# Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project 2019

## Introduction:

The Mattole Salmon Group will implement the Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project. This project will treat forest legacy impacts, reduce sediment delivery and improve water quality for all life stages of salmonids in Indian Creek by treating prioritized, high value sediment sources and preventing the delivery of approximately 7,915 $yd^3$ of sediment from road-related sediment delivery features to Indian Creek, including decommissioning 18 features on 1.63 miles of road.

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 II, Part X (https://www.wildlife.ca.gov/Grants/FRGP/Guidance).

## Objective(s):

This project will treat forest legacy impacts and reduce sediment delivery and improve water quality for all life stages of salmonids in Indian Creek by treating prioritized, high value sediment sources and preventing the delivery of approximately 7,915 $yd^3$ of sediment from road-related sediment delivery features to Indian Creek including decommissioning 18 features on 1.63 miles of road.

## Project Description:

### Location:

The Lost Coast Forestlands, LLC (LCF) property is 5,230 acres of forest land in the Indian Creek watershed located west of Piercy, north of Fort Bragg and south of Whitethorn in northern Mendocino County. The proposed planning watershed feeds directly into the South Fork Eel River via Indian Creek. The project area is located along the mainstem, roughly 7.7 miles upstream of the Indian Creek and South Fork Eel River confluence. The center of the project coordinates are: 39.953230 degrees north latitude, -123.906655 degrees west longitude.

### Project Set Up:

Mattole Salmon Group (MSG) will conduct Task A, Contract oversight. MSG contract Admin/Bookkeeper will process invoices from subcontractors and develop and submit invoices to the grantor. MSG Executive Director will perform periodic reviews of project progress. MSG will ensure adherence of billing practices and project performance as stated in the CDFW Grant Agreement.

MSG Executive Director and Admin/Bookkeeper will conduct all Grant Oversight. Grant oversight includes but is not limited to contracting oversight and administration, invoicing, scheduling, implementation oversight, landowner communications, and obtaining, developing and adhering to all permits, as well as assuring the application of the matching funds provided by Lost Coast Forestlands. Upon final execution of the grant, and prior to receiving a final Notice to Proceed, MSG will deliver the landowner access agreements and subcontracts, and assure CEQA and all permits are finalized.

Archeological, paleontological, botanical and biological monitors (Pacific Watershed Associates (PWA) and DZC Archaeology and Cultural Resources Management (DZC) will conduct Task B. PWA will provide preliminary monitoring reports on all mitigation measures for listed species in the project area which may include the Northern Spotted Owl (*Strix occidentalis caurina*). Pre-construction training for all workers who will be performing work on this project will be provided. A qualified archaeologist from DZC Archaeology and Cultural Resources Management and PWA botanist and PWA paleontologist will be on site or on call at all times while construction is underway. A qualified biologist will provide monitoring for frogs, owls, and fish on site or on call at all times while construction is underway.

Heavy equipment and labor subcontractor, McCullough Construction, a licensed and qualified heavy equipment contractor, will provide all the necessary heavy equipment, experienced operators, and skilled laborers required to complete the project as designed (Task C). This includes but may not be limited to the excavation of stream crossing fills, unstable road fills, road drainage treatments, and installation of instream structures using a team of hydraulic excavators, bulldozers, and dump trucks. In addition, laborers will be used to spread straw and mulch, operate and monitor pumps during any necessary dewatering operations, maintain and monitor equipment, and work on in-stream habitat improvement structures. Laborers will also conduct seeding, tree planting, straw delivery and mulching.

Geologic subcontractor will contribute to Task C. (Pacific Watershed Associates technical oversight). The geologic subcontractor will provide treatment layout, technical oversight and supervision of heavy equipment and labor operations.

The PWA Project Manager and Technical Staff perform pre-construction layout, and pre-project monitoring for the upslope project elements for Task C. This includes laying out (flagging) specific treatments and extent of excavations, carrying out pre-treatment surveys of stream crossings, and pre-treatment monitoring. Layout hours include a wet weather inspection to help identify seeps and springs along the road proposed for treatment. Other layout steps include compiling the field information into a detailed set of construction maps, road logs,

detailed treatment information, and state and federal permits that will be provided to the heavy equipment contractor. Specifically, Project Manager and Technical Staff hours, costs, and expenses are based on the length of road proposed for treatment and ease of access (walk, quad, or drive) to the project specific roads (1.63 miles), and erosional features (18 upslope features). The GIS staff provides project support through development of GIS maps and products for the field, database interfaces, GPS data organization and analysis.

The PWA Associate Geologist (PG) and Project Manager supervise the heavy equipment implementation and provide technical oversight for Task C. Heavy equipment technical oversight and supervision hours are based on the total excavator hours and number of work weeks for site specific and road drainage treatments (494 excavator hours; 14 weeks).

The Senior Geologist conducts paleontological surveys and CEQA compliance.

The Project Manager has the overall charge of daily on-going activities including technical oversight and supervision of heavy equipment and labor operations. Hours include materials coordination, project planning meetings, and communications with the landowner, subcontractors, and agency staff.

PWA Technical Staff hours include heavy equipment oversight, field preparation, coordination, field vehicle maintenance, and field map creation and transfer for the GIS staff. Photo downloading and file management, as well as data entry for annual report metrics, performance measures, as-built construction road logs, before/after implementation monitoring photographs, stream crossing surveys, and heavy equipment time logs for hours spent treating each feature on the proposed roads are also part of the technical staff duties.

Field review costs and expenses (Task C) including pre- and post-construction inspections by the Principal and Associate Geologist (PG), CEG, and Project Manager are based on the number of heavy equipment hours and work weeks (14 weeks). For Task C, the Principal, Senior Geologist (PG) and CEG review the technical aspects of the implementation project and provide guidance for the Project Manager and Technical Staff as required in complex landform issues.

The Associate Geologist (PG) ensures compliance with the Geologist and Geophysicist Act (California Business and Professions Code 7800). In addition, the Principal and Associate Geologist ensure that the project is implemented as designed, and follows or exceeds the CDFW standards for road decommissioning (Task C).

In addition for task C, revegetation will be conducted by specialist contractors to be determined after the grant contract is approved and signed.

A qualified Biologist will conduct fish exclusion and required amphibian monitoring.

For Task D, the PWA Project Manager and Technical Staff will perform post-treatment data collection, photographic monitoring, data analysis, and reporting. All required information will be compiled at the end of the project in a final summary report that includes post-construction metric tables, as-built construction road logs and maps, and photo monitoring pairs of pre- and post-treatments showing the condition of the decommissioned road. Expenses include quality assurance and quality control including final report technical editing and review by the Principal and Engineering Geologist. For the final report (Task E), the GIS staff will generate and provide final report maps.

**Materials:**

Straw: For this project 152 bales of straw mulch is used to protect and promote growth of native seedlings used in re-planting in areas disturbed from restoration activities. Straw mulch will also be used for erosion control. Straw and tree mulch will be critical to reducing post-decommissioning surface erosion.

Seed: For this project 107 pounds of native grass seed is used to re-plant bare earth areas and reduce surface erosion in areas that have been disturbed by restoration activities. Seed is the fastest and most efficient way to provide medium-term erosion control on disturbed areas.

Flex pipe: six inch diameter (600 feet): Used for dewatering live stream crossings. The flex pipe will be used to convey streamflow around the work area with the trash pump or using gravity feed to dewater stream crossings.

Trees (planting): For this project 723 trees ($4.85/tree; includes labor) will be planted by specialized laborers. Native conifer saplings will be planted in the riparian zone disturbed by heavy equipment.

Debris pump: Implementation of the project is estimated to require the use/rental of one pump for site-specific work (approximately 30 days). Pumps are used during construction to pump clean streamflow around the construction features and manage turbidity.

Pressure washer: A (hot water) pressure washer is used to decontaminate heavy equipment between each use in different waterbodies to prevent the spread of invasive species as per the equipment decontamination methods stated in the CDFW decontamination protocol.

Exclusionary fencing: Fencing material (225 ft) will be used to prevent for fish and aquatic species from entering the work area.

Miscellaneous field and office supplies: Many small field and office supplies are used to complete the project including: photographic supplies, flagging, wood stakes, field maps, Mylar overlays for field maps, photo duplication for final reports, copying/binding for final reports, report maps, phone, fax, email and postage.

Implementation of the project is estimated to require the use of 782 gallons of gasoline and 14,273 gallons of diesel.

The heavy equipment contractor will be responsible for acquiring the following materials: Debris pump, flex pipe, pressure washer, and fuel.

PWA will be responsible for acquiring the following materials: Trees, miscellaneous field and office supplies, fuel, straw bales, and seed.

Heavy Equipment and Labor Requirements: Equipment needs for erosion control treatments are summarized, based on priority level. Most treatments will require the use of heavy equipment (e.g., excavator, bulldozer, and dump truck). Labor is required at features involving tree removal and post-treatment mulching for surface erosion control. Work hours for logistics are added to hours for the actual treatment work in determining total equipment costs.

**Tasks:**

**Task A: Grant and contract oversight:** Contract oversight will be conducted by Mattole Salmon Group and Pacific Watershed Associates. All reporting and billing will be pursuant to contract and regulatory guidelines. MSG contract Admin/Bookkeeper and PWA Clerical Staff will process invoices from subcontractors and develop and submit invoices to the grantor. PWA Professional Geologists will administer the project in the field to ensure timeliness, completion, and conformance with restoration and land management goals of the landowner. MSG Executive Director will perform periodic reviews of project progress. Pacific Watershed Associates will ensure adherence of billing practices and project performance as stated in the CDFW Grant Agreement. MSG Executive Director, Admin/Bookkeeper, and PWA Project Manager will conduct all Grant Oversight. Grant oversight includes but is not limited to contracting oversight and administration, invoicing, obtaining and adhering to permits, scheduling, implementation oversight, and landowner communications. All reporting and billing will be pursuant to grant and regulatory guidelines. Upon final execution of the grant, and prior to receiving a final Notice to Proceed, MSG will deliver the landowner access agreements and subcontracts, and assure all

permits are finalized. Elements of this task will continue throughout the life of the project.

**Task B: Construction archeological, botanical and biological monitoring:** A MSG Staff, Service-approved, qualified archeologist, botanist, and biologist will provide preliminary monitoring reports on all mitigation measures for listed species in the project area which may include the Northern Spotted Owl (NSO). All mitigation measures described in the USFWS NSO Take Avoidance Analysis and Guidance 2011 will be followed. Pre-construction training for all workers who will be performing work on this project will be provided. A DZC qualified archeologist and PWA qualified botanist and paleontologist will be on-site or on call at all times while construction is underway. A qualified biologist will provide monitoring to cover CEQA requirements for amphibians, fish, and owls.

**Task C: Construction of sediment control project:** This project will implement road decommissioning, and complete road-related sediment reduction treatments, included in the Indian Creek erosion control plan developed by PWA through a previous CDFW FRGP-funded upslope sediment source assessment. PWA will be responsible for implementation of the project. The PWA clerical team will compile invoices and track budgets throughout the project. All mitigation measures described in the CDFW Regional General Permit will be followed. In order to be compliant with FRGP CEQA process and to prevent the spread of aquatic invasive species, the project will follow the Invasive Species Prevention Protocol (MSG, 2019). A qualified Biologist will conduct fish exclusion and required amphibian monitoring. Personal field gear and heavy equipment working in or near a stream will be decontaminated following terms outlined in the referenced protocol.

Pre-project layout and pre-implementation monitoring - PWA will flag heavy equipment access routes and construction boundaries (layout) as well as spoil disposal areas, equipment exclusion areas for biologic, botanical, paleontological and/or cultural resource protection. They will also set up before- after photo point monitoring stations at selected construction locations for final reporting. Pre-project monitoring will be completed prior to implementation, following the CDFW guidelines and data forms.

Heavy equipment mobilization - Low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season and will require one or more  pilot cars to move through the public highway system.

Road opening and erosion control - PWA will work with the selected heavy equipment operators to reopen the proposed roads for equipment access and decommissioning treatments. All treatment prescriptions proposed in the project

follow guidelines in the Handbook for Forest, Ranch, and Rural Roads (Pacific Watershed Associates, 2015), as well as Part X of the California Department of Fish and Game Salmonid Habitat.

**Task D: Post-implementation monitoring:** PWA will reoccupy photo points to document pre- and post-implementation conditions at sediment source feature locations. In addition to the proposed monitoring specified within this proposal, PWA will conduct pre- and post-project monitoring to assess upslope restoration project outcomes using CDFW monitoring protocols, guidelines, and data forms.

**Task E: Summary reporting:** PWA Project Manager and Technical Staff will prepare a final summary report detailing project accomplishments, containing pre- and post-construction photographic documentation, and all summary reporting metrics required by the FRGP contract. PWA Principal will be responsible for final editing of the summary report.

**Deliverables:**

**Task A: Grant and contract oversight:** Project deliverables will include the information listed below: final landowner access agreements; notification and payment of CDFW Lake and Streambed Alteration Agreement (LSAA/1600); periodic progress, status and annual reports. The project deliverables will also include all invoices, additional progress reports or any other documentation pursuant to the grant requirements, including a final report, as-built road logs, before/after photographs, performance measures, maps and project budget.

**Task B: Construction archeological, botanical and biological monitoring:** Preliminary report monitoring on all mitigation measures for listed species and/or findings in the project area will be provided to MSG and the CDFW Contract Manager.

**Task C: Construction of sediment control project:** As-built road logs for permanent road decommissioning of 1.63 mi of inner gorge and streamside riparian road in the Indian Creek watershed; erosion and sediment control treatment of 18 site specific erosional features along the decommission road alignment; excavation of 22,096 $yd^3$ of man-made fill and sediment, primarily at unstable fill slopes, bank erosion features, and stream crossings, and prevention of 7,915 $yd^3$ of anthropogenic related sediment from entering the Indian Creek stream system. As-built road logs and performance measures to be included in the final report.

**Task D: Post-implementation monitoring:** Implementation monitoring deliverables will be included in the final report including labeled before-and-after photos of selected restoration activities and techniques and as-built road logs.

**Task E: Summary reporting:** Upon completion of the project MSG and PWA will submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's 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 road logs, (7) dates of work and the number of person hours expended, (8) labeled before-and- after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in-kind services used to complete the project, (10) GIS generated maps and shapefiles of the project area, and (11) monitoring checklists, databases, spreadsheets and any other data products produced under this grant.

**Timelines:**

**Task A: Grant and contract oversight:** 03/02/2020 to 03/31/2022.

**Task B: Construction archeological, botanical and biological monitoring:** 04/01/2021 to 10/31/2021.

**Task C: Construction of sediment control project:** 06/01/2020 to 10/31/2021.

**Task D: Post-implementation monitoring:** 10/31/2021 to /28/2022.

**Task E: Summary reporting:** 10/31/2021 to 03/31/2022.

**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 California Department of Fish and Wildlife.

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 California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

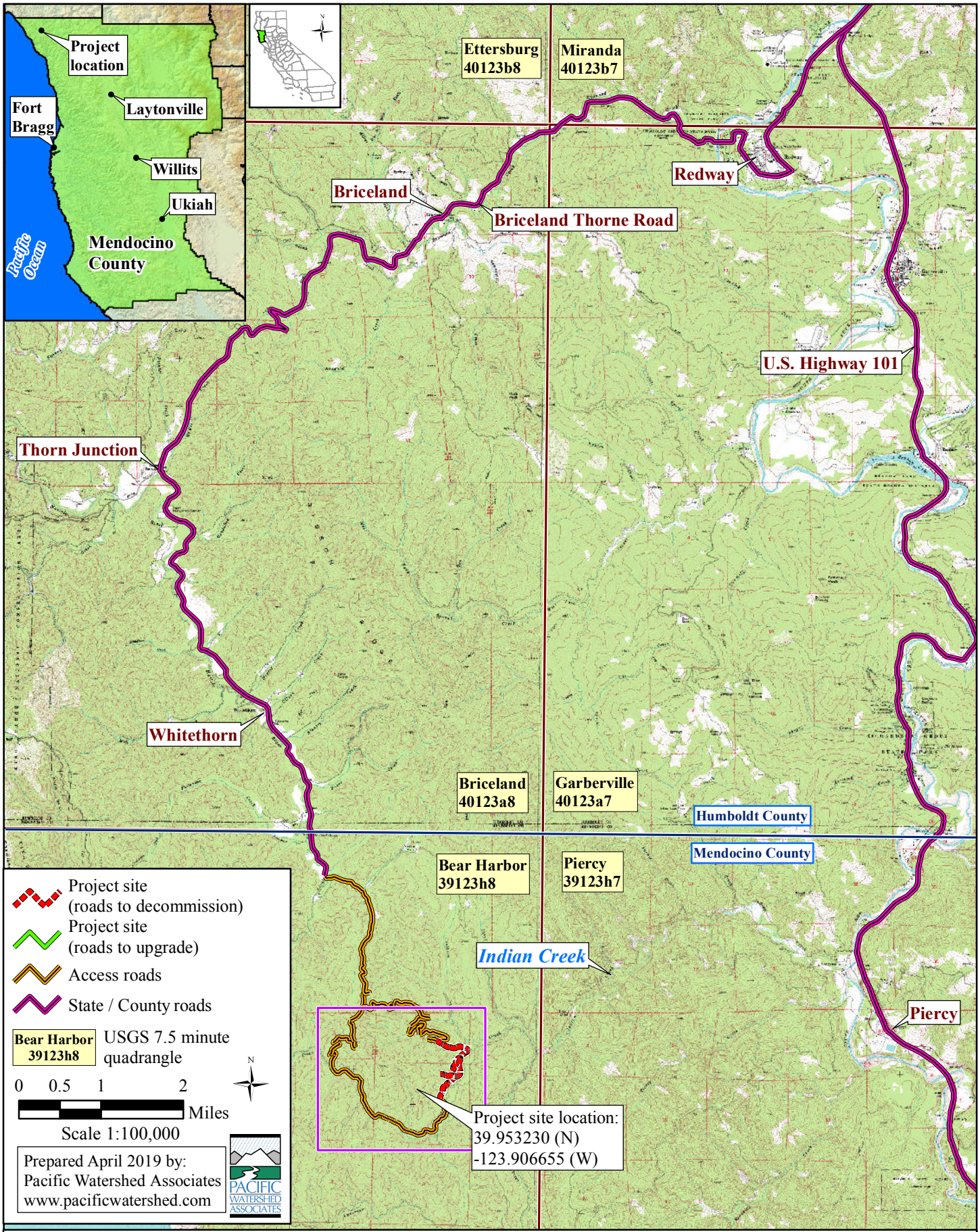
During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor 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 Grantee 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 Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and 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. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

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 ensure the best chance of survival of the seedlings.




Map 1. Project location topographic map for the Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project, Mendocino County, California. Grantee: Mattole Salmon Group

# Selected Elements by Scientific Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Query Criteria:** Quad IS (Bear Harbor (3912388) OR Garberville (4012317) OR Piercy (3912387) OR Hales Grove (3912377) OR Mistake Point (3912378) OR Shelter Cove (4012411) OR Briceland (4012318))

Possible species within the Bear Harbor and surrounding quads for 3118 Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project, Mendocino County

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| ***Accipiter cooperii*** Cooper's hawk | ABNKC12040 | None | None | G5 | S4 | WL |
| ***Antrozous pallidus*** pallid bat | AMACC10010 | None | None | G5 | S3 | SSC |
| ***Arborimus pomo*** Sonoma tree vole | AMAFF23030 | None | None | G3 | S3 | SSC |
| ***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 occidentalis*** western bumble bee | IIHYM24250 | None | None | G2G3 | S1 | |
| ***Calamagrostis foliosa*** leafy reed grass | PMPOA170C0 | None | Rare | G3 | S3 | 4.2 |
| ***Cardamine angulata*** seaside bittercress | PDBRA0K010 | None | None | G4G5 | S3 | 2B.1 |
| ***Castilleja litoralis*** Oregon coast paintbrush | PDSCR0D012 | None | None | G3 | S3 | 2B.2 |
| ***Castilleja mendocinensis*** Mendocino Coast paintbrush | PDSCR0D3N0 | None | None | G2 | S2 | 1B.2 |
| ***Clarkia amoena ssp. whitneyi*** Whitney's farewell-to-spring | PDONA05025 | None | None | G5T1 | S1 | 1B.1 |
| ***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 |
| ***Erethizon dorsatum*** North American porcupine | AMAFJ01010 | None | None | G5 | S3 | |
| ***Erythronium revolutum*** coast fawn lily | PMLIL0U0F0 | None | None | G4G5 | S3 | 2B.2 |
| ***Gilia capitata ssp. pacifica*** Pacific gilia | PDPLM040B6 | None | None | G5T3 | S2 | 1B.2 |
| ***Hesperocyparis pygmaea*** pygmy cypress | PGCUP04032 | None | None | G1 | S1 | 1B.2 |

# Selected Elements by Scientific Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| ***Horkelia marinensis*** Point Reyes horkelia | PDROS0W0B0 | None | None | G2 | S2 | 1B.2 |
| ***Lasthenia californica ssp. macrantha*** perennial goldfields | PDAST5L0C5 | None | None | G3T2 | S2 | 1B.2 |
| ***Lathyrus palustris*** marsh pea | PDFAB250P0 | None | None | G5 | S2 | 2B.2 |
| ***Mitellastra caulescens*** leafy-stemmed mitrewort | PDSAX0N020 | None | None | G5 | S4 | 4.2 |
| ***Montia howellii*** Howell's montia | PDPOR05070 | None | None | G3G4 | S2 | 2B.2 |
| ***Myotis evotis*** long-eared myotis | AMACC01070 | None | None | G5 | S3 | |
| ***Myotis thysanodes*** fringed myotis | AMACC01090 | None | None | G4 | S3 | |
| ***Myotis yumanensis*** Yuma myotis | AMACC01020 | None | None | G5 | S4 | |
| ***Oncorhynchus kisutch pop. 2*** coho salmon - southern Oregon / northern California ESU | AFCHA02032 | Threatened | Threatened | G4T2Q | S2? | |
| ***Oncorhynchus mykiss irideus pop. 36*** summer-run steelhead trout | AFCHA0213B | None | None | G5T4Q | S2 | SSC |
| ***Pandion haliaetus*** osprey | ABNKC01010 | None | None | G5 | S4 | WL |
| ***Pekania pennanti*** fisher - West Coast DPS | AMAJF01021 | None | Threatened | G5T2T3Q | S2S3 | SSC |
| ***Piperia candida*** white-flowered rein orchid | PMORC1X050 | None | None | G3 | S3 | 1B.2 |
| ***Rana aurora*** northern red-legged frog | AAABH01021 | None | None | G4 | S3 | SSC |
| ***Rana boylii*** foothill yellow-legged frog | AAABH01050 | None | Candidate Threatened | G3 | S3 | SSC |
| ***Rhyacotriton variegatus*** southern torrent salamander | AAAAJ01020 | None | None | G3G4 | S2S3 | SSC |
| ***Sidalcea malachroides*** maple-leaved checkerbloom | PDMAL110E0 | None | None | G3 | S3 | 4.2 |
| ***Taricha rivularis*** red-bellied newt | AAAAF02020 | None | None | G4 | S2 | SSC |
| ***Thermopsis robusta*** robust false lupine | PDFAB3Z0D0 | None | None | G2 | S2 | 1B.2 |
| ***Usnea longissima*** Methuselah's beard lichen | NLLEC5P420 | None | None | G4 | S4 | 4.2 |

**Record Count: 39**