

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

2019

## **Introduction:**

The California Conservation Corps (CCC) will implement the East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation. The lack of large wood in the stream channel has affected the quality and quantity of salmonid habitat within the East Branch North Fork (EBNF) Big River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. Recovery plans and assessments recommend adding large wood to EBNF Big River. California Department of Fish and Wildlife's 2011 East Branch North Fork Big River Habitat Inventory Report recommendations include increasing woody cover in the pools and flatwater habitat units. The report found an average shelter rating of 15, where 100 is desirable. NOAA fisheries 2012 lists the watershed as a core area for protection and restoration and lists input of large woody debris (LWD) as an immediate restoration action.

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* (Part VII <https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

The specific objective of this project is to improve the quality and quantity of spawning and rearing habitat for coho salmon by installing 41 large wood features within a 5,930 foot section of EBNF Big River, consisting of 94 pieces of large wood. This project will increase the existing large wood count from 49 to 143 pieces within the 5,930 foot section of stream. The addition of appropriately sized wood to meet target criteria will enhance the quality, quantity, and complexity of spawning and rearing habitat for salmonids.

## **Project Description:**

### **Location:**

The project is located along a section of East Branch North Fork Big River, located in the county of Mendocino, State of California. The project starts approximately 145 feet downstream of Frykman Gulch and continues upstream for 5,930 feet. Frykman Gulch enters EBNF Big River approximately 3.28 miles upstream of the confluence with North Fork Big River. Project boundaries are 39.32428° north latitude, -123.51209° west longitude at the downstream end; 39.32305° north latitude, -123.49503° west longitude at the upstream end; Township 19 North, Range 15 West, and Sections 23 and 14 of the Comptche

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

2019

and Greenough Ridge 7.5 Minute U.S. Geological Survey (USGS) Quadrangle maps as depicted in the Project Location Map.

## **Project Set Up:**

CCC will provide all project oversight, administration and implementation. Subcontractor Mendocino Redwood Company Forester will approve trees to be felled for project sites. Subcontractor Licensed Timber Operator, under direction from CCC, will fell flagged redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) trees at feature locations. Subcontractor archaeologist and botonist, pursuant to the California Environmental Quality Act (CEQA), will conduct archeological and botanical surveys/investigations throughout the project reach. Subcontractor, Paleontologist, pursuant to CEQA, will conduct a paleontological investigation of the project reach. Subcontractor Aquatic Survey Observer, at the recommendation of California Department of Fish and Wildlife (CDFW), will follow all guidelines for foothill yellow-legged frog (*Rana boylei*) mitigation measures required by the CDFW's Lake and Streambed Alteration Agreement.

## **Materials:**

A total of 41 large wood features, consisting of 94 pieces of large wood and root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials. Trees left unanchored will be at least 1.5 times the average bankfull width per CDFW's *California Salmonid Stream Habitat Restoration Manual* specifications for unanchored large wood (Part VII-23).

## **Tasks:**

**Task 1. Install Instream Habitat Features:** Install 41 instream features within a 5,930 foot section of EBNF Big River, consisting of 94 pieces of large wood. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project large wood will be documented.
- Various anchoring techniques, which will be approved by CDFW prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

2019

- riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.
- Available slash and woody debris will be installed into structures after site completion to provide immediate cover for salmonids present at time of construction.

**Task 2. Erosion Control:** Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream.

**Deliverables:** A total of 41 instream features will be constructed within a 5,930 foot section of EBNF Big River, consisting of 94 pieces of large wood.

**Timelines:** June 15 through October 31 of the years 2020, 2021, 2022, and 2023, California Conservation Corps will install large wood features within approved project reaches. Erosion control will be installed as project features are completed.

## **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 Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the 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. Any and 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.

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

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2019

Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Project Managers.

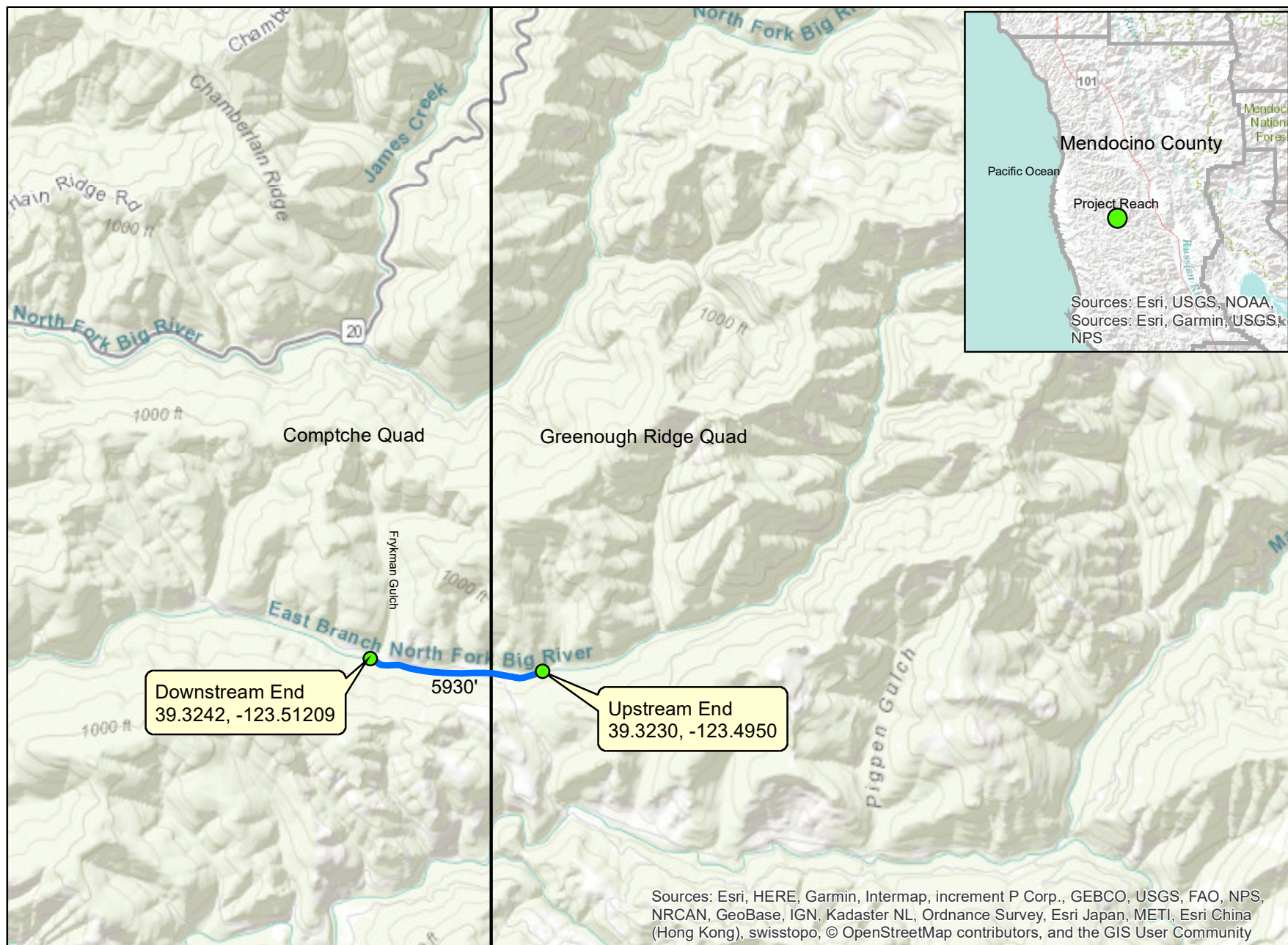
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*.



# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

## Project Location Map

### California Conservation Corps



— LWD Installation Reach

0 0.5 1 Miles



## Selected Elements by Scientific Name

### California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad< IS </span>(Comptche (3912335)<span style='color:Red'> OR </span>Greenough Ridge (3912334)<span style='color:Red'> OR </span>Willits (3912343)<span style='color:Red'> OR </span>Laughlin Range (3912333)<span style='color:Red'> OR </span>Orrs Springs (3912323)<span style='color:Red'> OR </span>Bailey Ridge (3912324)<span style='color:Red'> OR </span>Navarro (3912325)<span style='color:Red'> OR </span>Elk (3912326)<span style='color:Red'> OR </span>Mathison Peak (3912336)<span style='color:Red'> OR </span>Noyo Hill (3912346)<span style='color:Red'> OR </span>Northspur (3912345)<span style='color:Red'> OR </span>Burbeck (3912344))

Possible species within the Comptche and Greenough Ridge and their surrounding quads for 2972 East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Accipiter gentilis</i></b> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<b><i>Accipiter striatus</i></b> sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
<b><i>Agelaius tricolor</i></b> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<b><i>Agrostis blasdalei</i></b> Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
<b><i>Alisma gramineum</i></b> grass alisma	PMALI01010	None	None	G5	S3	2B.2
<b><i>Arboreus pomo</i></b> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<b><i>Arctostaphylos nummularia ssp. mendocinoensis</i></b> pygmy manzanita	PDERI04280	None	None	G3?T1	S1	1B.2
<b><i>Arctostaphylos stanfordiana ssp. raichei</i></b> Raiche's manzanita	PDERI041G2	None	None	G3T2	S2	1B.1
<b><i>Ascaphus truei</i></b> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<b><i>Astragalus agnicidus</i></b> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<b><i>Blennosperma bakeri</i></b> Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
<b><i>Bombus caliginosus</i></b> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<b><i>Bombus occidentalis</i></b> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<b><i>Brasenia schreberi</i></b> watershield	PDCAB01010	None	None	G5	S3	2B.3
<b><i>Calileptoneta wapiti</i></b> Mendocino leptonetid spider	ILARAU6040	None	None	G1	S1	
<b><i>Campanula californica</i></b> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<b><i>Carex californica</i></b> California sedge	PMCYP032D0	None	None	G5	S2	2B.3
<b><i>Carex lenticularis var. limnophila</i></b> lagoon sedge	PMCYP037A7	None	None	G5T5	S1	2B.2



# Selected Elements by Scientific Name

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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Carex lyngbyei</i></b> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<b><i>Carex saliniformis</i></b> deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
<b><i>Castilleja mendocinensis</i></b> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<b><i>Coastal and Valley Freshwater Marsh</i></b> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<b><i>Coastal Brackish Marsh</i></b> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Elanus leucurus</i></b> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Erysimum concinnum</i></b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Falco peregrinus anatum</i></b> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
<b><i>Fissidens pauperculus</i></b> minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
<b><i>Fritillaria roderickii</i></b> Roderick's fritillary	PMLIL0V0M0	None	Endangered	G1Q	S1	1B.1
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Grand Fir Forest</i></b> Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
<b><i>Helminthoglypta arrosa pomoensis</i></b> Pomo bronze shoulderband	IMGASC2033	None	None	G2G3T1	S1	
<b><i>Hemizonia congesta ssp. congesta</i></b> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
<b><i>Hesperovax sparsiflora var. brevifolia</i></b> short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2



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<b><i>Hesperolinon adenophyllum</i></b> glandular western flax	PDLIN01010	None	None	G2G3	S2S3	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Icteria virens</i></b> yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
<b><i>Kopsiopsis hookeri</i></b> small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3
<b><i>Lavinia symmetricus navarroensis</i></b> Navarro roach	AFCJB19023	None	None	G4T1T2	S2S3	SSC
<b><i>Lilium maritimum</i></b> coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
<b><i>Limnanthes bakeri</i></b> Baker's meadowfoam	PDLIM02020	None	Rare	G1	S1	1B.1
<b><i>Lycopodium clavatum</i></b> running-pine	PPLYC01080	None	None	G5	S3	4.1
<b><i>Mendocino Pygmy Cypress Forest</i></b> Mendocino Pygmy Cypress Forest	CTT83161CA	None	None	G2	S2.1	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Navarretia leucocephala ssp. bakeri</i></b> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<b><i>Northern Coastal Salt Marsh</i></b> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<b><i>Oncorhynchus kisutch pop. 4</i></b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus pop. 16</i></b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Packera bolanderi var. bolanderi</i></b> seacoast ragwort	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
<b><i>Pandion haliaetus</i></b> osprey	ABNKC01010	None	None	G5	S4	WL
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Pinus contorta ssp. bolanderi</i></b> Bolander's beach pine	PGPIN04081	None	None	G5T2	S2	1B.2
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Pleuropogon hooverianus</i></b> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<b><i>Potamogeton epihydrus</i></b> Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2





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<b><i>Progne subis</i></b> purple martin	ABPAU01010	None	None	G5	S3	SSC
<b><i>Ramalina thrausta</i></b> angel's hair lichen	NLLEC3S340	None	None	G5	S2?	2B.1
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Rhynchospora alba</i></b> white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
<b><i>Sanguisorba officinalis</i></b> great burnet	PDROS1L060	None	None	G5?	S2	2B.2
<b><i>Setophaga petechia</i></b> yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
<b><i>Sidalcea calycosa ssp. rhizomata</i></b> Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Speyeria zerene behrensii</i></b> Behren's silverspot butterfly	IILEPJ6088	Endangered	None	G5T1	S1	
<b><i>Sphagnum Bog</i></b> Sphagnum Bog	CTT51110CA	None	None	G3	S1.2	
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Trifolium buckwestiorum</i></b> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<b><i>Trifolium trichocalyx</i></b> Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
<b><i>Valley Oak Woodland</i></b> Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	

Record Count: 77