banks. Logs will be moved by using grip-hoist and wire rope rigging techniques. The anchoring of LW will require holes to be drilled through both LW and anchor trees requiring the use of a generator to operate electric drills. 1-1/8" wood auger bits will be used to drill holes. 1" diameter Threadbar will be inserted through the logs and anchor trees, then secured with nuts and washers. Rock drill bits, epoxy, and cable will be utilized for wood to rock anchors.

Grantee will install 50 instream features consisting of 156 pieces of large wood will be installed within a 4,900-foot section of McMullen Creek following CDFW approved conceptual designs. Following feature installation, Grantee will complete site rehabilitation and erosion control.

#### **Task 4: Install Small Wood and Conduct Site Rehabilitation**

Available slash and small wood will be installed into features by grantee as applicable to provide immediate cover for salmonids present at time of construction. Small wood will consist of branches and tops of felled redwoods ranging from 3 to 11 inches in diameter. Small wood will also be installed at specific features to capture additional floating debris, increasing the volume of wood in the channel and the associated geomorphic effects. In accordance with 401 certification and CDFW Lake or Streambed Alteration Agreement, exposed dirt resulting from construction of features will be covered/mulched using on-site forest materials to prevent erosion and introduction of fine sediment into the stream channel.

#### **Deliverables:**

Construction of 50 large wood features with 156 pieces of large wood and additional small wood.

#### **Timelines:**

June 15 through October 31 of the years 2024, 2025, 2026 and 2027, Grantee will install large wood features within approved project reaches. Erosion control will be installed as project features are completed.

#### **Additional Requirements:**

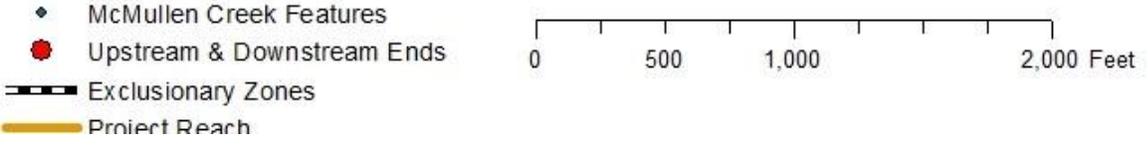
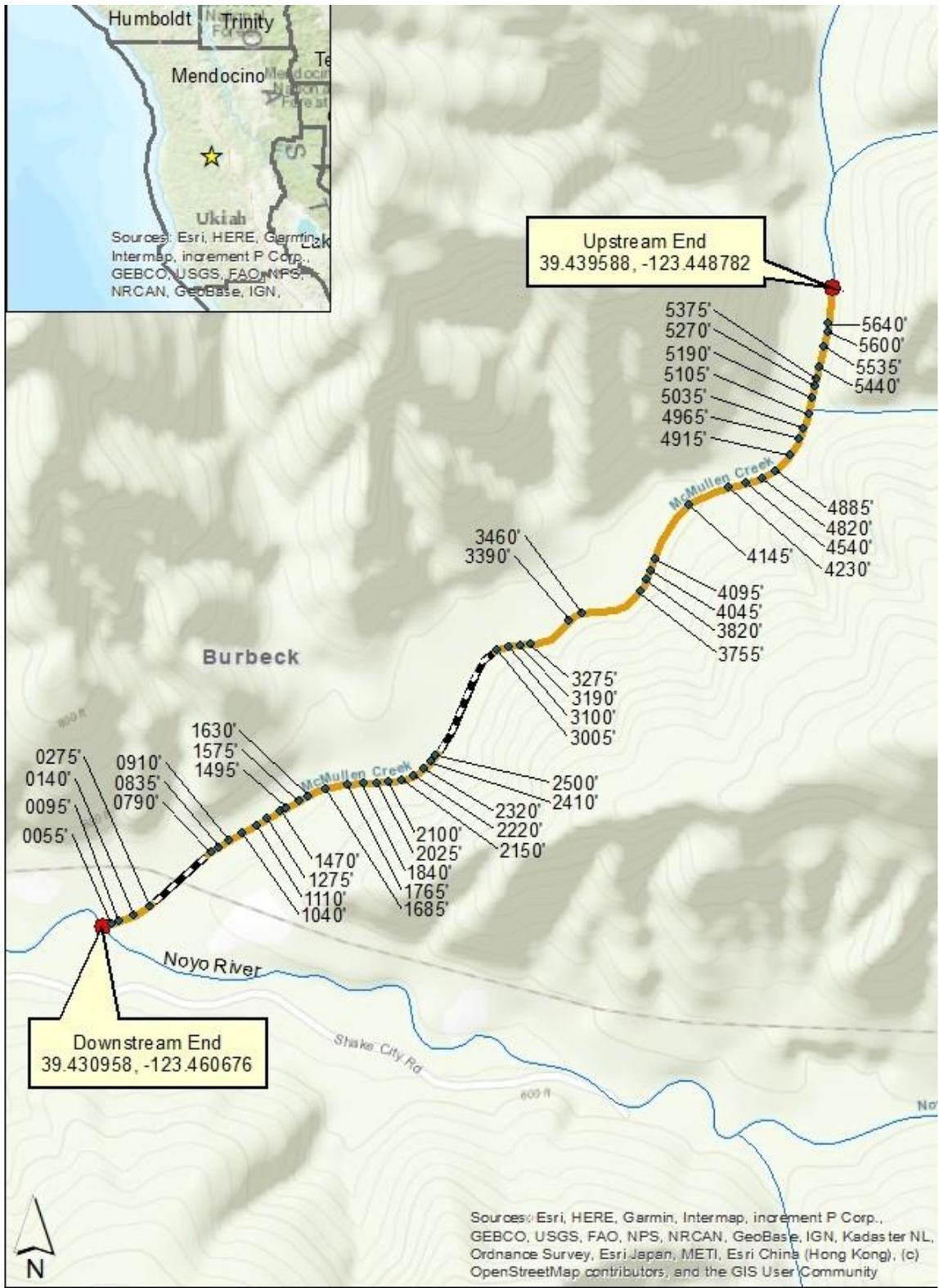
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the United States Army Corp of Engineers (USACE) Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the CDFW.

No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. All equipment will be removed from the streambed and flood plain areas at the end of each workday.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the CDFW Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

All habitat improvements will follow techniques described in the California Salmonids Stream Habitat Restoration Manual, Volume I and Volume II. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Personnel.



CDFW RAREFIND

**Query Summary:**

Quad IS (Burbeck (3912344) OR Northspur (3912345) OR Willits (3912343) OR Comptche (3912335) OR Greenough Ridge (3912334) OR Laughlin Range (3912333) OR Sherwood Peak (3912355) OR Longvale (3912354) OR Willis Ridge (3912353))

**CNDDDB Element Query Results**

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Accipiter gentilis	northern goshawk	Birds	ABNKC12060	433	1	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	North coast coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
Accipiter striatus	sharp-shinned hawk	Birds	ABNKC12020	22	1	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	1	None	Threatened	G1G2	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Alisma gramineum	grass alisma	Monocots	PMALI01010	14	3	None	None	G5	S3	2B.2	null	Marsh & swamp, Wetland
Arborimus pomo	Sonoma tree vole	Mammals	AMAFF23030	222	18	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
Ascaphus truei	Pacific tailed frog	Amphibians	AAABA01010	491	4	None	None	G4	S3S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Aquatic, Klamath/North coast flowing waters, Lower montane coniferous forest, North coast coniferous forest, Redwood, Riparian forest
Astragalus agnicidus	Humboldt County milk-vetch	Dicots	PDFAB0F080	69	23	None	Endangered	G2	S2	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, North coast coniferous forest
Atractelmis wawona	Wawona riffle beetle	Insects	IICOL58010	80	1	None	None	G3	S1S2	null	null	Aquatic
Blennosperma bakeri	Sonoma sunshine	Dicots	PDAST1A010	24	1	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Valley & foothill grassland, Vernal pool, Wetland
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	2	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null
Bombus occidentalis	western bumble bee	Insects	IIHYM24252	306	2	None	Candidate Endangered	G3	S1	null	IUCN_VU-Vulnerable, USFS_S-Sensitive	null
Brasenia schreberi	watershield	Dicots	PDCAB01010	43	2	None	None	G5	S3	2B.3	IUCN_LC-Least Concern	Marsh & swamp, Wetland
Coptis laciniata	Oregon goldthread	Dicots	PDRAN0A020	122	18	None	None	G4?	S3?	4.2	null	Meadow & seep, North coast coniferous forest, Wetland

Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	None	None	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1477	6	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Erythronium revolutum	coast fawn lily	Monocots	PMLIL0U0F0	172	4	None	None	G4G5	S3	2B.2	SB_UCSC-UC Santa Cruz	Bog & fen, Broadleaved upland forest, North coast coniferous forest, Wetland
Fritillaria roderickii	Roderick's fritillary	Monocots	PMLIL0V0M0	8	1	None	Endangered	G1Q	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Gilia capitata ssp. pacifica	Pacific gilia	Dicots	PDPLM040B6	91	1	None	None	G5T3	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Hesperocyparis pygmaea	pygmy cypress	Gymnosperms	PGCUP04032	37	1	None	None	G1	S1	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Closed-cone coniferous forest
Hesperolinon adenophyllum	glandular western flax	Dicots	PDLIN01010	48	5	None	None	G2G3	S2S3	1B.2	BLM_S-Sensitive	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Horkelia tenuiloba	thin-lobed horkelia	Dicots	PDROS0W0E0	27	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Valley & foothill grassland
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	101	1	None	None	G5	S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Lasiurus cinereus	hoary bat	Mammals	AMACC05032	238	1	None	None	G3G4	S4	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous

												forest, North coast coniferous forest
Limnanthes bakeri	Baker's meadowfoam	Dicots	PDLIM02020	21	11	None	Rare	G1	S1	1B.1	SB_UCBG-UC Botanical Garden at Berkeley, SB_USDA-US Dept of Agriculture	Freshwater marsh, Marsh & swamp, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Lupinus milo-bakeri	Milo Baker's lupine	Dicots	PDFAB2B4E0	11	1	None	Threatened	G1Q	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Cismontane woodland, Valley & foothill grassland
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Dicots	PDPLM0C0E1	64	7	None	None	G4T2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland, Lower montane coniferous forest, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Fish	AFCHA02034	23	1	Endangered	Endangered	G5T2Q	S2	null	AFS_EN-Endangered	Aquatic
Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	Fish	AFCHA0213P	10	1	Threatened	Endangered	G5T2Q	S2	null	AFS_TH-Threatened	Aquatic, Estuary, Klamath/North coast flowing waters
Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	Fish	AFCHA0213Q	96	8	Threatened	None	G5T3Q	S3	null	AFS_TH-Threatened	Aquatic, Estuary, Klamath/North coast flowing waters
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	4	None	None	G5	S2S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	North coast coniferous forest, Oldgrowth, Riparian forest
Piperia candida	white-flowered rein orchid	Monocots	PMORC1X050	222	29	None	None	G3?	S3	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Lower montane coniferous forest, North coast coniferous forest, Ultramafic
Pleuropogon hooverianus	North Coast semaphore grass	Monocots	PMPOA4Y070	27	8	None	Threatened	G2	S2	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Meadow & seep, North coast coniferous forest, Wetland
Potamogeton epihydrus	Nuttall's ribbon-leaved pondweed	Monocots	PMPOT03080	25	1	None	None	G5	S2S3	2B.2	IUCN_LC-Least Concern	Marsh & swamp, Wetland
Ramalina thrausta	angel's hair lichen	Lichens	NLLEC3S340	21	1	None	None	G5?	S2S3	2B.1	null	North coast coniferous forest
Rana aurora	northern red-legged frog	Amphibians	AAABH01021	292	3	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Klamath/North coast flowing waters, Riparian forest, Riparian woodland
Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	Amphibians	AAABH01051	1608	109	None	None	G3T4	S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, Klamath/North coast flowing waters, Riparian forest, Riparian scrub, Riparian woodland
Rhyacotriton variegatus	southern torrent salamander	Amphibians	AAAAJ01020	416	4	None	None	G3?	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth, Redwood, Riparian forest

Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	1	None	None	G5	S3	null	CDFW_SSC- Species of Special Concern, IUCN_LC- Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	PDMAL110E0	136	1	None	None	G3	S3	4.2	null	Broadleaved upland forest, Coastal prairie, Coastal scrub, North coast coniferous forest, Riparian forest
Silene bolanderi	Bolander's catchfly	Dicots	PDCAR0U2L0	30	5	None	None	G2	S2	1B.2	null	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadow & seep, North coast coniferous forest, Ultramafic
Taricha rivularis	red-bellied newt	Amphibians	AAAAF02020	136	23	None	None	G2	S2	null	CDFW_SSC- Species of Special Concern, IUCN_LC- Least Concern	Broadleaved upland forest, North coast coniferous forest, Redwood, Riparian forest, Riparian woodland
Taxidea taxus	American badger	Mammals	AMAJF04010	594	1	None	None	G5	S3	null	CDFW_SSC- Species of Special Concern, IUCN_LC- Least Concern	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, lone formation, Joshua tree woodland, Limestone, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub,

													Valley & foothill grassland
Trifolium buckwestiorum	Santa Cruz clover	Dicots	PDFAB402W0	64	2	None	None	G2	S2	1B.1	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, SB_UCSC-UC Santa Cruz, SB_USDA-US Dept of Agriculture		Broadleaved upland forest, Cismontane woodland, Coastal prairie
Trifolium hydrophilum	saline clover	Dicots	PDFAB400R5	56	1	None	None	G2	S2	1B.2	null		Marsh & swamp, Valley & foothill grassland, Vernal pool, Wetland
Valley Oak Woodland	Valley Oak Woodland	Woodland	CTT71130CA	91	1	None	None	G3	S2.1	null	null		Cismontane woodland