Upper Hollow Tree Wood Loading Project 2020

Introduction:

The Eel River Watershed Improvement Group (ERWIG) will implement the Upper Hollow Tree Wood Loading Project. Hollow Tree Creek supports populations of endangered coho salmon. The purpose of the project is to improve habitat in Hollow Tree Creek. Salmonid recovery plans recommend increasing stream habitat complexity in these streams by installing large woody debris (LWD). Adding LWD to Hollow Tree Creek will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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

Objective(s):

The objective of this project is to construct 76 LW features along 2.1-miles of Hollow Tree Creek. These features will contain 271 pieces of large wood (LW), including 90 key pieces and 60 pieces with rootwads attached. The addition of these structures will enhance spawning and rearing habitats for both adult and juvenile salmonids.

Project Description:

Location:

This project is located on Hollow Tree Creek, a tributary to the South Fork Eel River. It is located near the town of Leggett, CA in Township 22 North, Range 17 West, Sections 23, 24, 25, and 26 of the Lincoln Ridge 7.5 Minute U.S. Geological Survey Quadrangle. The downstream extent of the project reach is at the confluence with Huckleberry Creek. The project reach extends upstream 2.1-miles. Project coordinates are: 39.736697 North and 123.707005 West.

Project Set Up:

ERWIG Staff:-ERWIG Executive Director: Task 1. Contract oversight and reporting will be conducted by ERWIG Executive Director with assistance from the ERWIG Project Manager.-ERWIG Project Manager: Tasks 1, 3, 4, 6, and 7. Will assist with contract oversight, invoicing, and reporting. Will manage all aspects of project implementation.Subcontractors:-Edwards Excavation & Restoration (LTO & EO): Tasks 3 and 4. Will be responsible for falling trees as the source of LW. Will also be responsible for placing logs and boulders according to design plans when equipment access is available. -California Conservation Corps (CCC): Task 4. Under supervision of the Conservationist 1, CCC corpsmembers will anchor the structures according to design and anchoring

specifications. Corpsmembers will also move logs into position using a griphoist come-along.-Ross Taylor & Associates: Task 3. Will conduct fish relocation at stream crossing locations. Will prepare fish relocation report.-Paleontologist TBD: Task 2. Will conduct paleontological surveys and prepare CEQA report.-Archaeologist/Botanist TBD: Task 2. Will conduct botanical and archaeological surveys and will prepare CEQA report.-Registered Professional Forester (RPF): Task 4. Will make sure trees chosen for project use are appropriate.-Woodbenders: Task 5. Will plant the trees for the project.

Materials:

All materials will be purchased by applicant. Anchoring Hardware: 1` rebar, 5/8` wire rope, 5/8` wire rope clips, nuts and plates (washers), these items are used to anchor logs to live trees, boulders, bedrock and other logs.Tools: Portable band saws, wood drills, timber bits, chainsaws: these items are used to construct the anchoring portion of the structures. Wood drills and timber bits are used to drill holes in live trees and logs for rebar attachment. Portable band saws are used to cut rebar to length. Chainsaws are used to buck trees, remove hazard trees and trim branches.Portable generators: Used to power the power tools that are used during the anchoring process.Spittler crossing materials: Culvert, geotextile fabric and straw will be used to construct the Spittler crossing over Butler Creek.Misc items: Small items such as chuck keys, allan wrenches, socket wrenches, shear pins, epoxy glue and band saw blades, which are used during construction. Other misc items include field supplies such as waders, boots, laser distance measurer and flagging.Erosion control materials: Straw, wattles and/or other erosion controls that will help keep sediment from entering watercourses.Permits: LSAA permit will need to be paid for to meet permitting requirements.ERWIG Mileage: Reimbursement for miles driven by ERWIG staff to and from project site in order to manage project. Boulders, logs, and rootwads: Will be used in the construction of the habitat structures in order to provide habitat and will be anchored together. Most of the logs will be sourced from riparian redwoods and Douglas firs. Boulders will be purchased from the Garberville quarry and sourced on site. Purchased boulders will average 2 tons in weight.Griphoist: Used to move logs into final position after placement by excavator or after falling a live tree.Forklift Rental: Used in Task 3 to remove purchased rebar and nuts from delivery truck.Water Pump and Accessories Rental: Used to dewater channel before Spittler crossing installation. Rental costs were found to be significantly less than an outright purchase.YSI water quality meter: Used in Task 4 to monitor water quality during construction. Redwood seedlings and native plants: Will be used to plant areas disturbed by project activities and areas within the project reach that are lacking canopy cover. Species will include coast redwood (*Sequoia sempervirens*), salal (Gaultheria shallon), evergreen huckleberry (*Vaccinium ovatum*), azalea (*Rhododendron sp*.), thimbleberry (*Rubus parviflorus*), and western sword fern (*Polystichum munitum*).

Tasks:

Task 1 – Administration:
Grant oversight including invoicing and reporting will be conducted by Grantee Executive Director and Project Manager (Staff). Upon final execution of the Grant and prior to receiving a Notice to Proceed, Grantee shall deliver the following items to the CDFW Grant Manager: 1. Request to spend project funds in order to prepare for implementation (e.g., obtain permits, secure subcontracts, purchase supplies, apply for a Streambed Alteration Agreement, etc.). Requests shall be sent by email or telephone. 2. Access agreement that will be project specific and meet grant agreement requirements. 3. Subcontractor Agreements. A written copy of the sub agreement shall be submitted to the CDFW Grant Manager. The subcontract shall include specific language which establishes the rights of the auditors of the State to examine the records of the subcontractor relative to the services and materials provided under the grant. 4. CEQA survey interim reports for archaeological and botanical surveys. Interim reports shall be delivered prior to receiving notice to proceed, as part of the Notification of Lake or Streambed Alteration Application (LSAA) package. Final Archaeological, botanical, and paleontological surveys shall be delivered prior to the End Term date. 5. Send Grantor LSAA with a check for the most current permit fee. The Grantee shall notify the CDFW Grant Manager a minimum of 10 business days prior to the beginning of project implementation. ERWIG Staff will write and deliver annual reports, a draft final report, and a final report.

Task 2 – CEQA Surveys:
Archaeological, botanical, and paleontological subcontractors will conduct research and surveys within the project reach to fulfill CEQA requirements for FRGP. Interim survey reports will be delivered to CDFW Grant Manager prior to receiving a Notice to Proceed. Botanist will note wetland habitat to avoid.

Task 3 - Site Preparation:
The ERWIG Project Manager will finalize site-specific designs based on channel morphology, equipment access, and LW availability. They will submit designs for CDFW Project Manager approval. The ERWIG Project Manager will flag sites for wood selection, staging, and installation, clear brush as needed, and designate staging areas for wood along the project reach. Pre-project photos and metrics will be collected by ERWIG. Tools and materials will be purchased by ERWIG prior to the start of implementation and on an as-needed basis throughout the project. Before the excavator uses stream crossings, ERWIG staff will set up exclusion fencing. In conjunction with CDFW, Ross Taylor and Associates will remove fish and amphibians from five stream crossing locations and release them at appropriate locations upstream or downstream of crossings. Ross Taylor and Associates will write all reports necessary for the e-fishing activities. Four of the stream crossings used by equipment will be wet fords and will only be crossed by one excavator two times. If necessary, an ATV will be used to bring fuel to the excavator, fueling will happen outside of the high-water area. The

crossing over Butler Creek will be a Spittler crossing with a culvert, logs, geotextile fabric, straw, and a layer of driving surface. This will be constructed by the equipment operator as part of Task 4.

Task 4 – Large Wood Structure Construction:
Upon approval from the CDFW Project Manager, construction will begin on 76 LW features under the direction of the ERWIG Project Manager. Some features may involve cutting down or uprooting trees, which will be accomplished by the LTO or the licensed equipment operator, respectively. The RPF will sign off on trees chosen for use in the project. The heavy equipment operator will build a Spittler crossing across Butler Creek. After fish exclusion fencing is set-up and fish and amphibians are relocated, about 50 feet of Butler Creek will be de-watered to facilitate installation. Two appropriately sized culverts will be placed in the stream channel, followed by logs geotextile fabric, and driving surface (gravels & fines). This crossing will be used to access the upstream half of the project reach. With approval from the grant manager, the licensed equipment operator will place logs into the stream in accordance with design plans.

When necessary, CCC Corpsmembers will move logs into position using a grip hoist come-along. Site construction, wood placement, and anchoring will be in accordance with the CDFW California Salmonid Stream Habitat Restoration Manual, Section VII (Flosi et al. 2010). The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. CCC Corpsmembers will anchor the sites according to design and anchoring specifications. Corpsmembers will use one- inch threaded rebar to anchor logs to mature riparian trees and other logs. Holes will be drilled through the logs and their anchor trees using a wood drill, timber bit, and drill bit extensions when necessary. One-inch rebar will be inserted through the log and secured with nuts and washers. Corpsmembers will be supervised by a trained Conservationist 1 (C1) and the ERWIG Project Manager. Erosion control methods will be employed by the CCC as required at each structure and along equipment corridors to eliminate the possibility of sediment transport to the stream. To address concerns over invasive species this project will follow the ERWIG Aquatic Invasive Species Decontamination Protocol, which is in line with the CDFW Aquatic Invasive Species Decontamination Protocol. ERWIG staff will monitor water quality when necessary.

Task 5 – Post-Implementation:
Post-construction monitoring, including photographic monitoring, and documentation of as-built conditions, will be performed by PWA consistent with the CDFW guidelines and as required by FRGP. Field reviews with partners and CDFW Grant Manager will be conducted. Woodbender will be conducting revegetation throughout the 1.9-mile reach where disturbance has happened as a result of implementation.

Task 5.1 – Riparian Planting:
Woodbenders will return in the winter following project implementation to plant 300 redwood seedlings and 100 native plants, with a primary focus in areas lacking sufficient conifer cover or riparian vegetation.

Task 6 - Post Project Photo & Data Collection:
Following implementation ERWIG will take post-project photos and quantitative implementation metrics will be collected which satisfy the Project Annual Progress Reports and Final Report.

Deliverables:

Task 1 – Administration:
1600 Permit, Subcontractor Agreements, Access Agreements, Invoices, Invoice Progress Reports, Annual reports, draft final report in electronic format, final report in electronic and hard copy formats.

Task 2 – CEQA Surveys:
Interim and Final Survey Reports.

Task 3 – Site Preparation:
Finalized design plans, flagged equipment access routes, pre-project photos and metrics, fish re-location report.

Task 4 – Large Wood Structure Construction:
76 LW structures made up of 271 logs. Water quality monitoring data sheets.

Task 5 – Riparian Planting:
Three hundred redwoods and 100 native plants planted along the project reach.

Task 6 – Post Project Photo & Data Collection:
Post-project metrics and photos.

Timelines:

Task 1 – Administration – 4/1/2021 to 2/28/2023.

Task 2 – CEQA Surveys – 4/30/2021 to 12/31/2021.

Task 3 – Site Preparation – 5/3/2021 to 7/31/2021.

Task 4 – Large Wood Structure Construction – 7/10/2021 to 10/31/2021.

Task 5 – Riparian Planting – 12/1/2021 to 2/1/2023.

Task 6 – Post Project Photo & Data Collection – 10/1/2021 to 2/1/2023.

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a “notice to proceed” letter has been received from the Grantor Project Manager. 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 Grantor.

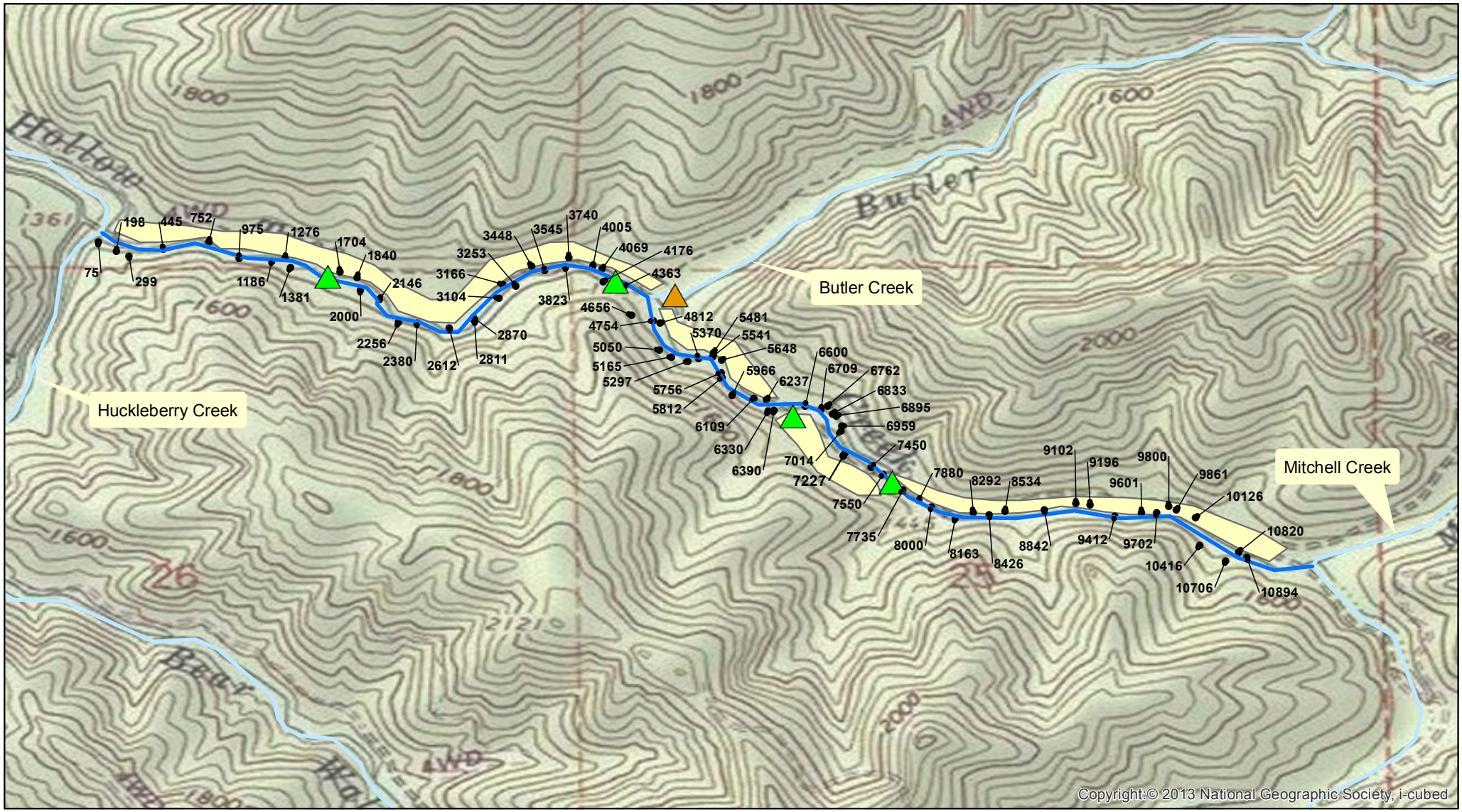
No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday when there is a threat of heavy rains which will cause flooding.

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). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife *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.

Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*.

Project Location Topographic Map
Upper Hollow Tree Wood Loading Project
Lincoln Ridge Quad



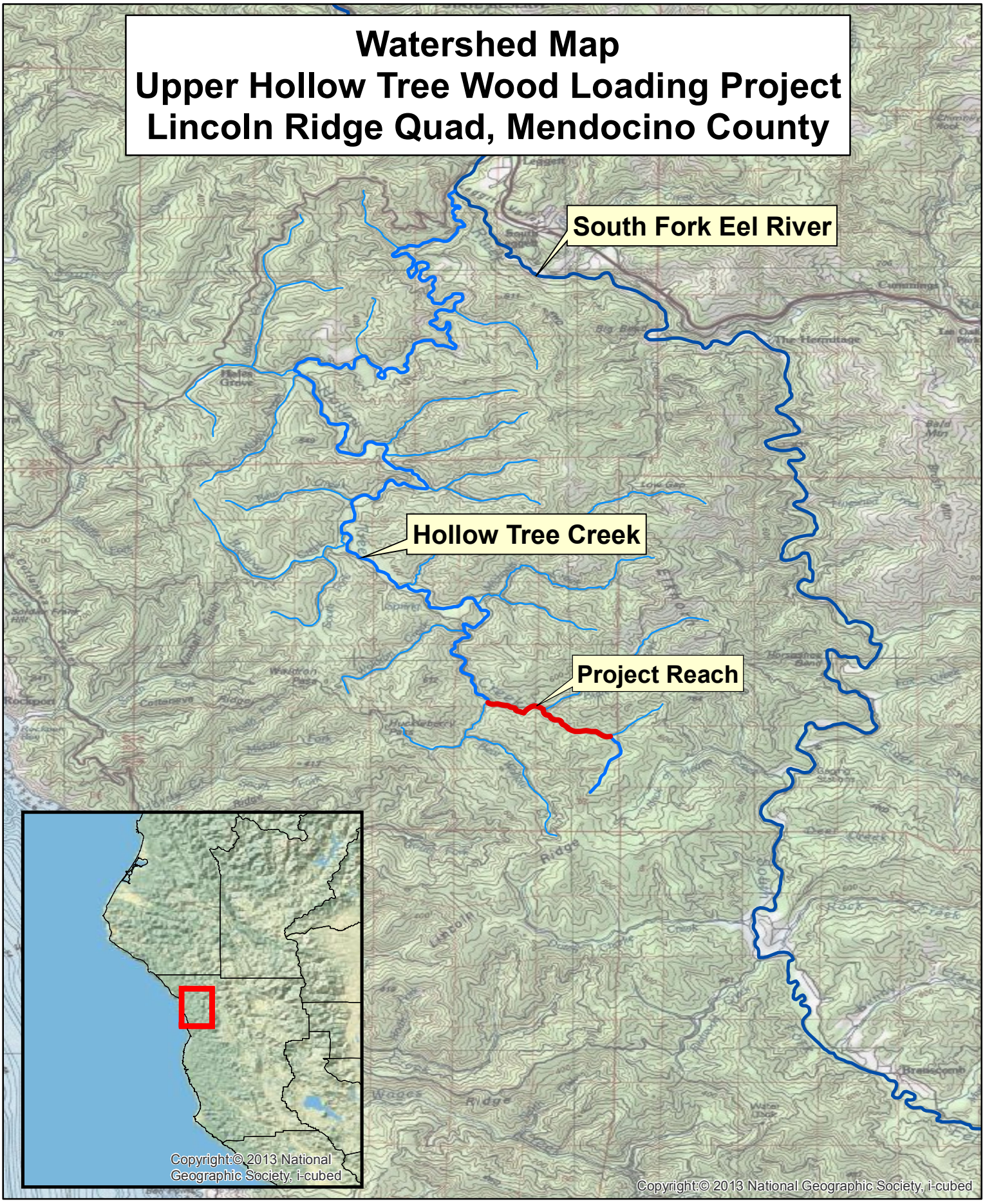
- Feature Locations
- Equipment Crossings (Wet Ford)
- Equipment Crossing (Spittler)
- Hollow Tree Creek Project Reach
- Planting Area

0 0.5 1 Miles

N

Eel River Watershed Improvement Group
March 2020

Watershed Map
Upper Hollow Tree Wood Loading Project
Lincoln Ridge Quad, Mendocino County



Project Reach

Hollow Tree Creek

South Fork Eel River

0 0.5 1 2 3 4 Miles

Eel River Watershed Improvement Group
March 2020

N

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lincoln Ridge (3912366) OR Dutchmans Knoll (3912356) OR Inglenook (3912357) OR Westport (3912367) OR Hales Grove (3912377) OR Leggett (3912376) OR Tan Oak Park (3912375) OR Cahto Peak (3912365) OR Sherwood Peak (3912355))

Possible species within the Lincoln Ridge and surrounding quads for 1723383 - Upper Hollow Tree Wood Loading Project, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abronia umbellata var. breviflora pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S2	1B.1
Accipiter gentilis northern goshawk	ABNKC12060	None	None	G5	S3	SSC
Agrostis blasdalei Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
Alisma gramineum grass alisma	PMALI01010	None	None	G5	S3	2B.2
Anodonta californiensis California floater	IMBIV04020	None	None	G3Q	S2?	
Arborimus pomo Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
Arctostaphylos manzanita ssp. elegans Konocti manzanita	PDERI04271	None	None	G5T3	S3	1B.3
Arctostaphylos stanfordiana ssp. raichei Raiche's manzanita	PDERI041G2	None	None	G3T2	S2	1B.1
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Ascaphus truei Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
Astragalus agnicidus Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	Candidate Endangered	G2G3	S1	
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3G4	S1	
Brasenia schreberi watershield	PDCAB01010	None	None	G5	S3	2B.3
Calamagrostis crassiglumis Thurber's reed grass	PMPOA17070	None	None	G3Q	S2	2B.1
Calamagrostis foliosa leafy reed grass	PMPOA170C0	None	Rare	G3	S3	4.2
Campanula californica swamp harebell	PDCAM02060	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cardamine angulata seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
Carex lyngbyei Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
Carex saliniformis deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
Carex viridula ssp. viridula green yellow sedge	PMCYP03EM5	None	None	G5T5	S2	2B.3
Castilleja mendocinensis Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
Ceanothus foliosus var. vineatus Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Chorizanthe howellii Howell's spineflower	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
Clarkia amoena ssp. whitneyi Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Collinsia corymbosa round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
Coptis laciniata Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Entosphenus tridentatus Pacific lamprey	AFBAA02100	None	None	G4	S4	SSC
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriogonum kelloggii Kellogg's buckwheat	PDPGN083A0	None	Endangered	G2	S2	1B.2
Erysimum concinnum bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2
Erysimum menziesii Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Erythronium revolutum coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Eumetopias jubatus Steller (=northern) sea-lion	AMAJC03010	Delisted	None	G3	S2	
Fen Fen	CTT51200CA	None	None	G2	S1.2	
Gilia capitata ssp. pacifica Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
Gilia millefoliata dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
Grand Fir Forest Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S3	1B.2
Hesperocyparis pygmaea pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia californica ssp. bakeri Baker's goldfields	PDAST5L0C4	None	None	G3T1	S1	1B.2
Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
Lilium maritimum coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
Mitellastra caulescens leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
North Central Coast Fall-Run Steelhead Stream North Central Coast Fall-Run Steelhead Stream	CARA2631CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Noyo intersessa Ten Mile shoulderband	IMGASC5070	None	None	G2	S2	
Oenothera wolfii Wolf's evening-primrose	PDONA0C1K0	None	None	G2	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
Oncorhynchus mykiss irideus pop. 16 steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
Pekania pennanti fisher - West Coast DPS	AMAJF01021	Endangered	Threatened	G5T2T3Q	S2S3	SSC
Phacelia insularis var. continentis North Coast phacelia	PDHYD0C2B1	None	None	G2T2	S2	1B.2
Piperia candida white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
Pleuropogon hooverianus North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
Potamogeton epihydrus Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Rana aurora northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rhyacotriton variegatus southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
Rhynchospora alba white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sidalcea malviflora ssp. purpurea purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
Silene campanulata ssp. campanulata Red Mountain catchfly	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
Taricha rivularis red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thermopsis robusta robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
Upland Douglas Fir Forest Upland Douglas Fir Forest	CTT82420CA	None	None	G4	S3.1	
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Viburnum ellipticum	PDCPR07080	None	None	G4G5	S3?	2B.3
oval-leaved viburnum						

Record Count: 83