

Moody Creek Channel Reconfiguration and Complex Structure Design Project (Project ID: 1730061) 2023

Introduction:

The Trout Unlimited, Inc. (TU) (Grantee) will address a large debris accumulation (LDA) in Moody Creek and engineered designs will be completed for the 500' reach downstream of it. Conceptual designs will be developed for the 500' reach upstream of the LDA. Once implemented, instream structures will retain and sort sediment in the project reach, improving both spawning and rearing habitat, and the LDA will be passable by adult salmonids moving upstream.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Volume I Sections-III. Habitat Inventory Methods, IV. Fish Sampling Methods, V. Working With the Data, VII. Project Implementation, Volume II Sections IX. Fish Passage Evaluation at Stream Crossings, XI. Riparian Habitat Restoration, XII. Fish Passage Design and Implementation. <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:

Moody Creek is a tributary to Indian Creek, which is a tributary to the South Fork Eel River. The Eel River drains into the Pacific Ocean in Humboldt County and Moody Creek is located in Mendocino County, California. Moody Creek is a first order stream and has approximately 3 miles of blue line stream according to the USGS Garberville 7.5 minute quadrangle and another mile of available habitat in its tributaries. The project reach is centered 0.5 miles upstream of the confluence of Moody Creek and Indian Creek. Moody Creek drains a watershed of approximately 2.2 square miles. Project coordinates are: 39.95620 north latitude, -123.88026 west longitude.

Project Set Up:

Trout Unlimited (TU) will manage the project and lead coordination with stakeholders, grant administration, subcontract execution, meeting facilitation, invoicing, and reporting. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, the TU Project Manager will deliver the landowner access agreement, subcontracts, and assure all permits are finalized, as well as provide guidance on fisheries biology and large wood loading objectives. TU Staff will be involved in all the proposed tasks through the project term.

Pacific Watershed Associates (PWA) will be a subcontractor to TU. PWA will work closely with TU and Redwood Forest Foundation, Inc. (RFFI) to lead the completion of all tasks associated with collecting and evaluating the biological, geological, and geomorphological conditions that have the potential to inform project designs. These tasks will be completed by PWA's geology and fisheries staff and include but are not limited to: a level II habitat survey, snorkel surveys, a spawner survey, installation of temperature data collectors, evaluation of geologic conditions, subsurface investigations, assessment of relevant geomorphologic processes, and a detailed topographic survey. Additionally, PWA Senior Geologist will conduct and prepare a paleontological review and report, in accordance with CEQA requirements.

Redwood Forest Foundation, Inc. (RFFI) staff will review project designs, complete botanical resource surveys, complete accompanying reports, and subcontract to resource specialist to complete Northern Spotted Owl (NSO) surveys. Forest Conservation Specialist for RFFI, will conduct botanical resource surveys and prepare the accompanying reports, in accordance with CEQA requirements.

William Rich and Associates (WRA) will conduct cultural and archeological resource assessment surveys and develop a cultural resource report. Pursuant to CEQA, the Principal Investigator, Research Associate (Archaeology) will conduct archeological surveys/investigations throughout the project reach. Reports will be prepared to document potentially significant impacts on archaeological resources and describe subsequent avoidance/minimization measures as needed.

Materials:

Field surveying materials will be used to clearly outline the project area. Supplies to be purchased may include stakes, nails, and flagging. Temperature transducers will be employed throughout the project area.

PWA will use an auger and gouge core to characterize the subsurface geologic conditions within the project design reach during geological and geotechnical investigations.

Tasks:**Task 1: Geological and Geotechnical Investigations**

Subsurface geological conditions will be evaluated within the sediment wedge upstream of the barrier. This will be done to identify and characterize the conditions likely to be encountered as part of the barrier modification. PWA geologists will use an auger and gouge corer to probe the substrate and characterize the subsurface conditions.

Task 2: Biological and Habitat Assessment

The proposed characterization of the current fish distribution and habitat utilization at various age classes, along with existing habitat conditions within the basin, will be used to determine the severity of the LDA, identify limiting factors to salmonid production outside the LDA itself, and to quantify the potential benefits to fisheries recovery when the large wood is redistributed, and the LDA is modified to allow adult fish passage upstream.

Biological characterization surveys will include modified level II habitat inventories along 3.6 miles of stream including 0.5 miles below the barrier and up to 3.1 miles of stream with high intrinsic potential above the barrier. Within the same stream reaches the project team will conduct 2 snorkel surveys and a spawning survey as per CDFW protocols outlined in the California Salmonid Habitat Restoration Manual. Additionally, the project team will install two temperature sensors to document habitat conditions both above and below the log jam barrier.

Deliverables:

100% design plans, CEQA required reports and a final basis of design report.

Timelines:

Project will start April 2024 and extend through March 2027.

Additional Requirements:

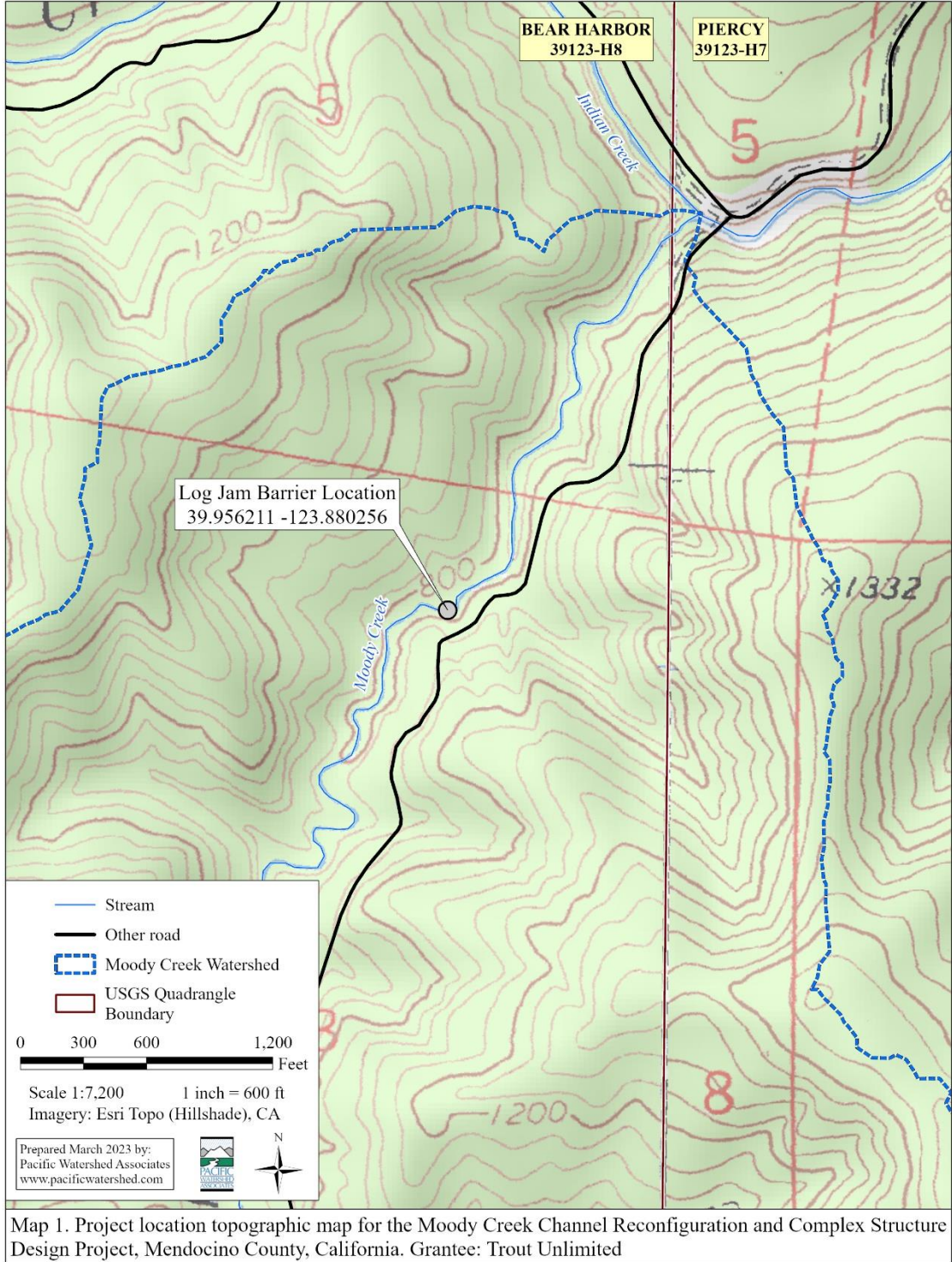
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the United States Army Corp of Engineers (USACE) Regional General Permit. Actual project start and end dates, within this timeframe, are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

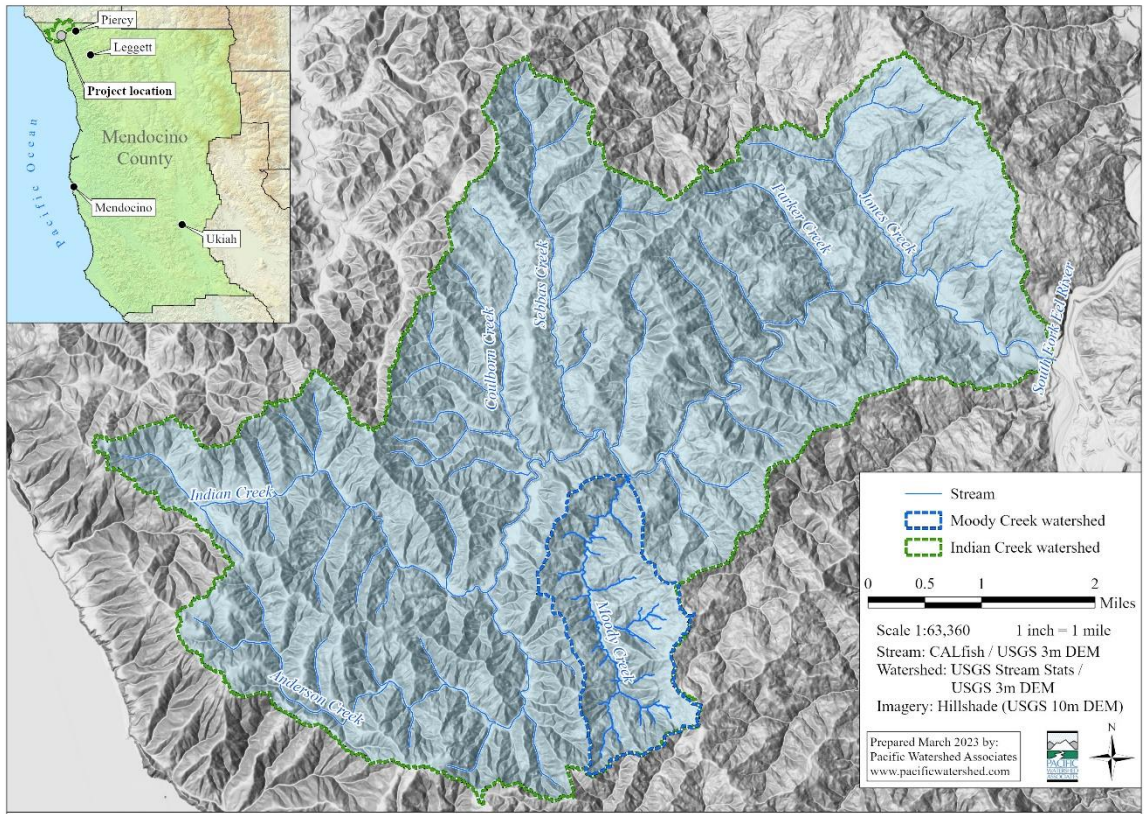
No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. 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.





Map 2. Watershed map for the Moody Creek Channel Reconfiguration and Complex Structure Design Project, Mendocino County, California.
 Grantee: Trout Unlimited

Document Path: P:\GIS\10611_Moody_Creek\10611_FRGP_Maps_29032023\10611_FRGP_Maps_29032023.aprx

CDFW RAREFINE

Query Summary:

Quad IS (Bear Harbor (3912388) OR Piercy (3912387) OR Noble Butte (3912386) OR Mistake Point (3912378) OR Hales Grove (3912377) OR Leggett (3912376) OR Briceland (4012318) OR Garberville (4012317) OR Harris (4012316))

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
<i>Accipiter cooperii</i>	Cooper's hawk	Birds	ABNKC12040	118	1	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest
<i>Accipiter gentilis</i>	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
<i>Anodonta californiensis</i>	California floater	Mollusks	IMBIV04220	6	1	None	None	G3Q	S2?	null	USFS_S-Sensitive	Aquatic
<i>Antrozous pallidus</i>	pallid bat	Mammals	AMACC10010	420	2	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
<i>Arabis mcdonaldiana</i>	McDonald's rockcress	Dicots	PDBRA06150	27	5	Endangered	Endangered	G3	S3	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Lower montane coniferous forest, Ultramafic, Upper montane coniferous forest
<i>Arborimus pomus</i>	Sonoma tree vole	Mammals	AMAFF23030	222	6	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
<i>Arctostaphylos stanfordiana</i> ssp. raichei	Raiche's manzanita	Dicots	PDERI041G2	13	2	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Chaparral, Lower montane coniferous forest, Ultramafic
<i>Ascaphus truei</i>	Pacific tailed frog	Amphibians	AAABA01010	491	10	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
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	Dicots	PDFAB0F080	69	7	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
<i>Bombus caliginosus</i>	obscure bumble bee	Insects	IIHYM24380	181	4	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null

Bombus occidentalis	western bumble bee	Insects	IIHYM24252	306	6	None	Candidate Endangered	G3	S1	null	IUCN_VU-Vulnerable, USFS_S-Sensitive	null
Calamagrostis foliosa	leafy reed grass	Monocots	PMPOA170C0	22	2	None	Rare	G3	S3	4.2	null	Coastal bluff scrub, North coast coniferous forest
Cardamine angulata	seaside bittercress	Dicots	PDBRA0K010	38	1	None	None	G4G5	S3	2B.1	null	Lower montane coniferous forest, North coast coniferous forest, Wetland
Carex arcta	northern clustered sedge	Monocots	PMCYP030X0	13	1	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen, North coast coniferous forest, Wetland
Castilleja litoralis	Oregon coast paintbrush	Dicots	PDSCR0D012	44	7	None	None	G3	S3	2B.2	null	Coastal bluff scrub, Coastal dunes, Coastal scrub
Castilleja mendocinensis	Mendocino Coast paintbrush	Dicots	PDSCR0D3N0	52	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz	Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	Dicots	PDRHA040D6	6	1	None	None	G3T1	S1	1B.1	null	Chaparral
Clarkia amoena ssp. whitneyi	Whitney's farewell-to-spring	Dicots	PDONA05025	8	1	None	None	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub, Coastal scrub
Coptis laciniata	Oregon goldthread	Dicots	PDRAN0A020	122	3	None	None	G4?	S3?	4.2	null	Meadow & seep, North coast coniferous forest, Wetland
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	3	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	3	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

Erethizon dorsatum	North American porcupine	Mammals	AMAFJ01010	523	5	None	None	G5	S3	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Closed-cone coniferous forest, Lower montane coniferous forest, North coast coniferous forest, Upper montane coniferous forest
Eriogonum kelloggii	Kellogg's buckwheat	Dicots	PDPGN083A0	7	7	None	Endangered	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Lower montane coniferous forest, Ultramafic
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
Eumetopias jubatus	Steller sea lion	Mammals	AMAJC03010	38	2	Delisted	None	G3	S2	null	IUCN_NT-Near Threatened, MMC_SSC-Species of Special Concern	Marine intertidal & splash zone communities, Protected deepwater coastal communities, Rock shore
Gentiana setigera	Mendocino gentian	Dicots	PDGEN060S0	11	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Lower montane coniferous forest, Meadow & seep, Ultramafic, Wetland
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
Horkelia marinensis	Point Reyes horkelia	Dicots	PDROS0W0B0	36	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCSC-UC Santa Cruz	Coastal dunes, Coastal prairie, Coastal scrub
Margaritifera falcata	western pearlshell	Mollusks	IMBIV27020	78	2	None	None	G4G5	S1S2	null	IUCN_NT-Near Threatened	Aquatic
Mitellastruca caulescens	leafy-stemmed mitrewort	Dicots	PDSAX0N020	21	2	None	None	G5	S4	4.2	null	Broadleaved upland forest, Lower montane coniferous forest, Meadow & seep, North coast coniferous forest
Montia howellii	Howell's montia	Dicots	PDPOR05070	123	2	None	None	G3G4	S2	2B.2	null	Meadow & seep, North coast coniferous forest, Vernal pool, Wetland
Myotis evotis	long-eared myotis	Mammals	AMACC01070	139	1	None	None	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern	null
Myotis thysanodes	fringed myotis	Mammals	AMACC01090	86	1	None	None	G4	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFS_S-Sensitive	null
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	265	1	None	None	G5	S4	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Lower montane coniferous forest, Riparian forest, Riparian woodland, Upper montane coniferous forest

Northern Interior Cypress Forest	Northern Interior Cypress Forest	Forest	CTT83220CA	22	1	None	None	G2	S2.2	null	null	Closed-cone coniferous forest
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Fish	AFCHA02032	10	3	Threatened	Threatened	G5T2Q	S2	null	AFS_TH-Threatened	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters
Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	Fish	AFCHA0213P	10	2	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	6	Threatened	None	G5T3Q	S3	null	AFS_TH-Threatened	Aquatic, Estuary, Klamath/North coast flowing waters
Pandion haliaetus	osprey	Birds	ABNKC01010	504	2	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	3	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	42	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
Rana aurora	northern red-legged frog	Amphibians	AAABH01021	292	2	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	43	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	14	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
Sedum eastwoodiae	Red Mountain stonecrop	Dicots	PDCRA0A0L1	6	6	None	None	G2	S2	1B.2	BLM_S-Sensitive	Lower montane coniferous forest, Ultramafic
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	PDMAL110E0	136	3	None	None	G3	S3	4.2	null	Broadleaved upland forest, Coastal prairie, Coastal scrub, North coast coniferous forest, Riparian forest
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Dicots	PDMAL110F9	60	2	None	None	G5T2	S2	1B.2	SB_UCSC-UC Santa Cruz	Coastal bluff scrub, Coastal prairie, North coast coniferous forest
Silene greenei ssp. angustifolia	Red Mountain catchfly	Dicots	PDCAR0U0A2	8	8	None	Endangered	G5T1	S1	1B.2	BLM_S-Sensitive	Chaparral, Lower montane coniferous forest, Ultramafic
Taricha rivularis	red-bellied newt	Amphibians	AAAAF02020	136	6	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
Thermopsis robusta	robust false lupine	Dicots	PDFAB3Z0D0	104	2	None	None	G2	S2	1B.2	SB_UCSC-UC Santa Cruz, USFS_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Ultramafic
Upland Douglas Fir Forest	Upland Douglas Fir Forest	Forest	CTT82420CA	15	2	None	None	G4	S3.1	null	null	North coast coniferous forest
Usnea longissima	Methuselah's beard lichen	Lichens	NLLEC5P420	206	16	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Oldgrowth, Redwood
Viburnum ellipticum	oval-leaved viburnum	Dicots	PDCPR07080	39	2	None	None	G4G5	S3?	2B.3	null	Chaparral, Cismontane woodland, Lower montane coniferous forest