

Upper South Fork Little River Instream Habitat Improvement Project (Project ID: 1727975) 2022

Introduction:

The goal of the project is to accelerate fisheries recovery by installing 136 key logs throughout the anadromous reach of Upper South Fork Little River. The expected results of this project will be to develop more frequent and deeper pools, produce complex cover, create high velocity refuge, achieve wood loading densities above "Very Good," and start the process of redistribution of channel-stored sediment and large wood throughout the anadromous reaches of Upper South Fork Little River. Increased backwatering and aggradation will lead to increased floodplain connectivity and an increase in available food from additional benthic macroinvertebrate productivity that occurs on inundated floodplains, and ultimately improved habitat for all life stages of salmonids. This project is designed with physical and biological processes in mind and instream habitat features will mimic natural self-sustaining examples to the extent feasible.

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

Does the project involve the construction of beaver analogs?

Yes or No

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

Yes or No

Objective(s):

This project is designed to increase the density of Large Woody Material (LWM) in the form of 136 "key logs" within the 1.84 mile (9,700 ft.) anadromous fish bearing reach of Upper South Fork Little River. PWA assessed habitat conditions in the Upper South Fork Little River as part of the ongoing FRGP funded Little River Basin-wide Instream and Riparian Habitat Improvement Design Project. As a part of this planning/design project, instream habitat conditions were assessed, large wood material was inventoried, and riparian conditions were evaluated in the Upper South Fork Little River watershed. The current existing key log density is 19 key pieces/mile, which is below the 37-64 key pieces/mile considered a "good" rating for channels 20'-30' wide identified in the (2014 SONCC coho

recovery plan Table 4-6 pg. 4-15). The LWM will be distributed in at least 43 unique habitat features specifically identified and designed. Heavy equipment and direct falling techniques will be used to add 136 pieces of LWM to the proposed reach bringing the overall density of key pieces in Upper South Fork Little River to approximately 95 key logs/mile. This exceeds the "Very Good" target habitat metric of > 65 key pieces/mile which, based on current habitat inventory metrics, are too low for Upper South Fork Little River and other north coastal watersheds. Additionally, this project will result in a more even distribution of large wood and associated habitat improvement benefits throughout the anadromous reaches of Upper South Fork Little River.

Project Description:

Location:

The Upper South Fork Little River is located in Humboldt county and is a tributary to Little River, which is tributary to the Pacific Ocean. Little River enters the ocean just south of Trinidad and west of Crannell, California. The project begins at the Upper South Fork confluence with Little River, which is approximately 9.4 miles upstream of the Pacific Ocean and continues up the Upper South Fork Little River for approximately 1.8 miles. Project coordinates at the center of the reach are: 41.019228 N, -123.996827 W.

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; consultation (grantors, subcontractors, landowner and relevant Native American Tribes); project scheduling; invoicing; report preparation and review; as well as facilitating agency, landowner, and Native American Tribe communications.

The Plant Ecologist performs botanical work. Tasks include performing a comprehensive floristic survey of the project site, inventorying and mapping any sensitive plants or natural communities found, photographing plants and habitats, preparing reports, and providing other supporting materials as needed for permit acquisition. Additionally, the Plant Ecologist will work with PWA staff to delineate wetlands prior to construction. The Plant Ecologist's time is split between the field and office.

The GIS Specialist performs GIS work. Tasks include supporting field collection of botanical data and analyzing geospatial data. The GIS Specialist will prepare vegetation maps, sensitive plants and natural communities maps, wetland maps, and other maps needed for reporting and permitting.

Geologic Subcontractor (Construction layout/stakeout and technical oversight, construction management, monitoring and reporting) Pacific Watershed Associates, Inc. (PWA), personnel will support PCFWWRA with heavy equipment contractor selection, project implementation, construction supervision/management and will perform pre/post-construction monitoring and as-built surveys for the construction of instream habitat structures. In addition, PWA will provide PCFWWRA with assistance in oversight of contractor activities during construction, evaluation and selection of construction materials, and conduct summary and final reporting pursuant to FRGP contract deliverables.

Pacific Watershed Associates (PWA): LWM features will be designed by PWA, under the responsible charge of Associate Geologist (CEG/PG) William (Randy) Lew and a PWA Principal Scientist. PWA Technical staff will provide project layout and construction oversight. The PWA Project Manager (Associate Geologist/PG) will manage project layout, construction oversight, monitoring, and reporting. PWA Staff Scientists will conduct surveys; LWM feature layout; establish photo point monitoring stations, conduct construction oversight; pre-, during-, and post-construction monitoring; and perform all required data collection and entry. PWA Senior Geologist will conduct paleontological resource investigation and reporting. PWA GIS staff will provide field layout maps, digitize LWM feature layout and as-built project data, and develop report maps. PWA Biologists (NR Specialist) will conduct pre- and post-project stream conditions and habitat inventories to evaluate project effectiveness. The PWA Wetlands Scientist (NR Specialist) will work alongside the PCFWWRA Plant Ecologist to identify, map, and flag the equipment exclusion boundaries of any wetlands that are present within the proposed project site construction zone prior to construction.

Heavy Equipment and Labor Contractor: The equipment and labor contractor will construct the project. Additionally, the equipment contractor will maintain temporary fish exclusion barriers and any flow diversion during construction, as necessary. Personnel categories include: Operators for Excavator, Dozer, Loader, and Dump Truck as well as Laborer (Sawyer), and Laborer (General). The Heavy Equipment and Labor Contractor will only be considered for the project if they are a State licensed General Engineering Contractor and/or a Licensed Timber Operator (LTO) with demonstrated successful experience on projects of a similar nature and approved by Green Diamond Resource Company (landowner/GDRC). The contractor will be determined through a rigorous selection process after the grant contract is signed.

Archaeological Subcontractor (William Rich and Associates (WRA)): Task 2. This subcontractor will be responsible for performing sensitive cultural resource surveys prior to construction.

PWA will consult and collaborate with California Native American tribes indigenous to the project area in order to support the development and

implementation of the best possible project. The tribes' designated Cultural Resources personnel will act as tribal representatives to review project information, attend a pre-project review meeting and provide project site visits if needed.

Materials:

Trees (planting): Approximately 160 trees will be planted by laborers;
Large Woody Material (LWM): GDRC will be providing 136 LWM pieces (avg. length 40' x 1.75' diameter) of Douglas fir and redwood;
Straw: Approximately 16 bales of weed-free straw mulch will be provided by the subcontractor;
Seed: Approximately 4 pounds of seed. PCFWWRA will procure the seed for spreading by the Equipment and Labor Contractor;
Chainsaw/power winch (Equipment and Labor Contractor): Chains and winch cable required for structure construction;
Generator/Hole Hawg/drill bits (Equipment and Labor Contractor): Materials required for structure anchoring (including extension cord and gasoline for a portable generator);
Rebar, nuts, plates (Equipment and Labor Contractor): Materials required for anchoring structures;
Porta band (Equipment and Labor Contractor): Blades required for structure installation;
Log tongs (Equipment and Labor Contractor/PWA): PWA or the equipment contractor will provide log tong excavator attachments to facilitate the process of LWM installation;
Pressure Washer (Equipment and Labor Contractor): A (hot water) pressure washer is used to decontaminate heavy equipment between each use in different waterbodies and watersheds to prevent the spread of invasive species as per the equipment decontamination methods stated in the PCFWWRA decontamination protocol. It will be the responsibility of the equipment sub-contractor to decontaminate all heavy equipment prior to entering the project area;
Field materials may include, but are not limited to, flagging, electronic data tablet rental, metal identification tags, wooden stakes, nails, rite-in-the rain paper, notebooks and clipboards, gloves, spray paint, cameras, and measuring field tapes. Office supplies used to complete the project include photo duplication for final reports, copying/binding for final reports, large format report maps, laminating supplies, and postage;

Tasks:

Task 1: Implementation

Following approval by CDFW of site-specific LWM feature designs, PWA will flag heavy equipment access routes and construction boundaries, layout equipment exclusion areas for sensitive biologic assessments and identified wetlands, cultural resources, and LWD staging areas. They will

also document the existing conditions at the proposed LWM feature locations and establish photo point monitoring stations at the construction locations for final reporting. Pre-construction monitoring will be performed by PWA in a manner consistent with CDFW guidelines and as required by the FRGP. Once the project disturbance areas have been flagged, scientists from PWA, as well as the contract archeologists from WRA will conduct their respective surveys to assure environmental and cultural resource protection.

Subtask 2: Environmental compliance and CEQA surveys

Description of Activities: PWA will coordinate with PCFWWRA, CDFW, Wiyot Area Tribes, and GDRC to conduct the appropriate surveys for cultural resources, migratory song birds, botanical resources, paleontological resources, and special status species, as necessary. PCFWWRA will prepare and submit the CDFW LSAA 1600 notification and fee needed for project authorization. The PCFWWRA Plant Ecologist will conduct a special status plant survey, and will work with the PWA Staff Wetlands Scientist to perform a wetland identification survey of the proposed disturbance areas. WRA will conduct cultural resource surveys. The results of these surveys and any required mitigation measures will be included in draft technical memos and delivered to the CDFW project manager prior to start of implementation. Final reports will be submitted to the CDFW Project Manager as per requirements of the grant agreement.

Subtask 3: Construction of LWM features

The LWM features will be constructed using heavy equipment, and by direct falling of trees by a professional tree faller. In general, for equipment assisted LWM features, the excavator and bulldozer will be used to create low impact access routes to the proposed LWM features and construct the LWM structures. The features will be constructed with an excavator with a log tong attachment. To install the LWM features, the excavator and bulldozer will create an access route to the streamside area and the excavator will install the logs while the dozer will deliver logs to the construction site from the adjacent road.

The excavator will grapple each log with the log tongs and, to the extent feasible, weave them through the existing riparian forest with the intention of wedging the log through the riparian trees such that the existing riparian forest provides natural anchoring for the LWM features. In other LWM feature locations, where equipment access is limited, trees will be placed into the stream by direct falling by an LTO-supervised tree faller. Where prudent, small and medium sized tree fragments that do not meet the criteria for "key logs" will be incorporated into the spider jams as pre-

racked and loose woody material. These racked and loose logs/branches will reduce each spider jam's porosity and more closely mimic naturally developed LWM features and accumulations. Once the primary architecture (keylogs) of the features has been completed, PWA, in coordination with the CDFW Project Manager, will determine if hard anchor points will be required at each of the constructed features. Hard anchor points will be installed by the Contractor. Possible anchor locations have been provided in the included feature sketches in the supplemental information.

After the CDFW Project Manager approves of the final configuration and anchoring of the LWM, each equipment access route will be winterized by decompacting the disturbed ground surface and mulching all bare areas with wood slash and or weed-free straw.

Native seed will be spread in the bare soil areas to provide short to medium term erosion control and native trees (mostly redwoods) will be planted for long term riparian succession and future LWM recruitment to the stream system.

Task 4: Post construction monitoring and documentation

Post-construction monitoring, including photographic monitoring, and documentation of as-built LWM features, will be performed by PWA consistent with the CDFW guidelines and as required by the FRGP grant agreement. As built drawings will include structure placement and alignment, representative cross sections and longitudinal profiles, and the sizes and quantity of materials added. In addition, once the fish habitat improvement structures have been constructed, a post-implementation habitat inventory will be conducted to quantify the habitat improvements and the remediation of the limiting factors identified in the previous surveys. All methods will follow the methodologies as discussed in Part II and Part III of the California Salmonid Stream Habitat Restoration Manual.

PCFWWRA and PWA will develop project reports (annual reports and a final project report), based on CDFW grant agreement requirements, which documents work completed and the total costs to implement the project. Reports will be submitted annually by November 15, and a Final Project Report will be prepared and submitted prior to grant close-out (including Final Project Budget and Final Invoice). Annual and final reports will include summaries of the following information as required: (1) general grant information, (2) location of work, (3) project access, (4) participating landowners name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built site

information, (7) dates of work and the number of person hours expended, (8) labeled before-and-after photos of constructed sites, (9) GIS generated maps and shapefiles of the project area, and (10) monitoring checklists, databases, spreadsheets and any other data products produced during the grant term.

Deliverables

Installation of 43 LWM jams over a 1.84-mile stream reach, containing approximately 136 pieces of large wood. Wood will be woven into the existing riparian corridor. Hardware anchors will be used where required. Planting of redwood trees in disturbed areas.

Timeline

Construction will be from 6/15/2023 to 10/31/2025. The final report will be delivered to CDFW by 3/25/2026.

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 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.

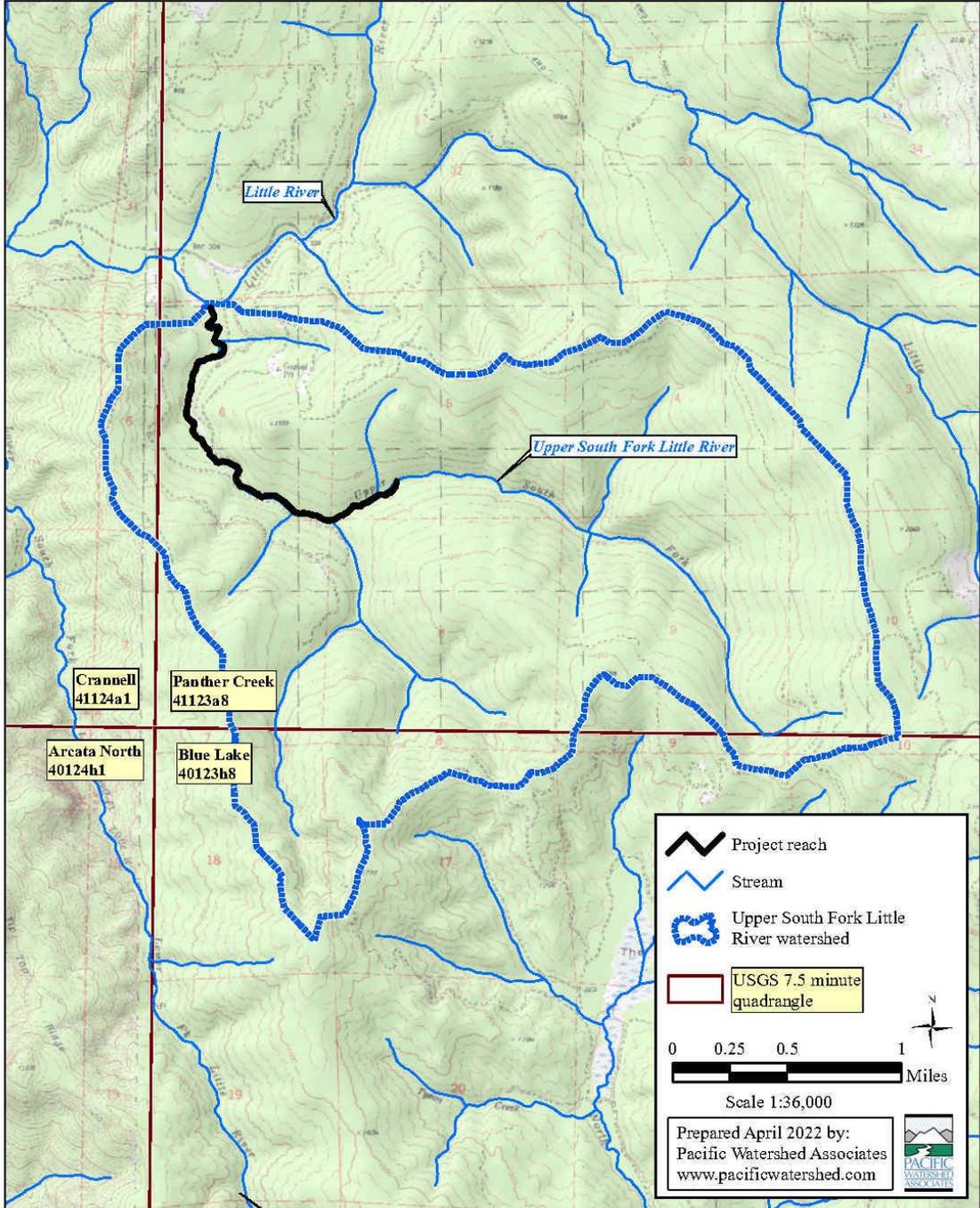
c. The Permittee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW personnel and pursuant to conditions in the United State Army Corp of Engineers (USACE) Regional General Permit and National Marine Fisheries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

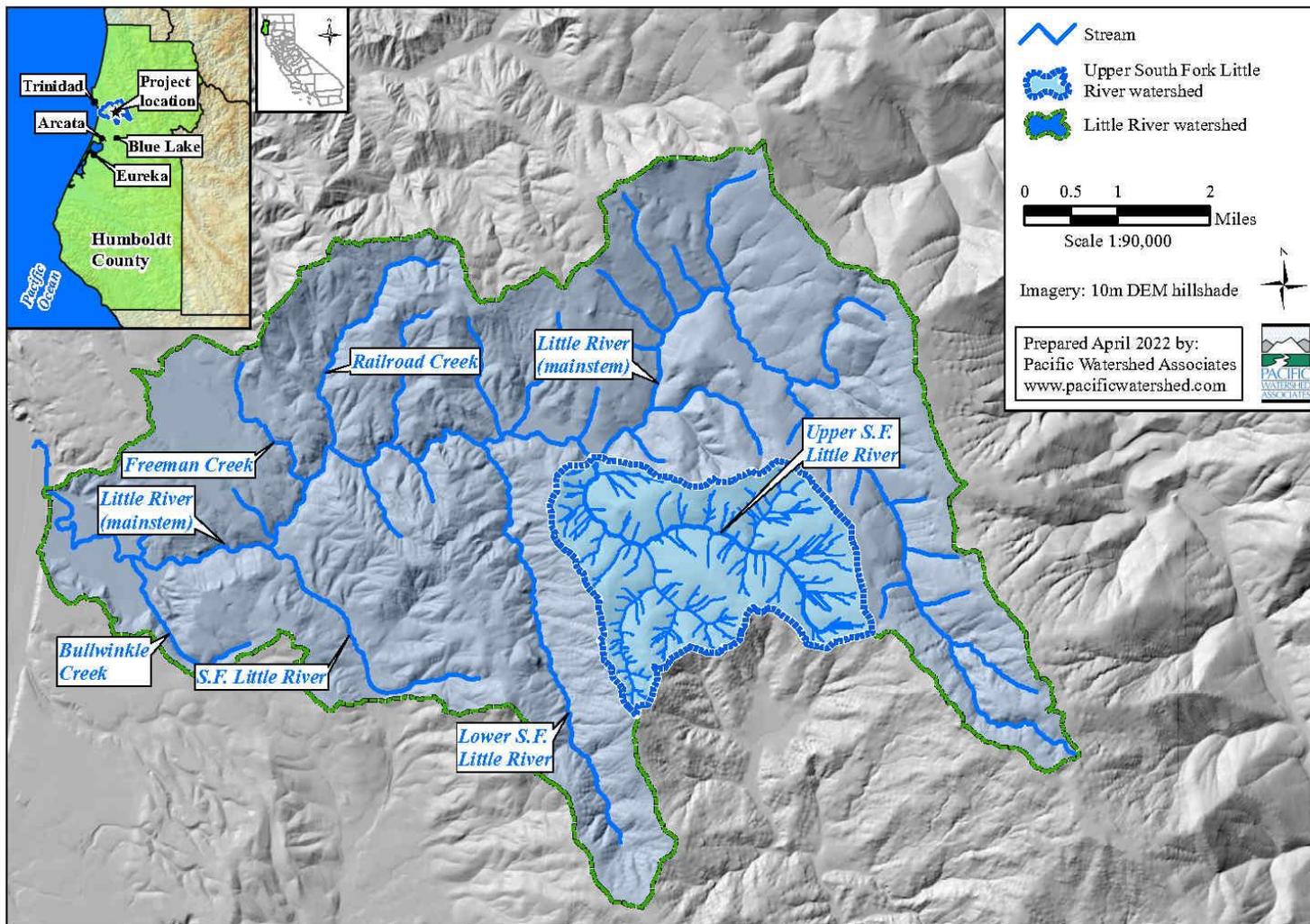
Final structure design and placement will be determined by field consultation between the Permittee and the CDFW Personnel.

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. Project location topographic map for the Upper South Fork Little River Instream Habitat Improvement Project, Humboldt County, California.
 Grantee: Pacific Coast Fish, Wildlife and Wetlands Restoration Association.

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Map 2. Watershed map for the Upper South Fork Little River Instream Habitat Improvement Project, Humboldt County, California.
Grantee: Pacific Coast Fish, Wildlife and Wetlands Restoration Association.

CALIFORNIA DEPARTMENT OF
FISH and WILDLIFE *RareFind*

Query Summary:

Quad **IS** (Panther Creek (4112318) **OR** Crannell (4112411) **OR** Hupa Mountain (4112317) **OR** Rodgers Peak (4112421) **OR** Bald Hills (4112328) **OR** French Camp Ridge (4112327) **OR** Arcata North (4012481) **OR** Blue Lake (4012388) **OR** Lord-Ellis Summit (4012387))

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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	6	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
<i>Ancotrema voyanum</i>	hooded lancetooth	Mollusks	IMGAS36130	173	1	None	None	G1G2	S1S2	null	null	Oldgrowth, Riparian forest, Talus slope
<i>Antrozous pallidus</i>	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, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
<i>Aplodontia rufa</i> <i>humboldtiana</i>	Humboldt mountain beaver	Mammals	AMAFA01017	28	10	None	None	G5TNR	SNR	null	null	Coastal scrub, Redwood, Riparian forest
<i>Arborimus pomus</i>	Sonoma tree vole	Mammals	AMAFF23030	222	16	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
<i>Ardea herodias</i>	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
<i>Ascaphus truei</i>	Pacific tailed frog	Amphibians	AAABA01010	491	67	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 umbraticus</i>	Bald Mountain milk-vetch	Dicots	PDFAB0F990	33	15	None	None	G4	S2	2B.2	null	Cismontane woodland, Lower montane coniferous forest
<i>Atractelmis wawona</i>	Wawona riffle beetle	Insects	IICOL58010	80	1	None	None	G3	S1S2	null	null	Aquatic
<i>Bombus caliginosus</i>	obscure bumble bee	Insects	IIHYM24380	181	5	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
<i>Bombus occidentalis</i>	western bumble bee	Insects	IIHYM24250	306	3	None	None	G2G3	S1	null	USFS_S-Sensitive	null
<i>Brachyramphus marmoratus</i>	marbled murrelet	Birds	ABNNN06010	110	3	Threatened	Endangered	G3	S2	null	CDF_S-Sensitive, IUCN_EN-Endangered, NABCI_RWL-Red Watch List	Lower montane coniferous forest, Oldgrowth, Redwood
<i>Cardamine</i>	seaside	Dicots	PDBRA0K010	38	3	None	None	G4G5	S3	2B.1	null	Lower montane

angulata	bittercress												coniferous forest, North coast coniferous forest, Wetland
Carex arcta	northern clustered sedge	Monocots	PMCYP030X0	13	3	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	2	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	2	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 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	1	None	None	G5T5	S2	2B.3	null		Bog & fen, Marsh & swamp, North coast coniferous forest, Wetland
Castilleja ambigua var. humboldtensis	Humboldt Bay owl's-clover	Dicots	PDSCR0D402	31	3	None	None	G4T2	S2	1B.2	BLM_S-Sensitive		Marsh & swamp, Salt marsh, Wetland
Castilleja litoralis	Oregon coast paintbrush	Dicots	PDSCR0D012	44	5	None	None	G3	S3	2B.2	null		Coastal bluff scrub, Coastal dunes, Coastal scrub
Cerorhinca monocerata	rhinoceros auklet	Birds	ABNNN11010	10	1	None	None	G5	S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern		null
Charadrius nivosus nivosus	western snowy plover	Birds	ABNNB03031	138	2	Threatened	None	G3T3	S2	null	CDFW_SSC-Species of Special Concern, NABCI_RWL-Red Watch List		Great Basin standing waters, Sand shore, Wetland
Cleptes humboldti	Humboldt cuckoo wasp	Insects	IIHYM67010	1	1	None	None	G1G2	S1S2	null	null		null
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	21	None	None	G4?	S3?	4.2	null		Meadow & seep, North coast coniferous forest, Wetland
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	None	None	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority		Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	184	1	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected,		Cismontane woodland, Marsh & swamp, Riparian

											IUCN_LC-Least Concern	woodland, Valley & foothill grassland, Wetland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1404	5	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	1	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	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
Erythronium oregonum	giant fawn lily	Monocots	PMLIL0U0C0	37	11	None	None	G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Ultramafic
Erythronium revolutum	coast fawn lily	Monocots	PMLIL0U0F0	172	28	None	None	G4G5	S3	2B.2	null	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_VU-Vulnerable	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Falco peregrinus anatum	American peregrine falcon	Birds	ABNKD06071	73	2	Delisted	Delisted	G4T4	S3S4	null	CDF_S-Sensitive, CDFW_FP-Fully Protected	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	1	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
Gilia capitata ssp. pacifica	Pacific gilia	Dicots	PDPLM040B6	91	9	None	None	G5T3	S2	1B.2	null	Chaparral, Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Gilia millefoliata	dark-eyed gilia	Dicots	PDPLM04130	54	1	None	None	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes
Hydrobates	fork-tailed	Birds	ABNDC04010	8	2	None	None	G5	S1	null	BLM_S-Sensitive,	Protected

furcatus	storm-petrel											CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	deepwater coastal communities
Iliamna latibracteata	California globe mallow	Dicots	PDMAL0K040	40	7	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
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, USFS_S-Sensitive	null
Lasionycteris noctivagans	silver-haired bat	Mammals	AMACC02010	139	1	None	None	G3G4	S3S4	null		IUCN_LC-Least Concern, WBWG_M-Medium Priority	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
Layia carnosa	beach layia	Dicots	PDAST5N010	25	1	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
Lycopodium clavatum	running-pine	Ferns	PPLYC01080	120	56	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		null	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
Montia howellii	Howell's montia	Dicots	PDPOR05070	123	9	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, WBWG_M-Medium Priority	null
Nannopterum auritum	double-crested cormorant	Birds	ABNFD01020	39	1	None	None	G5	S4	null		CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
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	15	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. 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	19	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	20	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	14	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	11	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
Ptilidium californicum	Pacific fuzzwort	Bryophytes	NBHEP2U010	177	1	None	None	G4G5	S3S4	4.3	BLM_S-Sensitive	Lower montane coniferous forest, Upper montane coniferous forest
Rana aurora	northern red-legged frog	Amphibians	AAABH01021	292	52	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	30	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	103	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	4	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian woodland
Sanicula tracyi	Tracy's sanicle	Dicots	PDAPI1Z0K0	80	2	None	None	G4	S4	4.2	USFS_S-Sensitive	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest
Scaphinotus behrensi	Behrens' snail-eating beetle	Insects	IICOL4L070	4	1	None	None	G2G4	S2S4	null	null	North coast coniferous forest

<i>Sidalcea malachroides</i>	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
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	Dicots	PDMAL110F9	60	6	None	None	G5T2	S2	1B.2	null	Coastal bluff scrub, Coastal prairie, North coast coniferous forest
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	coast checkerbloom	Dicots	PDMAL110K9	19	1	None	None	G5T1	S1	1B.2	null	Lower montane coniferous forest, Meadow & seep, North coast coniferous forest, Wetland
<i>Silene scouleri</i> ssp. <i>scouleri</i>	Scouler's catchfly	Dicots	PDCAR0U1MC	23	1	None	None	G5T4T5	S2S3	2B.2	null	Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
<i>Sulcaria spiralifera</i>	twisted horsehair lichen	Lichens	NLT0042560	18	2	None	None	G3G4	S2	1B.2	BLM_S-Sensitive	Coastal dunes, North coast coniferous forest
<i>Thaleichthys pacificus</i>	eulachon	Fish	AFCHB04010	10	3	Threatened	None	G5	S2	null	null	Aquatic, Klamath/North coast flowing waters
<i>Thermopsis robusta</i>	robust false lupine	Dicots	PDFAB3Z0D0	104	8	None	None	G2	S2	1B.2	USFS_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Ultramafic
<i>Trichodon cylindricus</i>	cylindrical trichodon	Bryophytes	NBMUS7N020	14	2	None	None	G4G5	S2	2B.2	null	Broadleaved upland forest, Meadow & seep, Upper montane coniferous forest
Upland Douglas Fir Forest	Upland Douglas Fir Forest	Forest	CTT82420CA	15	1	None	None	G4	S3.1	null	null	North coast coniferous forest
<i>Usnea longissima</i>	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
<i>Viola palustris</i>	alpine marsh violet	Dicots	PDVIO041G0	10	1	None	None	G5	S1S2	2B.2	null	Bog & fen, Coastal scrub, Wetland