

Tip Top Ridge Creek (formerly known as Squaw Creek) Coho Habitat Improvement Design Project ***(Project ID: 1728143) 2022***

Introduction:

The Pacific Coast Fish, Wildlife and Wetlands Restoration Association will implement the Tip Top Ridge Creek (formerly known as Squaw Creek) Coho Habitat Improvement Design Project. The project will design plans that will benefit rearing and spawning habitat through placement of LWM features, improve water quality and quantity by increasing the areal extent of off-channel high flow refugia and provide access to relatively clear clean water during high flow events when the mainstem is impaired by sediment.

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*.

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

Objectives:

The goal of the project is to build on the previously FRGP funded Squaw Creek Coho Habitat Improvement Project (#P1710518), which characterized the site and documented the risks and potential impacts associated with the different design options developed in coordination with CDFW and the landowner(s). This proposed expanded and updated habitat design project will address the concerns verbally identified by the CDFW CEG in addition to improving upon the previous design by creating a 2D model design that improves instream rearing and spawning habitat, channel complexity and sinuosity, accessibility to existing off-channel floodplain rearing habitat, and high flow refugia for juvenile salmonids in the proposed design area of Tip Top Ridge Creek. The goal of the project is to develop 100% designs that will lead directly to an FRGP habitat improvement (HI) implementation project.

Project Description:

Location:

This project is located in the Tip Top Ridge Creek (formerly known as Squaw Creek) watershed. The proposed segment is just downstream of the Fieldbrook Road bridge crossing on Tip Top Ridge Creek and 1 mile upstream from the Lindsay Creek confluence. See attached project location map.. Project coordinates are: 40.93935599999997 North, 124.02404900000001 West.

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, and report preparation, as well as facilitating agency, tribal and landowner communications.

Plant Ecologist: The Plant Ecologist performs botanical work. Tasks include conducting a jurisdictional wetland delineation; preparing a revegetation plan and an invasive plants management plan; and providing other supporting materials as needed for permit acquisition. The Plant Ecologist's time is split between the field and office.

GIS Specialist: The GIS Specialist performs GIS work. Tasks include supporting field collection of botanical data and analyzing geospatial data. The GIS Specialist will prepare wetland maps and other maps needed for reporting and permitting.

ENGINEERING AND GEOLOGIC SUBCONTRACTOR (PWA field assessment and 100% design plan development):

PWA Personnel Categories:

Principal Scientist: Principal Geologist provides technical expertise in developing design options, geologic and geomorphic investigations, and draft and final work plan review, report editing, and guidance for project scientists and engineer.

Senior Civil Engineer: Lead scientist for conducting site characterization, consideration of design options for the channel, hydrologic and hydraulic analyses, development of a grading plan to reconstruct the channel bed and banks and stabilize disturbed soils, design of in-stream structures for geomorphic and habitat purposes, development of a comprehensive erosion control and revegetation plan, and development of an engineering cost estimate that includes all plans and specifications for construction of the project. The Senior Engineer will stamp the final 100% design with their professional seal.

Engineering Geologist: The Engineering Geologist is in overall responsible charge of geologic, geomorphic and geotechnical characterization (surface and subsurface). Provides input on soil engineering properties and complex geological issues.

Associate Engineer/Project Manager: In charge of project management as it relates to staffing needs, communication and technical oversight needed to complete each engineering task. Shares project management duties with Associate Geologist. Ensures compliance with Professional Engineers Act (California Business and Professions Code 7800).

Staff Engineer: Supports the Senior and Associate Engineer with the topographic survey, hydrologic and hydraulic analyses, development of a grading plan, development of design plans for in-stream structures for geomorphic and habitat purposes, and developing a cost estimate that includes all plans and specifications for construction of the project.

Associate Geologist/Project Manager: The Professional Geologist is the primary scientist to conduct the geologic and geomorphic characterization (surface and subsurface) and well installations. The Associate Scientist will be responsible for assisting the Project Team with the assessment of existing conditions, geomorphic mapping, risk analysis, the examination of riparian conditions, and analog side channel and floodplain connectivity. Provides input on complex geological issues and ensures compliance with Geologist and Geophysicist Act (California Business and Professions Code 7800).

NR Specialist (Biologist): Biologist will oversee conducting a biological assessment and detailed evaluation of the current riparian and existing instream habitat and attending TAC meetings. The PWA Biologist will address predatory species and concerns, if any, as well as fish population, habitat utilization, and fish and lamprey distribution. They will also play a role in determining reach-specific project treatment alternatives, goals and developing feature-specific design elements.

FORESTRY SUBCONTRACTOR (Pacific Forest Trust/BBW and Associates, Riparian timber assessment): Consulting Registered Professional Forester (RPF) will conduct a riparian assessment to evaluate trees for potential use in in-stream habitat structures and for other geomorphic and channel development purposes. Trees selected as suitable for use in the project will be identified by the RPF and will be located on the plans during the ground surveys.

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

TRIBAL INFORMAL CONSULTATION and COLLABORATION (Blue Lake Rancheria /Wiyot Tribes): This subcontractor will be providing input on Tribal cultural perspective and concerns throughout the project. The proposal development for this project has included a Native American Heritage Commission search and communication with appropriate California Native American Tribes for identifying Areas of Concern. This proposal includes an appropriate Budget Line Item to facilitate full participation by the Wiyot Tribe and Blue Lake Rancheria's designated personnel as members of the project's Design Review Team. The funding will be provided for designated tribal representatives to attend all Design Review Team meetings, including time to review project information as the design is developed and to provide project site visits as needed.

Materials:

Field materials - notebooks, maps, flagging, electronic tablets, GPS devices, work trucks, first aid kits, construction materials for stream gaging station, waders, cameras, batteries.

Survey materials - Total station, hip chain, laser distance measurer, cloth tape, brushing tools, drone for photogrammetric surveying.

Hydrologic assessment gear - current meter, pressure transducers, ambient pressure gage, staff plate.

Biological survey gear rental - includes the rental of waders and wading boots for conducting cold weather flow surveys and water quality sampling; water quality meters, 100' tape measure, stadia rod, the rental of dry suit, mask and snorkel, minnow traps for conducting biological surveys and rite-in-the-rain paper for recording data and making field note on observations.

Tasks:

Task 1.2 Assemble and Coordinate TAC

PCFWWRA, along with PWA, will assemble and coordinate a Technical Advisory Committee (TAC) composed of the landowners and local tribal representatives, experienced technical staff from several state and federal agencies, as well as other relevant advisors. It is anticipated that staff from CDFW, NOAA, among others, will be considered for inclusion on the TAC. The purpose of the TAC will be to guide the design process through technical review of the

proposed design elements at four (4) meetings, including 1) project scoping (meet at the project area), 2) 30% conceptual design, 3) 65% design review, and 4) 90% + 100% design review and comment stages.

Task 1.3 Project Scoping Meeting

A project meeting will be held with PCFWWRA, PWA, and the TAC. This meeting will occur after completion of the project geomorphic assessments, biological habitat conditions assessment, and topographic surveys. This on-site meeting is designed to help identify project objectives and constraints, discuss different potential design options to be considered, and agree on the approach that should be used in developing the 30% design.

Task 2 Existing Site Characterizations

Building upon existing data already collected and analyses completed, this task will be conducted to further characterize the current fluvial geomorphic, habitat suitability, large woody material (LWM) conditions, and floodplain connectivity within the approximate 1,300 feet or 0.25 miles of the existing surveyed project area to include an additional approximate 500 feet extending upstream (Please refer to: Existing Conditions Map), for a total 1,800 feet of the survey stream length for characterizing potential impacts from the project designs. These data will further inform the design team of any upstream constraints that could guide project designs intended to address the primary limiting factors affecting summer and winter rearing habitats, and the nearly absent in-channel LWM. Existing in-set floodplains will be identified, and stream/bank stability conditions will be evaluated. This will ultimately provide the project team with the information needed to make qualitative assessments for the existing site-specific project designs, and if modifications or improvements are warranted, to best address the limiting factors affecting fisheries recovery within Tip Top Ridge Creek. Through quantitatively documenting existing conditions upstream from the project design area, this additional baseline data can also be used to compare and evaluate future post-implementation endeavors with respect to performance and responses in the stream channel and in the target species.

Task 2.1 Topographic Survey and Geomorphic Mapping

A topographic survey covering the 500 feet extended upstream from the original surveyed area will be conducted which may utilize both LiDAR data (if available) and traditional total station surveying methods. The survey will capture topography of the ground within, and in the immediate vicinity adjacent to, the channel and floodplain of Tip Top Ridge Creek within the areas upstream from the project design area and bridge stie. The survey will collect topographic points following several break-lines including the edges of the riparian corridor, the top and toe of bank, channel thalweg, any inset floodplains, and will include identification of stream morphology channel characteristics as well as adjacent floodplain and terrace surface characterization. Additionally, cross sections will be surveyed at key hydraulic controls, and the streambed and banks will be qualitatively assessed for aggradation potential and alluvium thickness with qualitative assessments of streambank and floodplain stability.

Established control points will be used for extending the survey area upstream by approximately 500 feet, to tie in this upstream area with the existing surveyed project area. The topographic survey data will be processed into a base map with 1-ft contours using AutoCAD Civil 3D.

During the surveying task, field mapping will be used to characterize existing fluvial geomorphic conditions to include the extended survey area and additional morphological details within the project design area (1,820 feet in total length). This will include a quantitative assessment of bed material gradation through pebble counts, a qualitative assessment of streambank and floodplain stability, assessment of sediment transport, and photo

documentation of any reference cross sections used for roughness and bankfull measurements.

Task 2.2 Hydrologic and Hydraulic Analysis

Streamflows in Tip Top Ridge Creek have not been gaged. Therefore, indirect methods have been employed to estimate both peak flows and daily average exceedance flows to include existing ground water well data. These data will be used to calibrate the 2-D hydraulic model for the entire survey area (1,820 feet) and to estimate flows associated with the 2-, 5-, 10-, 25-, 50-, and 100-year return periods using the USGS Regional Regression Equations for the North Coast. In addition, for comparative analysis, we will be using peak flows from nearby Little River USGS stream gaging station #11481200 scaled to drainage area and statistically analyzed using methods outlined in USGS Bulletin 17B. A regional flow duration curve will be developed and used to estimate daily average exceedance flows. Hydraulic and/or inundation will be completed using a 2D HEC-RAS model, or compatible modeling software. This analysis will help guide the design process and determine preferable design alternatives.

Task 2.3 Assessment of Existing Habitat Conditions

A late summer habitat assessment of Tip Top Ridge Creek will be conducted, along the entire survey length for approximately 1,800 feet. This assessment will be conducted to document current fish habitat conditions and key LWM within bankfull width. The habitat data will be used to evaluate fish habitat suitability with respect to primary pool frequency, pool shelter values, LWM density and distribution, substrate composition, and habitat type ratios for stream process and productivity potential. Fish habitat suitability, to include identified limiting factors, will be correlated with the topographic and geomorphic surveys (Task 2.1) to guide the project design. These surveys will follow the protocols as described in the California Salmonid Stream Habitat Restoration Manual for Level II Habitat Typing Methods (CDFW 2017).

Task 2.4 Biological Surveys

Following the habitat assessment, the data will be analyzed for habitat suitability for juvenile coho (the target species) for winter rearing and summer holding to include, but not limited to, existing channel habitat features providing pool depths, and cover elements to include any LWM or other cover features that may be present.

Task 2.5 - Wetland Assessment, Invasive Plants Management and Revegetation Plan

PCFWWRA plant ecologist will perform a jurisdictional wetland delineation based on hydrology, vegetation and soils, following ACOE protocol (Environmental Laboratory 1987). All wetlands found will be mapped, and ACOE wetland determination forms will be completed. These data will be used for the ACOE 404 Permit and SWRCB 401 Certification and will be needed for future CEQA implementation permitting compliance.

Task 2.6 - Cultural Resource and Paleontological Surveys

A cultural resource investigation is required to comply with the California Environmental Quality Act and its guidelines (Title 14 CCR 15000 et seq.). This will be accomplished by identifying and recording significant cultural resources within the project area, assessing the potential impacts to cultural resources resulting from the implementation of possible side channel construction and habitat enhancement activities at the project site, and offering recommendations designed to protect resource integrity, as warranted. This work will include the completion of a records search, field survey, and project-specific report. The Archaeologist from WRA will perform the archaeological work for this project. A paleontological records search and report will also be compiled by the PWA Senior Geologist.

Task 2.7-Geological and Geotechnical Investigations

PWA Engineering Geologist will provide focused geological and geotechnical investigations sufficient to characterize project area geomorphology and engineering properties of site soils and will inform the design engineer in design alternative analysis process. Since subsurface test pits have already been completed, this analysis will focus on bolstering the analysis based on existing information.

A preliminary memorandum of findings will be prepared, containing the methods of investigation and analyses, findings, and design recommendations resulting from geological and geotechnical investigations. The memorandum will include:

geomorphic mapping, soil and sediment boring logs, stratified textural classifications of soils using the Unified Soil Classification System, location and descriptions of all bedrock encountered, properties of native and constructed streambank materials relevant to the selected and preferred design features, evaluation of materials for suitability for structural and general backfill, evaluation of materials for suitability in streambank construction, recommendations for the placement and permanent stabilization of disturbed and stockpiled earthen materials, assessment of potential impacts from sediment supply on the project

The preliminary geological and geotechnical memorandum will be provided to the grant manager, landowner, and design engineer in physical and digital formats.

Deliverables:

Digging of minor test pits for subsurface stratigraphy and ground water elevation monitoring at additional locations within the project area if requested by CDFW's Engineering Geologist on the Design Review Team.

Topographic basemap, geomorphic map, existing conditions 2D Hydraulic model used to inform Final Design (100% Submittal)

Final (100%) Design Report and PS&E package in electronic PDF format and two (2) hardcopies. Signed and stamped construction plans shall be provided at half size (11" x 17"), as desired by CDFW.

Timelines:

Task 2.1 Topographic Survey and Geomorphic Mapping
06/01/2023 to 09/30/2024

Task 2.2 Hydrologic and Hydraulic Analysis
06/01/2023 to 11/30/2024

Assessment of Existing Habitat Conditions including Biological, Cultural Resource, and Paleontological Surveys
06/01/2023 to 09/30/2024

Final Design (100% Submittal)
01/01/2026 to 02/21/2026

Additional Requirements:

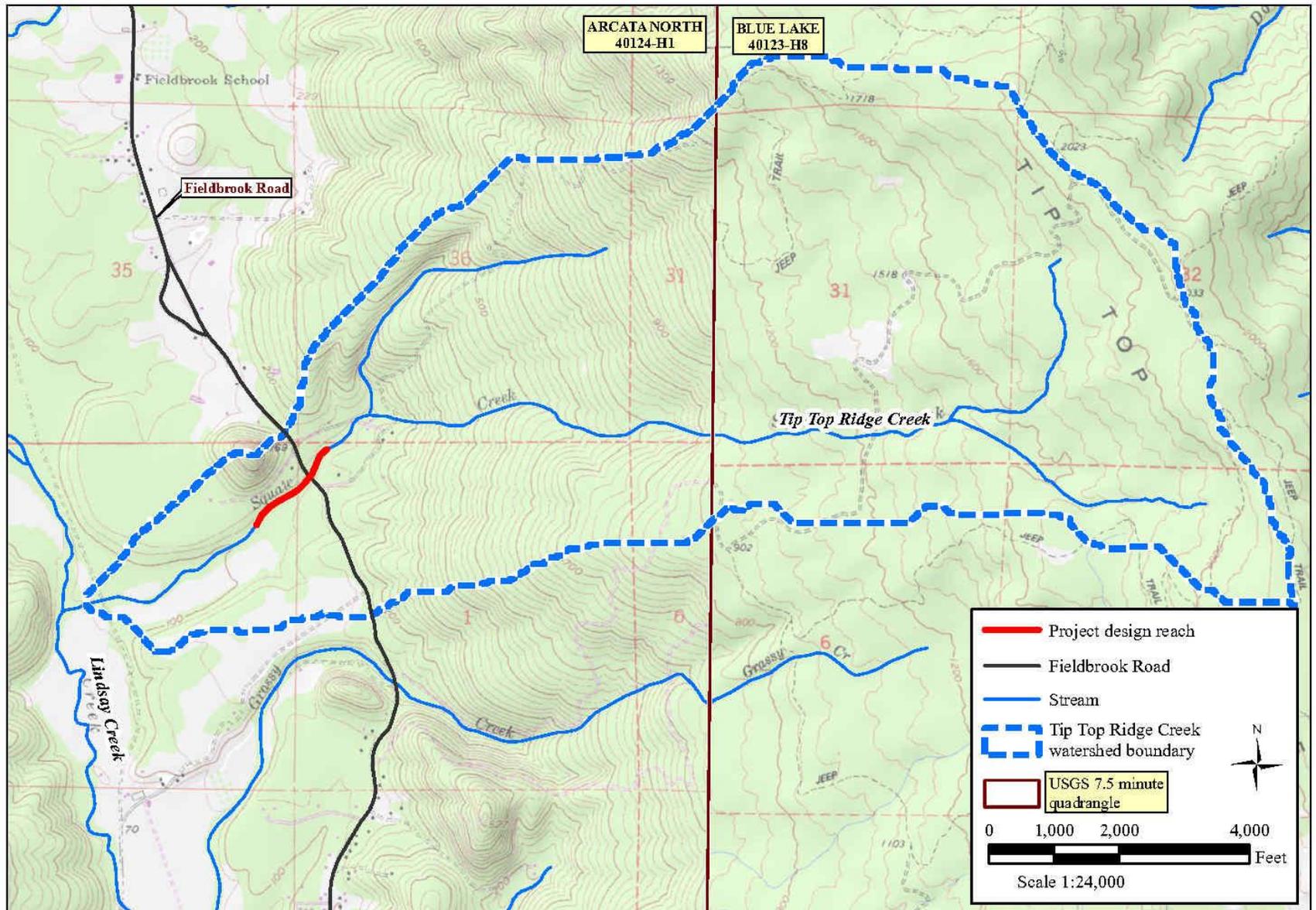
The Permittee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the United States Army Corp of Engineers (USACE) Regional General Permit. Actual project start and end dates, within this timeframe, are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

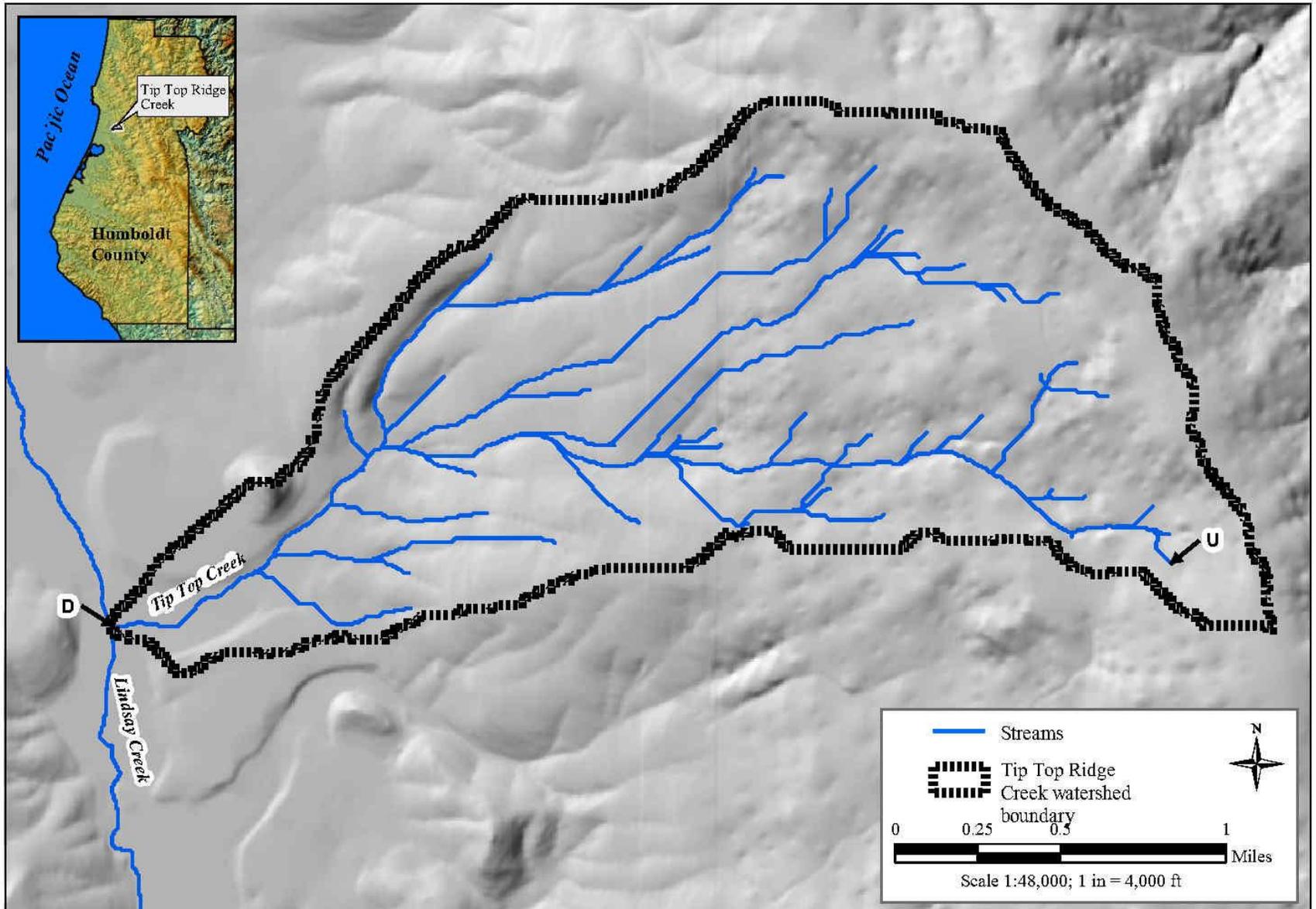
All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out 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.

All habitat improvements will follow techniques described in the *California Salmonids Stream Habitat Restoration Manual*, Volume I and Volume II.



Map 1. Project Location Map for Tip Top Ridge Creek Coho Habitat Improvement Design Project, Humboldt County, California, (Arcata North USGS 7.5' quadrangle); Grantee: Pacific Coast Fish, Wildlife and Wetlands Restoration Association.



Map 1. Watershed Map, Tip Top Ridge Creek Coho Habitat Improvement Design Project, Humboldt County, California, (Arcata North 7.5' quadrangle; USGS 2012); Grantee: Pacific Coast Fish, Wildlife and Wetlands Restoration Association.

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 Korbel (4012378))

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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>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 pomio</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	PDAST5L0C5	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	PDAST5N010	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>Mitellastruca 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