Jameson Creek Fish Passage Improvement and Restoration Project 2019

Introduction:

The City of Fortuna Public Works (City) will implement the Jameson Creek Fish Passage Improvement Restoration Project. The purpose of the project is to restore access to 1.7 miles of historical coho salmon habitat. The project is necessary because the existing Rohnerville Road culvert has been determined to be a complete barrier to all life stages of salmonids at all flows. Salmonid recovery plans recommend restoring habitat connectivity between coho salmon (*Oncorhynchus kisutch*) populations in coastal and low-gradient inland streams in the lower Eel River Watershed.

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 will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* (Part VII, X, XI and XII https://www.wildlife.ca.gov/Grants/FRGP/Guidance).

Objective(s):

The specific objective of this project is to upgrade an undersized culvert to a precast reinforced concrete box (RCB) culvert, approximately 12' High x 14' Wide, with the roughened channel constructed within the culvert to provide a natural stream bottom. Construction will follow 100% agency-approved designs in order to allow access for all salmonid lifestages to approximately 1.7 miles of good quality spawning and rearing habitat in Jameson Creek.

Project Description:

Location:

The project is located on Jameson Creek at Rohnerville Road, in Humboldt County, California. The project starts approximately 0.7 miles upstream of the confluence with Strongs Creek and extends approximately 500 feet upstream. The center point of the project is 40.5785º north latitude, -124.1298º west longitude; Township 02 North, Range 01 West, and Section 1 of the Fortuna 7.5 Minute U.S. Geological Survey (USGS) Quadrangle maps as depicted in the Project Location Map.

Project Set Up:

The City will provide all project oversight and administration. Subcontractor, GHD Inc., will serve as the engineer of record, project manager, perform coordination with the City and subcontractors, and civil engineering expertise and lead the bid

period services, construction management, on-site observation, biological clearance surveys, and project closeout tasks.

Jeremy Svehla will serve as engineer of record and project manager, and will provide civil engineering and fish passage expertise. Brett Vivyan will serve as the construction manager, on-site inspector and perform coordination with the City and subcontractors. Brian Crowell will be the structural engineer and provide structural engineering expertise and on-site inspection for the culvert retrofit. Steve Allen will provide Quality Assurance and Quality Control oversight as needed. Genevieve Rozhon will serve as the qualified biologist to conduct biological clearance surveys. GHD will request the services of qualified CDFW staff to provide aquatic species relocation. If unavailable, GHD will contract with a qualified biologist licensed and permitted for electrofishing, handling, and relocation of relevant aquatic species. Michael Love & Associates, Inc. (MLA) will serve as the fish passage engineers for the project. Michael Love and his team will assist with preparing bid documents and selection of a contractor, oversight of rock chute and rock banklines construction and post implementation monitoring. City personnel will be comprised of Merritt Perry (Director of Public Works/City Engineer/City Manager), Kevin Carter (Deputy Director of Public Works) and a City Account Clerk. The personnel team will provide management and administrative services, including attendance at applicable meetings. Services provided by the City staff will be included in the applicant cost share (hard match). The Contractor awarded the project will have a Class A General Engineering Contractor's License in the state of California and will be responsible for supplying and implementing the project materials.

Materials:

Project materials are to be supplied by the awarded contractor and include: Gravel and fabric for temporary construction entrance/access; temporary shoring and shoring plan for structural stability of culvert during construction of culvert and head/end walls; signs, lights, channelizing devices and notification materials for traffic control; gravel, bags, piping and pump for dewatering, diversion and control of water to conduct in-stream work. Pumps, temporary piping, and bracing to protect and provide utility service during construction; clearing and grubbing equipment and hand tools for vegetation removal; concrete saw cut, demolition and disposal of existing culvert, head/end walls, and existing roadway and appurtenances; excavation (streambed material/rock) for roughened channel; excavation (roadway embankment) for rebuilding roadway embankment; native backfill for road embankment; aggregate base backfill for structural support of culvert and head/end walls; 12’ x 14’ box culvert to convey roughened channel beneath roadway; structural concrete and reinforcement for culvert notch construction; reinforced concrete sills for bed and water retention; light class rock slope protection (RSP) for culvert outlet scour protection; 1/4 ton

and light class rock slope protection for roughened channel bankline; engineered streambed material for roughened channel; native backfill to fill voids of light class RSP; 30 HDPE stormdrain pipe to replace and reroute existing drainage; 8' CMP downdrain pipe and anchors to drain business parking lot; 6' PVC sanitary sewer pipe to replace existing AC pipe; 10' PVC water pipe to replace existing pipe; hot mix asphalt and concrete for reestablishing the roadway, curbs, gutters, and sidewalks along Rohnerville Road; fencing to replace those that will require removal to construct the project; thermoplastic striping and pavement markings on Rohnerville Road; midwest guardrail and AC dike along Rohnerville Road for safety and improved drainage; biodegradable erosion control mat for erosion control; Container plants for revegetation; willow staking for bank revegetation; straw mulch for seed and erosion control; seed (California brome (*Bromus carinatus*), Rye, Wheatgrass, Fescue and Barley mix) for revegetation; fiber rolls for erosion control; drain inlet protections for sediment control.

Tasks:

Task 1. Stream Dewatering, Aquatic Species Relocation and Biological Clearance Surveys: Following the Jameson Creek Fish Passage Improvement Project Design, April 2019, temporary cofferdams and fish screens will be installed upstream of the existing inlet and downstream of the proposed roughened channel with a gravity diversion pipe (or optional sump pump) that will convey flow through the construction area, discharging downstream of the project area. All aquatic species will be relocated outside of the project reach. Once all aquatic species have been relocated, the project reach will be dewatered following the approved clear water diversion plan. All methods will follow according to the *California Salmonid Stream Habitat Restoration Manual*, Parts IV, IX and XII. Biological clearance surveys will be conducted for presence/absence of nesting birds prior to construction disturbance. As-needed avian surveys and biological monitoring will be conducted during construction activities.

Task 2. Construction Stakeout: Project stakeout will include establishment of elevation control and placement of stakes to denote the location and stationing of the project components as defined in the approved plan designs. Layout of temporary road and crossing alignment and disturbance limits will be defined for the contractor using flagging and paint.

Task 3. Temporary Access Route: Following CDFW approved design plans, General Construction Contractor will construct a temporary access route in order to access the project location. Additional site access and staging areas will be identified by the City and additional areas secured with private land owners if needed.

Task 4. Fish Passage Improvement Construction: General Construction Contractor will implement the Jameson Creek Fish Passage Improvement and Restoration Project consistent with the 100% design plans dated April 2019.

Task 4.1. Removal of Existing Culvert: The existing roadway will be excavated to remove the existing culvert, and the new culvert would be set approximately 3' below the proposed channel thalweg to accommodate backfilling with streambed material. Existing City maintained utilities within the roadway include a 6" diameter gravity sewer main, a 10" diameter water main and two storm drain outfalls on the upstream and downstream end of the culvert crossing. The construction contractor will temporarily bypass the sewer line between the manholes and the water line would be temporarily braced or realigned during construction. Joint overhead poles exist on the downstream side of the crossing and a 3" diameter gas line exists in the roadway. Upon final design and prior to construction, the City would need to request PG&E relocate their facilities as part of the franchise agreement either temporarily or permanently to accommodate construction of the new crossing. Once the culvert and roughened channel are constructed, the roadway fill prism will be brought back up to grade, and all existing utilities within the fill prism will be replaced in-kind.

Task 4.2. Precast Box Culvert: A 125 foot long x 12 foot high x 14 foot wide reinforced concrete box (RCB) culvert will be installed along with a roughened channel. The roughened channel will be built within the culvert to provide a natural stream bottom at approximately 3.4% slope. The precast box culvert would be placed in sections, and would require foundation preparation prior to installation. The culvert is designed to convey the minimum 100-year flow and meet CDFW/NOAA fish passage guidelines. The box culvert will include cast-in-place concrete head- and end-walls. These walls will serve to accommodate the embankment and channel grading, improve culvert inlet and outlet hydraulic conditions, and provide for a hydraulic cut-off that will help prevent piping beneath the culvert. The cut-off wall will extend 3 feet below the invert of the culvert, which is sufficient to engage firm, native materials.

Task 4.3. Roughened Channel Construction: Fish passage from the downstream channel will be provided using a combination of rock chutes and pools starting approximately 100 feet downstream of the crossing, continuing through the culvert and ending 450 feet upstream. Once the RCB is placed, the roughened channel would be constructed by placing rock from both ends of the culvert or alternatively from the top, should the contractor choose removable tops allowing rock placement from above.

The rock chutes will be constructed at a 5.5% slope, range from 14.5 to 36.4 feet long, and have drops across the chutes ranging from 0.5 to 2 feet. The pools between the chutes will create a flat-water surface profile and have a residual depth of two feet.

Within the new culvert, rock chute dimensions will be constant, and will be 18.2 feet long, with a drop of one foot across the chute. Pools between the chutes within the culvert will be 11.1 feet long. Upstream and downstream of the crossing, longer pools will be constructed at the two meander bends in the planform. These pools are each 22.2 feet long and have upstream chutes that are 36.4 feet long at a 5.5% slope.

The active channel width of the chutes will be eight feet. The active channel will be V-shaped with 7H:1V side slopes to concentrate lower flows and provide sufficient water depth for low-flow fish passage. It will be constructed of engineered streambed material. The bankfull channel will be 12.3 feet wide and two feet deep. Pools will maintain a bankfull width of 12.3 feet, range from 0 to 2 feet deep, with varying active channel width dependent on the pool depth. Rock bank lines will be constructed at a 1.5H:1V slope to define the bankfull channel banks.

Outside the culvert the rock bank lines will extend to below the pool bottom. Inside the culvert, rock bank lines will be used to define the boundaries of the rock chutes. To maximize the pool volume between the chutes, no rock bank lines will be constructed in the pools within the culvert. Because of space limitations in the stream valley, graded slopes above bankfull elevation will be 1.5H1:1V. To maintain bank stability, rock slope protection (RSP) will be placed on both sides of the channel between the bankfull elevation and the 100-year water surface elevation.

The roughened channel will consist of a mix of rock materials. The active channel bed will be constructed of engineered streambed material (ESM). Rock bank lines will be used to define the channel banks to the bankfull elevation. RSP will be placed between the bankfull elevation and the 100-year water surface elevation. The ESM for the project will be composed of a wide gradation of rock sizes. The larger rocks in the mix will be used as structural rocks to enhance the bed stability while producing the hydraulic roughness and flow diversity found in similar sloped natural channels. The smaller material in the ESM mix will fill the voids to control porosity. To create more stability in the ESM, the larger rocks in the ESM mix will be placed as structure rocks in rock bands across the chutes. Three different size structure rocks will be used to define the rocks bands. To ensure the voids are filled between rocks and flow is remaining on the surface, Filler Material composed of the ESM gradation equal to or smaller than 3-inches is also specified.

Task 4.4. Rock Bankline Gradation: Rock banklines will be constructed to form the channel banks along the length of the roughened channel upstream and downstream of the culvert. Inside the culvert, rock banklines will be constructed along the rock chutes, but not in the pools, providing additional pool volume for energy dissipation.

Task 4.5. Rock Slope Protection: The voids between the placed rocks will be filled with salvaged soil, free of clays, to support the growth of riparian vegetation.

Task 4.6. Bed Retention Sills: Cast-in-place concrete bed retention sills will be installed within the box culvert to add additional stability to the ESM chutes. The intent of the sills is to support the footer rocks for each rock bank and to control bed porosity in the ESM. A concrete sill will be placed near the head of each chute within the culvert, just downstream of the upper rock band. These sills will be 3 feet tall at their lowest point, and slope upwards at a 7H:1V slope to form a V-shape such that the crest of the sill will be 1.3 feet below the channel bottom across its entire width.

The second set of sills will be located in the pools, immediately downstream of the rock band at the end of each rock chute. These sills will be 2 feet tall at their lowest point, and slope upwards at a 7H:1V slope to form a V-shape. The tops of these sills will be exposed at the finished grade of the pool bottoms.

Task 5. Revegetation and Erosion Control: Seed and straw mulch shall be applied to all areas disturbed by the project. Seeds shall be obtained from regionally appropriate sources. Straw will be applied at a rate of 2,500 pounds per acre. Approved biodegradable mat will be installed per approved Design following seeding. Approximately 337 native trees and shrubs will be planted per Designs.

Deliverables:

The Jameson Creek crossing at Rohnerville Road will be retrofitted to allow year-round passage to all life stages of coho salmon to over 0.5 miles of upstream cold-water habitat.

Timelines:

June 1, 2021 through June 30, 2021, stream dewatering, aquatic species relocation and biological clearance surveys will take place.

June 30, 2021 through October 31, 2021, construction stakeout, temporary access route construction, and all fish passage improvement construction. Seed and straw mulch will be applied to all areas outside of the channel disturbed by construction.

December 1, 2021 through February 28, 2022, native riparian plants will be planted and staked.

Additional Requirements:

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 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.

The Grantee shall notify the CDFW 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 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 Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

- Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
- 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*.
- 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.
- 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.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Project Manager on a form provided by CDFW.
- The Grantee will provide fish relocation data to CDWF on a form provided by CDWF.

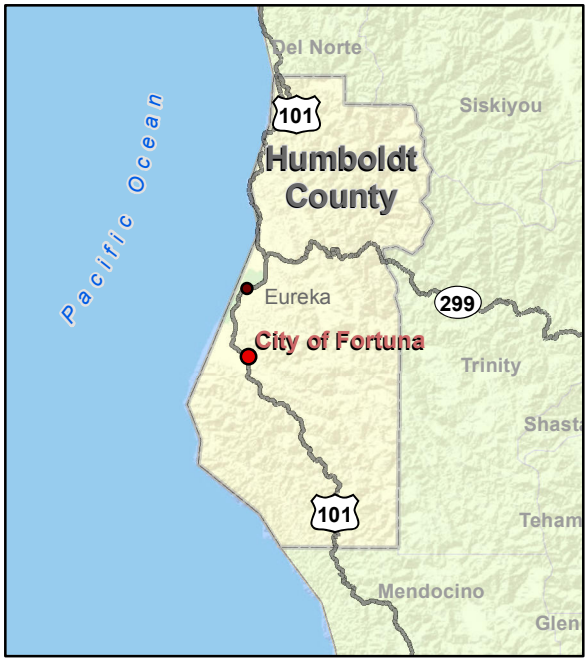
The culvert design and modification will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the CDFW, for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or CDFW engineers prior to commencement of work.

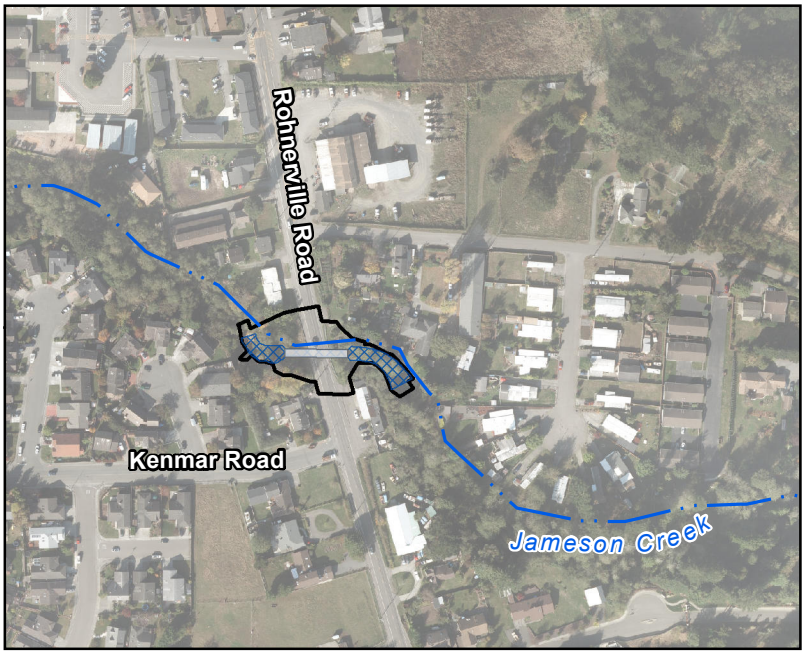
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

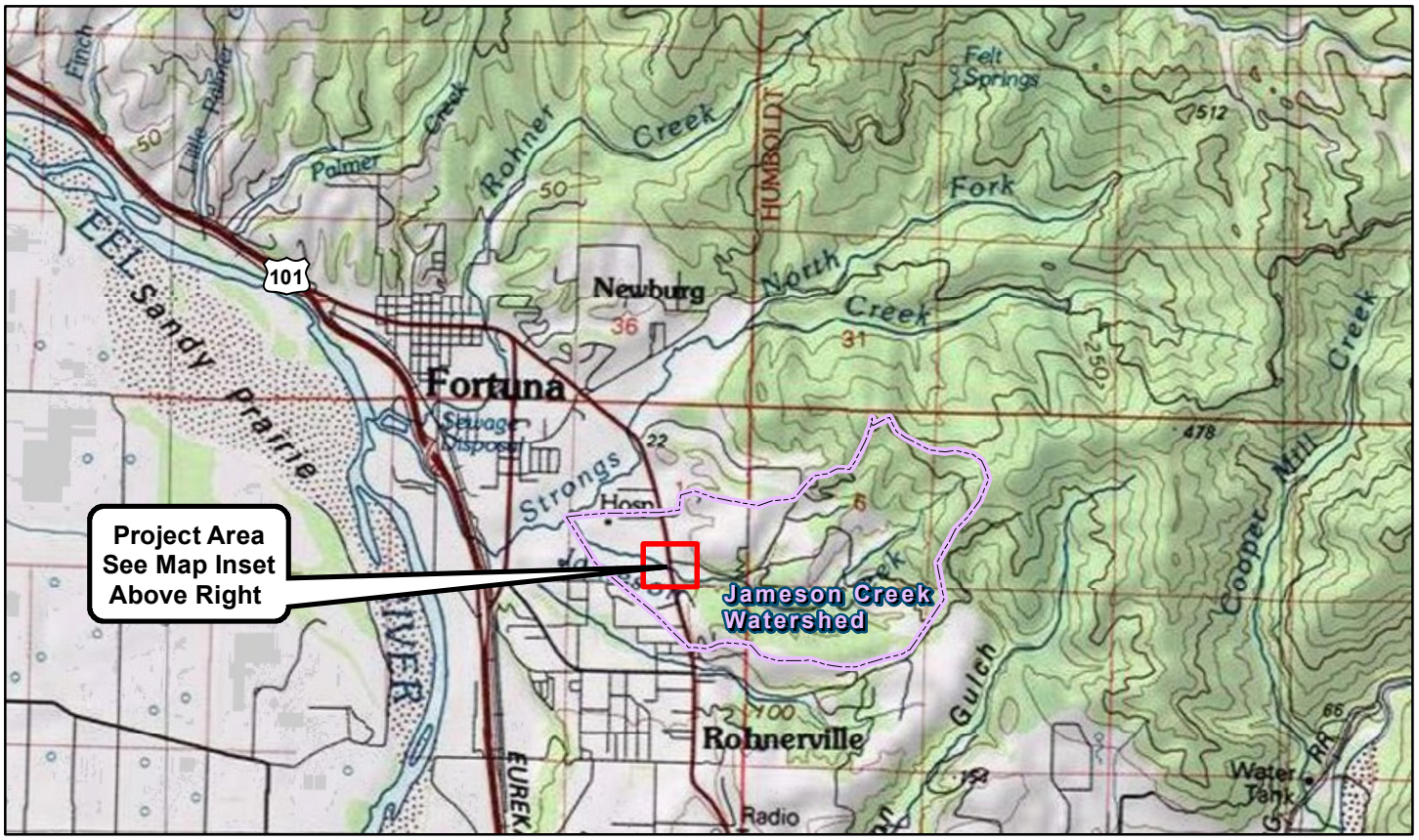
Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Project Managers.

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.

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







Project Location Quadrangle (7.5 minute): Fortuna

Adjacent Quadrangles (7.5 minute): Fields Landing (North), Hydesville (East), Taylor Park (South), Ferndale (West)

Legend

- Existing Creek Centerline
- Culvert
- Roughened Channel
- Project Boundary
- Jameson Creek Watershed

Paper Size ANSI A

0 0.3 0.6 0.9 1.2

Miles

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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GHD

City of Fortuna
Jameson Creek Fish Passage Improvement Project

Project No. 11151142
Revision No. -
Date 12/13/2018

Project Location
2019 FRGP Application

FIGURE 1

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Print date: 13 Dec 2018 - 14:53

Data source: City of Fortuna Aerial, 2010; GHD data, 2013; USA Topo Maps; Streetmap USA; NHD creek lines, 2017; Copyright© 2013 National Geographic Society, i-cubed
Sources: Esri, USGS, NOAA. Created by: jclark2

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Fortuna (4012452) OR McWhinney Creek (4012461) OR Hydesville (4012451) OR Scotia (4012441) OR Taylor Peak (4012442) OR Capetown (4012443) OR Ferndale (4012453) OR Cannibal Island (4012463) OR Fields Landing (4012462))

Possible species within the Fortuna and surrounding quads for 3075 Jameson Creek Fish Passage Improvement and Restoration Project, Humboldt 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 cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Accipiter striatus sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
Acipenser medirostris green sturgeon	AFCAA01030	Threatened	None	G3	S1S2	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Anodonta californiensis California floater	IMBIV04020	None	None	G3Q	S2?	
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G5?	S2	4.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aplodontia rufa humboldtiana Humboldt mountain beaver	AMAFA01017	None	None	G5TNR	SNR	
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arborimus pomo Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Ascaphus truei Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2	1B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3G4	S1	

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 leptalea bristle-stalked sedge	PMCYP037E0	None	None	G5	S1	2B.2
Carex lyngbyei Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
Castilleja ambigua var. humboldtiensis Humboldt Bay owl's-clover	PDSCR0D402	None	None	G4T2	S2	1B.2
Castilleja litoralis Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Clarkia amoena ssp. whitneyi Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
Coastal Terrace Prairie Coastal Terrace Prairie	CTT41100CA	None	None	G2	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Downingia willamettensis Cascade downingia	PDCAM060E0	None	None	G4	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
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	
Erysimum menziesii Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Erythronium oregonum giant fawn lily	PMLIL0U0C0	None	None	G4G5	S2	2B.2
Erythronium revolutum coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Fissidens pauperculus minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.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
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Layia carnosa beach layia	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
Lilium occidentale western lily	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
Lycopodium clavatum running-pine	PPLYC01080	None	None	G5	S3	4.1
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
Martes caurina humboldtensis Humboldt marten	AMAJF01012	None	Endangered	G5T1	S1	SSC
Montia howellii Howell's montia	PDPOR05070	None	None	G3G4	S2	2B.2
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oenothera wolfii Wolf's evening-primrose	PDONA0C1K0	None	None	G2	S1	1B.1
Oncorhynchus clarkii clarkii coast cutthroat trout	AFCHA0208A	None	None	G4T4	S3	SSC
Oncorhynchus kisutch pop. 2 coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Oncorhynchus mykiss irideus pop. 16 steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
Packera bolanderi var. bolanderi seacoast ragwort	PDAST8H0H1	None	None	G4T4	S2S3	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
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
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
Puccinellia pumila dwarf alkali grass	PMPOA531L0	None	None	G4?	SH	2B.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
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sidalcea malviflora ssp. patula Siskiyou checkerbloom	PDMAL110F9	None	None	G5T2	S2	1B.2
Sidalcea oregana ssp. eximia coast checkerbloom	PDMAL110K9	None	None	G5T1	S1	1B.2
Sisyrinchium hitchcockii Hitchcock's blue-eyed grass	PMIRI0D0S0	None	None	G2	S1	1B.1
Sitka Spruce Forest Sitka Spruce Forest	CTT82110CA	None	None	G1	S1.1	
Spergularia canadensis var. occidentalis western sand-spurrey	PDCAR0W032	None	None	G5T4	S1	2B.1
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Thaleichthys pacificus eulachon	AFCHB04010	Threatened	None	G5	S3	
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2

Record Count: 79