Little River Off Channel Design Project
*(Project ID: **1730062**) 2023*

Introduction:

Trout Unlimited (TU/Grantee) will implement the Little River Off Channel Design Project. This project will develop 100% engineered designs for two identified sites and 30% conceptual designs for a third site. Designs are intended to improve rearing habitat for juvenile salmonids by constructing several off-channel habitat features that provide refuge during winter high water events. Sites were prioritized based on access, inundation interval, feature size, and inputs from secondary perennial streams.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvements will follow techniques in the *California Salmonid Stream Habitat Restoration Manual.* 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 ☒

Objectives:
The objective of this project is to develop 100% engineered designs for two identified high-priority sites and 30% conceptual designs for a third site. Designs are intended to improve rearing habitat for juvenile salmonids by constructing several off-channel alcove features that provide refuge during winter high water events. Sites were prioritized based on access, inundation interval, feature size, and inputs from secondary perennial streams. Site characterization and designs will be completed by the Yurok Tribe Fisheries Department with the assistance of and input from the Wiyot Tribe Natural Resources Department, Green Diamond Resource Company, Trout Unlimited, and NOAA Fisheries.

Project Description:

Location:

Little River is a coastal river that drains into the Pacific Ocean south of Trinidad, CA. The watershed is 45.9 square miles and has 21 miles of anadromous salmonid habitat. The design project will focus on three sites on the mainstem Little River. The downstream-most site (Site 1) is 3.6 miles upstream of the mouth and the others are upstream. Site 1 is also the location of Green Diamond Resource Company's Outmigrant Trapping station. Site 2 has a perennial Class

1 stream called Water Gulch inputting flow directly to the site. Site 3 is the furthest upstream site, approximately 0.75 miles downstream of the confluence of the Upper South Fork Little River and the mainstem. Project coordinates are: 41.01330 west, 124.06110 north.

Project Set Up:

Project development will be completed by a multidisciplinary team consisting of TU, GDRC, the Yurok Tribe, the Wiyot Tribe, Rocco Fiori, Kyle Wear, WRA, and PWA.

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 (if required), as well as provide guidance on fisheries biology and large wood loading objectives. The TU Project Manager, Daisy Schadlich, will be available on a full-time basis to manage this project. The TU Project Director, Anna Halligan, may assist with some aspects of grant management, administration, and project coordination. The TU Grant Compliance and Accounting staff will help to process invoices, track financial project information, and develop project reports. Project management will occur throughout the life of the project. TU is required to assure that all subcontractors included in this proposal are qualified and have fair or reasonable rates, based on recent research, experience, or cost analysis. The TU Western Communications Director will be available to produce media content to share with project partners, local stakeholders and/or regional media. TU will participate in and be responsible for all project tasks.

Green Diamond Resource Company (GDRC) will review design plans as a part of the project team and will assist with installing ground water wells and completing geotechnical investigations. GDRC staff will also assist TU with completing the Biological Assessment (BA) and will conduct any site-specific monitoring associated with the BA. Matthew Nannizzi, Aquatic Biologist – supervisor, and Erin Phillips, Aquatic Biologist I, will be part of the project team, and field technicians will assist with site characterization surveys. All GDRC staff time will be counted as in-kind cost share towards the project budget.
GDRC Tasks: Task 2 - Meetings and Agency Coordination, Task 4 - Site Characterization, Task 5 - 30% Designs, Task 6 - 65% Designs, Task 7 - 90% Designs, Task 8 - 100% Designs and Final Basis of Design Report.

Yurok Tribe will lead the completion of all tasks related to site characterizations and project designs. DJ Bandrowski will be the Project Engineer and will serve as the primary point of contact for the Yurok Tribe. Other staff include Project Management and coordination staff, Physical Scientist, Biologists, Hydraulic

Engineer, Ecologist, Environmental Specialist, Geospatial Analyst, Design Survey Crews, and Fisheries staff. The Yurok Tribe will subcontract with **Fiori Geosciences** principal Rocco Fiori to complete geological and geotechnical investigations.
Yurok Tribe Tasks: Task 2 - Meetings and Agency Coordination, Task 4 - Site Characterization, Task 5 - 30% Designs, Task 6 - 65% Designs, Task 7 - 90% Designs, Task 8 - 100% Designs and Final Basis of Design Report

Wiyot Tribe Natural Resources Department (WNRD) will review design plans as a part of the Project Team and assist with tasks associated with site characterization. WNRD will be represented by Marisa McGrew, Fisheries and Natural Resources Specialist.
WNRD Tasks: Task 2 - Meetings and Agency Coordination, Task 4 - Site Characterization, Task 5 - 30% Designs, Task 6 - 65% Designs, Task 7 - 90% Designs, Task 8 - 100% Designs and Final Basis of Design Report

Kyle Wear, botanist, will conduct all botanical and wetland assessments and wetland delineation throughout the project reach pursuant to the California Environmental Quality Act (CEQA). Kyle Wear will assist with documentation of potentially significant impacts on existing sensitive botanical resources and will describe subsequent avoidance/minimization measures as needed.
Kyle Wear Tasks: Task 3 - CEQA Surveys and Permits

William Rich and Associates (WRA) will conduct cultural and archeological resource assessment surveys and develop a cultural resource report. Pursuant to the California Environmental Quality Act (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.
WRA Tasks: Task 3 - CEQA Surveys and Permits

Pacific Watershed Associates (PWA) will conduct paleontological resource investigation and develop supporting documentation. Pursuant to the California Environmental Quality Act (CEQA), Eileen Weppner (PG #7587) will complete required surveys and prepare a report to document potentially significant impacts on paleontological resources and describe subsequent avoidance/minimization measures as needed.
PWA Tasks: Task 3 - CEQA Surveys and Permits

Materials:

Trout Unlimited: Materials that will be procured by TU include those associated with printing/duplication, postage, meeting and field supplies. TU will also procure the LSAA permit and services of all subcontractors. Other general expenses that will be incurred are related to travel (mileage).

Yurok Tribe: Yurok Tribe will procure several materials necessary to complete project designs, including the subcontracted services of Fiori Geosciences principal Rocco Fiori, Engineering Geologist. Other materials required for geological investigations and other field surveys include monitoring well materials, slotted pipes (piezometers) and associated equipment. Yurok Tribe will also procure or rent equipment needed for field survey tasks primarily for topographic data collection including RTK GPS, Total Station, and LiDAR sensor equipment. Vehicle and travel expenses will also be incurred and include vehicle rentals and mileage.

Tasks:

Task 1 - Project Management

TU will provide technical and administrative services associated with performing and completing the work for this Project. Project management includes grant management, contracting oversight and administration, obtaining permits, scheduling, landowner and agency communication, securing landowner access agreements, executing and administering subcontracts, meeting coordination, preparing invoices and progress reports, and tracking project costs and accomplishments. All reporting and billing will be pursuant to grant requirements and regulatory guidelines. TU will track the project budget and develop and submit invoices to the grantor.

This task will occur throughout the life of the project. In addition to the TU Project Managers, the TU Grants & Operations Manager and the NCCP Field Accountant will assist with processing invoices, financial tracking, and reporting. TU Western Communications Director will create a blog post or brief newsletter to share with project partners, local stakeholders, and regional media to create awareness for the project's benefits to watershed, local infrastructure, and native fish.

Task 1.1 Data Management

TU will coordinate data management activities. TU and its subcontractors and/or collaborators are responsible for ensuring that project data are collected using peer-approved methods, undergo a quality control and accuracy assessment process, include metadata that meet CDFW's minimum standards (https://www.wildlife.ca.gov/Data/BIOS/Metadata) and include documentation of the methods and quality assessments utilized, and are properly stored and protected until the project has been completed and data have been delivered as required under this Grant Agreement.

Data related to observation, occurrence, or distribution of state or federal special status species or California Native Plant Society listed species shall be reported to the California Natural Diversity Database (CNDDB) using the online field survey form or other digital method.

The following Project information shall be uploaded by Grantee to Project Tracker (http://ptrack.ecoatlas.org/) in EcoAtlas (http://www.ecoatlas.org/): Project name, Project proponent and contact information, Project boundary [GIS polygon], pertinent dates, activity type, and habitat types and amounts.

Task 2 - Meetings and Agency Coordination
The project will include two field-based meetings and up to three additional web/phone meeting with stakeholders. All meetings will be attended by staff from TU, Yurok Tribe, WNRD, and GDRC. Fiori Geosciences and NMFS staff will attend some field visits and design review meetings. Other project partners include Pacific Coast Fish, Wildlife, and Wetlands Restoration Association (PCFWWRA), as they are currently coordinating other restoration projects in the Little River watershed. TU and the project team will coordinate with PCFWWRA throughout the development of project designs to ensure that they are compatible with PCFWWRA's ongoing projects (FRGP Award Q2010522).

Draft meeting notes will be prepared by TU and circulated to attendees for review prior to being finalized. The kickoff meeting will be on-site with all project stakeholders. The meeting will be used to introduce the project, and further familiarize stakeholders with the site. Design review meetings will occur either in person or on site. The 30% design review meeting will be used to discuss the results of the site characterizations and risk assessment, and the proposed off-channel habitat features. 65% design review will be an on-site or web/phone meeting to present draft (65%) designs of the off-channel features, answer questions, and receive comments. An additional meeting will occur to present 90% designs to project stakeholders. Additional stakeholder Coordination may occur and includes up to two additional site or web/phone meeting with select stakeholders to discuss technical review comments and coordinate for future implementation.

Task 3 - CEQA Surveys & Permits
The project will require a Lake and Streambed Alteration Agreement (LSAA) Notification for sub-surface investigations and the installation of groundwater wells. The project will follow California Environmental Quality Act (CEQA), the appropriate Regional General Permit, and 401 Water Quality Certification for the Project and all its conditions.

A cultural resource investigation will be completed to comply with CEQA 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 proposed project activities, and offering recommendations designed to protect resource integrity, as warranted, this work will include the completion of a records search, field survey, and a project-specific report. William Rich and Associates (WRA) staff will complete this work.

A paleontological resource investigation will be conducted and supporting documentation will be prepared. Pursuant to the California Environmental Quality Act (CEQA), Pacific Watershed Associates will complete required surveys and prepare a report to document potentially significant impacts on paleontological resources and describe subsequent avoidance/minimization measures as needed.

A botanical investigation is also required to comply with CEQA. This work will include querying the CNDDB and CNPS Rare Plant Inventory databases 9-quad area, ranking the potential for special-status plants to occur in the area and determining the optimal survey period(s). One or two seasonally appropriate site visits will be made (as needed to meet blooming periods) to survey for special status plants within the Channel Reconfiguration and Complex Structures Reach, according to California Department of Fish and Wildlife 2018 protocol. A botanist will assess habitat types within the designated study area, and then walk the area to determine presence or absence of special status species identified during database searches or potentially present based on location and habitat type. If any rare plant populations are observed onsite, they will be mapped using GPS, locations will be submitted to CNDDB, and a special status plant map figure will be prepared. A brief technical memorandum will be prepared that includes document scoping, methods, results of the one bloom floristic survey to identify rare plants and habitats that may be within the project area, lab time to analyze and identify any samples collected, and a final report. Kyle Wear (botanist) will complete this work. Kyle Wear will also investigate the Project Area to map wetlands and other waters of the U.S./state. The wetland delineation will follow USACE Wetlands Delineation Manual (USACE 1987) and Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010). Ordinary High Water will be mapped to define waters of the U.S./state. Wetland delineation methods will consist of collecting vegetation and soil data in paired upland/wetland plots across the presumed wetland boundary. Data on hydrologic conditions will be collected if observed. Once wetland and upland characteristics are determined for each transect, data points will be collected on the wetland boundary using a high-accuracy GPS device. Maps and a final Aquatic Resources Report will be prepared according to USACE standards. A draft and final wetlands delineation technical memorandum will be prepared by Kyle Wear.

To be compliant with FRGP CEQA process, and to prevent the spread of aquatic invasive species, the following protocol will be used during project implementation: TU Aquatic Invasive Species Decontamination Protocol (2017); included in the Supplementary Documents. When applicable, all heavy equipment, survey and field gear will abide by the terms outlined in the referenced protocol. Per executive order from the Governor of California, all California Trout Unlimited offices have adopted an organizational Water Conservation Plan. The Plan was first drafted during the summer of 2014 and was revised in 2015 and again in 2017.

An LSAA identifying the subsurface investigation locations will be prepared by TU and submitted to CDFW. TU will provide proof all required threatened and endangered species surveys, biological monitoring, and required reasonable measures to cultural, archaeological, paleontological, and biological resources, including native species and their habitat have been completed. CEQA surveys will also be completed for the Site 1 and Site 3 to identify site constraints and streamline the construction permitting process.

Task 4 - Site Characterization
All three sites will undergo thorough characterization by the Yurok Tribe Team, with support from TU, GDRC, and Wiyot NRD staff. Site characterizations will include an assessment of existing habitat elements, stream geomorphology, hydrology, and geology. Using the data collected during Task 4, the Yurok Tribe Team will complete engineered designs for the project sites. This task and all subtasks will follow guidelines identified by NMFS and CDFW in the FRPG PSN and CDFW Restoration Manual.

Task 4.1 – Site Characterization/Reconnaissance
The Yurok Tribe Team will perform 1-2 days of technical field visits at all three sites with staff from the Yurok Tribe, Wiyot Tribe, Trout Unlimited, and GDRC. The project team will walk the project sites and determine scope, scale, and approximate reach boundaries that will inform data collection work and project design development.

Task 4.2 – Topographic and Bathymetric Surveys
The Yurok Tribe Team will perform detailed design surveys at all three sites using GPS-RTK and Total Station equipment to characterize existing channel topography and below water bathymetry. High-resolution drone surveys using LiDAR and Imagery sensors will be performed to develop detailed maps and digital terrain models of the existing conditions.

In addition to topographic surveys, some x-section and long profile data will be collected. Topography and cross-sections of the project area will include the river and floodplain and the identification of critical hydraulic features. Data collected from these surveys will be used as the foundational data set for the project designs. Field operations will be approximately 2-3 weeks. Site constraints and project limitations will be identified. A data summary report will be developed documenting the type of data collected and associated methodologies.

Task 4.3 - Geological and Geotechnical Investigations
The Yurok Tribe Team and their subcontractor, Fiori Geosciences, will perform geological investigations and install ground water monitoring wells (piezometers) at all three sites. Borings will be performed using gas powered hand augers. A description of shallow groundwater-surface water relationships will be included in the Basis of Design Report if it is determined that the project performance is

linked with or depends on groundwater contributions. All applicable permitting for this work will be coordinated and secured by Trout Unlimited prior to beginning this task.

Soil samples from the borings will be used to understand the grain size, classification, stratigraphy, moisture content, depth to groundwater, and other quantitative information needed to support design development. The exact locations of the borings and piezometers will be determined based on reconnaissance field visit and surveys. A technical memo will be developed to document all findings, including geologic hazards and risks.

Task 4.4 – Hydrologic and Hydraulic Analysis
The Yurok Tribe Team will develop an existing condition hydrodynamic model to characterize the reach level hydraulic conditions. Using detailed topography and bathymetry data from project surveys, direct measurements and/or gage records of the mail channel near upstream and downstream ends of the project, the Yurok Tribe Team will develop a hydraulic model (calibrated water level rating curves). Various key design or index flows (flow discharge) will be used to characterize low flow, mid-range flows, and higher flows to better understand hydraulic conditions and corresponding habitat values at a range of flows, including how geomorphic and hydraulic processes will maintain habitat, how flow will enter and exit the off-channel feature, and how the feature will change and adjust over time. The existing condition hydrodynamic model output will be compared to design alternative hydraulic output as a comparative analysis to determine which option will have the best performance. A technical memo will be developed descripting the modeling results and associated methodologies.

Task 4.5 – Habitat Assessment
The Yurok Tribe Team will use the hydraulic model output to develop a detailed analysis of salmonid rearing habitat will be developed using Habitat Suitability Index (HSI) parameters or other metrics including velocity, depth, and distance to cover. Other site-specific methodologies will be used as appropriate for this project. Existing conditions habitat assessment will be developed for the appropriate salmonid species, life stages, and at the key index flows for this project. A corresponding technical memo will be developed, which will include a description of the type of off channel feature to be constructed, its dimensions, and over what range of stream flows the habitat will be connected to the stream.

Task 4.6 - Existing Conditions/Basis of Design Report
The Yurok Tribe Team will develop a comprehensive existing conditions report using all the above tasks to synthesize all available data and analyses together into one report that will serve as the foundational document that characterizes the existing physical and biological conditions of the site. GDRC will develop a Biological Assessment that will be incorporated into the existing conditions report and will align with the requirements of Part V in the FRGP Guidelines.

2-dimensional 10% design alternatives will be developed to provide options for consideration in the next phases of design process. The report will provide the foundational framework to evaluate future design alternatives during the 30% and 60% design phases to quantify the increased habitat value and corresponding benefit.

Task 5 – 30% Designs
Based on the findings from Task 4, the Yurok Tribe Team will Develop 30% designs for 3 sites. For each site, the Yurok Tribe team will develop 2 or 3 design alternatives and associated design surfaces to be used for evaluation. The existing conditions digital terrain model developed in the earlier phases will serve as the comparison surface. Using robust software and design tools, the team will create 3-dimensional design surfaces for each alternative. These 3D surfaces will be analyzed using the hydrodynamic model framework to evaluate hydraulic conditions and associated habitat value. Detailed design report and associated design drawings will be developed.

Task 6 – 65% Designs
One 30% design alternative will be chosen and carried forward through the 65% design process. Only 2 of the 3 sites (Site 1 and Site 3) will move into the 60% design phase. Site 2 will stop at the 30% level.

Task 7 – 90% Designs
The Yurok Tribe Team will finalize 2 designs to the 90% Level after incorporating feedback from the project team.

Task 8 – 100% Designs and Final BOD Report
The Yurok Tribe Team will finalize engineered designs and accompanying Basis of Design Report at the 100% level for 2 sites (Site 1 and Site 3). Conceptual (30%) designs will also be completed and submitted as a part of this task.

Task 9 – Reporting
TU will provide progress reports with each invoice, not more frequently than monthly, in a format that aligns with the grant agreement. TU will submit an Annual Report each year for the term of the project detailing the work completed during that year, as required, and will performance measures. TU will submit a draft Final Report at least 30 days prior to the Final Report to allow CDFW to provide comments. The final report will address all required metrics and summarize the life of the project, the project costs, and describe the results of the work performed and specific project activities and accomplishments.

Deliverables:
Task 1 - Project Management
Final Landowner Access Agreements (prior to receiving Notice to Proceed);
Executed subcontractor agreements (prior to receiving the Notice to Proceed),

Invoices & Progress Reports (no more frequently than monthly), TU blog post or comparable newsletter.

Task 1.1 Data Management
All digital data, photographs (jpeg/tiff)

Task 2 - Meetings and Agency Coordination
Copies of Meeting Agenda(s), Participants, and Notes

Task 3 - CEQA Surveys & Permits
LSAA/1600 for geotechnical investigations, completed CEQA surveys (Paleontological resource investigation report, Archeological resources report, Botanical resources report)

Task 4 - Site Characterization
All data collected during Task 4 will be synthesized and incorporated into the 30% Basis of Design Report.

Task 4.1 – Site Characterization/Reconnaissance
Reconnaissance and field visit memo

Task 4.2 – Topographic and Bathymetric Surveys
Data collected during the Stream (Bathy RTK) Survey and LiDAR and Imagery Drone Survey will be synthesized and incorporated into the Basis of Design Report

Task 4.3 - Geological and Geotechnical Investigations
Geological Investigation Memo and Installation of Ground Water Monitoring Wells

Task 4.4 – Hydrologic and Hydraulic Analysis
Technical memo outlining Existing Conditions Hydraulic Model

Task 4.5 – Habitat Assessment
Existing Conditions Habitat Assessment

Task 4.6 - Existing Conditions/Basis of Design Report
Existing Conditions Technical Report and 10% Design Alternatives

Task 5 – 30% Designs
30% Designs (3 sites) and Report

Task 6 – 65% Designs
65% Designs (2 sites) and Report

Task 7 – 90% Designs

Draft/Final 90% Designs (2 sites) and Report

Task 8 – 100% Designs and Final BOD Report
100% designs for two project sites and Final Basis of Design Report, including draft (30%) design plans and BOD Report for Site 2.

Task 9 – Reporting
Progress reports with each invoice, Annual Reports, Draft/Final Report

Timelines:
Task 1 - Project Management
4/1/2024 to 4/1/2027

Task 1.1 Data Management
4/1/2024 to 4/1/2027

Task 2 - Meetings and Agency Coordination
4/1/2024 to 4/1/2027

Task 3 - CEQA Surveys & Permits
4/1/2024 to 4/1/2027

Task 4 - Site Characterization
5/1/2024 to 4/1/2026

Task 4.1 – Site Characterization/Reconnaissance
5/1/2024 to 6/30/2024

Task 4.2 – Topographic and Bathymetric Surveys
6/1/2024 to 9/30/2024

Task 4.3 - Geological and Geotechnical Investigations
8/1/2024 to 9/30/2024

Task 4.4 – Hydrologic and Hydraulic Analysis
10/1/2024 to 12/1/2024

Task 4.5 – Habitat Assessment
1/1/2025 to 3/1/2025

Task 4.6 - Existing Conditions/Basis of Design Report
3/1/2025 to 5/31/2025

Task 5 – 30% Designs
6/1/2025 to 11/30/2025

Task 6 – 65% Designs
12/1/2025 to 5/31/2026

Task 7 – 90% Designs
6/1/2026 to 11/30/2026

Task 8 – 100% Designs and Final BOD Report
12/1/2026 to 4/1/2027

Task 9 – Reporting
4/1/2024 to 4/1/2027

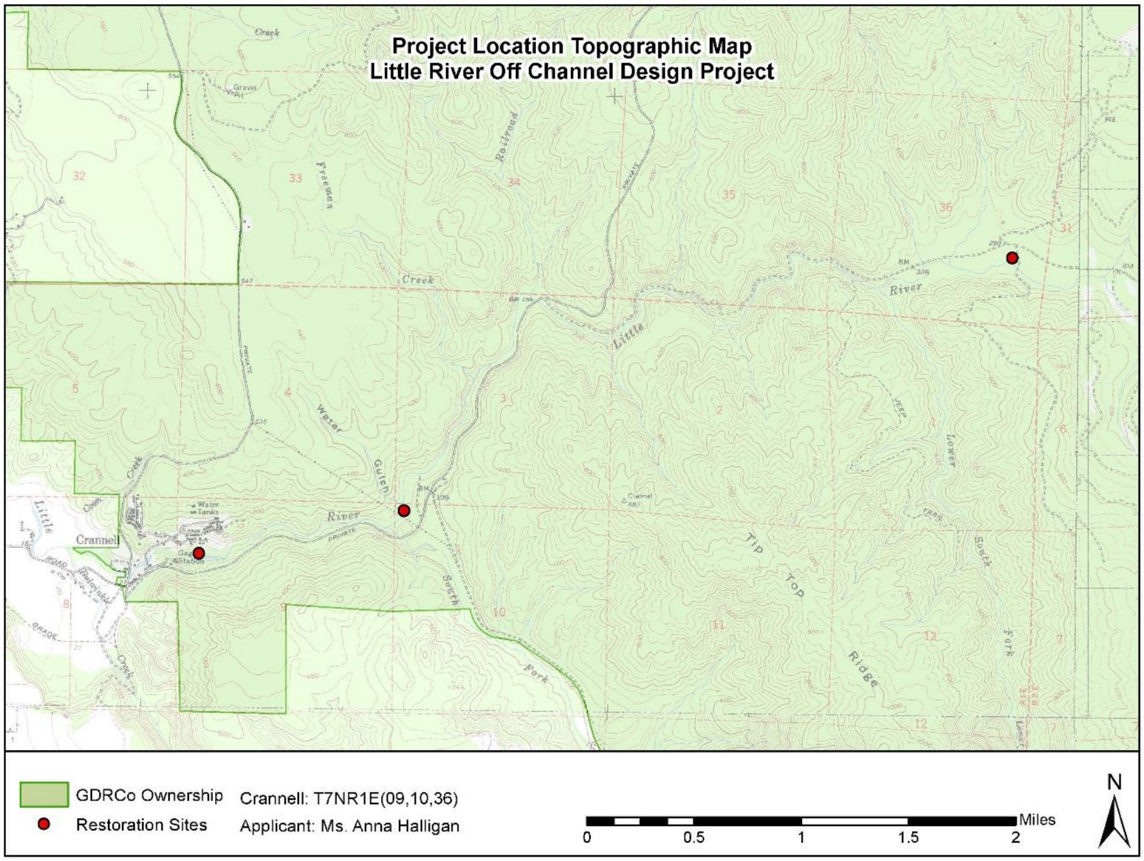
Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the United States Army Corp of Engineers (USACE) Regional General Permit. Actual project start and end dates, within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

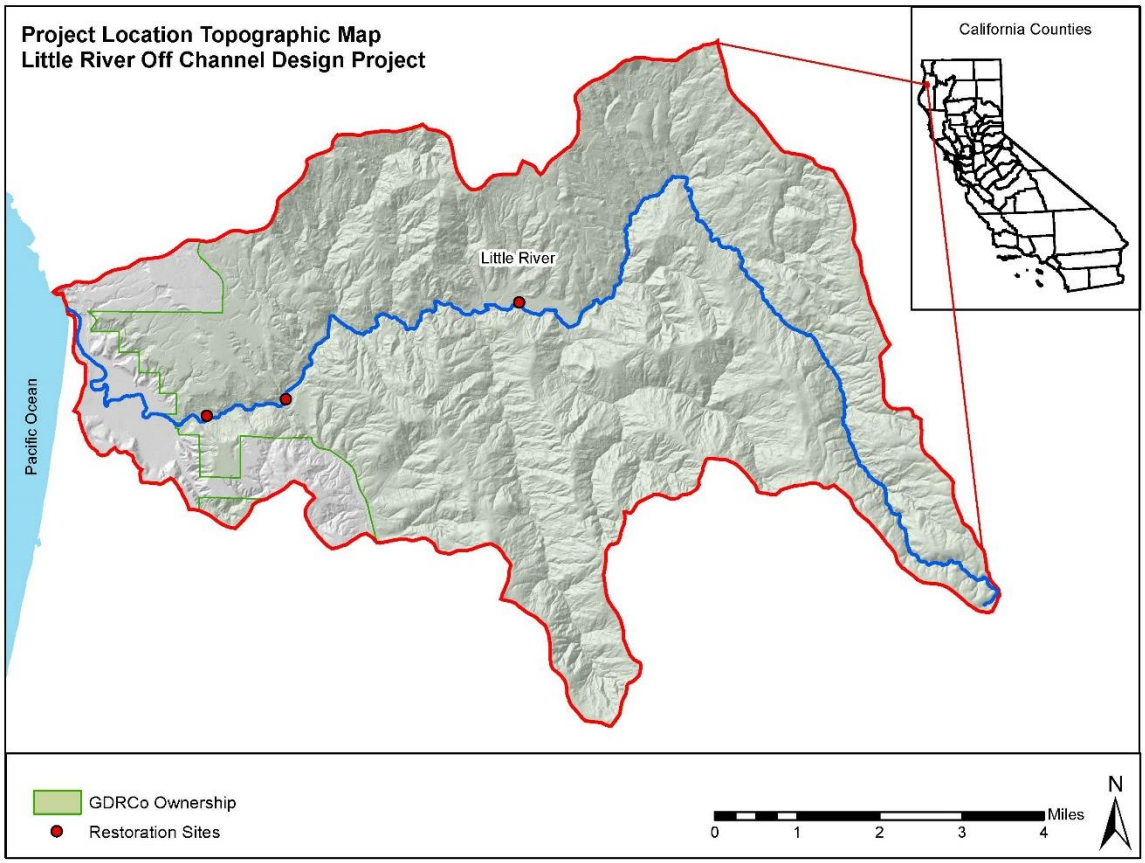
No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment.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

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


Project Location Topographic Map
Little River Off Channel Design Project
GDRCo Ownership
Restoration Sites
Crannell: T7NR1E(09,10,36)
Applicant: Ms. Anna Halligan
0
0.5
1
1.5
2
Miles
N
Crannell
Little River
Creek
Water Gulch
Tip Top Ridge
South Fork
Lower South Fork
Railroad


Project Location Topographic Map
Little River Off Channel Design Project
California Counties
Little River
Pacific Ocean
GDRCo Ownership
Restoration Sites
Miles
0
1
2
3
4
N

CDFW RAREFIND

Query Summary:
Quad IS (Crannell (4112411) OR Trinidad (4112412) OR Rodgers Peak (4112421) OR Bald Hills (4112328) OR Panther Creek (4112318) OR Blue Lake (4012388) OR Arcata North (4012481) OR Tyee City (4012482))

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
Abronia umbellata var. breviflora	pink sand-verbena	Dicots	PDNYC010N4	61	9	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	1	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
Aplodontia rufa humboldtiana	Humboldt mountain beaver	Mammals	AMAFA01017	28	12	None	None	G5TNR	SNR	null	null	Coastal scrub, Redwood, Riparian forest
Arborimus albipes	white-footed vole	Mammals	AMAFF23010	3	2	None	None	G3G4	S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	North coast coniferous forest, Redwood, Riparian forest
Arborimus pomo	Sonoma tree vole	Mammals	AMAFF23030	222	12	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
Ardea herodias	great blue heron	Birds	ABNGA04010	156	4	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Ascaphus truei	Pacific tailed frog	Amphibians	AAABA01010	491	65	None	None	G4	S3S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Aquatic, Klamath/North coast flowing waters, Lower montane coniferous forest, North coast coniferous forest, Redwood, Riparian forest
Astragalus umbraticus	Bald Mountain milk-vetch	Dicots	PDFAB0F990	36	1	None	None	G4	S2	2B.2	null	Cismontane woodland, Lower montane coniferous forest
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	7	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	437	1	None	Candidate Endangered	G2	S2	null	IUCN_EN-Endangered	null
Bombus occidentalis	western bumble bee	Insects	IIHYM24252	306	4	None	Candidate Endangered	G3	S1	null	IUCN_VU-Vulnerable, USFS_S-Sensitive	null
Brachyramphus marmoratus	marbled murrelet	Birds	ABNNN06010	110	3	Threatened	Endangered	G3	S2	null	CDF_S-Sensitive, IUCN_EN-Endangered	Lower montane coniferous forest, Oldgrowth, Redwood

Cardamine angulata	seaside bittercress	Dicots	PDBRA0K010	38	3	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
Carex lenticularis var. limnophila	lagoon sedge	Monocots	PMCYP037A7	4	2	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	3	None	None	G5	S3	2B.2	IUCN_LC-Least Concern	Marsh & swamp, Wetland
Carex saliniformis	deceiving sedge	Monocots	PMCYP03BY0	18	1	None	None	G2	S2	1B.2	null	Coastal prairie, Coastal scrub, Marsh & swamp, Meadow & seep, Wetland
Carex viridula ssp. viridula	green yellow sedge	Monocots	PMCYP03EM5	8	2	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	5	None	None	G4T2	S2	1B.2	BLM_S-Sensitive, SB_UCBG-UC Botanical Garden at Berkeley	Marsh & swamp, Salt marsh, Wetland
Castilleja litoralis	Oregon coast paintbrush	Dicots	PDSCR0D012	44	11	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, SB_UCSC-UC Santa Cruz	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 nivosus nivosus	western snowy plover	Birds	ABNNB03031	138	3	Threatened	None	G3T3	S3	null	CDFW_SSC-Species of Special Concern	Great Basin standing waters, Sand shore, Wetland
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Dicots	PDSCR0J0C3	80	2	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Marsh & swamp, Salt marsh, Wetland
Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	Marsh	CTT52410CA	60	1	None	None	G3	S2.1	null	null	Marsh & swamp, Wetland
Coptis laciniata	Oregon goldthread	Dicots	PDRAN0A020	122	14	None	None	G4?	S3?	4.2	null	Meadow & seep, North coast coniferous forest, Wetland
Discelium nudum	naked flag moss	Bryophytes	NBMUS2E010	2	1	None	None	G4G5	S1	2B.2	null	Coastal bluff scrub
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	184	1	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	1477	5	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-	Aquatic, Artificial flowing waters,

											Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	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	1	None	None	G4	S3	null	AFS_VU-Vulnerable, BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least 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	4	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
Erysimum menziesii	Menzies' wallflower	Dicots	PDBRA160R0	19	2	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes
Erythronium oregonum	giant fawn lily	Monocots	PMLIL0U0C0	37	2	None	None	G5	S2	2B.2	SB_UCSC-UC Santa Cruz	Cismontane woodland, Meadow & seep, Ultramafic
Erythronium revolutum	coast fawn lily	Monocots	PMLIL0U0F0	172	13	None	None	G4G5	S3	2B.2	SB_UCSC-UC Santa Cruz	Bog & fen, Broadleaved upland forest, North coast coniferous forest, Wetland
Eucyclogobius newberryi	tidewater goby	Fish	AFCQN04010	127	2	Endangered	None	G3	S3	null	AFS_EN-Endangered, IUCN_NT-Near Threatened	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Eumetopias jubatus	Steller sea lion	Mammals	AMAJC03010	38	5	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
Falco peregrinus anatum	American peregrine falcon	Birds	ABNKD06071	73	3	Delisted	Delisted	G4T4	S3S4	null	CDF_S-Sensitive	null
Fissidens pauperculus	minute pocket moss	Bryophytes	NBMUS2W0U0	22	2	None	None	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest, Redwood
Fratercula cirrhata	tufted puffin	Birds	ABNNN12010	17	6	None	None	G5	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds	Protected deepwater coastal communities

											of Conservation Concern	
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
Gilia millefoliata	dark-eyed gilia	Dicots	PDPLM04130	54	4	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
Hydrobates furcatus	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
Iliamna latibracteata	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
Juncus nevadensis var. inventus	Sierra rush	Monocots	PMJUN011Z5	1	1	None	None	G5T3T4	S1	2B.2	null	Bog & fen, Wetland
Kopsiopsis hookeri	small groundcone	Dicots	PDORO01010	21	1	None	None	G4?	S1S2	2B.3	null	North coast coniferous forest
Lampetra richardsoni	western brook lamprey	Fish	AFBAA02180	4	1	None	None	G4G5	S3S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	null
Lasionycteris noctivagans	silver-haired bat	Mammals	AMACC02010	139	1	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern	Lower montane coniferous forest, Oldgrowth, Riparian forest
Lathyrus japonicus	seaside pea	Dicots	PDFAB250C0	24	6	None	None	G5	S2	2B.1	IUCN_LC-Least Concern	Coastal dunes
Lathyrus palustris	marsh pea	Dicots	PDFAB250P0	13	1	None	None	G5	S2	2B.2	null	Bog & fen, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland
Layia carnosa	beach layia	Dicots	PDAST5N010	25	4	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
Lilium occidentale	western lily	Monocots	PMLIL1A0G0	16	1	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
Lycopodiella inundata	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
Lycopodium clavatum	running-pine	Ferns	PPLYC01080	120	61	None	None	G5	S3	4.1	null	Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland
Margaritifera falcata	western pearlshell	Mollusks	IMBIV27020	78	2	None	None	G4G5	S1S2	null	IUCN_NT-Near Threatened	Aquatic
Martes caurina humboldtensis	Humboldt marten	Mammals	AMAJF01012	44	1	Threatened	Endangered	G4G5T1	S1	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	North coast coniferous forest,

												Oldgrowth, Redwood
Moneses uniflora	woodnymph	Dicots	PDPYR02010	7	1	None	None	G5	S2	2B.2	null	Broadleaved upland forest, North coast coniferous forest
Monotropa uniflora	ghost-pipe	Dicots	PDMON03030	115	1	None	None	G5	S2	2B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, North coast coniferous forest
Montia howellii	Howell's montia	Dicots	PDPOR05070	123	6	None	None	G3G4	S2	2B.2	null	Meadow & seep, North coast coniferous forest, Vernal pool, Wetland
Myotis evotis	long-eared myotis	Mammals	AMACC01070	139	3	None	None	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern	null
Nannopterum auritum	double-crested cormorant	Birds	ABNFD01020	39	4	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	1	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
Nycticorax nycticorax	black-crowned night heron	Birds	ABNGA11010	37	1	None	None	G5	S4	null	IUCN_LC-Least Concern	Marsh & swamp, Riparian forest, Riparian woodland, Wetland
Oenothera wolfii	Wolf's evening-primrose	Dicots	PDONA0C1K0	29	3	None	None	G2	S1	1B.1	SB_BerrySB-Berry Seed Bank	Coastal bluff scrub, Coastal dunes, Coastal prairie
Oncorhynchus clarkii clarkii	coast cutthroat trout	Fish	AFCHA0208A	45	18	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	2	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	7	Threatened	None	G5T3Q	S3	null	AFS_TH-Threatened	Aquatic, Estuary, Klamath/North coast 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	15	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	7	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	4	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
Plethodon elongatus	Del Norte salamander	Amphibians	AAAAD12050	151	10	None	None	G4	S3	null	CDFW_WL-Watch List, IUCN_NT-Near	Oldgrowth

											Threatened	
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	1	Endangered	Endangered	G3T1	S2	null	CDFW_FP-Fully Protected	Brackish marsh, Marsh & swamp, Salt marsh, Wetland
Rana aurora	northern red-legged frog	Amphibians	AAABH01021	292	54	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 boylii pop. 1	foothill yellow-legged frog - north coast DPS	Amphibians	AAABH01051	1608	23	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	92	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
Riparia riparia	bank swallow	Birds	ABPAU08010	299	4	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian 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	8	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	5	None	None	G5T2	S2	1B.2	SB_UCSC-UC Santa Cruz	Coastal bluff scrub, Coastal prairie, North coast coniferous forest
Sidalcea oregana ssp. eximia	coast checkerbloom	Dicots	PDMAL110K9	19	1	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	1	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
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	1	Candidate	Threatened	G5	S1	null	IUCN_LC-Least Concern	Aquatic, Estuary
Sulcaria spiralifera	twisted horsehair lichen	Lichens	NLT0042560	18	5	None	None	G3G4	S2	1B.2	BLM_S-Sensitive	Coastal dunes, North coast coniferous forest
Thaleichthys pacificus	eulachon	Fish	AFCHB04010	10	3	Threatened	None	G5	S1	null	IUCN_LC-Least Concern	Aquatic, Klamath/North coast flowing waters
Trichodon cylindricus	cylindrical trichodon	Bryophytes	NBMUS7N020	14	3	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	1	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	1	None	None	G5	S1S2	2B.2	null	Bog & fen, Coastal scrub Wetland