

EXHIBIT A  
**Ryan Creek Large Woody Debris Project**  
SCOPE OF WORK

Under direction of the Department of Fish and Game, and under the following conditions and terms, the Grantee will:

1. Improve spawning and rearing habitat for Chinook and coho salmon and steelhead trout by increasing habitat diversity in Ryan Creek, tributary to Freshwater Slough, tributary to Humboldt Bay in Humboldt County. The objective is to improve the quality and quantity of salmonid habitat by placing large wood structures instream to increase pool habitat, provide holding habitat for migrating salmonids, and sort and collect spawning gravel. In addition one log debris accumulation will be modified to provide fish passage.
2. The Grantee will conduct work along a reach of East Fork Ryan Creek along the R-Line haul line. The project is located in Township 4 North, Range 1 West, Section 24 and Township 4N, Range 1 East, Sections 18 and 19 of the Fields Landing and McWhinney Creek 7.5 Minute U.S.G.S. Quadrangles. The locations of the instream structures are approximately 40.7262 north latitude, 124.1139 west longitude at the downstream end; and 40.72528 north latitude, 124.10676 west longitude at the upstream end; the fish passage site is located at 40.7271 north latitude, 124.1047 west longitude as depicted in Exhibit C, Project Location Map, which is attached and made part of this agreement by this reference.
3. Habitat improvements will be accomplished by installing instream habitat structures at 9 sites including 30 pieces of large wood/root wads. Final structure design and placement will be determined by field consultation between the Grantee and the DFG Grant Manager.
4. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured.
5. Work will consist of the following:
  - The grantee will construct instream root wad structures according to the site specific plans, using root wads that have been stored near by.
  - Logs will be placed into the stream by a log loading excavator.
  - Where necessary the root wads will be anchored with Manta Ray earth anchors, threaded rebar and/or cable.
  - A log debris accumulation consisting of large and small woody debris will be modified using hand crew labor only. Only enough wood to restore fish passage will be removed.
6. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Game.
7. The Grantee shall notify the Grant Manager a minimum of five working days before any fish bearing stream reaches are dewatered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other aquatic species 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 relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
  - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
  - 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.
  - The Grantee will provide fish relocation data to the Grant Manager on a form provided by the Department of Fish and Game.
  - 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*.
8. All habitat improvements will follow techniques described in the Third Edition, January 1998, of the *California Salmonid Stream Habitat Restoration Manual*, Flosi et al. and the *California Salmonid Stream Habitat Restoration Manual*, Third Edition, Volume II, Part XI, January 2004.
9. If the project will not be completed by March 31, 2012, and therefore the grantee will be requesting an amendment for time, this request and a justification for the delay resulting in the time request must be submitted no later than December 1, 2011.
10. An annual report will be submitted each year, no later than December 1, detailing the work completed that field season. The annual report will include, but not necessarily be limited to the following where applicable:
- Implementation start and end dates
  - Percentage of the project completed in total to date
  - Dewatering and fish relocation on DFG data sheet (to be provided by the DFG grant manager upon request)
  - Project start and end dates for work to be implemented the following season

The annual report will also include, on a site by site basis:

- Stream length treated in feet (count one side only)
  - Length of aquatic habitat disturbed (feet)
  - Number of instream structures installed/modified
  - Area of each structure installed within bankfull width (length x width)
  - Length of instream habitat treated excluding bank stabilization
11. Upon completion of the project, the Grantee shall submit two hard copies of a final written report and one electronic, Microsoft Word compatible, copy on a CD. The report shall include, but not necessarily be limited to the following information:
- Grant number
  - Project name
  - Geographic area (e.g., watershed name)
  - Location of work – show project location using U.S.G.S. 7.5 minute topographical map or appropriately scaled topographical map
  - Geospatial reference/location (lat/long is preferred – defined as point, line, or polygon)

- Project start and end dates and the number of person hours expended
- Total of each fund source, by line item, expended to complete the project, breaking down Grant dollars, by line item, and any other funding, including type of match (cash or in-kind service)
- Expected benefits to anadromous salmonids from the project
- Labeled before and after photographs of any restoration activities and techniques
- Specific project access using public and private roads and trails, with landowner name and address
- Complete as built project description
- Report measurable metrics for the project by responding to the restoration project metrics listed below.

Habitat Protection and Restoration Projects– Reporting Metrics (HI)  
(Report N/A to those that do not apply)

Habitat Projects: (all)

- Identify the watershed/sub-basin plan or assessment in which the project is identified as a priority.
- Name the priority habitat limiting factors identified in that plan that are addressed by the project
- Type of monitoring included in the project
  - Design spec achieved
  - Fish movement/abundance
- Number of stream miles treated/affected by the project within the project boundaries.

Instream Habitat Projects (HI)

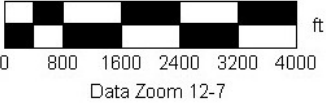
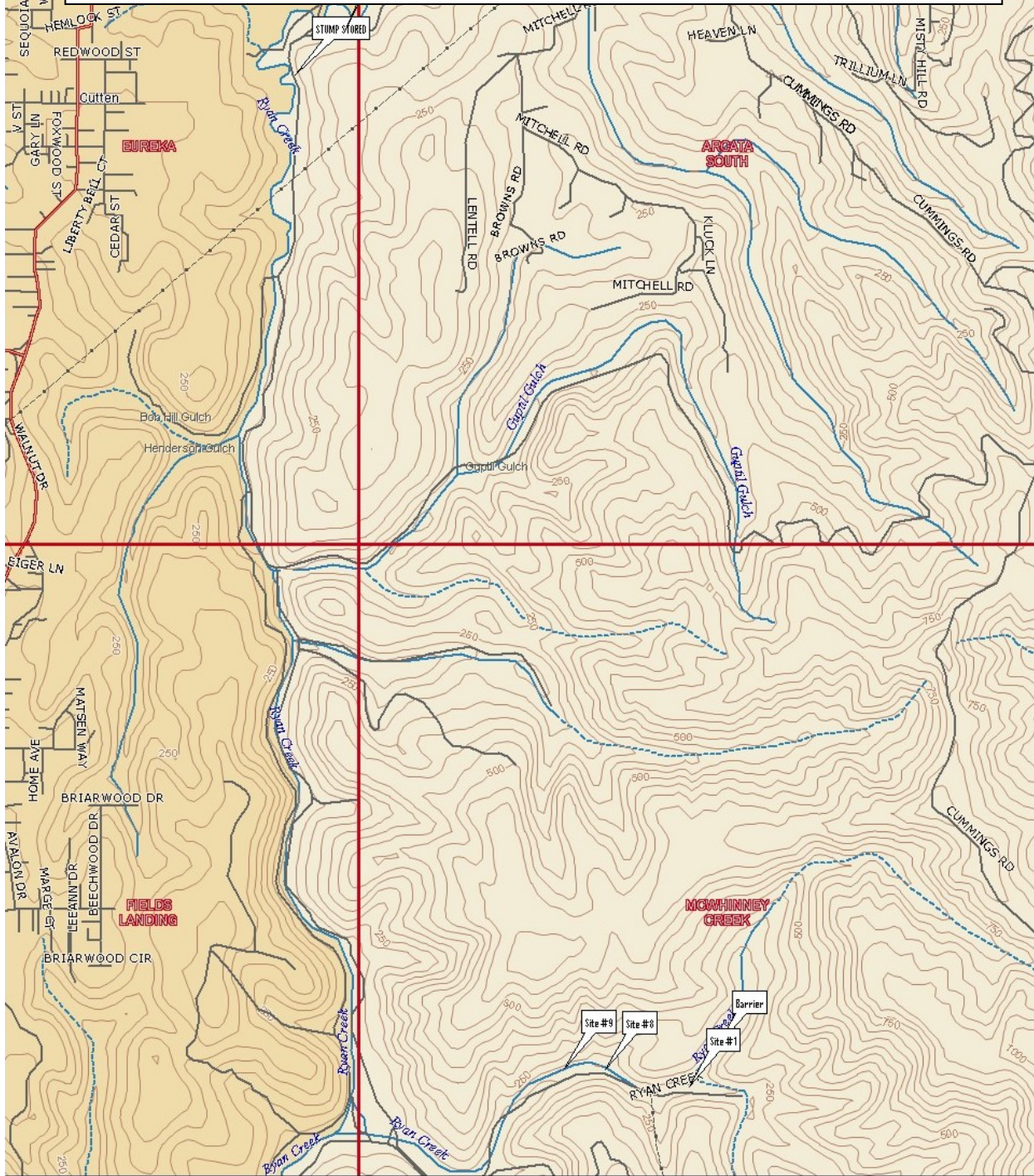
- Description of instream treatments used, including site locations referenced to an established landmark, number of treatment sites, and any modifications to site/treatment design.
- Type of materials used for channel structure placement, select from: individual logs (unanchored); logs fastened together (logjam); rocks/boulders (unanchored); rocks/boulders (fastened or anchored); stumps with roots attached (root wads); weirs; gabions; deflectors/barbs; or other engineered structures
- Miles of stream treated with channel structure placement
- Number of instream pools created by structure placement
- Number of structures placed in channel.

Fish Passage Improvement (HB)

- Miles of stream treated
- Number of barriers other than culverts treated for fish passage
- Type(s) of barriers treated, select from: diversion dam; push-up dam; wood or concrete dam; weirs; logs; or debris.
- Miles of stream made more accessible by removing barriers other than culverts.

12. The Grantee will acknowledge the participation of the Department of Fish and Game, Fisheries Restoration Grant funds on any signs, flyers, or other types of written communication or notice to advertise or explain the Ryan Creek Large Woody Debris Project.

**Exhibit C**  
**Ryan Creek Large Woody Debris Project**  
**Project Location Map**  
**T4N, R1W, S24; T4N, R1E, S18 & 19 Fields Landing and McWhinney Creek Quad**  
**Humboldt County**



California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible Species within the Fields Landing and McWhinney Creek Quads and Surrounding Quads for:

Ryan Creek Large Woody Debris Project

T4N, R1W, S24; T4N, R1E, S18 & 19

United States

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 California clapper rail <i>Rallus longirostris obsoletus</i>	ABNME05016	Endangered	Endangered	G5T1	S1	
2 California globe mallow <i>Iliamna latibracteata</i>	PDMAL0K040			G3	S2.2	1B.2
3 Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
4 Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040			G5	S3	
5 Del Norte salamander <i>Plethodon elongatus</i>	AAAAD12050			G4	S3	SC
6 Howell's montia <i>Montia howellii</i>	PDPOR05070			G3G4	S3	2.2
7 Humboldt Bay owl's-clover <i>Castilleja ambigua ssp. humboldtensis</i>	PDSCR0D402			G4T2	S2.2	1B.2
8 Humboldt Bay wallflower <i>Erysimum menziesii ssp. eurekaense</i>	PDBRA160E2	Endangered	Endangered	G3?T1	S1.1	1B.1
9 Humboldt marten <i>Martes americana humboldtensis</i>	AMAJF01012			G5T2T3	S2S3	SC
10 Kneeland Prairie pennycress <i>Thlaspi californicum</i>	PDBRA2P041	Endangered		G1	S1.1	1B.1
11 Lyngbye's sedge <i>Carex lyngbyei</i>	PMCYP037Y0			G5	S2.2	2.2
12 Norris' beard moss <i>Didymodon norrisii</i>	NBMUS2C0H0			G2G3	S2.2	2.2
13 Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
14 Oregon coast paintbrush <i>Castilleja affinis ssp. litoralis</i>	PDSCR0D012			G4G5T4	S2.2	2.2
15 Oregon goldthread <i>Coptis laciniata</i>	PDRAN0A020			G4G5	S2.2	2.2
16 Oregon polemonium <i>Polemonium carneum</i>	PDPLM0E050			G4	S1	2.2
17 Pacific fisher <i>Martes pennanti (pacifica) DPS</i>	AMAJF01021	Candidate	unknown code...	G5	S2S3	SC
18 Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6			G5T3T4	S2.2?	1B.2
19 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S2S3	SC
20 Point Reyes bird's-beak <i>Cordylanthus maritimus ssp. palustris</i>	PDSCR0J0C3			G4?T2	S2.2	1B.2
21 Siskiyou checkerbloom <i>Sidalcea malviflora ssp. patula</i>	PDMAL110F9			G5T1	S1.1	1B.2
22 Sitka Spruce Forest	CTT82110CA			G1	S1.1	
23 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030			G3	S3	SC

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United States

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24 Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
25 Whitney's farewell-to-spring <i>Clarkia amoena ssp. whitneyi</i>	PDONA05025			G5T2	S2.1	1B.1
26 Wolf's evening-primrose <i>Oenothera wolfii</i>	PDONA0C1K0			G1	S1.1	1B.1
27 alpine marsh violet <i>Viola palustris</i>	PDVIO041G0			G5	S1S2	2.2
28 bald eagle <i>Haliaeetus leucocephalus</i>	ABNKC10010	Delisted	Endangered	G5	S2	
29 beach layia <i>Layia carmosa</i>	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1
30 bensoniella <i>Bensoniella oregona</i>	PDSAX02010		Rare	G3	S2.2	1B.1
31 black-crowned night heron <i>Nycticorax nycticorax</i>	ABNGA11010			G5	S3	
32 bristle-stalked sedge <i>Carex leptalea</i>	PMCYP037E0			G5	S2?	2.2
33 chinook salmon - California coastal ESU <i>Oncorhynchus tshawytscha</i>	AFCHA0205S	Threatened		G5	S1	
34 coast cutthroat trout <i>Oncorhynchus clarkii clarkii</i>	AFCHA0208A			G4T4	S3	SC
35 coast fawn lily <i>Erythronium revolutum</i>	PMLIL0U0F0			G4	S3	2.2
36 coast sidalcea <i>Sidalcea oregana ssp. eximia</i>	PDMAL110K9			G5T1	S1.2	1B.2
37 coastal marsh milk-vetch <i>Astragalus pycnostachyus var. pycnostachyus</i>	PDFAB0F7B2			G2T2	S2.2	1B.2
38 dark-eyed gilia <i>Gilia millefoliata</i>	PDPLM04130			G2	S2.2	1B.2
39 double-crested cormorant <i>Phalacrocorax auritus</i>	ABNFD01020			G5	S3	
40 dwarf alkali grass <i>Puccinellia pumila</i>	PMPOA531B0			G4?	S1.1?	2.2
41 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S2S3	SC
42 ghost-pipe <i>Monotropa uniflora</i>	PDMON03030			G5	S2S3	2.2
43 giant fawn lily <i>Erythronium oregonum</i>	PMLIL0U0C0			G5	S2.2	2.2
44 golden eagle <i>Aquila chrysaetos</i>	ABNKC22010			G5	S3	
45 great blue heron <i>Ardea herodias</i>	ABNGA04010			G5	S4	

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46 great egret <i>Ardea alba</i>	ABNGA04040			G5	S4	
47 green sturgeon <i>Acipenser medirostris</i>	AFCAA01030	Threatened		G3	S1S2	SC
48 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4?	
49 leafy-stemmed mitrewort <i>Mitella caulescens</i>	PDSAX0N020			G5	S4.2	4.2
50 long-beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4.2	
51 long-eared myotis <i>Myotis evotis</i>	AMACC01070			G5	S4?	
52 maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0			G3G4	S3S4.2	4.2
53 marbled murrelet <i>Brachyramphus marmoratus</i>	ABNNN06010	Threatened	Endangered	G3G4	S1	
54 marsh pea <i>Lathyrus palustris</i>	PDFAB250P0			G5	S2S3	2.2
55 minute pocket moss <i>Fissidens pauperculus</i>	NBMUS2W0U0			G3?	S1.2	1B.2
56 northern clustered sedge <i>Carex arcta</i>	PMCYP030X0			G5	S1S2	2.2
57 northern meadow sedge <i>Carex praticola</i>	PMCYP03B20			G5	S2S3	2.2
58 northern red-legged frog <i>Rana aurora</i>	AAABH01021			G4T4	S2?	SC
59 northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened		G3T3	S2S3	SC
60 osprey <i>Pandion haliaetus</i>	ABNKC01010			G5	S3	
61 pallid bat <i>Antrozous pallidus</i>	AMACC10010			G5	S3	SC
62 pink sand-verbena <i>Abronia umbellata ssp. breviflora</i>	PDNYC010N2			G4G5T2	S2.1	1B.1
63 running-pine <i>Lycopodium clavatum</i>	PPLYC01080			G5	S4.1	4.1
64 sandy beach tiger beetle <i>Cicindela hirticollis gravida</i>	IICOL02101			G5T2	S1	
65 seacoast ragwort <i>Packera bolanderi var. bolanderi</i>	PDAST8H0H1			G4T4	S1.2	2.2
66 seaside pea <i>Lathyrus japonicus</i>	PDFAB250C0			G5	S1.1	2.1
67 sharp-shinned hawk <i>Accipiter striatus</i>	ABNKC12020			G5	S3	

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68 short-leaved evax <i>Hesperivax sparsiflora var. brevifolia</i>	PDASTE5011			G4T2T3	S2S3	1B.2
69 slender silver moss <i>Anomobryum julaceum</i>	NBMUS80010			G4G5	S1.3	2.2
70 snowy egret <i>Egretta thula</i>	ABNGA06030			G5	S4	
71 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
72 summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B			G5T4Q	S2	SC
73 tidewater goby <i>Eucyclogobius newberryi</i>	AFCQN04010	Endangered		G3	S2S3	SC
74 tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020			G2G3	S2	SC
75 western lily <i>Lilium occidentale</i>	PMLIL1A0G0	Endangered	Endangered	G1	S1.2	1B.1
76 western pond turtle <i>Actinemys marmorata</i>	ARAAD02030			G3G4	S3	SC
77 western sand-spurrey <i>Spergularia canadensis var. occidentalis</i>	PDCAR0W032			G5T4?	S1.1	2.1
78 western snowy plover <i>Charadrius alexandrinus nivosus</i>	ABNNB03031	Threatened		G4T3	S2	SC
79 western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Candidate	Endangered	G5T3Q	S1	
80 white-footed vole <i>Arborimus albipes</i>	AMAFF23010			G3G4	S2S3	SC
81 willow flycatcher <i>Empidonax traillii</i>	ABPAE33040		Endangered	G5	S1S2	