

# ***Lindsay Creek Coho Barrier Removal Project (Project ID: 1727893) 2022***

## **Introduction:**

The objective of the project is to implement the 100% engineering designs completed per CDFW FRGP Grant # P1710519. Implementing the completed designs will remediate 2 barriers to salmonid passage, including coho salmon, by upgrading 2 separate culverted stream crossings, both located on a privately owned parcel; one on the Lindsay Creek mainstem and one on a tributary of Lindsay Creek (Crystal Creek).

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 2, Part XII (<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

## **Objective:**

The objective of this proposal is to implement the 100% engineering designs completed per CDFW FRGP Grant # P1710519. Implementing the completed designs will remediate 2 barriers to salmonid passage, including coho salmon, by upgrading 2 separate culverted stream crossings, both located on a privately owned parcel; one on the Lindsay Creek mainstem and one on a tributary of Lindsay Creek (Crystal Creek).

## **Project Description:**

### **Location:**

This project will include two stream crossings situated within a privately owned residential parcel in the upper watershed area of Lindsay Creek. These crossings are approximately 4 miles upstream from the confluence of Lindsay Creek and the Mad River. Project coordinates are: 40.9759640, -124.0370260.

## **Project Set Up:**

Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA) will provide all contracting oversight and administration including but not limited to obtaining permits; securing contracts (grantors, subcontractors, and landowner); project scheduling; invoicing; report preparation; as well as facilitating agency and landowner communications.

The Plant Ecologist performs botanical work. Tasks include performing a comprehensive floristic survey of the project site; inventorying and mapping any special status plants or sensitive natural communities found; photographing plants and habitats; conducting a wetland assessment; preparing a revegetation plan and an invasive species plan; and providing other supporting materials as needed for permit acquisition. The Plant Ecologist's time is split between the field and office.

The GIS Specialist will prepare special status plants and natural communities maps, wetland maps, and other maps needed for reporting and permitting. The GIS Specialist spends the majority of their time in the office but also assists on-site as needed.

PACIFIC WATERSHED ASSOCIATES, INC. (PWA), Personnel will support PCFWWRA with heavy equipment contractor selection, project implementation, construction supervision/management and will perform pre-, during, and post-construction water quality monitoring, lamprey species monitoring for ammocetes during and after dewatering, as-built topographic surveys for the stream crossing replacements and channel reconstruction/restoration activities, and a first winter observations summary and required post-construction flow testing within the range of the design flows. In addition, PWA will provide PCFWWRA with assistance in contract document development; technical engineering oversight of contractor activities during construction; evaluation and selection of construction materials; and preparation of annual and final report pursuant to FRGP contract deliverables.

Project Biologist, conducts water quality compliance monitoring before, during and after construction and dewatering; conducts pre-construction presence/absence survey for species of special concern, including foothill yellow-legged frogs (*Rana boylei*) and other amphibians; conducts removal/relocation during construction; conducts lamprey species capture and relocation for ammocetes emerging from fine sediments during and after dewatering; conduct's the First Winter Observations Summary; and performs post-construction surveys for flow testing within the range of the design flows. Provides weekly water quality monitoring results to the Grant Manager. Provides results from amphibian

survey and capture/relocation during construction, lamprey capture and relocation from the dewatering efforts, the first winter observation summary

report, and post-construction flow surveys for the final report. Collects and enters field data into electronic database(s) to include reporting to BIOS as necessary.

GIS/CAD Staff: Provides project support through development of GIS/CAD maps and products, database interfaces, and GPS data organization and analysis. Produces field maps in support of construction, monitoring and required final report maps.

ARCHEOLOGICAL CEQA SUBCONTRACTOR (William Rich and Associates): This subcontractor will be responsible for performing sensitive cultural resource surveys prior to construction.

WILDLIFE BIOLOGIST CEQA SUBCONTRACTOR (WBCS), a qualified biologist will be selected to perform spotted owl, willow flycatcher, &/or any other sensitive bird surveys, if necessary prior to construction.

HEAVY EQUIPMENT and LABOR CONTRACTOR, the heavy equipment and labor contractor will construct the project. Additionally, the heavy equipment contractor will maintain temporary fish barriers and flow diversion during construction. Personnel categories include: Excavator, Dozer, Loader, skip loader, Dump Truck, Water Truck and Compactor operators, and Laborers. The Heavy Equipment and Labor Contractor will only be considered for the project if they are a State licensed General Engineering Contractor with demonstrated successful experience on projects of a similar nature. The contractor will be determined through a rigorous selection process after the grant contract is signed.

Tribal Consultation (Blue Lake Rancheria /Wiyot Tribes), includes a Native American Heritage Commission search and communication with appropriate California Native American Tribes for identifying Areas of Concern. If interested Tribal representatives will review project information, attend a pre-project review meeting and site visits.

**Materials:**

Replacement Crossings: 10 foot diameter with step bevelled ends corrugated metal pipe and 60 ft long, 12 ft. wide bridge with concrete abutments.

Structural and Foundation Fill, Streambed Material, and Road Surfacing Rock. Rock rip rap – Rip rap will be used to anchor Large Woody Material, as RSP on the abutment slopes under the bridge, at the culvert inlet and outlet (if needed), and for creating streambed complexity within the newly installed culvert on Crystal Creek.

Erosion control materials – Includes straw mulch and seed, geo-textile fabric, wire, and other small hand tools and miscellaneous materials. Straw will be used

to provide interim erosion control of bare soils in areas of ground disturbance. Other materials will be used to construct silt fences and for other erosion control measures, as needed and as necessary to protect water quality.

Water quality sampling equipment rental and related materials – Includes the rental of hand-held water quality meters designed for field applications that conform to and utilize a USEPA-approved algorithm/method for the sample readings. Water quality monitoring is required to collect base-line data, monitor water quality during dewatering and pre-construction activities, to document water quality postconstruction and during re-watering of the construction site once natural flows are re-established, and to monitor water quality during habitat feature construction and all other in-water work. Required documentation of water quality parameter results will be recorded on the Daily Water Quality Sample Form as provided in the FRGP Guidelines. Rite-in-the-rain paper for the required daily water quality sampling form and pencils.

Water diversion materials – Includes flex pipe, rigid plastic pipe, water pumps and hoses (for water quality management), sandbags, sand, plastic sheeting, tape, wire, and other small hand tools and materials. Materials will be used to construct the water bypass diversion system that is necessary to protect water quality.

Small equipment rental – Includes chainsaw (for managing LWM), heavy-duty drill (Hole Hawg) with long bit for drilling through LWM structure logs prior to fastening, portable generator, and impact driver to cinch down the nuts and washers, and water trailer to manage dirty water at the site.

Revegetation Materials - Trees, shrubs, plants, seed, and mulch – These materials will be used as temporary and intermediate erosion control and to re-plant/revegetate the disturbed project areas to facilitate re-growth of the vegetation community proximal to the proposed project.

Survey gear rental and materials – A total station and/or auto-level and associated tools will be used to set and check grading boundaries for the proposed excavation and will also be used to establish baseline post construction geometries for physical monitoring of the project's performance. Stakes, spikes, paint, and flagging will be purchased as reference points and markers for grading extents.

Fuel – Gasoline and diesel fuel will be required to run the heavy equipment and to provide transportation to the project site.

Large woody material (LWM), anchoring hardware materials and equipment rental – Required to fasten and tie wood habitat structures together. The LWM material will be generated during preparation and clearing the site for treatment.

Fish management gear and rental – Electrofisher, dip-nets, fish screen, rebar, wire, and aerated fish tanks.

Flow monitoring and surveying rental – Pygmy and AA current meters, top-setting rod, 100 foot tape and clamps, rebar, stadia rod, clipboards, waders and wader boots, and data recording materials (digital tablet, clipboard, rite-in-the rain paper, pencils).

Field supplies – flagging, sharpies, pencils, pens, clip boards, t-stakes, tape measures, small equipment.

Log tongs - Will be used to place large wood in the newly excavated areas.  
Permit Application Fees, CNDDDB Query fees, GPS and GIS Computer.

## **Tasks**

### **Task 1: Geotechnical Analysis of Abutment**

Supporting Soils PWA will conduct a preliminary soils investigation to characterize in-situ soil engineering properties in support of the design of the Lindsay Creek bridge abutments using the Load and Resistance Factor Design (LRFD) methodology. A stand-alone preliminary soils investigation report will be developed and supplied to the bridge designer prior to their finalization of the abutment designs. The preliminary soils report will characterize subsurface soils, provide quantitative soils engineering properties identified through field investigations, and describe any soil conditions which would affect the design and/or layout of the proposed project. The report will include the locations and logs of any test borings/pits, laboratory results and analysis of soil conditions. The report will recommend areas or issues of concern which require additional engineering or geologic evaluation in addition to specifications for maximum allowable subgrade bearing pressures, recommendations for subgrade preparation, and seismic design parameters.

**Subsurface Characterization:** To support site characterization efforts a limited number of excavated test pits and/or hand-augured borings will be completed to characterize the in-situ subsurface soil conditions. For the purposes of this study, a minimum of 3 excavated test pits/borings will be excavated at strategic locations in coordination with the Project Engineer. This task will require excavation of test pits using a tracked hydraulic excavator.

**Evaluation of Soil Conditions:** PWA will collect soil samples during the subsurface investigation using either a 2- or 3- inch diameter core-barrel sampler (semi-undisturbed), if appropriate, or grab samples (disturbed) to be used for laboratory analysis. A field dynamic cone penetrometer will be driven at various

locations to evaluate penetration resistance, shear strength, and compressive strength of soils. Field penetrometer measurements to estimate shear strength and compressive strength will be used to supplement test pit sampling for fieldbased characterization of soils. Laboratory testing of selected samples will be conducted as necessary to identify soil material engineering properties such as grain size distribution, Atterberg Limits, and moisture density tests for compaction.

## **Task 2 Construction and Construction Oversight**

Construction Implementation: Heavy Equipment and Labor Contractor. All earthwork, erosion and sediment control, water pollution controls, stream dewatering, instream structure construction, and revegetation will conform to the 100% Design Submittal Plans and Special Provisions detailed in the Lindsay Creek Coho Barrier Removal Design Project. Any deviations from these Plans and Special Provisions MUST be first be obtained with written approval from the PWA Project Engineer and PCFWWRA prior to any deviations or changes being implemented. It is expected that removal of the existing culvert at Lindsay Creek, and construction of the proposed bridge and associated channel modifications, will take approximately two weeks. Removal of the existing culvert and installation of the proposed culvert and associated channel design at Crystal Creek is also expected to take approximately two weeks. Heavy equipment (e.g., excavator, bulldozer, dump truck(s)) and labor are required to complete these tasks and will require other materials including large woody debris, rock, plants, and erosion control materials. All project contractors and personnel will adhere to CDFW invasive species prevention and equipment decontamination protocols prior to arriving at the work site. When applicable, all heavy equipment, survey and field gear will abide by the protocols outlined by CDFW (see Supplementary Documents). Moreover, all mitigation measures described in the CDFW Regional General Permit will be followed and all other required permit provisions will be followed by the Contractor(s).

Oversight: PWA Project Manager, Project Engineer, and Technical Staff will coordinate to provide daily construction operations management and oversight to ensure timeliness, completion, and conformance with the plans and land management goals of the landowner and the project, and to resolve contractual issues. PWA Project Manager and Project Engineer will evaluate and select suitable salvaged backfill material for streambank construction, and ensure the materials are compacted to design standards. PWA Project Manager will notify PCFWWRA to order and schedule the delivery of required rock and materials. PWA Project Manager and Technical Staff will oversee materials stockpiling and

evaluate and maintain the effectiveness of erosion control efforts throughout construction. PWA will perform oversight during the implementation phase to oversee grading operations and large wood structure placement in the channel. During construction, PWA will check the constructed elevations of the bridge abutment bedding and bank slopes and be available to clarify the intent of the design plans, when necessary. PWA will also be available for fit-in-the-field of large wood structures and verification of buoyancy calculations, as needed. Construction Closeout: Punch list walkthrough: When the project is near substantial completion, PWA, PCFWWRA, the landowner, and general contractor will walk the site and identify any items needing modification or completion. A punch list will be generated identifying any unfinished work that remains to be completed. Final walkthrough: Following substantial completion, PWA, PCFWWRA, the landowner, and the general contractor will walk the site for the final inspection. Either a final listing of required corrective actions will be made to the contractor or project will be approved.

### **Deliverables**

Completed installation of the Lindsay Creek bridge, associated channel modifications and large wood structures, and of the culvert and associated channel modifications for Crystal Creek, Construction logs, meeting notes, punch list and final inspection outcome.

### **Timeline**

Geotechnical analysis from 6/13/2023 to 1/31/2024. Construction is from 9/1/2024 to 10/31/2025.

### **Additional Requirements:**

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

The Permittee shall notify the CDFW a minimum of five working days before the project site is dewatered and the stream flow diverted. The notification will provide a reasonable time for CDFW personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Permittee will implement the following measures to minimize harm and mortality to listed salmonids:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.

b. Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the California Salmonid Stream Habitat Restoration Manual.

c. The Permittee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW personnel and pursuant to conditions in the United State Army Corp of Engineers (USACE) Regional General Permit and National Marine Fisheries Service (NMFS) Biological Opinion.

d. All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

e. U.S. Fish and Wildlife Service (USFWS) Approved fisheries biologists will provide fish relocation data via the Permittee to the CDFW personnel on a form provided by CDFW.

Final structure design and placement will be determined by field consultation between the Permittee and the CDFW Personnel.

All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.



Map 1. Location Map for Lindsay Creek Coho Fish Passage Implementation Project, Humboldt County, California. (Arcata North 7.5' quadrangle). Grantee: Pacific Coast Fish, Wildlife and Wetlands Restoration Association.

CALIFORNIA DEPARTMENT OF  
**FISH and WILDLIFE** *RareFind*

**Query Summary:**

Quad IS (Arcata North (4012481) OR Tyee City (4012482) OR Blue Lake (4012388) OR Trinidad (4112412) OR Crannell (4112411) OR Panther Creek (4112318) OR Eureka (4012472) OR Arcata South (4012471) OR Korbelt (4012378))

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**CNDDB 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>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	Dicots	PDNYC010N4	61	15	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
<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>Acipenser medirostris</i> pop. 1	green sturgeon - southern DPS	Fish	AFCAA01031	14	1	Threatened	None	G2T1	S1	null	AFS_VU-Vulnerable, IUCN_NT-Near Threatened	Aquatic, Estuary, Marine bay, Sacramento/San Joaquin flowing waters
<i>Anodonta californiensis</i>	California floater	Mollusks	IMBIV04220	6	1	None	None	G3Q	S2?	null	USFS_S-Sensitive	Aquatic
<i>Aplodontia rufa humboldtiana</i>	Humboldt mountain beaver	Mammals	AMAF01017	28	17	None	None	G5TNR	SNR	null	null	Coastal scrub, Redwood, Riparian forest
<i>Arborimus albipes</i>	white-footed vole	Mammals	AMAFF23010	3	3	None	None	G3G4	S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	North coast coniferous forest, Redwood, Riparian forest
<i>Arborimus pomosus</i>	Sonoma tree vole	Mammals	AMAFF23030	222	22	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
<i>Ardea alba</i>	great egret	Birds	ABNGA04040	43	2	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
<i>Ardea herodias</i>	great blue heron	Birds	ABNGA04010	156	8	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
<i>Ascaphus truei</i>	Pacific tailed frog	Amphibians	AAABA01010	491	62	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 pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	Dicots	PDFAB0F7B2	24	1	None	None	G2T2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes, Coastal scrub, Marsh & swamp, Wetland
<i>Bombus caliginosus</i>	obscure bumble bee	Insects	IIHYM24380	181	10	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null
<i>Bombus crotchii</i>	Crotch bumble bee	Insects	IIHYM24480	437	1	None	None	G2	S1S2	null	null	null

Bombus occidentalis	western bumble bee	Insects	IIHYM24250	306	8	None	None	G2G3	S1	null	USFS_S-Sensitive	null
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	2	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen, North coast coniferous forest, Wetland
Carex lenticularis var. limnophila	lagoon sedge	Monocots	PMCYP037A7	4	1	None	None	G5T5	S1	2B.2	null	Bog & fen, Marsh & swamp, North coast coniferous forest
Carex leptalea	bristle-stalked sedge	Monocots	PMCYP037E0	8	4	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen, Freshwater marsh, Marsh & swamp, Meadow & seep, Wetland
Carex lyngbyei	Lyngbye's sedge	Monocots	PMCYP037Y0	37	17	None	None	G5	S3	2B.2	IUCN_LC-Least Concern	Marsh & swamp, Wetland
Carex praticola	northern meadow sedge	Monocots	PMCYP03B20	14	1	None	None	G5	S2	2B.2	null	Meadow & seep, Wetland
Carex viridula ssp. viridula	green yellow sedge	Monocots	PMCYP03EM5	8	1	None	None	G5T5	S2	2B.3	null	Bog & fen, Marsh & swamp, North coast coniferous forest, Wetland
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Dicots	PDSCR0D402	31	18	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp, Salt marsh, Wetland
Castilleja litoralis	Oregon coast paintbrush	Dicots	PDSCR0D012	44	9	None	None	G3	S3	2B.2	null	Coastal bluff scrub, Coastal dunes, Coastal scrub
Castilleja mendocinensis	Mendocino Coast paintbrush	Dicots	PDSCR0D3N0	52	1	None	None	G2	S2	1B.2	BLM_S-Sensitive	Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub
Cerorhinca monocerata	rhinoceros auklet	Birds	ABNNN11010	10	2	None	None	G5	S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	null
Charadrius montanus	mountain plover	Birds	ABNNB03100	90	2	None	None	G3	S2S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Chenopod scrub, Valley & foothill grassland
Charadrius nivosus nivosus	western snowy plover	Birds	ABNNB03031	138	6	Threatened	None	G3T3	S2	null	CDFW_SSC-Species of Special Concern, NABCI_RWL-Red Watch List	Great Basin standing waters, Sand shore, Wetland
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Dicots	PDSCR0J0C3	80	13	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp, Salt marsh, Wetland
Cicindela hirticollis gravida	sandy beach tiger beetle	Insects	IICOL02101	34	1	None	None	G5T2	S2	null	null	Coastal dunes
Circus hudsonius	northern harrier	Birds	ABNKC11011	54	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland
Collinsia corymbosa	round-headed Chinese-houses	Dicots	PDSCR0H060	13	1	None	None	G1	S1	1B.2	null	Coastal dunes
Coptis laciniata	Oregon goldthread	Dicots	PDRAN0A020	122	11	None	None	G4?	S3?	4.2	null	Meadow & seep, North coast coniferous forest, Wetland
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	2	None	None	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-	Broadleaved upland forest,

												Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	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
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	3	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep	
Discelium nudum	naked flag moss	Bryophytes	NBMUS2E010	2	1	None	None	G4G5	S1	2B.2	null	Coastal bluff scrub	
Egretta thula	snowy egret	Birds	ABNGA06030	20	2	None	None	G5	S4	null	IUCN_LC-Least Concern	Marsh & swamp, Meadow & seep, Riparian forest, Riparian woodland, Wetland	
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	184	3	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland	
Empetrum nigrum	black crowberry	Dicots	PDEMP03020	4	1	None	None	G5	S1?	2B.2	null	Coastal bluff scrub, Coastal prairie	
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1404	8	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	
Entosphenus tridentatus	Pacific lamprey	Fish	AFBAA02100	9	4	None	None	G4	S3	null	AFS_VU-Vulnerable, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters	
Erethizon dorsatum	North American porcupine	Mammals	AMAFJ01010	523	8	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
<i>Erysimum menziesii</i>	Menzies' wallflower	Dicots	PDBRA160R0	19	5	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes	
<i>Erythronium oregonum</i>	giant fawn lily	Monocots	PMLIL0U0C0	37	2	None	None	G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Ultramafic	
<i>Erythronium revolutum</i>	coast fawn lily	Monocots	PMLIL0U0F0	172	12	None	None	G4G5	S3	2B.2	null	Bog & fen, Broadleaved upland forest, North coast coniferous forest, Wetland	
<i>Eucyclogobius newberryi</i>	tidewater goby	Fish	AFCQN04010	127	8	Endangered	None	G3	S3	null	AFS_EN-Endangered, IUCN_VU-Vulnerable	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters	
<i>Eumetopias jubatus</i>	Steller sea lion	Mammals	AMAJC03010	38	5	Delisted	None	G3	S2	null	IUCN_EN-Endangered, MMC_SSC-Species of Special Concern	Marine intertidal & splash zone communities, Protected deepwater coastal communities, Rock shore	
<i>Falco peregrinus anatum</i>	American peregrine falcon	Birds	ABNKD06071	73	6	Delisted	Delisted	G4T4	S3S4	null	CDF_S-Sensitive, CDFW_FP-Fully Protected	null	
<i>Fissidens pauperculus</i>	minute pocket moss	Bryophytes	NBMUS2W0U0	22	3	None	None	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest, Redwood	
<i>Fratercula cirrhata</i>	tufted puffin	Birds	ABNNN12010	17	6	None	None	G5	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Protected deepwater coastal communities	
<i>Gilia capitata ssp. pacifica</i>	Pacific gilia	Dicots	PDPLM040B6	91	2	None	None	G5T3	S2	1B.2	null	Chaparral, Coastal bluff scrub, Coastal prairie, Valley & foothill grassland	
<i>Gilia millefoliata</i>	dark-eyed gilia	Dicots	PDPLM04130	54	13	None	None	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes	
<i>Haliaeetus leucocephalus</i>	bald eagle	Birds	ABNKC10010	332	3	Delisted	Endangered	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth	
<i>Hesperovax sparsiflora var. brevifolia</i>	short-leaved evax	Dicots	PDASTE5011	72	4	None	None	G4T3	S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal prairie	
<i>Hydrobates furcatus</i>	fork-tailed storm-petrel	Birds	ABNDC04010	8	5	None	None	G5	S1	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Protected deepwater coastal communities	
<i>Iliamna latibracteata</i>	California globe mallow	Dicots	PDMAL0K040	40	1	None	None	G2G3	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Lower montane coniferous forest, North coast coniferous forest, Riparian scrub	
<i>Juncus nevadensis var. inventus</i>	Sierra rush	Monocots	PMJUN011Z5	1	1	None	None	G5T3T4	S1	2B.2	null	Bog & fen, Wetland	
<i>Lampetra</i>	western brook	Fish	AFBAA02180	4	2	None	None	G4G5	S3S4	null	CDFW_SSC-	null	

richardsoni	lamprey											Species of Special Concern, USFS_S-Sensitive	
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	Dicots	PDA5T5L0C5	59	1	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal scrub	
<i>Lathyrus japonicus</i>	seaside pea	Dicots	PDFAB250C0	24	5	None	None	G5	S2	2B.1	IUCN_LC-Least Concern	Coastal dunes	
<i>Lathyrus palustris</i>	marsh pea	Dicots	PDFAB250P0	13	3	None	None	G5	S2	2B.2	null	Bog & fen, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland	
<i>Layia carnosa</i>	beach layia	Dicots	PDA5T5N010	25	7	Threatened	Endangered	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Coastal scrub	
<i>Lilium occidentale</i>	western lily	Monocots	PMLIL1A0G0	16	3	Endangered	Endangered	G1G2	S1	1B.1	SB_BerrySB-Berry Seed Bank	Bog & fen, Coastal bluff scrub, Coastal prairie, Coastal scrub, Freshwater marsh, Marsh & swamp, North coast coniferous forest, Wetland	
<i>Lycopodiella inundata</i>	inundated bog-clubmoss	Ferns	PPLYC03060	3	1	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen, Lower montane coniferous forest, Marsh & swamp, Wetland	
<i>Lycopodium clavatum</i>	running-pine	Ferns	PPLYC01080	120	76	None	None	G5	S3	4.1	null	Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland	
<i>Margaritifera falcata</i>	western pearlshell	Mollusks	IMBIV27020	78	1	None	None	G4G5	S1S2	null	null	Aquatic	
<i>Mitellastrum caulescens</i>	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	
<i>Monotropa uniflora</i>	ghost-pipe	Dicots	PDMON03030	115	2	None	None	G5	S2	2B.2	null	Broadleaved upland forest, North coast coniferous forest	
<i>Montia howellii</i>	Howell's montia	Dicots	PDPOR05070	123	9	None	None	G3G4	S2	2B.2	null	Meadow & seep, North coast coniferous forest, Vernal pool, Wetland	
<i>Myotis evotis</i>	long-eared myotis	Mammals	AMACC01070	139	2	None	None	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, WBWG_M-Medium Priority	null	
<i>Nannopterum auritum</i>	double-crested cormorant	Birds	ABNFD01020	39	5	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland	
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	CTT52110CA	53	7	None	None	G3	S3.2	null	null	Marsh & swamp, Wetland	
Northern Foredune Grassland	Northern Foredune Grassland	Dune	CTT21211CA	1	1	None	None	G1	S1.1	null	null	Coastal dunes	
<i>Nycticorax nycticorax</i>	black-crowned night heron	Birds	ABNGA11010	37	5	None	None	G5	S4	null	IUCN_LC-Least Concern	Marsh & swamp, Riparian forest, Riparian woodland, Wetland	
<i>Oenothera wolfii</i>	Wolf's evening-	Dicots	PDONA0C1K0	29	4	None	None	G2	S1	1B.1	SB_BerrySB-Berry Seed Bank	Coastal bluff scrub, Coastal	

	primrose													dunes, Coastal prairie
Oncorhynchus clarkii clarkii	coast cutthroat trout	Fish	AFCHA0208A	45	23	None	None	G5T4	S3	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, Klamath/North coast flowing waters		
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Fish	AFCHA02032	10	5	Threatened	Threatened	G5T2Q	S2	null	AFS_TH-Threatened	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters		
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	AFCHA0209Q	12	3	Threatened	None	G5T2T3Q	S2S3	null	AFS_TH-Threatened	Aquatic, Klamath/North coast flowing waters		
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	Fish	AFCHA0213B	20	1	None	Candidate Endangered	G5T4Q	S2	null	CDFW_SSC-Species of Special Concern	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters		
Packera bolanderi var. bolanderi	seacoast ragwort	Dicots	PDAST8H0H1	72	1	None	None	G4T4	S2S3	2B.2	null	Coastal scrub, North coast coniferous forest		
Pandion haliaetus	osprey	Birds	ABNKC01010	504	37	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest		
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	10	None	None	G5	S2S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	North coast coniferous forest, Oldgrowth, Riparian forest		
Piperia candida	white-flowered rein orchid	Monocots	PMORC1X050	222	1	None	None	G3?	S3	1B.2	null	Broadleaved upland forest, Lower montane coniferous forest, North coast coniferous forest, Ultramafic		
Plethodon elongatus	Del Norte salamander	Amphibians	AAAAD12050	151	10	None	None	G4	S3	null	CDFW_WL-Watch List, IUCN_NT-Near Threatened	Oldgrowth		
Polemonium carneum	Oregon polemonium	Dicots	PDPLM0E050	16	1	None	None	G3G4	S2	2B.2	null	Coastal prairie, Coastal scrub, Lower montane coniferous forest		
Rallus obsoletus obsoletus	California Ridgway's rail	Birds	ABNME05011	99	2	Endangered	Endangered	G3T1	S1	null	CDFW_FP-Fully Protected, NABCI_RWL-Red Watch List	Brackish marsh, Marsh & swamp, Salt marsh, Wetland		
Rana aurora	northern red-legged frog	Amphibians	AAABH01021	292	78	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	foothill yellow-legged frog	Amphibians	AAABH01050	2478	31	None	Endangered	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFS_S-Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters		
Rhyacotriton variegatus	southern torrent salamander	Amphibians	AAAAJ01020	416	92	None	None	G3G4	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth, Redwood, Riparian forest		
Riparia riparia	bank swallow	Birds	ABPAU08010	298	6	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least	Riparian scrub, Riparian		

											Concern	woodland
Romanzoffia tracyi	Tracy's romanzoffia	Dicots	PDHYD0E030	9	5	None	None	G4	S2	2B.3	null	Coastal bluff scrub, Coastal scrub
Scaphinotus behrensi	Behrens' snail-eating beetle	Insects	IICOL4L070	4	1	None	None	G2G4	S2S4	null	null	North coast coniferous forest
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	PDMAL110E0	136	24	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	7	None	None	G5T2	S2	1B.2	null	Coastal bluff scrub, Coastal prairie, North coast coniferous forest
Sidalcea oregana ssp. eximia	coast checkerbloom	Dicots	PDMAL110K9	19	2	None	None	G5T1	S1	1B.2	null	Lower montane coniferous forest, Meadow & seep, North coast coniferous forest, Wetland
Silene scouleri ssp. scouleri	Scouler's catchfly	Dicots	PDCAR0U1MC	23	2	None	None	G5T4T5	S2S3	2B.2	null	Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Sitka Spruce Forest	Sitka Spruce Forest	Forest	CTT82110CA	4	1	None	None	G1	S1.1	null	null	null
Spergularia canadensis var. occidentalis	western sand-spurrey	Dicots	PDCAR0W032	4	4	None	None	G5T4	S1	2B.1	null	Marsh & swamp, Wetland
Sphagnum Bog	Sphagnum Bog	Marsh	CTT51110CA	12	1	None	None	G3	S1.2	null	null	Bog & fen, Wetland
Spirinchus thaleichthys	longfin smelt	Fish	AFCHB03010	46	5	Candidate	Threatened	G5	S1	null	null	Aquatic, Estuary
Sulcaria spiralifera	twisted horsehair lichen	Lichens	NLT0042560	18	6	None	None	G3G4	S2	1B.2	BLM_S-Sensitive	Coastal dunes, North coast coniferous forest
Thaleichthys pacificus	eulachon	Fish	AFCHB04010	10	2	Threatened	None	G5	S2	null	null	Aquatic, Klamath/North coast flowing waters
Trichodon cylindricus	cylindrical trichodon	Bryophytes	NBMUS7N020	14	2	None	None	G4G5	S2	2B.2	null	Broadleaved upland forest, Meadow & seep, Upper montane coniferous forest
Usnea longissima	Methuselah's beard lichen	Lichens	NLLEC5P420	206	2	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Oldgrowth, Redwood
Viola palustris	alpine marsh violet	Dicots	PDVIO041G0	10	3	None	None	G5	S1S2	2B.2	null	Bog & fen, Coastal scrub, Wetland