APPENDIX O

Vegetation and Wildlife

O-1. **Commonly Occurring Fish and Invertebrate Species in Coos Bay**

O-2. **Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the Pacific Connector Pipeline Project**

O-3. **Special Status Marine Mammal and Terrestrial Wildlife Species that May Occur Near the JCE & PCGP Project**

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O-6. **Forest Operations Inventory Impacted by the PCGP Project**

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TABLE O-1

Commonly Occurring Fish and Invertebrate Species in Coos Bay

Common Name	Scientific Name
Fish Species	
American shad	*Alosa sapidissima*
Arrow goby	*Clevelandia ios*
Bay goby	*Lepidogobius lepidus*
Bay pipefish	*Syngnathus griseolineatus*
Black rockfish	*Sebastes melanops*
Bocaccio	*Sebastes paucispinis*
Brown rockfish	*Sebastes auriculatus*
Buffalo sculpin	*Enophrys bison*
Cabezon	*Scorpaenichthys marmoratus*
Chinook salmon	*Oncorhynchus tshawytscha*
Coast range sculpin	*Cottus aleuticus*
Coho salmon	*Oncorhynchus kisutch*
Copper rockfish	*Sebastes caurinus*
Crescent gunnel	*Pholis laeta*
Cutthroat trout	*Oncorhynchus clarki clarki*
English sole	*Parophrys vetulus*
Fluffy sculpin	*Oligocottus snyderi*
Green sturgeon	*Acipencer medirostris*
High cockscomb	*Anoplarchus purpurescens*
Jack smelt	*Atherinopsis californiensis*
Kelp greenling	*Hexagrammos decagrammus*
Largescale sucker	*Catostomus macrocheilus*
Lingcod	*Ophiodon elongatus*
Longnose dace	*Rhinichthys cataractae*
Northern anchovy	*Engraulis mordax*
Pacific herring	*Clupea harengus pallasi*
Pacific lamprey	*Entosphenus tridentatus*
Pacific sand lance	*Ammodytes hexapterus*
Pacific sardine	*Sardinops sagax*
Pacific staghorn sculpin	*Leptocottus armatus*
Pacific tomcod	*Microgadus proximus*
Pile perch	*Rhacochilus vacca*
Pinpoint gunnel	*Apodichthys flavidus*
Prickly sculpin	*Cottus asper*
Rainbow (steelhead) trout	*Oncorhynchus mykiss*
Red Irish lord	*Hemilepidotus hemilepidotus*
Redside shiner	*Richardsonius balteatus*
Rex sole	*Glyptocephalus zachirus*
Rock greenling	*Hexagrammos lagocephalus*
Rockweed gunnel	*Xererpes fucorum*
Saddleback gunnel	*Pholis ornata*
Sand sole	*Psettichthys melanostictus*
Sand lance	*Ammodytes hexapterus*
Shiner perch	*Cymatogaster aggregata*
Silver surf perch	*Hyperprosopon ellipticum*
Speckled dace	*Rhinichthys osculus*
Speckled sanddab	*Citharichthys stigmaeus*
Staghorn sculpin	*Leptocottus armatus*
Starry flounder	*Platichthys stellatus*
Striped bass	*Morone saxatilis*
Striped perch	*Embiotoca lateralis*
Surf smelt	*Hypomesus pretiosus*
Threespine stickleback	*Gasterosteus aculeatus*
Topsmelt	*Atherinops affinis*
Tube-snout	*Aulorhynchus flavidus*
Walleye perch	*Hyperprosopon argenteum*
White bait smelt	*Aliosmerus elongatus*
White perch	*Phanerodon furcatus*
White sturgeon	*Acipenser transmontanus acipenser*

TABLE O-1

Commonly Occurring Fish and Invertebrate Species in Coos Bay

Common Name	**Scientific Name**
Invertebrate Species	
Butter clams	*Saxidomus gigantea*
Cockle clam	*Clinocardium nuttallii.*
Dungeness crab	*Cancer magister*
Porcelain crab	*Petrolisthes cinctipes*
Pea crab	*Pinnotheres pisum*
Green crab	*Carcinus maenas (introduced sp.)*
Gaper clams	*Tresus capax*
Ghost shrimp	*Neotrypaea californiensis*
Olympia oyster	*Ostrea lurida*
Pacific oyster	*Crassostrea gigas*
Mussels	*Mytilus spp.*
Softshell clam	*Mya arenaria*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Coast Range Ecoregion, Coos Sub-basin (HUC 17100304), Coos Bay-Frontal Pacific Ocean (HUC 1710030403) Fifth field Watershed 8, Coos County, Oregon												
Coos Bay (NE-26)	1243397433543 State	2.92R	Estuary Major	Wet Open- Cut	Wet open-cut only feasible/practical in-bay crossing method.	Southern DPS Green Sturgeon, T, CH Oregon Coast ESU Coho, migration, rearing habitat T, CH	Fall Chinook, Coho, Winter Steelhead, Pacific Lamprey	Various Marine Fish and Shellfish	4 Coastal Pelagic spp., 21 Groundfish spp, 2 Salmonid spp. Pelagic, Groundfish, and Salmonids (see Table 3B- 6)	Coastal Pelagic spp., Groundfish spp, Salmonid spp. Fall Chinook/ Coho Rearing, Migration	Oct 1 to Feb 15	N
Trib. to Coos Bay (GSI-26)	1242017434500 Private	4.97R	Intermittent Minor	Dry Open- Cut	Dry open-cut method feasible/practical on small intermittent headwater tributary if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib to Kentuck Slough (EE-4/GW27)	1241795434269 Private	6.27R	Intermittent Intermediate	Dry Open- Cut	Dry open-cut method feasible/practical on small intermittent ditched tributary if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Kentuck Slough (EE-5/GSP-28)	1242068434143 Private	6.33R	Perennial Intermediate	Conventional Bore	Dry open-cut methods likely feasible using coffer dams/diversions based on flow, channel size (depth and width). Conventional bore feasible based on width and depth; however extensive dewatering requirements expected because of anticipated groundwater conditions. Local traffic encumbrances would be avoided with boring methods. An HDD is like probable, based on topography, and expect geotechnical conditions, but likely not along the same alignment because of geometry requirements associated with large diameter pipe. Significant HDD costs, HDD time requirements were the determinants for the proposed conventional bore.	Oregon Coast ESU Coho, migration, rearing habitat T, CH	Coho, Winter Steelhead	Unknown	Coho	Coho Rearing, Migration	Jul 1 to Sep 15	N
Trib to Coos Bay (NW-117/EE-6)	1241902434209 Private	6.39R	Perennial Major	Dry Open- Cut	Dry open-cut method feasible/practical on small channelized tributary within golf coarse lacking effect riparian vegetation.	Oregon Coast ESU Coho, assumed habitat T	Coho Assumed, Winter Steelhead	Unknown	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*
Willanch Slough (EE-7)	1242083434031 Private	8.27R	Perennial Intermediate	Dry Open- Cut	Dry open-cut method feasible/practical on small tributary within pasture/hayfield lacking effect riparian vegetation.	Oregon Coast ESU Coho, migration, rearing habitat T, CH	Coho, Winter Steelhead	Assumed	Coho	Coho Rearing, Migration	Jul 1 to Sep 15	Y*
Trip to Willanch Slough (GDX-30)	Private	8.48R	Intermittent Intermediate	Dry Open- Cut	Dry open-cut method feasible/practical on small intermittent channelized tributary on edge of pasture.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Cooston Channel (Echo Creek) (SS-100-002)	1241722433697 Private	10.22R	Intermittent Intermediate	Dry Open- Cut	Dry open-cut method feasible/practical on small headwater tributary, if flowing at the time of construction.	Oregon Coast ESU Coho, assumed habitat T	Winter Steelhead Coho Assumed	Assumed	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*
Coos River (BSP-119)	1241999433842 (State)	11.13R	Perennial Major	HDD 10 Level 1 11	HDD feasible based on geometry, topography, and geotechnical conditions along proposed alignment. Primary HDD activities are significantly set back from crossing. Conventional bore not feasible/practical	Southern DPS Green Sturgeon, T, CH Oregon Coast ESU Coho, migration,	Fall Chinook, Coho, Winter Steelhead, Green Sturgeon, Pacific Lamprey	Various Marine Fish and Shellfish	Chinook, Coho Pelagic, Groundfish, (see Table 3B- 5)	Fall Chinook/ Coho (Rearing, Migration)	Oct 1 to Feb 15 10	N

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					because of crossing length and high groundwater areas on either side of river. Dry open-cut or diverted open-cut methods not practical/feasible based on flow volumes and tidal influence.	rearing habitat T, CH						
Vogel Creek (SS-100-004)	1241480433703 Private	11.52R	Perennial Intermediate	Dry Open- Cut	Dry open-cut method feasible/practical on 45-foot wide waterbody during low flow period within fish window. Low gradient waterbody will minimize flow volumes that require management during crossing. Impacts to riparian vegetation minimized by placement/setbacks of TEWAs on edges of waterbody in field. Conventional bore crossing method avoided because of high groundwater present on either side of waterbody.	Oregon Coast ESU Coho, spawning habitat T, CH	, Coho, Winter Steelhead	Assumed	Coho	Coho Rearing, Migration	Jul 1 to Sep 15	Y*
Vogel Creek (SS-100-005)	1241480433703 Private	11.58R	Perennial N/A	Adjacent to centerline within ROW	Not crossed by centerline. HDD pull back crossing will occur on rollers across small 10-foot wide ditched waterbody	Oregon Coast ESU Coho, spawning habitat T, CH	, Coho, Winter Steelhead	Assumed	Coho	Coho Rearing, Migration	Jul 1 to Sep 15	Y*
Trib. to Coos River (SS-100-006)	Private	11.77R	Perennial Minor	Dry Open- Cut	Dry open-cut method feasible/practical on small ditched tributary in pasture, if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Lillian Creek (SS-100-007)	1241480433638 Private	11.91R	Perennial Minor	Dry Open- Cut	Dry open-cut method feasible/practical on small ditched tributary, if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Lillian Creek (SS-100-002a)	124153343362 Private	12.07R	Perennial Intermediate	Dry Open- Cut	Dry open-cut method feasible/practical on 80-foot wide trapezoidal channeled waterbody during low flow period within fish window. Low gradient waterbody will minimize flow volumes that require management during crossing. Impacts to riparian vegetation minimized by placement/setbacks of TEWAs on edges of waterbody in field. Conventional bore crossing method avoided because of high groundwater present on either side of waterbody.	Southern DPS Green Sturgeon, T, CH Oregon Coast ESU Coho, migration, rearing habitat T, CH	Coho, Winter Steelhead, Green Sturgeon	Assumed	Coho	Coho Rearing, Migration	Jul 1 to Sep 15	Y1o
Trib. to Coos River (SS-100-008)	1241545433620 Private	12.22R	Perennial Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small ditched tributary in pasture.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Coos River (BDX-109)	1241562433627 Private	8.67	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small ditched tributary	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Coos River (BDX-109a)	1241562433627 Private	8.73	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small headwater tributary. No additional workspace required within forested wetland.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Catching Slough (BSP-104)	1241704433522 Private	9.02	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide headwater tributary. No additional workspace required. Waterbody is on outer edge of ¼ mile buffer of MAMU-occupied stand (C1032). Conflicts with ODFW-recommended in-water work periods	Oregon Coast ESU Coho, assumed habitat T	Assumed	Assumed	Coho Assumed	Unknown	Jul 1 to Sep 15	Y

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					are not expected based on proposed two year construction schedule.							
Trib. to Catching Slough (BSP-105)	1241675433517 Private	9.19	Perennial Minor	Dry Open- Cut	Dry open cut methods feasible/practical on small 2-3' wide waterbody. Waterbody is on outer edge of ¼ mile buffer of MAMU-occupied stand (C1032). Conflicts with ODFW-recommended in-water work periods are not expected based on proposed two year construction schedule.	Oregon Coast ESU Coho, assumed habitat T	Assumed	Assumed	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
Trib. to Catching Slough (DSI-3)	1241489433510 Private	9.33	Intermittent Intermediate	Dry Open- Cut	Small intermittent headwater tributary - dry open-cut methods feasible/practical if flowing at time of construction. No additional workspace required. Waterbody is on outer edge of ¼ mile buffer of MAMU-occupied stand (C1032). Conflicts with ODFW-recommended in-water work periods are not expected based on proposed two year construction schedule.	None	None	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Catching Slough (DSP-2)	1241530433517 Private	9.51	Perennial Minor	Dry Open- Cut (Streambed – bedrock) 12	Dry open-cut methods feasible/practical on small 3-5' wide headwater tributary. No additional workspace required. Waterbody is on outer edge of ¼ mile buffer of MAMU-occupied stand (C1032). Conflicts with ODFW-recommended in-water work periods are not expected based on proposed two year construction schedule.	None	None	None	None	None	Jul 1 to Sep 15	Y
Unnamed Stream (SS-222-005)	Private	10.04	Perennial Minor	Adjacent to centerline within ROW	Small 2-3' drainage not crossed by centerline. waterbody expected to be dry during construction	None	None	Unknown	None	None	Jul 1 to Sep 15	Y*
Monkey Gulch (DA-5X)	1241474433359 Private	10.20	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 5-6' wide trapezoidal channel. Immediately adjacent to county road. High groundwater area is problematic for conventional bore crossing because of water management.	Southern DPS Green Sturgeon, T, CH Oregon Coast ESU Coho, spawning habitat T, CH	Coho, Winter Steelhead	Assumed	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y*
Stock Slough (BSP-88)	1241571433361 Private	10.32	Perennial Intermediate	Dry Open- Cut Level 1 11	Dry open-cut methods feasible/practical on channelized slough crossings. PI, residential area and topographic conditions limit workspace on north for bore. Dewatering issues likely due to high groundwater issues on south side in floodplain agricultural wetland. Multiple crossings of slough required because of residential routing constraints.	Southern DPS Green Sturgeon, T, CH Oregon Coast ESU Coho, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Rearing	Jul 1 to Sep 15	Y
Pasture Pond (BL-84)	Private	10.40	Stock pond N/A	Adjacent to centerline within ROW	Man-made pond expected to be dry at the time of construction and will be avoided if possible. Pond will be reconstructed if disturbed.	None	None	None	None	None	Jul 1 to Sep 15	N
Trib. to Catching Slough (BDX-81)	Private	10.98	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on14-15' wide trapezoidal drainage	None	None	None	None	None	Jul 1 to Sep 15	Y*

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Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					canal in wetland pasture, if flowing at the time of construction.							
Trib. to Catching Slough (BDX-80)	Private	11.03	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 2' wide drainage ditch in pasture if flowing at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Catching Slough (BSP-79)	1241572433284 Private	11.11	Perennial Major	Conventional Bore Level 1 11	Dry open-cut methods not feasible based on flow, channel size (depth and width). Conventional bore feasible based on width, depth and expected groundwater dewater requirements. An HDD is probable at the approximate crossing location based on the topography, geometry and expected geotechnical conditions. Significant HDD costs, HDD time requirements were the determinants for the proposed conventional bore.	Southern DPS Green Sturgeon, T, CH Oregon Coast ESU Coho, migration, rearing habitat T, CH	Fall Chinook, Coho, Winter Steelhead	Various Marine Fish and Shellfish	Chinook, Coho	Fall Chinook, Coho Rearing, Migration	Jul 1 to Sep 15	N
Trib. to Catching Slough (BDX-118)	1241553433277 Private	11.29	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small ditched tributary in pasture.	Oregon Coast ESU Coho, assumed habitat T	Coho Assumed, Winter Steelhead,	Unknown	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*
Trib. to Catching Slough (BSP-114)	Private	11.47	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2-3' wide headwater tributary. No additional workspace required.	None	None	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Catching Slough (BSP-103)	1241608433185 Private	11.78	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2-4' wide waterbody. ROW necked-down & no additional workspace required for crossing.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Catching Slough (BSP-101)	1241655433196 Private	11.84	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide waterbody. ROW necked-down & no additional workspace required for crossing.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Catching Slough (BSP-100)	1241655433196 Private	11.87	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide waterbody ROW necked-down & no additional workspace required for crossing.	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. to Catching Slough (NSI-41)	1241655433196 Private	12.05	Intermittent Minor	Dry Open- Cut	Small intermittent headwater tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib to Catching Slough (NSI-92)	Private	12.27	Intermittent Minor	Dry Open- Cut	Small intermittent headwater tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib to Catching Slough (NSI-93)	Private	12.31	Intermittent Minor	Dry Open- Cut	Small intermittent headwater tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib to Catching Slough (NSI-94)	Private	12.39	Intermittent Minor	Adjacent to centerline within ROW	Not crossed by centerline. Small headwater waterbody expected to be dry during construction	None	None	None	None	None	Jul 1 to Sep 15	N
Trib to Catching Slough (NSI-95)	1241711433132 Private	12.39	Intermittent Minor	Dry Open- Cut	Small intermittent headwater tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib to Catching Slough (NSI-97)	Private	12.45	Intermittent Minor	Dry Open- Cut	Small intermittent headwater tributary - dry open cut methods feasible/practical if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*

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Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib to Catching Slough (NSI-98)	1241709433122 Private	12.52	Intermittent Minor	Dry Open- Cut	Small intermittent headwater tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Ross Slough (BSP-120)	1241852433075 Private	12.66	Perennial Minor	Adjacent to centerline within ROW	Not crossed by centerline (likely intermittent – headwater trib.)	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Ross Slough (BSP-121)	1241852433075 Private	12.68	Perennial Minor	Adjacent to centerline within ROW	Not crossed by centerline (likely intermittent headwater trib.)	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N
Trib. to Ross Slough (BSP-122)	1241842433046 Private	12.83	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small headwater tributary. No additional workspace required. (likely intermittent)	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Ross Slough (BSP-125)	Private	12.90	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small headwater tributary. No additional workspace required. (likely intermittent)	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Ross Slough (CSP-31)	Private	12.97	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide headwater tributary.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. to Ross Slough (CSP-30)	1241793433038 Private	13.01	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide headwater tributary.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. to Ross Slough (CSP029)	1241778433044 Private	13.11	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide headwater tributary. No additional workspace required.	None	None	None	None	None	Jul 1 to Sep 15	Y
Ross Slough (CSP-28)	1241687433509 Private	13.55	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide headwater tributary.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. to Ross Slough (CSP-27)	1241761432974 Private	13.61	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2-3' wide headwater tributary.	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. to Ross Slough (CSP-26)	1241733432965 Private	13.70	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide headwater tributary.	None	None	None	None	None	Jul 1 to Sep 15	Y
Boone Creek (EDX-78)	1241532432789 Private	15.71	Perennial Minor	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on small 5' wide waterbody. Road and topography on north side prevent conventional bore feasibility due to excessive grading/excavation requirements for bore pit on north side.	Southern DPS Green Sturgeon, assumed habitat, T Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead,	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y
Trib. to Boone Creek (CSI-37)	1241561432755 Private	16.35	Intermittent Minor	Dry Open- Cut	Small 1'wide intermittent tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Boone Creek (CSP-36)	1241561432755 Private	16.36	Perennial Minor	Dry Open- Cut	Dry open cut methods feasible/practical on small 4' wide headwater tributary. No additional workspace required for crossing.	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. to Boone Creek (CSI-35)	1241598432687 Private	16.39	Intermittent Minor	Dry Open- Cut	Small 1'wide intermittent tributary - dry open-cut methods feasible/practical if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. To Catching Creek (CSP-24)	1241612432631 Private	16.56	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1.5' wide headwater tributary.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. To Catching Creek (CSP-23)	1241604432619 Private	16.62	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide headwater tributary.	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. To Catching Creek (CSP-22)	1241594432613 Private	16.71	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide headwater tributary. No additional workspace required	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. To Catching Creek (CSP-21)	1241596432612 Private	16.73	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 5' wide headwater tributary. No additional workspace required	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. To Catching Creek (CSP-20)	1241603432608 Private	16.78	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide headwater tributary. No additional workspace required	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. To Catching Creek (CSP-19)	1241561432616 Private	16.82	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide headwater tributary. No additional workspace required	Oregon Coast ESU Coho, spawning, rearing habitat T	Coho, Winter Steelhead	Unknown	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y
Trib. To Catching Creek (CSP-18)	1241606432606 Private	16.85	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 5' wide headwater tributary. No additional workspace required	None	None	None	None	None	Jul 1 to Sep 15	Y
Trib. To Catching Creek (BLM-17.42)	BLM – Coos Bay District	17.42	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide headwater tributary.	None	None	None	None	None	Jul 1 to Sep 15	
Catching Creek (CSP-33)	1241452433077 Private	17.47	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-4' wide headwater stream. Steep topographic constraints prevent a conventional bore crossing because of bore pit grading/excavation requirements on both sides of stream.	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho	Cutthroat Trout	Coho	Coho Spawning, Rearing,	Jul 1 to Sep 15	Y
Coast Range Ecoregion, Coquille Sub-basin (HUC 17100305), Coquille River (HUC 1710030505) Fifth field Watershed 8, Coos County, Oregon												
Trib. To Cunningham Creek (BSP-92)	1241387432420 Private	18.20	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide tributary. Steep topographic constraints also prevent a conventional bore crossing because of bore pit grading/excavation requirements on north side of stream.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. To Cunningham Creek (BSP-93)	1241469432436 Private	18.28	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide headwater tributary.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. To Cunningham Creek (BSP-95)	1241458432440 Private	18.33	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide headwater tributary.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. To Cunningham Creek (BSI-96)	1241461432438 Private	18.48	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide headwater tributary if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Cunningham Creek (NSP-42)	1242026431787 Private	18.93	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 1	Dry open-cut methods feasible/practical on small stream. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. Steep topographic constraints on either side of stream prevent a conventional bore crossing because of bore pit grading/excavation requirements.	Oregon Coast ESU Coho, assumed habitat, T	Coho assumed, Winter Steelhead	Cutthroat Trout	Coho Assumed	Unknown	Jul 1 to Sep 15	Y 1o Access Restriction
Trib. To Cunningham Creek (NSP-43)	1241375432355 Private	19.06	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small stream. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. Steep topographic constraints on either side of stream prevent a conventional bore crossing because of bore pit grading/excavation requirements.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed, Winter Steelhead assumed	Unknown	Coho Assumed	Unknown	Jul 1 to Sep 15	Y 1o Access Restriction
Coast Range Ecoregion, Coquille Sub-basin (HUC 17100305), North Fork Coquille River (HUC 1710030504) Fifth field Watershed 8 Coos County, Oregon												
Trib. to Steele Creek (ESI-28)	1241154432240 BLM – Coos Bay District	20.34	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 2-3' wide intermittent tributary, if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Steele Creek (ESI-28)	1241154432240 BLM – Coos Bay District	20.59	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 2-3' wide intermittent tributary, if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Steele Creek (DA-6)	1241088432232 Private	20.72	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-3' wide intermittent tributary, if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Steele Creek (DA-7)	1241077432223 Private	20.79	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-3' wide intermittent tributary, if flowing at time of construction	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Steele Creek (DA-8)	1241054432214 Private	20.95	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-3' wide intermittent tributary, if flowing at time of construction	None	None	None	None	None	Jul 1 to Sep 15	Y*
Steele Creek (NSP-15)	1240848432002 Private	21.10	Perennial Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 6' wide tributary.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed, Winter Steelhead assumed	Cutthroat Trout	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
Trib. to Steele Creek (DA-9)	1241019432203 Private	21.15	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-3' wide intermittent tributary, if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Steele Creek (ESI-29)	1241003432184 BLM-Coos Bay District	21.36	Intermittent Minor	Adjacent to centerline within ROW (Streambed-bedrock) 12	Small 3' wide intermittent tributary adjacent to ROW not crossed.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
North Fork Coquille River (BSP-207)	11241417430804 Private	23.06	Perennial Intermediate	Dry Open- Cut Level 1 11	Dry open-cut method feasible/practical on 20' wide river during low flow period within fish window. Impacts to riparian vegetation minimized by placement/setbacks of TEWAs on west side of river in field and eastside setback 100 feet from waterbody. ROW also necked down to 75 feet. Topographic conditions on east side of the crossing prevent HDD crossing methods because of elevation differences between entry/exit and necessary workspace grading requirements.	Oregon Coast ESU Coho, spawning, rearing, migration habitat T, CH	Spring Chinook, Fall Chinook, Coho, Winter Steelhead, Pacific Lamprey	Cutthroat Trout	Chinook, Coho	Spring and Fall Chinook, Coho Rearing, Migration	Jul 1 to Sep 15	Y-1i
Trib. to Middle Creek (BSI-137)	1240268431779 BLM- Coos Bay District	27.01	Intermittent Intermediate	Dry Open- Cut	Intermittent tributary to be crossed at the same time as the crossing of Middle Creek at MP 27.04 using dry open-cut. Tributary expected to be dry at the time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Middle Creek (BSI-135)	1240268431779 BLM- Coos Bay District	27.03	Intermittent Minor	Adjacent to centerline within ROW Level 2	Intermittent tributary not crossed by centerline.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N
Middle Creek (BSP-133)	1240712431628 BLM- Coos Bay District	27.04	Perennial Intermediate	Dry Open- Cut Level 2 11	Dry open-cut methods feasible/practical on creek during low flow period within fish window. A conventional bore crossing is not feasible because of topographic constraints on west side of creek because of grading/excavation requirements for bore pit. An HDD is not feasible because of topographic/geometry conditions.	Oregon Coast ESU Coho, rearing, migration habitat T, CH	Fall Chinook, Coho, Winter Steelhead, Pacific Lamprey	Cutthroat Trout	Chinook, Coho	Fall Chinook, Coho Rearing, Migration	Jul 1 to Sep 15	Y-1i
Coast Range Ecoregion, Coquille Sub-basin (HUC 17100305), East Fork Coquille River (HUC 1710030503) Fifth field Watershed 8, Coos County, Oregon												
Trib. To E. Fork Coquille (BSP-77)	1240014431632 Private	28.86	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 1	Dry open-cut methods feasible/practical on small incised headwater trib. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. Steep topographic conditions prevent a conventional bore because of bore pit grading/excavation requirements on both sides of the crossing.	Oregon Coast ESU Coho, assumed habitat T	Assumed	Cutthroat Trout	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
Trib. To E. Fork Coquille (NSI-99)	1239937431584 Private	29.18	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 6' wide incised trib. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. Steep topographic conditions prevent a	Oregon Coast ESU Coho, assumed habitat T	Assumed	Present, Unspecified	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					conventional bore because of bore pit grading/excavation requirements on both sides of the crossing.							
Trib. To E. Fork Coquille (BSI-73)	1241551433636 Private	29.48	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small tributary. Steep topographic conditions prevent a conventional bore because of bore pit grading/excavation requirements on west side of the crossing.	Oregon Coast ESU Coho, assumed habitat T	Assumed	Assumed	Coho Assumed	None	Jul 1 to Sep 15	Y*
Trib. To E. Fork Coquille (BSI-76)	1239946431580 Private	29.53	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 3-4' intermittent tributary if flowing at the time of construction.	Oregon Coast ESU Coho, assumed habitat T	Assumed	Assumed	Coho Assumed	None	Jul 1 to Sep 15	Y*
East Fork Coquille River (BSP-71)	1240773431063	29.88	Perennial Intermediate	Dry Open- Cut Level 1 11	Project alignment was selected based on landowner negotiations and requirement to avoid landowner's air strip. Dry open- cut methods feasible/practical during low flow crossing period during ODFW in-water work window. Conventional bore is not practical because of significant grading/excavation requirements for bore pits. The river is deeply incised below stream banks requiring extensive pits for installation below streambed. Continued bore pit dewatering would be required to keep bore pits dry. A temporary bridge is also necessary to prevent entire spread move around. A crossing bridge will require bank grading for crossing access. An HDD is probable at the approximate crossing location based on the topography, geometry and expected geotechnical conditions. Significant HDD costs, HDD time requirements and the need for a crossing bridge were the determinants for the proposed dry-open cut crossing method.	Oregon Coast ESU Coho, spawning, rearing, migration habitat T, CH	Spring Chinook, Fall Chinook, Coho, Winter Steelhead, Pacific Lamprey	Cutthroat Trout	Chinook, Coho	Spring Chinook Rearing, Migration Fall Chinook Spawning, Rearing, Coho Rearing, Migration	Jul 1 to Sep 15	Y-1i
Trib. to E. Fork Coquille (SS-003-007)	Private	30.22	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent tributary if flowing at the time of construction	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. To E. Fork Coquille (BSI-70)	1239583431522 BLM- Coos Bay District	31.64	Intermittent Minor	Dry Open- Cut	Small 1-wide intermittent headwater tributary, dry open-cut methods feasible/practical, if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Elk Creek (BSP-57)	1240218431116 Private	32.40	Perennial Minor	Dry Open- Cut Level 1 11	Dry open-cut methods feasible/practical on small 8' wide tributary. Steep topographic conditions on north side of stream prevent a conventional bore because of grading/excavation requirements for bore pit. StreamNet data indicates anadromy below crossing (~ 1 mile). Waterbody is within the ¼ mile buffer of MAMU-occupied stand (C3098). Conflicts with ODFW- recommended in-water work periods are not expected based on proposed two-year construction schedule. However, proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and installation of flumes or dams/pumps.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed, Winter Steelhead assumed	Cutthroat Trout	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
Trib. To Elk Creek (BSP-55)	1239513431370 Private	32.44	Perennial Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 3-4' wide tributary. Waterbody is within the ¼ mile buffer of MAMU-occupied stand (C3098). Conflicts with ODFW- recommended in-water work periods are not expected based on proposed two-year construction schedule. However, proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and installation of flumes or dams/pumps.	Oregon Coast ESU Coho, assumed habitat T	Assumed	Unknown	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
Trib. To Elk Creek (BSP-49)	1239524431250 Private	32.99	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 10' wide tributary. Topographic conditions on both sides of stream limit a conventional bore because of grading/excavation requirements for bore pits.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. To Elk Creek (BSP-50)	1239482431284 Private	33.02	Perennial Minor	Adjacent to centerline within ROW (Streambed-bedrock) 12	Not crossed by pipeline centerline. Small 2' wide headwater tributary expected to be dry during construction. Trib. would be crossed at the same time as BSP049 at MP 32.99.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
South Fork Elk Creek (CSP-5)	1239778431167 Private	34.46	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 211	Dry open-cut methods feasible/practical on stream. Steep topographic conditions on both sides of stream prevent conventional bore crossing methods because of grading/excavation requirements for bore pits.	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. To S. Fork Elk Creek (BSI-251)	1239155431070 BLM-Coos Bay District	35.51	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent headwater tributary, if flowing at time of construction. Crossing will occur adjacent to road where existing culvert is in place. This waterbody is located within an occupied MAMU-stand (C3093). Conflicts with ODFW- recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and the installation of flumes or dams/pumps.	None	None	None	None	None	Jul 1 to Sep 15	N (In existing road)
Coast Range Ecoregion, Coquille Sub-basin (HUC 17100305), Middle Fork Coquille River (HUC 1710030501) Fifth field Watershed 8, Coos County, Oregon												
Trib. to Big Creek (BLM-35.87/CSP-2)	1239061430967 BLM-Coos Bay District	35.87	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater tributary, if flowing at time of construction. Crossing occurs within Elk Creek Road (BLM 28-11-29-0) and flows through a 12" culvert which will be replaced. Waterbody is within the ¼ mile buffer of MAMU-occupied stand (C3093). Conflicts with ODFW- recommended in-water work periods are not expected based on proposed two -ear construction schedule. However, proposed year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream and to allow the removal of road culvert, installation of flumes or dams/pumps and replacement of the road culvert	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. To Big Creek (BLM-36.48)	1238985431032 BLM – Coos Bay District	36.48	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater tributary, if flowing at time of construction. This waterbody is located adjacent to an occupied MAMU- stand (C3073). Conflicts with ODFW-recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing to	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					facilitate the crossing and allow the installation/removal of flumes or dams/pumps and to minimize the duration of instream work.							
Trib. To Big Creek (GSI-25/BSI-253)	1238985431032 BLM-Coos Bay District	36.54	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent headwater tributary, if flowing at time of construction. No additional workspace required. ODFW fish passage barrier data reports a downstream boulder canyon with a 10-foot falls at upper end (RecordID 52488). StreamNet data indicates anadromy below crossing (~ 0.5 mile) at ODFW barrier 52488. This waterbody is located within an occupied MAMU-stand (C3073). Conflicts with ODFW- recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and the installation of flumes or dams/pumps.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. To Big Creek (BLM-36.85)	1238940431025 BLM-Coos Bay District	36.85	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater tributary, if flowing at time of construction. Crossing occurs within Elk Creek Road (BLM 28-11-29-0) and flows through a 12-18" culvert which will be replaced. This waterbody is located within an occupied MAMU-stand (C3073). Conflicts with ODFW- recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing to facilitate the crossing and allow the installation/removal of flumes or dams/pumps and to minimize the duration of instream work.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. To Big Creek (BSI-252)	1238901431044 BLM-Coos Bay District	36.92	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater tributary, if flowing at time of construction. No additional workspace required. Alignment and trib. crossing along existing road. ODFW fish passage barrier data reports a downstream boulder canyon with a 10 foot falls at upper end (RecordID 52488). StreamNet data indicates anadromy below crossing (~ 1 mile) at ODFW barrier 52488. This waterbody is located within an occupied MAMU-stand (C3073). Conflicts with ODFW- recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and the installation of flumes or dams/pumps.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N (In existing road)
Trib. To Big Creek (ESI-19)	1238846431056 BLM-Coos Bay District	37.33	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater tributary, if flowing at time of construction. No additional workspace required. ODFW fish passage barrier data reports a downstream boulder canyon with a 10 foot falls at upper end (RecordID 52488). StreamNet data indicates anadromy below crossing (~ 1 mile) at ODFW barrier 52488. StreamNet data indicates anadromy below crossing (~ 1 mile) at ODFW barrier 52488. This waterbody is located within an occupied MAMU-stand (C3090). Conflicts with ODFW- recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and the installation of flumes or dams/pumps.	None	Unknown	Cutthroat Trout Assumed	None	None	Jul 1 to Sep 15	Y*
Trib. To Big Creek (ESP-20)	1238856431054 BLM-Coos Bay District	37.35	Perennial Intermediate	Dry Open- Cut Level 1 11	Dry open-cut methods feasible/practical on stream. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. Steep topography on both sides of stream prevents conventional bore crossing	Oregon Coast ESU Coho, assumed habitat T	Coho assumed	Cutthroat Trout Assumed	Coho Assumed	Unknown	Jul 1 to Sep 15	Y

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					methods because of grading/excavation requirements for bore pits. No additional workspace proposed. ODFW fish passage barrier data reports a downstream boulder canyon with a 10 foot falls at upper end (RecordID 52488). StreamNet data indicates anadromy below crossing (~ 1 mile) at ODFW barrier 52488. This waterbody is located within an occupied MAMU-stand (C3090). Conflicts with ODFW- recommended in-water work periods are not expected based on the proposed two-year construction schedule. However, the proposed Year Two daily timing restrictions during construction to minimize impacts to MAMU should be waived during the stream crossing installation to minimize the duration of instream work and the installation of flumes or dams/pumps. This waterbody is within 0.25 mile of known NSO activity Center (MSNO 2317B), but on the outer edge of the 0.25 mile buffer, approximately 1,180 feet from the activity center. Therefore, NSO seasonal timing restrictions, sho2ul6d be waived to facilitate crossing multiple waterbodies on this construction							
Upper Rock Creek (BSP-41)	1238692429883 Private	44.21	Perennial Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on stream. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. Steep topography on both sides of stream prevents conventional bore crossing methods because of grading/excavation requirements for bore pits. ODFW fish passage barrier data indicated two potential downstream falls may limit passage one report as 6-8 feet (RecordID 52484). StreamNet data indicates anadromy below crossing (~ 6 miles) at ODFW barrier RecordID 52484.	None	None	Cutthroat Trout Assumed	None	None	Jul 1 to Sep 15	Y
Trib. to Upper Rock Creek S3-07	1237674430543 BLM – Roseburg District	46.56	Perennial Minor	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on small 5' stream within associated wetlands with no know fish presence. Road crossing (culvert) immediately downstream.	None	None	None	None	None	Jul 1 to Sep 15	Y
Klamath Mountains Ecoregion, Coquille Sub-basin (HUC 17100305), Middle Fork Coquille River (HUC 1710030501) Fifth field Watershed 8, Douglas County, Oregon												

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Deep Creek (BSP-257)	1237088430546 BLM – Roseburg District	48.27	Perennial Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on broad stream and associated wetlands. Road crossing (culvert) immediately downstream. Also, ODFW fish passage barrier data (Recordid 56033) reports downstream falls on the Middle Fork Coquille River restrict anadromy at crossing.	None	None	Cutthroat Trout Assumed	None	None	Jul 1 to Sep 15	N
Middle Fork Coquille River (BSP-30)	1241173430339 Private	50.28	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 1 11	Dry open-cut methods feasible/practical on broad stream during low flows within ODFW in- water work windows. ROW has been necked down to 75 feet and TEWAs located in existing cleared areas to minimize riparian impacts. ODFW fish passage barrier data (Recordid 56033) reports downstream falls on the Middle Fork Coquille River restrict anadromy at crossing. StreamNet data also indicates duplicates this anadromy restriction at this barrier.	None	Unknown	Cutthroat Trout Assumed	None	None	Jul 1 to Sep 15	Y-1i
Trib. to Middle Fork Coquille (GDX-36/BSI-66/67)	1236800430537 Private	50.45	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-4' wide intermittent ditched tributary in ag field if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Belieu Creek (BSP-61/GSI-37)	1236823430366 Private	50.71	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide headwater tributary. Steep topography on west side of crossing prevents conventional bore because of grading/excavation requirements for a bore pit. ODFW fish passage barrier data (RecordID 56033) reports downstream falls on the Middle Fork Coquille River restrict anadromy at the crossing.	None	Unknown	Assumed	None	None	Jul 1 to Sep 15	Y
Trib. to Middle Fork Coquille (GSI-38)	1236690430555 BLM-Roseburg District	51.02	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-4' wide intermittent headwater tributary if flowing at time of construction. No additional workspace required.	None	None	None	None	None	Jul 1 to Sep 15	Y
Unnamed Stream SS-222-006	Private	51.71	Intermittent Minor	Adjacent to centerline within ROW	Not crossed by centerline. Small ephemeral drainage in hayfield expected to be dry during construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Klamath Mountains Ecoregion, South Umpqua (HUC 17100302) Sub-basin, Olalla Creek-Lookingglass Creek (HUC 1710030212) Fifth field Watershed 8, Douglas County, Oregon												
Trib. to Shields Creek (BSI-202)	1235858430773 Private	55.90	Intermittent Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on intermittent tributary if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Shields Creek (BSI-203)	1235796430789 Private	55.94	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 8' wide intermittent tributary if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Shields Creek (DA-13)	1235757430747 Private	56.28	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3-4' wide intermittent tributary if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. to Shields Creek (DA-14)	1235785430811 Private	56.34	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3-4' wide intermittent tributary if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSI-140)	1235535430633 Private	57.11	Intermittent Minor	Dry Open- Cut (Streambed – bedrock) 12	Dry open-cut methods feasible/practical on small intermittent tributaries if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSI-140)	1235535430633 Private	57.14	Intermittent Minor	Dry Open- Cut (Streambed – bedrock) 12	Dry open-cut methods feasible/practical on small intermittent tributaries if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSI-138)	1235535430633 Private	57.31	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 5' wide intermittent tributary if flowing at time of construction. ROW has been necked down to 75 feet and TEWAs located in existing cleared areas to minimize riparian impacts.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed	Assumed	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSI-147/EE-12)	1235479430651 Private	57.84	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent tributary if flowing at time of construction. ROW has been necked down to 75 feet and TEWAs located in existing cleared areas to minimize riparian impacts.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSI-151)	1235422430690 Private	58.20	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent tributary if flowing at time of construction. ROW has been necked own to 75 feet and TEWAs located in existing cleared areas to minimize riparian impacts.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSP-159)	1235362430712 Private	58.55	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 10' wide tributary. ROW has been necked down to 75 feet and TEWA located in existing cleared area to minimize riparian impacts.	None	None	None	None	None	Jul 1 to Sep 15	Y
Olalla Creek (BSP-155)	1234905431631 Private	58.78	Perennial Intermediate	Dry Open- Cut Level 2 11	Dry open-cut methods feasible/practical on broad stream during low flows within ODFW in- water work windows. (USGS Gage station 1431120 reports Mean of monthly discharge recording period 1956 to 1973 of 2.0, 0.52 & 0.77 cfs, respectively for Jul, Aug & Sep). TEWAs have been located in existing cleared areas to minimize riparian impacts.	Oregon Coast ESU Coho, spawning, rearing, migration habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing, Migration	Jul 1 to Sep 15	Y-1i
Trib. to Olalla Creek (BSI-132)	1235250430793 Private	59.29	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 9' wide intermittent tributary if flowing at time of construction.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed	Unknown	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*
Trib. to Olalla Creek (BSI-129)	1235231430834 Private	59.65	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent tributary if flowing at time of construction.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed	Present, Unspecified	Coho Assumed	Unknown	Jul 1 to Sep 15	Y*
Trib. to McNabb Creek (NSP-14)	1235104430875 Private	60.13	Perennial Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 6' wide tributary. Extensive grading/excavation requirements limit feasibility of conventional bore methods.	None	None	None	None	None	Jul 1 to Sep 15	Y
McNabb Creek (NSP-13)	1235187430921 Private	60.48	Perennial Intermediate	Dry Open- Cut (Streambed-	Dry open-cut methods feasible/practical on tributary. TEWAs located in existing	Oregon Coast ESU Coho, spawning,	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
				bedrock) 12 Level 1	cleared areas to minimize riparian impacts.	rearing habitat T, CH						
Klamath Mountains Ecoregion, South Umpqua (HUC 17100302) Sub-basin, Clark Branch-South Umpqua River (HUC 1710030211) Fifth field Watershed 8, Douglas County, Oregon												
Kent Creek (BSP-240)	1234390431042 Private	63.97	Perennial Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on broad stream during low flows within ODFW in- water work windows. Steep topographic conditions on both sides of the stream prevent conventional bore methods because of extensive grading/excavation requirements for bore pits	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y
Trib. to Kent Creek (BSI-241)	1234490430771 Private	63.97	Intermittent Minor	Adjacent to centerline within ROW Level 1	Not crossed by centerline. Small intermittent tributary expected to be dry during construction and will be restored to approximate original contour and grade during restoration.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N (can be avoided)
Rice Creek (BSP-227)	1234142430839 Private	65.76	Perennial Major	Dry Open- Cut (Streambed-bedrock) 12 Level 1	Dry open-cut methods feasible/practical during low flows periods within ODFW in-water work windows. Alignment is defined by residential development in immediate area. ROW has been necked down to 75 feet and TEWAs located in cleared areas to minimize riparian disturbances.	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y
Trib. to Willis Creek (BSI-230)	1233983430694 Private	66.87	Intermittent Minor	Adjacent to centerline within ROW (Streambed-bedrock) 12	Not crossed by centerline, 2' wide intermittent tributary expected to be dry during summer construction period. Tributary will be restored to approximate original contour and grade during restoration.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N
Willis Creek (BSP-168)	1233989430788 Private	66.95	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 1	Dry open-cut methods feasible/practical during low flows periods within ODFW in-water work windows. ROW has been necked down to 75 feet and TEWAs located in cleared areas to minimize riparian disturbances.	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y-1i
Trib. to Willis Creek (BSI-169)	1233982430692 Private	67.00	Intermittent Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small intermittent tributary, if flowing at time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to South Umpqua River (SS-100-011)	1233627430529 Private	69.10	Intermittent N/A	Adjacent to centerline within ROW	Not crossed by centerline. Small intermittent headwater tributary expected to be dry during construction and will be restored to approximate original contour and grade during restoration.	None	None	None	None	None	Jul 1 to Sep 15	N
Trib. to South Umpqua River (SS-100-012)	1233689430651 Private	69.29	Perennial Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical during low flows periods within ODFW in-water work windows. No TEWAs are proposed to minimize riparian and landowner impacts.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to South Umpqua River (SS-100-013)	1233627430551 Private	69.35	Perennial Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical during low flows periods within ODFW in-water work windows. No TEWAs are proposed to minimize landowner impacts.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

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Trib. to South Umpqua River (SS-100-014)	1233609430544 Private	69.57	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 2'to 3' foot wide headwater tributary which is expected to be dry at the time of construction. If flowing, crossing would be completed during low flows periods within ODFW in- water work windows.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to South Umpqua River (SS-100-015)	1233304430548 Private	71.08	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent tributary which is expected to be dry at the time of construction. Crossing would be completed during low flows periods within ODFW in-water work windows. Tributary is within required laydown area for the Direct Pipe crossing of the South Umpqua River.	None	None	None	None	None	Jul 1 to Sep 15	Y*
South Umpqua River (BSP-26)	1234460432680 Private	71.30	Perennial Major	Direct Pipe Level 2 11	The Direct Pipe crossing method has been evaluated and determined to be feasible at the proposed crossing location. The proposed alignment has been rerouted to facilitate the crossings of I-5, South Umpqua River, Dole Road, and the railroad using a single Direct Pipe crossing. Because of subsurface geotechnical conditions the HDD crossing method has been determined to be infeasible. This crossing method/location avoids the need to use a diverted open cut to cross the South Umpqua River on the 2009 FEIS route or an open cut crossing on Reroute 67.6.	Oregon Coast ESU Coho, migration habitat T, CH	Spring Chinook, Fall Chinook, Coho, Winter Steelhead, Pacific Lamprey	Present, unspecified	Chinook, Coho	Spring Chinook- Migration Fall Chinook Spawning, Rearing, Migration Coho Migration	Jul 1 to Aug 31	N
Trib. to South Umpqua River (SS-100-016)	1233289430525 Private	71.37	Intermittent N/A	Adjacent to centerline within ROW	Not crossed by centerline. This waterbody passes through a culvert on a road which is encompassed by TEWA 71.25 which would not affect the waterbody.	None	None	None	None	None	Jul 1 to Sep 15	N
Trib. to South Umpqua River (SS-100-017)	1233289430525 Private	71.69	Intermittent N/A	Adjacent to centerline within ROW	Not crossed by centerline. Small intermittent headwater tributary expected to be dry during construction and will be restored to approximate original contour and grade during restoration.	None	None	None	None	None	Jul 1 to Sep 15	N
Trib. to South Umpqua River (SS-100-019)	1233346430680 Private	72.96	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 2'to 3' foot wide headwater tributary which is expected to be dry at the time of construction. If flowing, crossing would be completed during low flows periods within ODFW in- water work windows.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to South Umpqua River (SS-100-020)	1233103430824 Private	73.41	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 2'to 3' foot wide headwater tributary which is expected to be dry at the time of construction. If flowing, crossing would be completed during low flows	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					periods within ODFW in- water work windows.							
Trib. to South Umpqua River (SS-100-021)	1232971430708 Private	73.48	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on 2'to 3' foot wide headwater tributary which is expected to be dry at the time of construction. If flowing, crossing would be completed during low flows periods within ODFW in- water work windows.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Unnamed Stream SS-005-010	Private	73.63	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 3' foot wide headwater tributary. If flowing, crossing would be completed during low flows periods within ODFW in-water work windows.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Richardson Creek SS-004-003	1232925430775 Private	74.02	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 6'to 7' foot wide headwater tributary. If flowing, crossing would be completed during low flows periods within ODFW in-water work windows.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y*
Trib. to Richardson Creek (SS-100-022)	1232925430775 Private	74.03	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on 2'to 3' foot wide headwater tributary which is expected to be dry at the time of construction. If flowing, crossing would be completed during low flows periods within ODFW in- water work windows.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Klamath Mountains Ecoregion, South Umpqua (HUC 17100302) Sub-basin, Myrtle Creek (HUC 1710030210) Fifth field Watershed 8, Douglas County, Oregon												
Bilger Creek (BSP-1)	1232578430422 Private	76.38	Perennial Minor	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on small 6' wide tributary. ROW necked down and TEWAs set in existing cleared areas to minimize riparian impacts. ODFW fish passage barrier data indicate two potential downstream barriers (RecordID 2571 & 2603).	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y
Little Lick (BSP-6)	1232235430457 Private	77.71	Perennial Minor	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on small 7' wide tributary. No additional workspace required. Steep topographic conditions make a conventional bore impractical because of extensive grading/excavation requirements as well as subsequent riparian disturbance.	Oregon Coast ESU Coho, assumed habitat T	Coho assumed	Present, unspecified	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
Trib. to Little Lick Creek (BSI-8)	1232244430631 Private	77.93	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical intermittent tributary if flowing at time of construction. The tributary within the TEWA would be matted and silt fenced installed as necessary to minimize disturbance and the potential for sedimentation.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to Little Lick Creek (BSI-10)	1232239430620 Private	78.02	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical small 2' wide intermittent tributary if flowing at time of construction. The tributary within the TEWA would be matted and silt fenced installed as necessary to minimize disturbance and the potential for sedimentation.	None	None	None	None	None	Jul 1 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
North Myrtle Creek (NSP-37)	1232963430229 Private	79.12	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 2 11	Dry open-cut methods feasible/practical during low flow periods within ODFW in-water work window. (USGS Gage Station 14311000 records mean monthly flow as 5.8, 3.5 & 5.1 cfs respectively for Jul, Aug & Sep). ROW necked down to 75' to minimize riparian impacts.	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y
Trib. to North Myrtle Creek (NSP-38)	1232040430551 Private	79.15	Perennial Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 8.0' wide trib. if flowing at time of construction.	Oregon Coast ESU Coho, assumed habitat T	Assumed	Assumed	Coho Assumed	Unknown	Jul 1 to Sep 15	Y
South Myrtle Creek (BSP-172)	1232847430231 Private	81.19	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 2 11	Dry open-cut methods feasible/practical during low flow periods within ODFW in-water work window. (USGS Gage Station 14310700 records mean monthly flow as 5.6, 3.2 & 5.0 cfs, respectively for Jul, Aug & Sep). ROW necked down to 75' and TEWAs placed in existing cleared areas where feasible to minimize riparian impacts. Conventional bore not feasible/practical because of grading/excavation requirements on north side of stream.	Oregon Coast ESU Coho, spawning, rearing, migration habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing,	Jul 1 to Sep 15	Y-1i
Trib. to S. Myrtle Creek (BSP-259)	Private	81.38	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2.0' wide trib. if flowing at time of construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. to S. Myrtle Creek (SS-100-023)	Private	81.45	Intermittent N/A	Adjacent to centerline within ROW	Not crossed by centerline. Small intermittent tributary expected to be dry during construction and will be restored to approximate original contour and grade during restoration.	None	None	None	None	None	Jul 1 to Sep 15	N
Trib. to S. Myrtle Creek (SS-100-024)	1231921430292 Private	81.78	Intermittent N/A	Adjacent to centerline within ROW	Not crossed by centerline. Tributary is within UCSA and will not be affected; headwater tributary expected to be dry during construction.	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	N
Klamath Mountains Ecoregion, South Umpqua (HUC 17100302) Sub-basin, Days Creek-South Umpqua River (HUC 1710030205) Fifth field Watershed 8, Douglas County, Oregon												
Wood Creek (BSP-226)	1231503429810 Private	84.17	Perennial Minor	Dry Open- Cut (Streambed-bedrock) 12 Level 1 11	Dry open-cut methods feasible/practical on small 8' wide stream. Steep topographic conditions on either side of waterbody prevent conventional bore. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. StreamNet data indicates anadromy below crossing (~ 1 mile).	None	Unknown	Unknown	None	None	Jul 1 to Sep 15	Y
Trib. to Fate Creek (BSI-236)	1231019429928 Private	88.20	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small intermittent ditched trib. if flowing at time of construction. Appropriate BMPs would be installed to minimize disturbance/sedimentation if flowing at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Fate Creek (BSP-232)	1231028429873 Private	88.48	Perennial Intermediate	Dry Open- Cut (Streambed-	Dry open-cut methods feasible/practical on 12' wide stream. Stream flow	Oregon Coast ESU Coho, spawning,	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
				bedrock) 12 Level 1 11	expected to be insignificant during low flow periods within ODFW in-water work period. TEWAs placed in existing cleared areas and alignment selected to minimize riparian impacts. ODFW fish passage barrier data indicates that immediately downstream of crossing (RecordID 2602): "Gabion below forms pool and creates a probable impassable juvenile barrier. Adults may pass at higher flows. Additional STEP work above culvert" A conventional bore is probable based on topography and geometry but geotechnical investigations have not been completed to confirm. A bridge is required at the crossing which would require bank grading for access. Significant costs, time requirements and the need for a bridge were the determinants for the proposed dry open-cut crossing method. Significant cultural resource sites occur in the area and a dry open-cut crossing will minimize excavation/grading disturbance compared to conventional bore.	rearing habitat T, CH						
Days Creek (BSP-233)	1231699429713 Private	88.60	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 1 11	Dry open-cut methods feasible/practical on stream during low flow periods within ODFW in-water work window. (USGS Gage Station 14308700 records mean monthly flow as 2.2, 1.0 & 1.5 cfs, respectively for Jul, Aug & Sep). The ROW has been necked down to 75' and TEWAs located in previously disturbed areas to minimize riparian impacts. A conventional bore is probable based on topography and geometry but geotechnical investigations have not been completed to confirm. A bridge is required at the crossing which would require bank grading for access. Significant costs, time requirements and the need for a bridge were the determinants for the proposed dry open-cut crossing method. Significant cultural resource sites occur in the area and a dry open-cut crossing will minimize excavation/grading disturbance compared to conventional bore.	Oregon Coast ESU Coho, spawning, rearing habitat T, CH	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y-1i
Cascades Ecoregion, South Umpqua (HUC 17100302) Sub-basin, Days Creek-South Umpqua River (HUC 1710030205) Fifth field Watershed 8, 9, Douglas County, Oregon												
Saint John Creek (ASP-303)	1230596429295 Private	92.62	Perennial Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical during low flow periods within ODFW in-water work window. Steep	Oregon Coast ESU Coho, spawning,	Coho, Winter Steelhead	Cutthroat Trout	Coho	Coho Spawning, Rearing	Jul 1 to Sep 15	Y-1i

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					topographic conditions on either side of creek prevent conventional bore. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate issues/risk of threading pipe string under flume within the incised valley.	rearing habitat T, CH						
South Umpqua River (ASP-196)	1234460432680 Private	94.74	Perennial Major	Diverted Open-Cut Level 2 11	Diverted open-cut methods feasible/practical during low flow periods within ODFW in-water work window. (USGS Gage Station 143308600 records mean monthly flow as 168, 91 & 110 cfs, respectively for Jul, Aug & Sep). ROW and TEWAs locations primarily affect shrub vegetation. Temporary bridge required at crossing because the existing bridge at Milo is not expected to handle project weight limits. Heavy equipment access from the south is restricted by topographic constraints therefore temporary bridge at crossing is critical to facilitate construction (i.e., movement of materials and equipment along ROW). Because of geometry and topographic conditions, the only feasible HDD alignment required the alignment to pass immediately adjacent to the north side of the Milo Academy. From the exit point on the east side of the academy the route then needed to circle back to the west passing immediately adjacent to the south side of the academy. The HDD alignment ultimately required the academy to be encircled by the pipeline on three sides. This alignment would extensively encumber the academy and was determined to be impractical. A conventional bore is feasible based on topography and geometry but geotechnical investigations have not been completed to confirm. If subsoils are similar as surface conditi4o2ns (cobbles), a bore would be infeasible. Because a bridge is	Oregon Coast ESU Coho, rearing, migration habitat T, CH	Spring Chinook, Fall Chinook, Coho, Winter Steelhead, Pacific Lamprey	Cutthroat Trout	Chinook, Coho	Spring Chinook Migration Fall Chinook Spawning, Rearing, Migration Coho Rearing, Migration	Jul 1 to Aug 31	Y-1i with mid-stream support
Trib. to South Umpqua River (ASI-193)	1230382429323 Private	94.85	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent tributary if flowing at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to South Umpqua River (ASI-193)	1230382429323 Private	95.03	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent tributary if flowing at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to South Umpqua (ASI-190)	1230197429036 BLM – Roseburg District	98.46	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 2-4' wide intermittent tributary (ditch) if flowing at the time of construction	None	None	None	None	None	Jul 1 to Sep 15	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Cascades Ecoregion, South Umpqua (HUC 17100302) Sub-basin, Upper Cow Creek (HUC 1710030206) Fifth field Watershed 8, Douglas County, Oregon												
Trib. to East Fork Cow Creek (GW014/FS-HF-CWWW-111-001)	1229383427835 Forest Service – Umpqua NF	109.15	Perennial (FS – Interpretation) Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small headwater wetland/tributary-if flowing at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Trib. to East Fork Cow Creek (GSI016/FS-HF-F)	1229369427819 Forest Service – Umpqua NF	109.33	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide headwater intermittent tributary if flowing at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
East Fork Cow Creek (GSP-19/FS-HF-G/ASP-297)	1229918428021 Forest Service – Umpqua NF	109.47	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small headwater stream during low flow periods within ODFW in-water work period. No additional work areas proposed.	None	Unknown	Assumed	None	None	Jul 1 to Sep 15	Y
East Fork Cow Creek (GSP-22/FS-HF-M ASP297)	1229918428021 Forest Service – Umpqua NF	109.69	Perennial Intermediate	Adjacent to centerline within TEWA	Not crossed by centerline. Waterbody flows through culvert on road which is encompassed by TEWA 109.68-N. This TEWA was selected for parking/staging as well as for potential mitigation to remove the culvert if the road is not required.	None	Unknown	Assumed	None	None	Jul 1 to Sep 15	N
Trib. to East Fork Cow Creek (FS-HF-J)	1229332427779 Forest Service – Umpqua NF	109.69	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' headwater tributary. ROW necked down to 75' and TEWAs only utilized on north side of creek to minimize riparian impacts. Steep topographic conditions prevent a conventional bore because of extensive grading/excavation requirements.	None	Unknown	Assumed	None	None	Jul 1 to Sep 15	Y
Trib. to East Fork Cow Creek (FS-HF-K)	1229332427781 Forest Service – Umpqua NF	109.78	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2-4' headwater tributary. ROW necked down to 75' and no TEWAs utilized to minimize riparian impacts.	None	Unknown	Assumed	None	None	Jul 1 to Sep 15	Y
Cascades Ecoregion, South Umpqua Sub-basin (HUC 17100302), Upper Cow Creek (HUC 1710030206) Fifth field Watershed 8, Jackson County, Oregon												
Trib. to East Fork Cow Creek (ESI068/FS-HF-N)	1229918428021 Forest Service – Umpqua NF	110.98	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2-4' headwater tributary which is expected to be dry at the time of construction.	None	None	None	None	None	Jul 1 to Sep 15	Y*
Cascades Ecoregion, Upper Rogue (HUC 17100307) Sub-basin, Trail Creek (HUC 1710030706) Fifth field Watershed 8, Jackson County, Oregon												
Trib. to W. Fork Trail Creek (ESI-68)	Forest Service – Umpqua NF	110.57	Intermittent Minor	Adjacent to centerline within TEWA 110.73	Small 1-2' wide ephemeral drainage located Peavine Quarry within TEWA; drainage to be avoided by construction; drainage expected to be dry during construction.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	N –to be avoided
West Fork Trail Creek (ASP-202)	1228425426750 Private	118.89	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 2 11	Dry open-cut methods practical/feasible during low flow periods during ODFW in-water work window. ROW necked down to 75' and TEWAs located in previously disturbed areas to minimize riparian impacts.	SONCC Coho, spawning, rearing habitat T, CH	Coho, Summer Steelhead, Winter Steelhead	Trout, unspecified	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y
Trib. to Trail Creek (DA-16)	1228364426705 Private	119.90	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater tributary if flowing at the time of construction (Denied Access).	None	None	None	None	None	Jun 15 to Sep 15	Y*

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Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Canyon Creek (NSP-11)	1228328426655 BLM-Medford District	120.45	Perennial Minor	Dry Open- Cut (Streambed-bedrock) 12 Level 1	Dry open-cut methods feasible/practical on small 7' wide tributary during low flow periods within ODFW in-water work window. Only UCSAs utilized at crossing to minimize impacts to riparian areas.	SONCC Coho, spawning, rearing habitat T, CH	Coho, Summer Steelhead	Trout, unspecified	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y
Trib. to Trail Creek (ASI-205)	1228233426599 Private	120.92	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 6' wide intermittent headwater tributary if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Trail Creek (ASI-206)	1228173426535 Private	121.58	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on 12' wide intermittent tributary if flowing at the time of construction. No additional workspace required.	SONCC Coho, spawning, rearimg habitat T, CH	Coho	Unknown	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y*
Cascades Ecoregion, Upper Rogue (HUC 17100307) Sub-basin, Shady Cove-Rogue River (HUC 1710030707) Fifth field Watershed 8, Jackson County, Oregon												
Trib. to Cricket Creek (ESI-71)	1228054426435 Private	121.87	Intermittent Minor	Adjacent to centerline within ROW	Small 1' wide ephemeral stream expected to be dry during construction when the Rogue River HDD pullback would cross this tributary. Rollers would be used to span tributary with HDD pullback string.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Cricket Creek (ESI-70)	1228054426435 Private	121.89	Intermittent Minor	Adjacent to centerline within ROW	Small 7' wide intermittent stream expected to be dry during construction when the Rogue River HDD pullback would cross this tributary. Rollers would be used to span tributary with HDD pullback string.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Cricket Creek (ESI-72)	1228054426435 Private	121.93	Intermittent Minor	Adjacent to centerline within ROW	Small 2' wide ephemeral stream expected to be dry during construction when the Rogue River HDD pullback would occur, however this drainage would be avoided by construction activities.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Cricket Creek (ESI-73)	1228054426435 Private	121.94	Intermittent Minor	Adjacent to centerline within ROW	Small 2' wide ephemeral stream expected to be dry during construction when the Rogue River HDD pullback would occur, however this drainage would be avoided by construction activities.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Cricket Creek (ESI-74)	1228054426435 Private	122.09	Intermittent Minor	Adjacent to centerline within ROW	Small 2' wide ephemeral stream expected to be dry during construction when the Rogue River HDD pullback would occur.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Rogue River (ASP235)	1244292424210 Private	122.65	Perennial Major	HDD Level 2 11	HDD feasible based on geometry, topography and geotechnical conditions along proposed alignment. Primary HDD activities are significantly set back from crossing and would not be visible from the highway or the river Conventional bore not feasible/practical because highway and topographic constraints on the west side of the crossing Dry open-cut or diverted open-cut methods not practical/feasible based on	SONCC Coho, rearing, migration habitat T, CH	Spring Chinook, Fall Chinook, Coho, Summer Steelhead, Winter Steelhead, Pacific Lamprey	Trout, unspecified	Chinook, Coho	Spring, Fall Chinook and Coho Rearing Migration	Jun 15 to Aug 31	N

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					flow and channel characteristics (USGS Gage Station 14339000 records mean monthly flow as 2,170, 2,160 and 1,710 respectively for Jul, Aug & Sep).							
Trib. to Indian Creek (ASI-223)	1227634426166 Private	125.91	Intermittent Major	Dry Open- Cut	Dry open-cut methods feasible/practical on small <5' wide intermittent headwater tributary if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Indian Creek (ASI-222)	1227628426207 Private	125.98	Intermittent Major	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide intermittent headwater tributary if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Indian Creek (RS-4)	1227548426186 BLM-Medford District	126.50	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide intermittent headwater tributary if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Indian Creek (ASI-221)	1227834426001 BLM-Medford District	126.59	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 5' wide intermittent headwater tributary if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Deer Creek (ASP-307)	1227449425936 Private	128.49	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical during low flow periods within ODFW in-water work window. No additional workspace required. StreamNet data reports anadromy below crossing (~ 2 miles).	None	Unknown	Present, unspecified	None	None	Jun 15 to Sep 15	Y
Indian Creek (AW-278)	1227370425935 Private	128.63	Perennial Minor	Dry Open- Cut Level 1 11	Dry open-cut methods feasible/practical small < 10' wide stream low flow periods within ODFW in-water work window. Stream located in heavily grazed irrigated pasture and riparian vegetation consists of emergent pasture species. StreamNet data reports anadromy below crossing (~ 2 miles).	SONCC Coho assumed habitat T, CH	Coho Assumed	Present, unspecified	Coho Assumed	Unknown	Jun 15 to Sep 15	Y
Trib. To Indian Creek (ASP-310)	1227366425936 Private	128.70	Perennial Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical small 5' wide ditch tributary located in heavily grazed irrigated pasture. StreamNet data reports anadromy below crossing (~ 2 miles).	None	Unknown	Present, unspecified	None	None	Jun 15 to Sep 15	Y
Trib. To Indian Creek (AW-309)	BLM-Medford District	128.89	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small < 10 wide intermittent headwater trib. if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	Y
Trib. To Indian Creek (ASI-400)	1227225425992 BLM-Medford District	129.13	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3-4' wide intermittent headwater trib. if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	Y*
Trib. To Indian Creek (ASI-306)	1227225425992 BLM-Medford District	129.21	Intermittent Minor	Adjacent to centerline within ROW	Not crossed by centerline. Small headwater tributary expected to be dry at the time of construction and would be restored to approximate original contour and grade during restoration.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	N

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. to Indian Creek (ASI-277)	1227196425923 Private	129.46	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3-4' wide intermittent headwater trib. if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	Y*
Cascades Ecoregion, Upper Rogue (HUC 17100307) Sub-basin, Big Butte Creek (HUC 1710030704) Fifth field Watershed 8, Jackson County, Oregon												
Trib. to Neil Creek (AW-245)	Private	130.81	Intermittent Minor	Adjacent to centerline within ROW	Not crossed by centerline. Small tributary expected to be dry at the time of construction and would be restored to approximate original contour and grade during restoration.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Neil Creek (AW-244)	1226986425909 Private	130.83	Intermittent Major	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small < 10' wide intermittent headwater trib. if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Neil Creek (ASI-246)	1226986425909 Private	130.86	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide intermittent headwater trib. if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Neil Creek (ASI-251)	1226826425841 BLM-Medford District	131.72	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide intermittent headwater tributary.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	Y*
Neil Creek (ASP-252)	1226711425881 Private	132.12	Perennial Intermediate	Dry Open- Cut (Streambed-bedrock) 12 Level 1	Dry open-cut methods feasible/practical during low flow within ODFW in-water work window. ROW narrowed to 75 feet and TEWAs placed in pasture to minimize riparian impacts.	SONCC Coho, spawning, rearing habitat T, CH	Coho, Summer Steelhead	Trout, unspecified	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y
Quartz Creek (ASI-265/NSI-10)	1226814425828 Private	132.75	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 2' wide intermittent stream if flowing at the time of construction.	SONCC Coho, spawning, rearing habitat T, CH	Coho, Summer Steelhead	Trout, unspecified	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y*
Trib. to Quartz Creek (AW-264)	1226814425828 Private	132.77	Intermittent Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small intermittent stream/wetland, if flowing at the time of construction. ROW necked down to 75' and TEWAs set back to minimize riparian impacts.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Quartz Creek (ASP-241)	1226739425651 BLM-Medford District	133.35	Perennial Intermediate	Dry Open- Cut	Tributary will likely be crossed with the bore of the Medford Aqueduct.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Medford Aqueduct Ditch 3 (ASP-240)	1228043424382 BLM-Medford District	133.38	Perennial Intermediate	Conventional Bore	Proposed conventional bore feasible/practical based on flow volume, channel geometry and potential risk in disturbing man- made aqueduct. Dry open cut feasible	SONCC Coho possible habitat T	Unknown	Assumed	Coho Assumed	Unknown	Jun 15 to Sep 15	Y
Cascades Ecoregion, Upper Rogue (HUC 17100307) Sub-basin, Little Butte Creek (HUC 1710030708) Fifth field Watershed 8, Jackson County, Oregon												
Whiskey Creek (ASI-207)	1226599424838 Private	137.48	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 10' wide intermittent headwater stream if flowing at the time of construction. ROW necked down to 75' and TEWAs set back to minimize riparian impacts.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-208)	1226422425032 Private	138.26	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 10' wide intermittent headwater stream if flowing at the time of construction.	None	None	Present, unspecified	None	None	Jun 15 to Sep 15	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. to Lick Creek (ASI-210)	1226367425084 Private	138.50	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small <10' wide intermittent headwater stream if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-211)	1226343425011 Private	138.71	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 7' wide intermittent headwater stream if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-214)	1226268425015 Private	139.15	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 7' wide intermittent headwater stream if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Stock Pond (AL-215)	Private	139.17	Stock pond N/A	Dry Open- Cut	Man-made stock pond to be reconstructed after construction	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-216)	1226260425019 Private	139.19	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater stream if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-216)	1226260425019 Private	139.21	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater stream if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-217)	1226395424936 Private	139.39	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater stream if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-226)	1226220424994 Private	139.59	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 7' wide intermittent headwater stream if flowing at the time of construction. ROW necked down to 75 feet and TEWAs located in existing disturbed pasture to minimize riparian impacts.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-227)	1226220424994 Private	139.63	Intermittent Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 1-2' wide intermittent headwater stream if flowing at the time of construction. ROW necked down to 75 feet and no TEWAs utilized to minimize riparian impacts.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-228)	1226220424994 Private	139.68	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1-2' wide intermittent headwater drainage if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-229)	1226220424994 Private	139.72	Intermittent Minor	Adjacent to centerline within ROW	Not crossed by centerline. Small intermittent headwater drainage not expected to be flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-232)	1226295424937 Private	139.83	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 1' wide intermittent headwater drainage if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Lick Creek (ASI-233)	1226975424638 BLM-Medford District	140.26	Intermittent Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on intermittent drainage if flowing at the time of construction. Dam and pump crossing method most logical dry open-cut method based on topographic conditions to eliminate difficulties of threading pipe string under flume with associated safety risks including upsetting flume during process. ROW necked down to 75' and TEWAs set back to minimize riparian impacts. StreamNet data indicates anadromy below crossing (~ 2 miles)	SONCC Coho assumed habitat T	Assumed	Trout, unspecified	Coho Assumed	Unkown	Jun 15 to Sep 15	Y*
Trib. to Lick Creek (ASI-189)	1226125424921 Private	140.58	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater trib. if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Salt Creek (ASI-187)	1226075424805 BLM-Medford District	141.17	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater trib. if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Salt Creek (ASI-188)	1226059424757 BLM-Medford District	141.44	Intermittent Intermediate	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small intermittent headwater trib. if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Salt Creek (RS-17)	1226059424757 BLM-Medford District	141.49	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent headwater trib., if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Salt Creek (ESI-30)	1226069424718 BLM-Medford District	141.95	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 6' wide intermittent headwater trib. if flowing at the time of construction. No additional workspace required.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Salt Creek (ESI-31)	1226114424647 Private	142.32	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent headwater trib. if flowing at the time of construction. Altered trib. part of pasture irrigation system.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Salt Creek (ESP-34)	1226522424385 Private	142.57	Perennial Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on creek during low flow period within ODFW in- water work window. ROW necked down to 75' and TEWAs located in existing disturbed pasture to minimize riparian impacts. Bore not practical because both bore pits would be located in wetland likely requiring significant dewatering efforts to access bore pits.	SONCC Coho, spawning, rearing habitat T, CH	Coho, Summer Steelhead	Trout, unspecified	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y
Trib. to Salt Creek (ESI-37)	1226145424620 Private	143.12	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent headwater trib. if flowing at the time of construction.	None	None	Trout, unspecified	None	None	Jun 15 to Sep 15	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Trib. to Long Branch Creek (ESI-38)	1225948424477 Private	143.51	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide intermittent headwater trib. if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Long Branch Creek (ESI-39)	1225959424522 Private	143.74	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater trib. if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Stock Pond (EL-41)	Private	143.76	Stock Pond N/A	Adjacent to centerline within ROW	Man-made pond expected to be dry at the time of construction and the pond will be reestablished after construction	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Long Branch Creek (ESI-38)	1225948424477 Private	143.76	Intermittent Minor	Adjacent to centerline within ROW	Not crossed by centerline. Intermittent drainage on very edge of TEWA; likely can be avoided during construction.	None	None	None	None	None	Jun 15 to Sep 15	N
Trib. to Long Branch Creek (ESI-40)	1225957424527 Private	143.77	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater trib. if flowing at the time of construction.	None	None	None	None	None	Jun 15 to Sep 15	Y*
Trib. to Long Branch Creek (ESI-38)	1225948424477 Private	144.11	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide intermittent headwater trib. if flowing at the time of construction.	SONCC Coho, assumed habitat T	Coho Assumed Summer Steelhead	Assumed	Coho Assumed	Unknown	Jun 15 to Sep 15	Y*
Trib. to S. Fork Long Branch (GSP-5/ESP-48)	1225946424357 Private	144.70	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater trib. if flowing at the time of construction.	SONCC Coho assumed habitat T	Coho possible	Unknown	Coho Assumed	Unknown	Jun 15 to Sep 15	Y
South Fork Long Branch Cr (GPS006/ESP059)	1226063424364 Private	145.27	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent headwater trib. if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	Y*
Trib. to S. Fork Long Branch (ESI-61)	11225996424261 Private	145.54	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small intermittent trib. if flowing at the time of construction.	None	Unknown	Unknown	None	None	Jun 15 to Sep 15	Y*
North Fork Little Butte Creek (ESP-66)	1226154424196 Private	145.69	Perennial Intermediate	Dry Open- Cut Level 2 11	Dry open-cut methods feasible/practical on stream during ODFW in-water work window. USGS Gage Station 1434300 reports that mean monthly flow are 89, 111, 105 and 67 for Jun, Jul, Aug and Sep, respectively. Flows in Jul and Aug are highest yearly flow periods for creek. TEWA set back and located primarily in previously disturbed (pastures) areas to minimize riparian impacts.	SONCC Coho, spawning, rearing habitat T, CH	Coho, Summer Steelhead, Winter Steelhead	Trout, unspecified	Coho	Coho Spawning, Rearing	Jun 15 to Sep 15	Y-1i with mid-stream support
Trib. to N. Fork Little Butte Creek (ESI-56)	1225859424250 Private	146.05	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent trib, if flowing at the time of construction. No additional workspace required.	SONCC Coho possible habitat T	Coho possible	Unknown	Coho possible	Unknown	Jun 15 to Sep 15	Y*
Trib. to N. Fork Little Butte Creek (ESI-55)	1225855424210 Private	146.38	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 2' wide intermittent trib. if flowing at the time of construction.	None	None	None	Noe	None	Jun 15 to Sep 15	Y*
Eastern Slopes Ecoregion, Upper Rogue (HUC 17100307) Sub-basin, Little Butte Creek (HUC 1710030708) Fifth field Watershed 8, 9, Jackson County, Oregon												
South Fork Little Butte Creek (ASP-165)	1226154424195 Forest Service-Rogue River Siskiyou NF	162.45	Perennial Intermediate	Dry Open- Cut Level 1	Dry-open cut feasible and practical on creek. ODFW fish passage barrier data (RecordID 51163) indicates that	None	None	Trout, Unspecified	None	None	Jun 15 to Sep 15	Y-1i with mid-stream support

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
					downstream irrigation diversion dam/barrier (~ 0.5 miles): is unladdered and impassible. USGS Gage Station 14339500 – located below diversion reports monthly mean flow of 14, 12 and 11 cfs, respectively for Jul, Aug & Sep. ROW necked down to 75 feet and TEWAs set back to minimize riparian impacts.							
Daley Creek (ESI-76)	1223666423096 Forest Service-Rogue River Siskiyou NF	166.21	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small headwater intermittent trib. if flowing at the time of construction.	None	None	Trout, Unspecified	None	None	Jun 15 to Sep 15	Y*
Eastern Slopes Ecoregion, Upper Klamath River (HUC 18010206) Sub-basin, Spencer Creek (HUC 1801020601) Fifth field Watershed 8, 9, Klamath County, Oregon												
Spencer Creek (EW-85)	1220277421487 Forest Service- Fremont-Winema NF	171.07	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small < 10' wide stream with associated wetland. ROW necked down 75 feet and TEWAs set back or located to the edge of existing road disturbance to minimize riparian and wetland impacts. Conventional bore not practical because of topographic conditions and grading/excavation requirements on the south side of creek.	None	None	Redband Trout Possible Brook Trout	None	None	Aug 1 to Sep 30	Y
Trib. to Spencer Creek (GSP-7)	1221988422850 Forest Service- Fremont-Winema NF	171.57	Perennial Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small < 2' wide intermittent trib/wetland. if flowing at the time of construction.	None	None	Unknown	None	None	Aug 1 to Sep 30	Y*
Trib. to Spencer Creek (ESI-106a)	1221587422638 Forest Service- Fremont-Winema NF	173.74	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small < 5' wide ephemeral trib. if flowing at the time of construction.	None	None	Unknown	None	None	Aug 1 to Sep 30	Y
Trib. to Spencer Creek (ESI-69/GSI-10)	1221205422449 BLM-Lakeview District	176.55	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small < 4' wide intermittent trib. if flowing at the time of construction.	None	None	Redband Trout Possible	None	None	Aug 1 to Sep 30	Y*
Clover Creek (EW-103/GSI-11)	11220820421968 Private	177.76	Intermittent Minor	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on small < 10' wide intermittent trib. if flowing at the time of construction. No additional workspace required.	None	None	Redband Trout	None	None	Aug 1 to Sep 30	Y*
Eastern Slopes Ecoregion, Upper Klamath River (HUC 18010206) Sub-basin, John C Boyle Reservoir-Klamath River (HUC 1801020602) Fifth field Watershed 8, Klamath County, Oregon												
Trib. to Klamath River (ESI-97)	1220000421555 Private	186.61	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent trib. if flowing at the time of construction. Intermittent stream feeds stock pond.	None	None	Unknown	None	None	Jul 1 to Jan 31	Y*
Trib. to Klamath River (ESI-99)	1220000421555 Private	186.65	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent trib. if flowing at the time of construction.	None	None	Unknown	None	None	Jul 1 to Jan 31	Y*
Trib. to Klamath River (ESI-100)	1220000421555 Private	186.74	Intermittent Intermediate	Dry Open- Cut	Small 2' wide intermittent tributary that runs adjacent to centerline within ROW. Tributary expected to be dry during construction and would be restored to approximate original contour and grade during restoration.	None	None	Unknown	None	None	Jul 1 to Jan 31	Y*

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Eastern Slopes Ecoregion, Lost (HUC 18010204) Sub-basin, Lake Ewauna-Upper Klamath River (HUC 1801020412) Fifth field Watershed 8, Klamath County, Oregon												
Trib. To Klamath River (ASI-13/SS-100-025)	1219145421230 Private	188.90	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 4' wide intermittent trib. if flowing at the time of construction.	None	None	Unknown	None	None	Jul 1 to Jan 31	Y*
Weyerhaeuser Pond (AL-34)	Private	196.78	Industrial Pond N/A	Adjacent to centerline within ROW	Pond will not be disturbed by construction activities. The pond may be used for discharge.	None	None	None	None	None	Jul 1 to Jan 31	N
Klamath River (ASP-151)	1221913420005 State	199.38	Perennial Major	HDD Level 1	HDD feasible/practical based on river crossing width (~ 1000') flow volumes, topography, geotechnical and geometry conditions. Dry open-cut infeasible because of width and flow volume. USGS Gage Station 11507501 records mean monthly discharge of 1,190, 1,060, 1,120 cfs respectively for Jul, Aug, Sep.	Lost River Sucker E, CH Shortnose Sucker E, CH	Pacific Lamprey	Redband Trout, Endemic Klamath Fish Species	None	None	Jul 1 to Jan 31	N
Eastern Slopes Ecoregion, Lost (HUC 18010204) Sub-basin, Mills Creek-Lost River (HUC 1801020409) Fifth field Watershed 8, Klamath County, Oregon												
Lost River (NSP001)	1212146420011 State	212.07	Perennial Major	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical during low flow periods during ODFW in-water work window. An HDD and conventional bore are likely probable at the approximate crossing location based on the topography, geometry and expected geotechnical conditions. Landowner restricted access for geotechnical investigations. Significant costs, time requirements were the determinants for the proposed dry open-cut method.	Lost River Sucker E Shortnose Sucker E	None	Endemic Klamath Fish Species	None	None	Jul 1 to Mar 31	Y-1i with mid-stream support
Unnamed Creek (ASI-51)	1215715420597 Private	216.10	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on small 6-12' wide intermittent trib. if flowing at the time of construction.	None	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Unnamed Creek (ASI052)	1215715420597 Private	216.11	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 3' wide intermittent trib. if flowing at the time of construction.	None	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Unnamed Creek (ASI050)	1215715420596 Private	216.30	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on intermittent trib. if flowing at the time of construction.	None	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Unnamed Creek (ASI-49)	1215677420606 Private	216.44	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 6' wide intermittent trib. if flowing at the time of construction.	None	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Trib. to D Canal (ASI-136)	1215371420655 Private	218.09	Intermittent Intermediate	Dry Open- Cut	Dry open-cut methods feasible/practical on intermittent trib. if flowing at the time of construction.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Trib. to D Canal (ASI-37)	1215384420611 Private	218.46	Intermittent Minor	Dry Open- Cut (Streambed-bedrock) 12	Dry open-cut methods feasible/practical on small 3' wide intermittent trib. if flowing at the time of construction.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Trib. to D Canal (ASI-291)	1214908420305 Private	219.69	Intermittent Minor	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on small 1' wide intermittent trib. if flowing at the time of construction.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	Y i

TABLE O-2

Fish Utilization, EFH in, and Crossing Techniques and In-Water Work Windows for Waterbodies Crossed by the PCGP Project

Waterbodies Crossed and Waterbody ID	Identification Number (LLID) and Jurisdiction	Approximate Pipeline Milepost (MP)	Waterbody Type Size[1]	Proposed Crossing Method Scour Level[2]	Waterbody Crossing Rationale[3]	ESA Species Present/Habitat[4]	Anadromous Species Present[5]	Resident Coldwater Species Present	EFH Species Present[6]	EFH Component Present[6]	Fishery Construction Window[5, 7]	Equipment Bridges Y=Yes, Y* = Yes if flowing at time of construction, 1o = 1 pass required outside fish window 1i = 1 pass required inside fish window, i = set inside fish window, N=None
Excavated Pond (NL-116)	Private	219.70	Excavated Pond N/A	Off ROW – Temp Extra Workspace	Pond will not be disturbed by construction activities. The pond may be used for a water source for dust control.	None	None	None	None	None	Jul 1 to Mar 31	N
Unnamed Creek (ASI-138)	1214569420610 Private	221.77	Intermittent Minor	Dry Open- Cut	Dry open-cut methods feasible/practical on small 5' wide intermittent trib. if flowing at the time of construction.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	Y i
Pond (EL-77)	Private	222.84	Pond N/A	Adjacent to centerline within ROW	Pond will not be disturbed by construction activities. The pond may be used for a water source for dust control.	None	None	None	None	None	Jul 1 to Mar 31	N
Trib. to V Canal (ESI-50)	1214001420661 Private	224.95	Intermittent Minor	Adjacent to centerline within ROW	Intermittent trib. will not be disturbed by project disposal activities within county landfill/quarry.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	N
Trib. to V Canal (ESI-51)	1214053420564 Private	224.95	Intermittent Minor	Adjacent to centerline within ROW	Intermittent trib. will not be disturbed by project disposal activities within county landfill/quarry.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	N
Trib. to V Canal (ASI-140)	1214053420564 Private	225.07	Intermittent Intermediate	Dry Open- Cut Level 1	Dry open-cut methods feasible/practical on intermittent trib. if flowing at the time of construction.	Lost River Sucker potential E, Shortnose Sucker potential E	None	Unknown	None	None	Jul 1 to Mar 31	Y*

[1] FERC waterbody definitions:
Minor = less than or equal to 10 feet wide
Intermediate = greater than 10 feet wide but less than or equal to 100 feet wide Major = greater than 100 feet wide
[2] Level 1 and 2 waterbodies have been identified; all others are Level 0. According to GeoEngineers 2013 Channel Migration and Scour Analysis for the PCGP Project, channel migration is defined as the lateral movement, over time, of an entire channel segment perpendicular to the direction of stream flow; channel avulsion is the sudden abandonment of an active channel for a newly created or previously abandoned channel located on the floodplain; channel widening is defined as erosion and subsequent recession of one or both stream banks that widens the channel without changing the channel location; streambed scour is erosion of the streambed resulting in the development of deep pools and/or the systematic lowering of the channel floor elevation.
Level 0 = streams not likely subject to migration, avulsion and/or scour
Level 1 = streams with a moderate potential for migration, avulsion and/or scour Level 2 = streams with a high potential for migration, avulsion and/or scour
[3] Dry open-cut crossing methods include Flume or Dam and Pump procedures. Dam and Pump methods would be utilized where streambed blasting is anticipated to eliminate blasting around the flume. The Dam and Pump crossing method is the preferred crossing procedure in steep incised drainage valleys where worker safety may be compromised when placing ("threading") the pipe string under the flume pipe and where there is a risk of upsetting the flume during this operation. The Dam and Pump crossing method is also the preferred crossing method on small streams under low flow conditions during the recommended ODFW-recommended in-water work period. Pacific Connector requests permission for temporary/short-term fish passage restriction when completing Dam and Pump crossings within the ODFW- recommended in-water work period.
[4] FWS, NMFS, and StreamNet. T = Threatened, E = Endangered, CH = Critical Habitat
[5] ODFW, 2012 (Oregon Department of Fish and Wildlife. 2012. Fish Distribution Data, 1:24,000 Scale. Oregon Department of Fish and Wildlife Natural Resources Information Management Program. Online: https://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishdistdata).
[6] PFMC, 1999; ODFW, 2012.
[7] Pacific Connector understands that fisheries' construction windows only apply to those waterbodies flowing at the time of construction and that the windows do not apply to HDD crossings.
[8] USGS Hydrologic Unit Codes.
[9] Key Watershed.
[10] ODFW-recommended in-water work window is from October 1 through February 15. Because of the extensive wetland location on the south side of the Coos River, Pacific Connector has scheduled the HDD during the dry season outside the in-water work window between August 1 and September 30 to minimize surface impacts within the saturated floodplain wetland.
[11] These sites were field reviewed and analyzed for potential migration, avulsion and/or scour (see GeoEngineers 2013 Channel Migration and Scour Analysis).
[12] Streambed bedrock based on Pacific Connector's Wetland and Waterbody delineation surveys (see the Wetland Delineation Report, submitted as a stand alone document). Streambed bedrock may require special construction techniques to ensure pipeline design depth. Special construction techniques may include rock hammering, drilling and hammering, or blasting. The need for blasting would be determined by the contractor and would only be initiated after ODFW blasting permits are obtained.

TABLE O-3

Special Status Marine Mammal and Terrestrial Wildlife Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Mammals											
Preble's shrew *Sorex preblei*	SOC				Near streams in arid to semi-arid shrub/grassland and high elevation coniferous forests. Also in openings in coniferous forests and sagebrush; frequents sagebrush thickets and willow or aspen stands in moist parts of the Great Basin.	Klamath			No documented occurrences within project area; known to occur in northern portion of Klamath County.	MIIH	Modification of habitat, potential for injury, death, and disturbance.
Hoary bat *Lasiurus cinereus*		SV			Usually associated with montane boreal forests, although during spring and autumn migrations, species has been located in arid shrub-steppe. Forages over water, roads, and forest openings.	Coos Douglas Jackson Klamath			(T34S, R1W, Historical) associated with fringed myotis.	MIIH	Modification of habitat, potential for injury, death, and disturbance.
Pallid bat *Antrozous pallidus pacificus*	SOC	SV	SEN	SEN	Arid regions, open forest types, desert vegetation types. Uses cliff faces, caves, mines, bridges, tree cavities, or buildings for roosts.	Coos Douglas Jackson Klamath	CB-S LV-D MD-D RO-D	RRS-D UMP-S F-W-D	PV (T28S,R7W,S31; 1993): 1.6 miles (mi) NE of MP 55.92; PV (T28S,R6W,S20; 1994): 2.8 mi N of MP 64.75; PV (T28S,R6W,S32; 1983): 1.3 mi N of MP 64.75; PV (T29S,R6W,S3; 1994): 0.5 mi NW of MP 68.15; PV (T29S,R6W,S2; 1994): 0.1 mi N of MP68.99.	MIIH	Modification of foraging habitat and disturbance to foraging bats; potential for injury or death if roosting in fell tree or snag, or in rock outcrops removed for pipe.
Townsend's big-eared bat *Corynorhinus townsendii*	SOC	SC	SEN	SEN	Forested regions of the Cascade Mountains. Roosts in buildings, caves, mines, buildings, and bridges.	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D	RRS-D UMP-D F-W-D	Ben Irving Reservoir/RB (T29S,R7W,S17, 18, 19, 20; 1993): 1.2 mi S of MP 57.13; PV (T29S,R7W,S5; 1983): hibernaculum / Tenmile Mountain Cave approximately 0.9 mi NW of MP 58.13; PV (T29S,R6W,S2; 1994): 0.1 mi N of MP68.99; MD (T34S, R2E, S5; 1976): historic breeding site in large basalt cave 2.5 mi NE of MP 126.3; MD (T34S,R2E,S31; 1994): breeding site 2.2 mi E of MP 133.05.	MIIH	Potential disturbance to roosting or foraging bats.
Silver-haired bat *Lasionycteris noctivagans*	SOC	SV			Forested areas, especially older Douglas-fir (*Pseudotsuga menziesii*)/western hemlock (*Tsuga heterophylla*) forests. Also in ponderosa pine (*Pinus ponderosa*) forests. Forages over ponds and streams in the woods, finds a day roost under a flap of loose bark.	Coos Douglas Jackson Klamath			MD (T33S, R1W, 1993), F-W (T37S, R5E, 2002) associated with fringed myotis and pallid bat.	MIIH	Disturbance, modification of habitat.
California myotis *Myotis californicus*		SV			Occupy a variety of habitats including shrub-steppe, shrub desert, juniper, sagebrush, ponderosa pine forest, and Douglas fir forest.	Coos Douglas Jackson Klamath			MD (T39S, R5E, Historical), MD (T33S, R1W, 1993)	MIIH	Modification of habitat, potential for injury, death, and disturbance.
Small-footed myotis *Myotis ciliolabrum*	SOC				Cliffs and rocky canyons in arid grasslands and desert scrub, also in ponderosa pine and mixed conifer forests. Roosts and retreats in rock crevices, under boulders, and beneath bark. Hibernates in mines and caves.	Douglas Klamath				NI	Not documented in Project vicinity.
Long-eared myotis *Myotis evotis*	SOC				Forested habitats, especially forested edges including juniper woodlands, open areas in ponderosa pine woodlands, Douglas-fir, spruce, true fir, and subalpine forests as well as willow and alder forests along streams. Arid shrublands with roosting sites.	Coos Douglas Jackson Klamath			PV (2004): 2.8, 3.3 mi W of MP 33.77; CB (T28,R11,S36; 2004): 1.4 mi SW of MP 33.77; PV (T28S,R10W,S22; 2003): 0.8 mi N of MP 37.94; CB (T29S,R10W,S13; 1998): 2.15 mi SW of MP 43.94.	MIIH	Disturbance, modification of habitat.
Fringed myotis *Myotis thysanodes*	SOC	SV	SEN	SEN	Wide range of habitats, prefers forested or riparian areas. Within flying distance of forested areas. Roosts in decadent trees and snags, sometimes buildings.	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D	UMP-D RRS-D F-W-D	CB (T28, R11, S35; 2004): 1.7 mi SW of MP 33.77; PV (T28S,R10W, S22; 2003): 0.3 mi NE of MP 38.54; F-W (T37S,R5E,S34; 2002): 1.6mi NE of MP 170.0.	MIIH	Modification of foraging habitat, disturbance to foraging bats; potential for injury or death if roosting in fell tree or snag.
Long-legged myotis *Myotis volans*	SOC	SV			Coniferous forests, including Douglas-fir, true fir, Sitka spruce (*Picea sitchensis*), lodgepole pine (*Pinus contorta*), and ponderosa pine forests. Roosts in cliff faces, abandoned buildings, caves, mines.	Coos Douglas Jackson Klamath			PV (2004): 3.3 mi W of MP 33.77; CB (T28, R11, S35; 2004): 1.7 mi SW of MP 33.77; PV (T28S, R7W, S31; 1993): 1.3mi NE of MP 55.92; RO (T29S,R7W,S15; 1994): 1.8mi S of MP 58.53; PV (T29S,R6W,S2; 1994): 0.1mi N of MP68.99.	MIIH	Disturbance, modification of habitat.
Yuma myotis *Myotis yumanensis*	SOC				Riparian, desert scrub, moist woodlands, open forests. Frequents woodlands in western Oregon.	Coos Douglas Jackson Klamath			CB (T28S,R11W,S11; 1998): 0.6 mile NE of MP 29.84; PV/CB (T28,R10,S31; 1997): 1.7 mi SW of MP 35.8; CB (T29,R10,S6; 1997): 2.8mi SW of 35.8; CB (T29S,R10W,S13; 1998): 2.15mi SW of MP 43.94; RB (T29S,R7W,S20; 1994): 2.2mi S of MP 57.43; PV (T29S,R6W,S3; 1994): 0.5mi NW of MP 68.15; PV (T29S,R6W,S2; 1994): 0.1mi N of MP 68.99;	MIIH	Disturbance, modification of habitat.
Spotted bat *Euderma maculatum*		SV	SEN		Wide variety of habitat types ranging from ponderosa pine forests to desert water holes. Nests in cliff crevices.	Klamath	LV-S			NI	Very rare vagrant in Oregon, does not occur in Project vicinity.

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Common Name and/or Scientific Name	Status[1/]				Expected Habitat	Documented or Suspected Occurrence[2/]				Effect of Impact[4/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area[3/]		
White-tailed jackrabbit *Lepus townsendii*		SV			Open regions such as sagebrush deserts and grasslands, and open areas in coniferous forests and alpine meadows.	Klamath				NI	Not documented in Project vicinity.
Pygmy rabbit *Brachylagus idahoensis*	SOC	SV	SEN	SEN	Tall dense clumps of sagebrush, also in greasewood. Deep, friable soils for burrows.	Klamath	LV-D	F-W-S	Klamath Falls (T38S,R9E; Historical)	NI	No currently known sites in Klamath County.
Gold Beach pocket gopher *Thomomys mazama helleri*			STR		Open grassy meadows, wet pastures in mountain forests.	Coos	CB-S		Not Documented in ORBIC within 25 mi	NI	Not documented in Project vicinity.
Pistol River pocket gopher *Thomomys bottae detumidus*			STR		Moist meadows, pastures, grasslands, riparian areas. Requires deep soils.	Coos	CB-S			MIIH	Disturbance, modification of habitat.
White footed vole *Arborimus albipes*	SOC				Riparian areas, coniferous forests, small clearings.	Coos Douglas Jackson				NI	Not documented in Project vicinity.
Red tree vole *Arborimus longicaudus*		SV	S&M-C	S&M-C	Dense, moist, coniferous and mixed hardwood-coniferous forests with Douglas-fir component.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D	Observed in Coos Bay BLM, Roseburg BLM, Medford BLM, and Umpqua NF; see Survey and Manage stand-alone report.	MIIH	Modification of habitat, disturbance, potential for injury or death if in fell tree or snag.
Gray wolf *Canis lupus*	E	E			Habitat generalist.	Jackson Douglas Klamath				NLAA	Potential disturbance.
Kit Fox *Vulpes macrotis*		T	SEN		Open desert, shrub or shrub-grassland, salt bush, greasewood, sagebrush in Great Basin.	Klamath	LV-D		Klamath Falls (T39S,R9E; Historical)	NI	Does not occur in Project vicinity.
Ringtail *Bassariscus astutus*		SV			Woodlands containing tanoak (*Notholithocarpus densiflorus*) near rocky areas and rivers. In coniferous forests, especially riparian areas.	Coos Douglas Jackson Klamath			RO (T29S,R9W,S15; 1995): 0.88mi SW of MP 46.4; PV (T29S,R5W,S4; 1986): 0.4mi S of MP 73.75.	MIIH	Disturbance, modification of habitat.
American marten *Martes americana*		SV			Prefers mature forests with closed canopies, sometimes observed in openings.	Coos Douglas Jackson Klamath			CB (T27S,R11W,S29; 1991): 0.6mi NE of MP 24.98; PV (1991): 1.4 mi NE of MP 26.04; PV (1991): 0.1 mile from MP 29.9; ROR (T37S,R5E,S20; 1978): 2.0mi NE of MP 167.15; ROR (T37S,R5E,S31; 1980): 0,5mi SW of MP 1677.15; F-W (T37S,R5E,S27; 1991): 2.0mi NE of MP 168.3; F-W (T37S,R5E,S34; 1997): 0.9mi NE of MP 169.08; F-W (37S,R5E,S35; 1991): 1.5mi NE of MP 170.94; BLM (T38S,R5E,S15; 1999): 1.2mi SW of MP 171.2; LV (T38S,R5E,S21; 1999): 2.6mi SW of MP 173.07; LV (T38S,R5E,S34; 1999): 2.6mi SW of MP 174.65; LV (T38S,R5E,S36; 2000): 1.5mi SW of MP 174.65; LV (T39S,R5E,S1; 1999): 2.5mi SW of MP 176.5.	MIIH	Disturbance, modification of habitat.
Fisher *Pekania pennanti* West Coast DPS	PT	SC	SEN	SEN	Mature, closed canopy coniferous forests with some deciduous component. Frequently along riparian corridors. Sometimes in clearcuts.	Coos Douglas Jackson Klamath	CB-D MD-D RO-S	RRS-D UMP-D F-W-D	CB (T26S,R12W,S9; 1991): 1.4mi E of MP 10.37; Buck Lake (T38S,R5E,S14; 1978): 0.4mi SW of MP 172.58.	NLAA	Construction of the Project would result in removal of suitable habitat, as well as disruption if individuals are present. However, less than 1 percent of available suitable habitat within 5 miles of the Project would be removed, and noise generated during construction is not expected to be substantially different than noise from existing sources..
North American wolverine *Gulo gulo luscus*		T	SEN	SEN	Alpine, tundra, conifer forests, grassland, and shrubland/chaparral.	Douglas Jackson Klamath		UMP-S RRS-S F-W-S		NI	Does not occur in Project vicinity.
California wolverine *Gulo gulo luteus*		T			Likely extirpated, subalpine and alpine habitats; dens in caves and rock crevices.	Douglas Jackson Klamath				NE	Does not occur in Project vicinity.
Columbian white-tailed deer *Odocoileus virginianus leucurus*		SV	SEN		Restricted to a few islands in the Columbia River and white-oak (*Quercus garryana*) woodlands near Roseburg.	Douglas	RO-D		RB (T26S,R4W; 1993): 15 mi N of MP 71.61.	NI	Does not occur in Project vicinity.
Sea Otter *Enhydra lutris*			STR		Marine mammal in coastal waters/shallows with kelp beds and abundant shellfish.	Coos	CB-S			MIIH	Potential disturbance.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Blue whale *Balaenoptera musculus*	E	E			Worldwide in coastal waters and offshore.	Coos				NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Fin whale *Balaenoptera physalus*	E	E			Found in waters of all major oceans; concentrates in mixing zones between coastal and oceanic waters associated with the continental shelf.	Coos				NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Gray whale *Eschrichtius robustus*		E			Found mainly in shallow coastal waters in the North Pacific Ocean.	Coos				MIIH	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Humpback whale *Megaptera novaeangliae*	E	E			Feeds in cold, productive, shallow coastal waters. Calving grounds are commonly in shallow waters near offshore reef systems, islands, or continental shores. During migration, humpbacks stay near the surface of the ocean.	Coos				NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Killer whale *Orchinus orca* Eastern North Pacific Southern Resident stock	E				Found in all oceans, in both open seas and coastal waters. The Southern Resident stock tends to spend more time in deeper water or waters where there is more salmon abundance.	Coos				NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
North Pacific right whale *Eubalaena glacialis*	E				Primarily occur in coastal or shelf waters, although movements over deep waters are known.					NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Sei whale *Balaenoptera borealis*	E	E			Sei whales are found a great distance from shore in temperate waters and do not appear to approach coastal areas.	Coos				NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Sperm whale *Physeter macrocephalus*	E	E			Primarily inhabit deep water.	Coos				NLAA	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Steller sea lion *Eumatopias jubatus* Eastern DPS			SEN		Marine habitats include coastal waters near shore and over the continental slope; sometimes rivers are ascended in pursuit of prey. The most commonly used terrestrial habitat types are rookeries and haulouts. Rookeries are areas where adults congregate for breeding and pupping. These habitats generally occur on beaches of remote islands with difficult access for humans and other mammalian predators.	Coos	CB-S			MIIH	With mitigation, potential injury and/or mortality due to ship strikes, potential adverse effects from vessel underwater noise, ship spill and/or release of LNG at sea are expected to be minimal.
Birds											
Marbled murrelet *Brachyramphus marmoratus*	T/CH	T			Nesting sites almost exclusively within old-growth coniferous forests, usually Douglas-fir stands in Oregon. Uncommon to rare year-round resident on the Oregon coast.	Coos Douglas	CB-D MD-S RO-D		Occupied stands, federally-designated critical habitat, and documented birds within project area.	LAA	Disturbance, loss of habitat, and habitat fragmentation.
Short-tailed albatross *Phoebastria (Diomedea) Albatrus* Pacific Coast Population	E	E			Nests on flat or sloped sites with sparse or full vegetation on isolated windswept offshore islands with limited human access.				Off the Oregon coast in the vicinity of Coos Bay.	NLAA	Does not breed in project vicinity; individuals expected to avoid LNG marine traffic.
Western snowy plover *Charadrius alexandrinus*	T/CH	T			Year-round, uncommon resident of the North Spit. Nests on sand spits near river outlets and on level sandy beaches.	Coos Douglas	CB-D		Coos Bay and Estuary; nest 0.4mi S of MP 1.54 on spoils pile (1990); PV (T25S,R13W,S35; 1997): 2.2mi SW of MP 6.47. Project is 2.6 mi NE of Critical Habitat, and 1.1 mi NE of the largest and most consistent nesting area on the Oregon Coast.	NLAA	With mitigation, potential increase in predation and disturbance would be minimal.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Red-necked grebe *Podiceps grisegena*		SC	SEN	SEN	Breeds in lakes and ponds, mostly in forested areas. Winter habitat consists of estuaries and protected waters along the coast.	Coos Douglas Jackson Klamath	CB-D LV-S	UMP-D F-W-D	MD (T38S,R4E; Historical) Modoc Point BBS (16.3 mi)	MIIH	Disturbance and modification of foraging habitat.
Horned grebe *Podiceps auritus*			SEN	SEN	Open water surrounded with emergent vegetation.	Coos Douglas Jackson Klamath	CB-D LV-D	F-W-D UMP-D	On Merril BBS (centerline), Ingalls BBS (41.9 mi), Dorris BBS (3.5 mi), Macdoel BBS (10,9 mi), Iron Gate BBS (19.7 mi), Modoc Point BBS (16.3 mi).	MIIH	Loss and modification of habitat, disturbance.
American white pelican *Pelecanus erythrorhynchos*		SV	SEN	SEN	Inland lakes and marshes during breeding season. Nests on predator-free islands. May occur on most bodies of water during nonbreeding.	Jackson Klamath	LV-D	F-W-D	Klamath Lake (T37S, R6E; Historical). On Iron Gate BBS (19.7), Clear Lake Reservoir BBS (20.4 mi), Modoc Point BBS (16.3 mi), Bly BBS (31 mi), Merril BBS (on ROW), Dorris BBS (3.5 mi), MacDoel BBS (10.9 mi).	MIIH	Disturbance.
California Brown Pelican *Pelecanus occidentalis californicus*		E	SEN		Marine nearshore habitats in bays, sounds, and estuarine tidal river mouths.	Coos Douglas	CB-D		Coos Bay Estuary (T2S,R13W; 1983), Coos Bay CBC (1992-2011), Coos Bay and Estuary below RM 6 to open ocean – feeding and roosting.	MIIH	In-water work period will avoid and minimize potential effects; potential disturbance not likely to exceed existing disturbance.
Western least bittern *Ixobrychus exilis hesperis*			STR	STR	Breeds in freshwater cattail (*Typha* spp.) and bulrush marshes east of the Cascades.	Klamath	LV-D	F-W-D	Rogue River (T36,R1W; Historical)	MIIH	Disturbance.
Snowy egret *Egretta thula*		SV	SEN		Marshy areas, especially in Coos Bay in the winter. Cattail and bulrush marshes in breeding seasons.	Klamath	CB-D LV-D		Documented foraging near Coos Bay. On Clear Lake Reservoir BBS (20.4 mi), Dorris BBS (3.5 mi)	MIIH	Potential disturbance and habitat loss.
White-faced ibis *Plegadis chihi*	SOC				Breeds in interior freshwater marshes. Nests among emergent hardstem bulrush. Feeds in marshes, meadows, edges of bonds, pastures, and irrigated alfalfa fields.	Klamath			On Clear Lake Reservoir BBS (20.4 mi), Modoc Point BBS (16.3 mi), Merrrill BBS (on ROW), Chinchalo BBS (37.6 mi), Dorris BBS (3.5 mi), MacDoel BBS (10.9 mi).	MIIH	Potential disturbance.
Greater sandhill crane *Grus canadensis tabida*		SV			Nests in marshes and wet meadows or in drier grasslands and pastures.	Jackson Klamath			RRS (T36S,R4E,S30; 1990): 2.7mi NE of MP 157.53, Modoc Point BBS (16.3 mi), Bly BBS (31 mi), Merrrill BBS (on ROW), Chinchalo BBS (37.6 mi), Ingalls BBS (41.9 mi), Dorris BBS (3.5 mi), MacDoel BBS (10.9 mi), Clear Lake Reservoir BBS (20.4 mi).	MIIH	Potential disturbance.
Canadian sandhill crane *Grus canadensis rowani*			STR		Spring and fall migrant in western (Willamette Valley) Oregon, utilizes Sauvie Island and Ridgefield NWR, WA.	Jackson	LV-D			MIIH	Potential disturbance.
Trumpeter swan *Cygnus buccinator*			SEN		Nests on the shores of large inland lakes and marshes. Species has a limited range within Oregon.	Klamath	LV-S			NI	Does not occur in Project vicinity.
Aleutian Canada Goose *Branta canadadnsis leucopareia*			SEN		Migrates along the entire Oregon coast to California wintering grounds, also winters in Oregon. Forages in pastures. During migration, may be seen in the Willamette Valley or Goat Rock (Oregon Islands National Wildlife Refuge). Some winter exclusively in the Semidi Islands, near Pacific City. In the spring, several thousand congregate in the Langlois area of southern coastal Oregon.	Coos	CB-D			MIIH	Disturbance and potential effects to coastal wintering grounds.
Dusky Canada goose *Branta canadensis occidentalis*			SEN		Breeds in freshwater marshes with tall shrub cover. Terrestrial habitats include cropland, hedgerow and grasslands.	Coos Douglas	CB-S		Klamath Lake (T38S,R9E; Historical). Primary wintering grounds are within Willamette Valley Refuges, and range does not extend south into the Project area.	NI	Does not occur in Project vicinity.
Harlequin duck *Histrionicus histrionicus*	SOC		SEN	SEN	Breeds along low-gradient, fast-flowing reaches of mountain streams in forested areas. Uses swift waters and rapids during other seasons.	Coos Douglas Klamath	CB-D RO-D	UMP-D RRS-D	Coos Bay CBC (1993-2011).	MIIH	Modification of habitat and disturbance.
Bufflehead *Bucephala albeola*				SEN	Near mountain lakes surrounded by open woodlands containing snags. Nests in aspen (*Populus tremuloides*), ponderosa pine, or Douglas-fir.	Coos Douglas Jackson Klamath		F-W-D UMP-D	On Dorris BBS (3.5 mi), Clear Lake Reservoir BBS (20.4 mi), Crowder Flat BBS (31.7 mi), Modoc Point BBS (16.3 mi), Lapham Reservoir BBS 25 mi), Dorris BBS (3.5 mi), Coos Bay CBC (1992-2011).	MIIH	Disturbance.
Yellow rail *Coturnicops noveboracensis*	SOC	SC	SEN	SEN	Freshwater and coastal estuary marshes. Requires areas with shallow water and vegetative cover.	Klamath	LV-D	F-W-D UMP-S	Klamath Lake (T38S,R7E; Historical), On Chinchalo BBS (37.6 mi).	NI	Does not currently occur in Project vicinity.
Black oystercatcher *Haematopus bachmani*	SOC				Intertidal environment. Nests either on offshore islands or rocky shorelines and cliffs.	Coos			Coos Bay CBC (1992-2011)	MIIH	Potential for displacement if species is present.
Upland sandpiper *Bartramia longicauda*	SOC	SC		SEN	Nests in dry or wet meadows and grasslands, often with a fringe of trees in the middle of sagebrush or lodgepole pine communities.	Klamath		F-W-D		MIIH	Modification of habitat and disturbance.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Long-billed curlew *Numenius americanus*		SV			Nests in open grasslands, prairies, and meadows, often near scattered shrubs and usually near water or wet meadows.	Klamath			On Chinchalo BBS (37.6 mi), Ingalls BBS (41.9 mi), Dorris BBS (3.5 mi), Mcdoel BBS (10.9 mi), Merrilll BBS (centerline).	MIIH	Modification of habitat and disturbance.
Franklin's gull *Larus pipixcan*			SEN		Seacoasts, bays, estuaries, lakes, marshes, and irrigated croplands.	Klamath	LV-D		On Dorris BBS (3.5 mi), Mcdoel BBS (10.9 mi), Modoc Point BBS (16.3 mi).	MIIH	Potential disturbance.
Black tern *Chlidonias niger*	SOC				Nests in or on emergent vegetation in alkaline lakes and freshwater marshes or in marshy areas along rivers or ponds. Forages near nest.	Jackson Klamath			On Mcdoel BBS (10.9 mi), Clear Lake Reservoir BBS (20.4 mi), Crowder Flat BBS (31.7 mil.), Modoc Point BBS (16.3 mi).	MIIH	Potential disturbance.
Rhinoceros auklet *Cerorhinca monocerata*		SV			Offshore islands and coast headlands with well-developed soils. Forages ocean-wide.	Coos Douglas			On Coos Bay CBC, Coquille CBC.	MIIH	Disturbance.
Cassin's auklet *Ptychoramphus aleuticus*		SV			Breeds on offshore islands. Forages in the marine environment.	Coos			On Coos Bay CBC.	MIIH	Disturbance.
Tufted puffin *Fratercula cirrhata*		SV			Burrows on slopes or turf-covered headlands of offshore islands and coastal bluffs. May nest in rock crevices. Forages in the marine environment.	Coos			On Coos Bay CBC (2006).	MIIH	Disturbance.
White-tailed kite *Elanus leucurus*			SEN		Lower-elevation grasslands, agricultural areas, meadows, oak and riparian woodlands, marshes, and wetlands. Requires trees or tall shrubs for nesting.	Coos Douglas Jackson	CB-D MD-D RO-D		On Umpqua BBS (18.4 mi), Emigrant Lake BBS (7.7 mi).	MIIH	Disturbance.
Bald eagle *Haliaeetus leucocephalus*	SEN	SEN			Nests and roosts along coasts, rivers, bays, and lakes with large trees (e.g., pine, spruce, cottonwood [*Populus* spp.], oak).	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D	UMP-D RRS-D F-W-D	F-W (T37S,R6E; 1993), MD (T40S,R7E; 1982), (T40S,R8E; 1971), MD (T31S,R4W; 2006), LV (T41S,R7E; 2006), MD (T38S,R3E; 2006), (T28S,R14W; 2006), LV (T40S,R7E; 2006), LV (T40S,R13E; 2006), (T39S,R7E; 2006), T(37S,R7E; 2006), RB (T25S,R4W; 2011), RRS (T36S,R3E; 2006), (T26S,R14W; 2006), MD (T38S,R3E; 2007), (T27S,R6W; 2011), (T24S,R13W; 2006), (T27S,R13W; 2006), (T23S,R13W; 2002), (T37S,R7E; 2006), (T39S,R8E; 2006), F-W (T37S,R5E; 2006), (T37S,R9E; 2006), (T38S,R10E; 2006), (T38S,R8E; 2006), (T38S,R8E; 2006), MD (T34S,R1E; 2006), MD (T36S,R1E; 2006), (T23S,R12W; 2006), (T39S,R7E; 2006), (T39S,R10E; 2006), LV (T40S,R13E; 1984), (T24S,R12W; 2006), (T37S,R7E; 2006), (T37S,R7E; 2006), (T38S,R8E; 2006), MD (T33S,R1E; 2006), (T39S,R8E; 2006), (T35S,R1W; 2006), RRS (T37S,R4E; 2006), MD (T38S,R4E; 2006), LV (T40S,R11E; 2006), CB (T28S,R10W; 2003), LV (T38S,R6E; 2006), MD (T34S,R3E; 2006), (T40S,R8E; 2006), LV (T40S,R11E; 2006), (T25S,R11W; 2006), (T36S,R2W; 2001), (T38S,R8E; 2006), (T40S,R7E; 2005), T38S,R9E; 2006), LV (T41S,R7E; 2006), F-W (T38S,R5E; 2006), RB (T26S,R4W; 1996), (T36S,R6E; 2006), LV (T39S,R10E; 2005) (T40S,R12E; 2006).	MIIH	Disturbance, loss or modification of habitat.

TABLE O-3

Special Status Marine Mammal and Terrestrial Wildlife Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Northern goshawk *Accipiter gentilis*	SOC	SV			Coniferous forests, sometimes in aspen groves on desert mountain ranges. Prefers large patches of late-successional forests with large trees and canopy closure.	Coos Douglas Jackson Klamath			CB (1998): 0.6 mile NE of MP 29.84; MD (T32S,R1W,S33; 2001): 2.3mi E of MP 114.31; MD (T35S,R1E,S3; 1996): 1.1mi W of MP 134.1; MD (T35S,R1E,S23; 1997): 0.7mi SW of MP 136.94; PV (T35S,R2E,S30; 1995): 0.3mi SW of MP 138.79; MD (T35S,R2E,S21; 1997): 1.4mi NE of MP 139.7; MD (T36S,R2E,S11; 1999): 2.3mi E of MP 143.68; PV (T36S,R2E,S12; 1998): 2.3mi NE of MP 145.65; MD (T36S,R2E,S12; 1996): 2.8 and 2.9 mi NE of MP 145.65; MD (T36S,R2E,S25; 1998): 1.3mi NE of MP 148.93.; F-W (T38S,R5E,S9; 1993-1996): 0.5-1.1mi SW of MP 170.06; PV (T38S,R5E,S10; 1996): 0.5mi SW of MP 170.36; F-W (T37S,R5E,S32; 1995): 0.2mi NE of MP 168.35; F-W (T37S,R5E,S33; 1995): 0.6mi NE of MP 168.35; F-W (T37S,R5E,S28; 1994): 0.9mi NE of MP 168.35; F-W (T38S,R5E,S7; 1993): 1.6mi SW of MP 168.88; F-W (T38S,R5E,S8; 1994-2006): 1.1-2.0mi SW of MP 169.56; LV (T38S,R5E,S17; 1998): 2.3mi SW of MP 169.56; LV (T38S,R5E,S20; 1998): 2.9mi SW of MP 169.56; LV (T38S,R5E,S21; 1996): 2.7mi SW of MP 171.20; F-W (T37S,R5E,S36; 1992-1997): 2.2mi NE of MP 171.44; F-W (T38S,R5E,S1; 1995): 1.6-1.9mi NE of MP 171.44; F-W (T38S,R5E,S11; 1995,1998): 0.1 and 0.3mi NE of MP 171.93; Buck Lake/PV (T38S,R5E,S14; 1995): 0.4mi SW of MP 172.69; Buck Lake/PV (T38S,R5E,S23; 1999): 0.9mi SW of MP 173.07; F-W (T38S,R5E,S35; 1998): 1.5mi SW of MP 174.65; LV (T38S,R5E,S35; 1993): 2.3mi SW of MP 174.65; LV (T38S,R5E,S25; 1998): 0.4 and 0.6mi SW of MP 174.65; LV (T38S,R6E,S29; 2005): 0.4 and 1.2 mi NE of MP 175.96; LV (T38S,R5E,S36; 1994): 1.4mi SW of MP 176.69; LV (T38S,R6E,S33; 1996-2003): several records 0.6mi - 1.3mi NE of MP 178.12; LV (T39S,R6E,S5; 1999): 0.7mi SW of MP 177.39; PV (T38S,R6E,S34; 1996): 0.9mi NE of MP 178.45; PV (T39S,R6E,S3; 1994): 0.6mi NE of MP 179.06; LV (T39S,R6E,S17; 1994,1997): 2.3mi and 2.4mi SW of MP 179.39; LV (T40S,R11E,S7; 1994): 2.8mi N of MP 215.90.	MIIH	Modification of habitat and disturbance. Injury or mortality if nest tree is felled.
Swainson's hawk *Buteo swainsoni*		SV			Grasslands, sagebrush flats, juniper woodlands, larger meadows, and grasslands with forested mountains. Requires trees for nesting.	Jackson			Not documented in ORBIC within 25 mi. On Ingalls BBS (41.9 mi), Dorris BBS (3.5 mi), Mcdoel BBS (10.9 mi), Medicine Mountain BBS (28.5 mi), Iron Gate BBS (19.7).	MIIH	Minor potential for disturbance if present.
Merlin *Falco columbarius*			STR		Nests in open coniferous woodlands, forests, and savannahs. Forages over a variety of habitats such as marshes, prairies, and woodland openings. Usually found close to water.	Coos Jackson Klamath	RO-D		Documented perched near Coos Bay. On Lapham Reservoir BBS (25.3 mi)	MIIH	Modification of habitat and disturbance.
American peregrine falcon *Falco peregrinus anatum*		SV	SEN	SEN	Typically nests on cliffs overlooking fairly open areas with an ample food supply, such as along coasts, lakes, and marshes, but may nest on buildings or in stick nests constructed by other raptors.	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D	RRS-D UMP-D F-W-D	Nest sites: CB (T28S,R10W,S19; 2003): 0.8mi NE of MP 33.88; UMP (T32S,R2W,S35; 2003): 0.2mi SW of MP 112.64; PV (T33S,R2W,S36; 2003): 2.2mi SW of MP 119.54; PV (T36S,R3E,S30; 2003): 1.8mi N of MP 152.15. Several documentations within Coos Bay area – foraging, flying, roosting.	MIIH	Disturbance.
Arctic peregrine falcon *Falco peregrinus tundrius*		SV			Migratory habitat on coast – cliffs or bluffs near large bodies of water or open fields for hunting.	Coos Douglas				NI	Not documented in vicinity of Project.
Greater sage-grouse *Centrocercus urophasianus*	C	SV	SEN	SEN	Big sagebrush, preferring areas where big sagebrush cover is 15-50%. Leks in open areas.	Klamath	LV-D	F-W-D	Clear Lake Reservoir BBS (20.4 mi).	MIIH	Modification of habitat and disturbance.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Mountain quail *Oreortyx pictus*	SOC				High elevation; prefers open forests and woodlands with ample undergrowth of brushy vegetation. Also inhabits thickets of chaparral and riparian woodland, meadow edges in forests, and brushy regrowth.	Coos Douglas Jackson Klamath			PV (1993): 1.5 mi E of MP13.61; PV (1997): 1.8 mi NE of MP 28.86; CB (1998): 2.0, 2.1, 2.4 mi NE of MP 28.86; CB (1999): 1.1 mi NE of MP 32.35; CB (T28S,R10W,S28; 1996): 0.03 mi W of MP 37.16; MD (T34S,R1W,S17; 1994): 2.0mi SW of MP 121.85; LV (T38S,R5E,S15; 2005): 1.0 and 1.1 mi SW of MP 172.53; LV (T38S,R5E,S36; 2000): 1.5mi SW of MP 175.89; LV (T39S,R6E,S5; 2000): 0.7mi SW of MP 177.61; PV (T39S,R6E,S24; 2005): 0.3mi SW of MP 182.52; PV (T40S,R7E,S6; 2000): 2.4mi S of MP 184.3; PV (T40S,R8E,S7; 2003): 1.8mi SW of MP 192.59; LV (T40S,R8E,S17; 2002): 2.9mi S of MP 192.59.	MIIH	Modification of habitat and disturbance.
Band-tailed pigeon *Patagioenas fasciata*	SOC				Coniferous or mixed-deciduous forests. Forests and woodlands containing oaks. In western Oregon, uses dense coniferous forests.	Coos Douglas Jackson			PV (1997): 1.8 mi NE of MP 28.86; CB (1998): 2.0, 2.1, 2.2 and 2.5 mi NE of MP 28.86; CB (T28,R11,S35; 1994): 1.6 mi SW of MP 33.77; CB (T28,R10,S9; 1995): 2.9 mile NE of MP 34.45; CB (T28S,R9W,S19; 1993): 2.09mi NE of MP 39.56.	MIIH	Modification of habitat and disturbance.
Yellow-billed cuckoo *Coccyzus americanus* Western DPS	T	SC	SEN		Thick closed-canopy riparian forests with an understory of dense brush usually composed of various species of willows (*Salix* spp.) and cottonwoods.	Klamath	LV-S			NE	No current locations in Klamath County; no habitat left in county.
Northern spotted owl *Strix occidentalis caurina*	T/CH	T			Closely associated with old-growth coniferous forests or mature forests with old-growth characteristics such as standing snags, closed canopy, and downed logs.	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D	RRS-D UMP-D FW-D	Multiple locations along route within 3 mi of route. Designated critical habitat within project area.	LAA	Disturbance, habitat loss or modification, and habitat fragmentation.
Flammulated owl *Otus flammeolus*		SC			Open forests with ponderosa pine. Roosts in large trees adjacent to grasslands.	Douglas Jackson Klamath	MD-D		MD (T33S,R1W,S31; 2002): 1.9mi W of MP 121.25; MD (T34S,R1W,S1; 2003): 0.7mi NE of MP 124.32; MD (T35S,R2E,S27; 1996): 1.7mi NE of MP 140.45; PV (T36S,R2E,S2; 1994): 2.6mi E of MP 141.89; MD (T37S,R3E,S5; 1997): 0.3mi S of MP 153.35.	MIIH	Modification of habitat, disturbance, and potential for injury or death if roosting or nesting in fell tree or snag.
Western burrowing owl *Athene cunicularia hypugea*	SOC	SC			Open deserts, grasslands, fields, pastures, and sagebrush steppe.	Douglas Jackson Klamath				MIIH	Disturbance.
Great gray owl *Strix nebulosa*		SV	S&M-C	S&M-C	Forages over open areas. Found in mixed coniferous, ponderosa pine, and lodgepole pine forests. Often in old-growth forests on north-facing slopes.	Douglas Jackson Klamath	RO-D MD-D	RRS-D	MP 136.58; MD (T35S,R1E,S13; 1997, 1998, 1999, 2003, 2004): 0.8mi NE of MP 136.83; PV (T35S,R1E,S13; 1998): 0.6mi NE of MP 136.83; MD (T35S,R2E,S18; 2001, 2003): 1.3mi NE of MP 136.83; MD/PV (T35S,R1E,S13; 1997): 0.2mi NE of MP 136.97; PV (T35S,R2E,S18; 2000, 2001): 1.1, 1.4, and 1.5mi NE of MP 138.44; MD (T35S,R2E,S18; 2005): 1.0mi NE of MP 138.44; MD (T35S,R2E,S17; 2001): 1.5mi NE of MP 138.44; MD (T35S,R2E,S19; 1999): 0.8mi NE of MP 138.44; MD (T35S,R2E,S21; 1997): 1.6mi NE of MP 139.7; MD (T35S,R2E,S23; 1995): 2.8mi NE of MP 140.45; MD (T35S,R2E,S27; 1998): 1.6mi NE of MP 140.45; MD (T36S,R2E,S13; 1996-2005): 2.5 and 2.7 mi NE of MP 146.51; PV (T36S,R2E,S30; 1999): 2.3mi W of MP 147.46; MD (T37S,R2E,S1; 1992): 0.3mi S of MP 150.07; MD (T37S,R2E,S23; 1997): 2.9mi SW of MP 150.95; MD (T37S,R3E,S18; 1997): 1.9mi S of MP 152.41; MD (T36S,R3E,S29; 2004-2006): 2.0 and 2.2 mi N of MP 153.24; MD (T37S,R3E,S8; 1998): 0.7mi S of MP 153.35; MD (T37S,R3E,S17; 1998): 1.6-2.3 mi S of MP 153.24; MD (T37S,R3E,S20; 1998): 2.7-2.9 mi S of MP 153.24; RRS (T37S,R3E,S25; 1997): 2.0mi SW of MP 159.95; RRS (T37S,R3E,S21; 1998): 2.3mi SW of MP 154.73; RRS (T36S,R4E,S30; 1998): 2.8mi N of MP 158.76; F-W (T38S,R5E,S7; 1998): 1.9 and 2.1 mi SW of MP 168.78; LV (T38S,R6E,S19; 1998): 0.6mi NE of MP 174.12; LV (T38S,R5E,S35; 1997): 2.2mi SW of MP 174.65; LV (T38S,R5E,S25; 2004): 0.8mi SW of MP 174.65; LV (T38S,R6E,S29; 2005): 0.6mi NE of MP 175.57; LV (T39S,R6E,S7; 1994, 1997): 2.0 and 2.3 mi SW of MP 177.39.	MIIH	Disturbance, loss or modification of habitat, and potential for injury or death if roosting or nesting in fell tree or snag.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Black Swift *Cypseloides niger*			SEN	SEN	Nests next to or behind waterfalls, wet cliffs, sea caves; nests in small colonies.	Coos Douglas	CB-D	UMP-D	(T32S, R3E, 2003): 14.3 mi NE of MP 131.16.	NI	No suitable habitat in Project area.
Acorn woodpecker *Melanerpes formicivorus*	SOC				White oak communities; other coniferous and broad-leaved trees usually present.	Coos Douglas Jackson Klamath			On Umpqua BBS (18.4 mi), Days Creek BBS (3.7 mi), Darby BBS (centerline), Emigrant Lake BBS 7.7 mi), Sams Valley BBS (centerline), Prospect BBS (centerline), MacDoel BBS (10.9 mi).	MIIH	Disturbance.
White-headed woodpecker *Picoides albolarvatus*	SOC	SC	SEN	SEN	Ponderosa pine or pine-mixed conifer forests. Requires large trees for foraging and snags for nesting.	Douglas Jackson Klamath	LV-D MD-D	UMP-D RRS-D F-W-D	LV (T38S,R5E,S35; 1999): 2.1mi SW of MP 174.65, Modoc Point BBS (16.3 mi), Bly BBS (31 mi), Lapham Reservoir BBS (25 mi), Picture Flat BBS (39 mi), Chinchalo BBS (37.6 mi).	MIIH	Modification of habitat, disturbance, and potential for injury or death if roosting/nesting in fell tree or snag.
Lewis' woodpecker *Melanerpes lewis*	SOC	SC	SEN	SEN	Open forests at lower elevations. Nests in white oak woodlands, ponderosa pine woodlands, mixed oak-pine woodlands, and cottonwood riparian woodlands in eastern Oregon.	Douglas Jackson Klamath	MD-D RO-D	UMP-D RRS-D F-W-D	PV (T36S,R2E,S7; 1995): 1.1mi SW of MP 142.54, Modoc Point BBS (16.3 mi), Lapham Reservoir BBS (25 mi), Merrill BBS (centerline), MacDoel BBS (10.9 mi), Clear Lake Reservoir BBS (20.4 mi).	MIIH	Modification of habitat, disturbance, and potential for injury or death if roosting/nesting in fell tree or snag.
Olive-sided flycatcher *Contopus cooperi*	SOC	SV			Coniferous forests with uneven canopy. Prefers open forests but occupies a variety of forest types.	Coos Douglas Jackson Klamath			PV (T27S,R11W,S34; 1997): 1.8 mi NE of MP 28.86; CB (T27S,R11W,S35; 1998): 2.0, 2.4, and 2.5 mi NE of MP 28.86; PV (1992): 3.0 mi W of MP 33.77; LV (TT38S,R5E,S26; 1994): 1.9mi SW of MP 174.65; LV (T38S,R5E,S34; 1994): 2.8mi SW of MP 174.65.	MIIH	Potential disturbance and habitat modification.
Willow flycatcher *Empidonax traillii adastus*	SOC	SV			Willows at the edges of streams flowing through meadows and marshes. Also breeds in thickets along edges of forest clearings and brushy vegetation near water.	Jackson Klamath			PV (T27S,R11W,S34; 1997): 1.8 mi NE of MP 28.86; CB (T27S,R11W,S35; 1998): 2.2 and 2.4 mi NE of MP 28.86; LV (T38S,R5E,S34; 1994): 2.5mi SW of MP 174.65; LV (T38S,R5E,S35; 1994): 2.0 and 2.1mi SW of MP 174.65.	MIIH	Potential disturbance and habitat modification.
Little willow flycatcher *Empidonax traillii brewsteri*		SV			Willows at the edges of streams flowing through meadows and marshes. Also breeds in thickets along edges of forest clearings and brushy vegetation near water.	Coos Douglas Jackson				NI	Not documented in Project vicinity.
Streaked horned lark *Eremophila alpestris strigata*	T/CH	SC	SEN		Expanses of thinly vegetated land, including fields, prairies, dunes, upper beaches, airports, and similar areas with low/sparse grassy vegetation.	Douglas Jackson	CB-D MD-N		Documented on the North Spit in 2005, approximately 1 mile SW of Project.	NLAA	Potential for disturbance if species is present.
Purple martin *Progne subis*	SOC	SC	SEN	SEN	Nests in tree cavities and nest boxes with open areas for foraging. May use open forests.	Coos Douglas Jackson Klamath	CB-D MD-S RO-D	UMP-S RRS-S F-W-S	Haynes Inlet and Coos Bay (arrive in April), Catching Slough (nest boxes; 1985), Days Creek BBS (3.7 mi), Glasgow BBS (centerline), Selma BBS (32.8 mi), Modoc Point BBS (16.3 mi), Clear Lake Reservoir BBS (20.4 mi).	MIIH	Modification of habitat, disturbance, and potential for injury or death if roosting/nesting in fell tree or snag.
Northern waterthrush *Seiurus noveboracensis*				SEN	Nests in cool, wooded swamps, ponds, slow-moving rivers; thickets of bogs, and rivers bordered with willow.	Jackson		RRS-D		NI	Extremely rare in Oregon, limited habitat in survey area.
Slender-billed nuthatch *Sitta carolinensis aculeata*[3]		SV			Western Oregon lowlands including oak and mixed forests, nut orchards, and suburban Willamette Valley.	Douglas Jackson Klamath				NI	Not documented in Project vicinity.
Western bluebird *Sialia mexicana*		SV			Variety of habitat types with nest holes or nest boxes. In western Oregon, breeds in clearcuts, riparian woodlands, and open oak-ponderosa pine woodlands. In eastern Oregon, utilizes agricultural areas and open ponderosa pine, Douglas-fir and juniper woodlands.	Coos Douglas Jackson Klamath			CB (T27S,R11W,S35; 1998): 2.4 mi NE of MP 28.86, Modoc Point BBS (16.3 mi), Merrill BBS (centerline), Picture Flat BBS (39 mi), Ingalls BBS (41.9 mi), MacDoel BBS (10.9 mi), Hackamore BBS (34.7 mi), Clear Lake Reservoir BBS (20.4 mi), Iron Gate Reservoir BBS (19.7 mi).	MIIH	Potential for disturbance if species is present.
Yellow-breasted chat *Icteria virens*	SOC				Brushy areas in riparian woodlands. Also uses tangles of brush in deciduous or mixed deciduous-coniferous woodlands.	Coos Douglas Jackson Klamath			On Modoc Point BBS (16.3 mi E) and Iron Gate BBS (19.7 mi S).	MIIH	Potential for disturbance if species is present.
Grasshopper sparrow *Ammodramus savannarum*		SV		SEN	Short grasslands with few scattered shrubs, prefers bunchgrass grasslands on the north slopes of hills with scattered shrubs or uses cultivated grasslands and pastures.	Douglas Jackson			(T36S, R1W; Historical): 10.3 mi W of MP 145.59, Merrill BBS (centerline), MacDoel BBS (10.9 mi).	MIIH	Potential disturbance and habitat modification.
Oregon vesper sparrow *Pooecetes gramineus affinis*[3]	SOC	SC	SEN		Grassy foothills west of Cascades in the Umpqua and Rogue river valleys.	Coos Douglas Jackson	CB-D RO-D			MIIH	Disturbance and potential for loss of ground nests.
Tricolored blackbird *Agelaius tricolor*	SOC		SEN	SEN	Breeds in freshwater marshes with emergent vegetation or thickets of shrubs. May breed in Himalayan blackberry (*Rubus armeniacus*) near wetlands.	Jackson Klamath	MD-D LV-D	RR-D	ST (T39S,R8E,S26; 1980): 1.0mi SE of MP 196.17, PV (T41S,R12E,S15; 2000): 1.8mi W of MP 229.39, Modoc Point BBS (16.3 mi), Merrill BBS (centerline), Ingalls BBS (41.9 mi), Dorris BBS (3.5 mi), MacDoel BBS (10.9 mi), Hackamore BBS (34.7 mi), Iron Gate Reservoir BBS (19.7 mi).	MIIH	Disturbance.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Reptiles											
Green sea turtle *Chelonia mydas*	T	E			Oceanic beaches for nesting, convergence zones in the open ocean, and benthic feeding grounds in coastal areas. Occasional sightings off the coasts of Washington and Oregon; most commonly occur from San Diego to the south.					NLAA	With mitigation, potential for injury or mortality due to ship-strikes and potential adverse effects from a carrier spill is low.
Leatherback sea turtle *Dermochelys coriacea*	E	E			Open ocean and coastal waters; widespread.					NLAA	With mitigation, potential for injury or mortality due to ship-strikes and potential adverse effects from a carrier spill is low.
Loggerhead sea turtle *Caretta caretta*	E	T			Oceanic beaches for nesting, open ocean, and nearshore coastal areas. Occasional sightings off the coasts of Washington and Oregon; most occur off the California coast.					NLAA	With mitigation, potential for injury or mortality due to ship-strikes and potential adverse effects from a carrier spill is low.
Olive Ridley sea turtle *Lepidochelys olivacea*	T	T			Primarily open ocean, but known to inhabit coastal areas, including bays and estuaries. Primarily tropical species but occasionally occurring off the Oregon and Washington coasts.					NLAA	With mitigation, potential for injury or mortality due to ship-strikes and potential adverse effects from a carrier spill is low.
Western pond turtle *Actinemys marmorata (*formerly Northwestern/North Pacific/Pacific Pond Turtle, *Emys/Actinemys marmorata marmorata)*	SOC	SC	SEN	SEN	Rivers, creeks, small lakes, ponds, marshes, irrigation ditches, and reservoirs. Nests on sandy banks near water.	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D	F-W-D RRS-D UMP-D	Ross Slough (T26S,R12W,S6; 1993): 1.2mi W of MP 9.25; Jerusalem Creek/CB (T27S,R11W,S31; 1993): 0.8mi W of MP 26.64; Middle Fork Coquille River (T29S,R8W,S7, 17, and 18; 1994): 0.3 mi NW and 0.4mi SE of MP 49.97; PV (T28S,R7W,S31; 1993): 1.4mi NE of MP 55.92; Olalla Creek (T29S,R7W,S4; 1995): 0.2mi NW of MP 59.5; Ben Irving Reservoir/RO (T29S,R7W,S17, 18, 19, and 20; 1993): 1.2mi S of MP 57.13; South Umpqua River (T28S,R6W,S21, 29, and 33; 1995); East Willis Creek (T29SR6W,S15;1995): 1.2mi SW of MP 67.47; South Umpqua River (T29SR5W,S7 and T29S,R6W,S11; 1998): 0.2mi S of MP 68.99 and 0.7mi SE of MP 70.43; South Umpqua River (T30S,R3W,S26, 28, and 33; 1997): 1.23mi W and 0.9mi NE of MP 94.55; UMP (T31S,R2W,S28; 1993): 1.8mi NE of MP 105.24; UMP (T32S,R2W,S29: 1989): 1.5mi SW of MP 109.68; Rogue River/PV (T34S,R1W,S3): within ROW at MP 122.67; BLM (T37S,R2E,S5; 1993): 2.7mi SW of MP 148.2; Klamath River (T39S,R8E,S31; 1991): 0.9mi SW of MP 191.31; Klamath River (T39S,R8E,S34, 35; 1991): 0.8mi SE of MP 195.02; ST/Klamath River (T39S,R9E,S18 and 19; 1991): 0.3mi S of and at MP 199.5.	MIIH	Modification of habitat, disturbance, potential for injury or death.
Northern sagebrush lizard *Sceloporus graciosus graciosus*	SOC				Sagebrush habitats; also in chaparral, juniper woodlands, and coniferous forests.	Klamath				NI	Not documented in Project vicinity.
California mountain kingsnake *Lampropeltis zonata*	SOC	SV			Pine forests, oak woodland, and chaparral valleys. In, under, or near rotting logs in open wooded areas near streams.	Coos Douglas Jackson			MD (T35S,R2E,S33; 1997): 0.7mi E of MP 140.75.	MIIH	Potential disturbance and habitat modification.
Common kingsnake *Lampropeltis getula*	SOC	SV			Thick vegetation along waterbodies, but ranges into farmland, chaparral, and deciduous and mixed coniferous woodlands in the Rogue and Umpqua river valleys.	Douglas Jackson Klamath		RRS-S UMP-S	MD (T35S,R2E,S32; 1991): 0.5mi E of MP 141.58.	MIIH	Potential disturbance and habitat modification.
Amphibians											
Oregon slender salamander *Batrachoseps wrighti*[3]	SOC	SV		SEN	Under bark or moss in mature and second-growth Douglas-fir forests. Also under rocks or logs in stands of moist hardwood forests within coniferous forests.	Douglas Klamath				NI	Outside of known range.
Shasta salamander *Hydromantes shastae*			S&M-A	S&M-A	Found mainly in limestone outcrops. Often occurs in cool, wet ravines and valleys in both forested and non-forested areas; usually in moist limestone fissures or caves. Eggs are laid in late summer in a cluster of 9-12 eggs. No aquatic larval stage.					NI	Not documented in Project vicinity.
Del Norte salamander *Plethodon elongatus*	SOC	SV	S&M-D	S&M-D	Moist, rocky areas within forests. Occasionally in decaying logs and under forest floor litter.	Coos Douglas Jackson			MD (T34S, R7W, 1992): 71 mi S of MP 51.47.	NI	Outside of known range.

TABLE O-3

Special Status Marine Mammal and Terrestrial Wildlife Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Larch Mountain salamander *Plethodon larselli*			S&M-A	S&M-A	Most often inhabits steep forested or non-forested slopes associated with rocky substrates where spaces exist between the rock and soil. Breeds mainly in the fall, eggs are laid in late winter-early spring and hatch in about four months. Average clutch size of seven.					NI	Not documented in Project vicinity.
Siskiyou Mountains salamander *Plethodon stormi*	SOC	SV	SEN S&M - C	SEN S&M- C	Loose rock rubble or talus on north-facing slopes or in dense wooded areas.	Jackson	MD-D	RRS-D		NI	Outside of known range.
Van Dyke's salamander *Plethodon vandykei*			S&M-A	S&M-A	Streams and seeps; also upland forest, talus, lakeshores, and cave entrances. Abundant in old forest stands with complex structure and moderate to high levels of woody debris and colluvial rock.					NI	Not documented in Project vicinity.
Southern torrent salamander *Rhyacotriton variegatus*	SOC	SV			Shallow, cold waters of perennial, high-gradient streams within humid coniferous forests. Adults occupy splash zones or areas with overflowing water. Larvae found in cobble or gravel beds flushed with water.	Coos Douglas			PV (T26S,R12W,S20; 1995): 1.5 mi E of MP 13.48; CB (T28S,R12W,S13; 1992): 2.7 mi SW of MP 28.05; CB (T28S,R11W,S11; 1998): 0.8 mile NE of MP 30.17; CB (T28S,R10W,S25; 1998): 0.53mi NE of MP 39.65.	MIIH	Modification of habitat and potential for injury or death.
Clouded salamander *Aneides ferreus*		SV			Forest dweller found in moist areas, under logs and other debris.	Coos Douglas Jackson Klamath			CB (T28S,R10W,S5; 2003): 2.8 mi NE of MP 32.35; CB (T28,R11,S35; 1994): 1.9 mi SW of MP 33.77; CB (T29,R11,S2; 2000): 3.4 mi SW of MP 35.8; CB (T29,R10,S6; 1998): 2.3mi SW of 35.8; CB (T29S,R10W,S2; 1996): 1.3mi SW of MP 40.33; CB (T28S,R9W,S29; 1992): 1.7mi NE of MP 41.55; UMP (T31S,R3W,S33; 1994): 2.7mi W of MP 103.12; MD (T35S,R1E,S35; 1995): 2.5mi SW of MP 137.74.	MIIH	Modification of habitat and potential for injury or death.
Black salamander *Aneides flavipunctatus*		SV	SEN	SEN	Near streams, in talus slopes or under rocks and logs. Inhabits open woodlands, and mixed coniferous and mixed-coniferous-deciduous forests.	Jackson	MD-D	RRS-D		NI	Outside of known range.
California slender salamander *Batrachoseps attenuatus*		SV	SEN	SEN	Lower-elevation forests along the southern coast, including hardwood, redwood, and other coniferous forests. Also in open areas with scattered trees. Under rocks, logs, or other objects on the ground.	Coos Jackson	CB-D	RRS-D		NI	Outside of known range.
Western toad *Bufo boreas*		SV			Wide variety of habitats (desert, chaparral grassland, woodland, and forest) from sea level to above timberline.	Coos Douglas Jackson Klamath			Trail Creek/PV (T33S,R1W,S33; 1982): 0.2mi NE of MP 120.6; MD (T34S,R2W,S1; 1996): 2.9 mi SW of MP 121.25; F-W (T38S,R5E,S1; 1995): 1.4mi NE of MP 171.44; LV/PV (T38S,R6E,S34, 35; 1994): 1.0mi NE of MP 178.52.	MIIH	Modification of habitat and potential for injury or death.
Coastal tailed frog *Ascaphus truei*	SOC	SV			Cold, fast-flowing permanent streams, usually in forests. Sometimes in streams flowing through non-forested regions.	Coos Douglas Jackson Klamath			CB (T28,R11,S35; 1994): 1.7 and 1.9 mi SW of MP 33.77; CB (T28,R11,S36; 1994): 1.4 mi SW of MP 33.77; PV (T28,R10,S19; 1993): 0.3 mile NE of MP 34.45; CB (T29,R10,S6; 1997): 2.8mi SW of 35.8; PV (T29,R10,S6; 2001): 2.7mi SW of 35.8; CB (T29,R10,S7; 1998, 2000): 2.9mi SW of 35.8: PV (T20S,R10W,S2; 2001): 2 mi S of MP 40.33; CB (T29S,R9W,S5; 1994): 0.35mi NW of MP 44.73; CB (T29S,R9W,S9; 1995): 0.5mi S of MP 45.39.	MIIH	Modification of habitat and potential for injury or death.
Foothill yellow-legged frog *Rana boylii*	SOC	SC	SEN	SEN	Permanent streams in a variety of habitat types such as grassland, chaparral, coniferous or deciduous forests, and woodlands. Missing from much of their historic habitat.	Coos Douglas Jackson Klamath	CB-D MD-D RO-D	RRS-D UMP-D	CB (T29S,R10W,S2; 1995): 1.8mi SW of MP 40.33; Coffee Creek/PV (T30S,R2W,S19, 30; 1998): 1.9mi NE of MP 94.78; Trail Creek/PV (T33S,R1W,S17; 1998): 1.1mi E of MP 117.24); Indian Creek/MD (T34S,R1W,S23): 1.4mi SW of MP 127.31.	MIIH	Modification of habitat and potential for injury or death.
Cascades frog *Rana cascadae*	SOC	SV			Lakes, ponds, and small streams that run through meadows. Ranges from 2,600 feet to treeline.	Douglas Jackson Klamath			MD (T34S,R2W,S1; 1996): 2.7 and 2.9 mi SW of MP 121.25; PV (T39S,R6E,S6; 1994): 1.3mi SW of MP 177.39.	MIIH	Modification of habitat and potential for injury or death.
Northern leopard frog *Rana pipiens*		SC	SEN	SEN	Marshes, wet meadows, vegetated irrigation canals, ponds, and reservoirs. Prefers quiet or slow flowing waters.	Jackson Klamath	LV-S	F-W-S		NI	Outside of known range.
Northern red-legged frog *Rana aurora aurora*	SOC	SV			Streams, ponds, and marshes in wooded areas.	Coos Douglas Jackson Klamath			CB (T27S,R12W,S2&S12; 1990, 1992): 1.8 mi NE of MP 19.88; CB (T27S,R11W,S8; 1992): 2.0mi NE of MP 24.34; CB (T28S,R12W,S13; 1992): 2.7 mi SW of MP 28.05; PV (T31S,R2W,S34; 1991): 2.1mi NE of MP 105.63; UMP (T32S,R1W,S19; 1991): 2.6mi NE of MP 111.83.	MIIH	Modification of habitat and potential for injury or death.

TABLE O-3

Special Status Marine Mammal and Terrestrial Wildlife Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]			Within Vicinity of Project Area [c]	Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service			
Oregon spotted frog *Rana pretiosa*	T, PCH	SC		SEN	Margins of lakes, marshes, and pools in streams with aquatic vegetation. Higher elevations from the crest and east slope of Cascade Mountains.	Jackson Klamath		F-W-D RRS-S UMP-S	F-W/PV/West side of Buck Lake (1997): N and S of MP 172.1; LV (T38S,R5E,S23; 1997): 0.6-1.2 mi SW of MP 173.45.	NLAA	Suspended sediment from Project crossing at Spencer Creek is not expected to remain in the water column 6,400 feet downstream at Buck Lake where species occurs, and because Spencer Creek downstream of Buck Lake is separated from the right-of-way by Clover Creek Road. Conservation measures would limit potential effects due to acoustic shock, introduction of non-native species and/or disease, fuel and chemical spills, and herbicides.
Columbia spotted frog *Rana luteiventris*		C	SEN	SEN	Rarely far from permanent quiet water; usually at grassy/sedgy margins of streams, lakes, ponds, springs, and marshes; may disperse into forest, grassland, during wet weather.	Klamath	LV-D	F-W-S		NI	Outside of known range.
Invertebrates [e]											
Evening fieldslug *Deroceras hesperium*			SEN S&M-B	SEN S&M-B	Associated with wet meadows in forested habitats in a variety of low vegetation, litter, debris, and rocks.	Jackson Klamath	MD-D	F-W-D RRS-S	UMP: 3 live specimens observed in 2007 in UCSA 112.07-W; F-W: 1 observation adjacent to ROW near MP 171.08 (previous alignment did not affect site); see Survey and Manage stand-alone report for additional information.	MIIH	Modification of habitat and potential for injury or death.
Oregon shoulderband *Helminthoglypta hertleini*			SEN, S&M-B	S&M- B	Rocky areas, including talus deposits and outcrops generally within 98 feet of herbaceous vegetation and deciduous leaf litter; woody debris used as refugia.	Douglas Jackson	CB-S MD-D RO-D	RRS-D UMP-D	RO (1999): 0.9mi SE of MP 58.53; PV/RO (2006): 0.4mi and 0.6mi SE of MP 59.70; RO (T29S,R7W,S11; 1999-2006): many locations > 0.9mi SE of MP 60.35; RO (2007) 60 ft NW of ROW near MP 64.89, 2 observations within ROW near MP 75.92R, 2 observations within ROW/TEWA near MP 75.86; several documented occurrences >500ft. See Survey and Manage stand-alone report for additional information.	MIIH	Disturbance and potential modification of habitat.
Oregon megomphix *Megomphix hemphilli*		S&M-F	S&M-F		Species occurs at low to moderate elevations. Found within and under the mat of decaying leaves under big leaf maples (*Acer macrophyllum*), hazel bushes (*Corylus* spp.), and sword ferns (*Polystichum munitum*). Also found in leaf mold.	Coos, Douglas				NI	Not documented in Project vicinity.
Chace sideband *Monadenia chaceana*		SEN S&M-B	SEN S&M-B		Late-successional forest and open talus or rocky areas; associated with large woody debris in mesic, forested habitats; otherwise, moist, shaded rock surfaces.	Douglas Jackson	MD-D RO-D	Ump-DF-W-S RRS-D	RO (2006): 2.8mi SW of MP 81.31; RRS (1999): 0.6mi N of MP 161.45; F-W: ~0.3mi SW of MP 166.89; four documentations >500 ft from PCGP on BLM and NFS lands; see Survey and Manage stand-alone report for additional information..	MIIH	Modification of habitat and potential for injury or death.
Green sideband *Monadenia fidelis beryllica*		SEN	SEN		Generally inhabits deciduous stands (including alder [*Alnus* spp.]) and brush in wet, relatively undisturbed forest; low elevation; low coastal scrub.	Coos	CB-S RO-D	RRS-D		NI	Not documented in Project vicinity.
Traveling sideband *Monadenia fidelis celeuthia*		SEN	SEN		Dry basal talus and rock outcrops; oak/maple overstory; along spring run in rock and moist vegetation and moss; mixed conifer-hardwood forest.	Jackson	MD-D LV-D	F-W-D RRS-D	MD (T38,R3E; 2005), (T37S,R4W; 2005); observed at 14 locations during Project surveys within and outside of PCGP ROW, TEWAs, and UCSAs on RRS and UMP NFs between MP 154.9-175.3 and on MD and LV BLM Districts between MP 116.5-176.9.	MIIH	Modification of habitat and potential for injury or death.
Modoc sideband *Monadenia fidelis ssp. Nov.*		SEN	SEN		Talus and wetted rocky areas on lakeshore; mixed pine-Douglas fir forest or open grasslands; associated with seeps and springs in talus deposits.	Klamath	LV-D	F-W-D		NI	Not located during surveys.
Crater Lake tightcoil *Pristiloma arcticum crateris*		SEN S&M-B	SEN S&M-B		Mature conifer forests; perennially wet areas among rushes, mosses, and other surface vegetation or under rocks and woody debris within 30 feet of open water in wetlands, springs, seeps, and riparian areas.	Douglas Jackson	MD-S RO-D	F-W-D RRS-D UMP-D		NI	Not documented in Project vicinity.
Broadwhorl tightcoil *Pristiloma johnsoni*		STR	STR		Moist with coastal influence; abundant ground cover; conifer or hardwood overstory.	Douglas?	CB-S RO-D	RRS-S		NI	Not documented in Project vicinity.
Klamath taildropper *Prophysaon sp. Nov.*		STR	STR		Moist open areas (floodplains and spring margins) in ponderosa pine forest; elevation varies.	Douglas Jackson Klamath	CB-S RO-S	UMP-S RRS-D F-W-D	RRS (T38S,R4E; 2003): 4.1 mi S of MP 160.01; (T36S, R3E): 1.1 mi N of MP 157.0.	NI	Not documented in Project vicinity.

TABLE O-3

Special Status Marine Mammal and Terrestrial Wildlife Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]				Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Siskiyou hesperian *Vespericola sierranas*			SEN	SEN	Terrestrial, usually found in perennially moist habitat such as springs, seeps and deep leaf litter along stream banks and under debris and rock. Prefers moist valley, ravine, gorge, or talus sites in areas not subject to flooding.	Jackson	MD-D RO-D	F-W-S RRS-D UMP-D	Observed at 30 locations during Project surveys within and outside of PCGP ROW, TEWAs, and UCSAs on RRS and WIN NFs between MP 110.18-168.7, and on MD and RO BLM Districts between MP 79.9-151.5.	MIIH	Modification of habitat and potential for injury or death.
Oregon giant earthworm *Driloleirus macelfreshi*			STR		Deep permanent burrows in fine-textured, compact, deep, little disturbed soils dominated by native forests		RO-S			NI	Not documented in Project vicinity.
Oregon cave amphipod *Stygobromus oregonensis (1)*				STR	In small cave near Roseburg, possibly extirpated.	Douglas		UMP-S	(T27S,R5W; 1967): 10.4 mi N of MP 75.23.	NI	Not documented in Project vicinity.
Franklin's bumblebee *Bombus franklini*	SOC		SEN	SEN	Grasslands associated with lakes, rivers, streams and seeps; 1400-4000 feet. Requires adequate supply of floral resources for continuous blooming throughout the flight season. Generalist forager. Eusocial bumblebee with a flight season from mid-May to the end of September.	Douglas Jackson	MD-S RO-S	RRS-D	(T27S,R5W; 1930): 7.8mi N of MP 69.7.	MIIH	Loss or modification of habitat.
Western bumblebee *Bombus occidentalis*			SEN	SEN	Prairie habitat in Oregon. Generalist pollinator; visits a wide range of plants. Queen emerges in late winter or early spring and starts new colony laying 8-16 eggs in first batch.	Coos Douglas Jackson Klamath	CB-S LV-S MD-D RO-S	F-W-D RRS-D		MIIH	Loss or modification of habitat.
Siskiyou short-horned grasshopper *Chloealtis aspasma*	SOC		SEN	SEN	Grassland/herbaceous habitats; associated with elderberry (*Sambucus* spp.).	Jackson	MD-D	RRS-D UMP-S	MD (T37S,R3E,S5; 1973): 0.1mi S of MP 153.49.	MIIH	Modification of habitat and potential for injury or death.
Siskiyou carabid gazelle beetle *Nebria gebleri siskiyouensis*	SOC				Unknown	Jackson				NI	Not documented in Project vicinity.
Siuslaw sand tiger beetle *Cicindela hirticollis siuslawensis*	SEN	SEN			Moist sand near the ocean, swales behind dunes, and upper beaches beyond high tides.	Coos	CB-D		Oregon Dunes (T23S, R13W, 2009): 8.7mi N of MP3.6.	NI	No suitable habitat in survey area or within 5 mi.
Cooley's lace bug *Acalypta cooleyi*	STR				Unknown.	Jackson	MD-D			NI	Not documented in Project vicinity.
Hairy shore bug *Saldula villosa*	SEN				Salt marsh species; may undergo submersion.	Coos	CB-D		Historical (1937) occurrence in Coos Bay, approximately 2.5 mi north of the Project.	NI	No recently documented occurrences in or near the Project area.
California shield-backed bug *Vanduzeeina borealis californica*	SEN	SEN			Tall grass prairies. Found in medium to high elevation natural balds and meadows.	Coos Douglas Klamath	CB-S LV-S RO-S	RRS-S UMP-S		NI	No suitable habitat in Project area.
Leona's little blue butterfly *Philotiella leona*		SEN			Mazama ash and pumice fields east of Crater Lake with sub-surface moisture and spurry buckwheat (*Eriogonum spergulinum reddingianum*) caterpillar host plant.	Klamath		F-W-D	Six-square-mile area near Sand Creek in Klamath County, approx. 9 mi E of Crater Lake National Park, and 40 mi NE of the Project.	NI	Does not occur in Project vicinity.
Gray-blue butterfly *Plebejus podarce (Agriades podarce)*	SEN	SEN			Subalpine meadows and marshy slopes with deep grasses and dense stands of false hellebore (*Veratrum viride*), eggs laid on host plant (shooting stars; *Dodecatheon* spp.).	Douglas Jackson Klamath	MD-D	F-W-D RRS-D UMP-D	F-WNF (T36S,R5E; 2010): 8.5mi N of MP 168.03.	MIIH	Modification of habitat and potential for injury or death.
Seaside Hoary elfin (previously Hoary elfin) *Callophrys polios maritima*	SEN	SEN			Maritime species found in close association with kinnikinnick (*Arctostaphylos uva-ursi*).		CB-S	RRS-S		NI	Does not occur in Project vicinity.
Johnson's hairstreak *Callophrys johnsoni (Mitoura johnsoni)*	SEN	SEN			Old-growth coniferous forests with red fir (*Abies magnifica*), western hemlock or grey pine (*Pinus sabiniana*) on which its parasitic host grows.	Coos Douglas Jackson Klamath	CB-D MD-D	F-W-D RRS-D UMP-D		MIIH	Modification of habitat and potential for injury or death.
Insular blue butterfly *Plebejus saepiolus littoralis*	SEN	SEN			Bogs, roadsides, stream edges, open fields, meadows, and open forests; hosts are clovers (*Trifolium* spp.).	Coos	CB-S	RRS-S		MIIH	Disturbance, potential modification of habitat
Yuma skipper *Ochlodes yuma*	SEN	SEN			Herbaceous wetland. Desert seeps and along streams, canals etc.	Klamath	LV-D			NI	Not documented in Project vicinity.
Mardon skipper butterfly *Polites mardon*	SEN	SEN			Small (0.5-10 acres) high-elevation (4,500-5,100 feet) grassy meadows within mixed conifer forests.	Jackson Klamath	CB-D MD-D	F-W-D RRS-D UMP-S	Howard Prairie, RRS (T37S,R4E; 2007 – All sites): 0.6mi SW of MP 159.95, 4.3mi SW of MP 159.95, 4.6mi SW of MP 164.22.	MIIH	Modification of habitat and potential for injury or death.

TABLE O-3

Special Status Marine Mammal and Terrestrial Wildlife Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Coronis fritillary *Speyeria coronis coronis*			SEN	SEN	Mountain slopes, foothills, prairie valleys, chaparral, sagebrush, and forest openings; hosts are violets (*Viola* spp.).	Jackson	MD-D	RRS-D UMP-S		MIIH	Modification of habitat and potential for injury or death.

a/ Status Key:
Federal Status: T = Threatened, E = Endangered, PT = Proposed Threatened, C = Candidate, SOC = Species of Concern; CH = Critical Habitat, PCH = Proposed Critical Habitat
State Status: T = Threatened, E = Endangered, C = Candidate, SC = Sensitive-Critical, SV = Sensitive-Vulnerable
BLM and Forest Service Status: SEN =Sensitive, STR = Strategic, S&M = Survey and Manage, letter after S&M = Survey and Manage Species Category (A – F)

b/ Occurrence Key:
BLM: CB = Coos Bay District, RO = Roseburg District, MD = Medford District, LV = Lakeview District
Forest Service: F-W = Fremont-Winema National Forest, RRS = Rogue River-Siskiyou National Forest, UMP = Umpqua National Forest

D = Documented occurrence: A species located on land administered by the BLM or the Forest Service based on historic or current known sites of a species reported by a credible source for which BLM and the Forest Service have knowledge of written, mapped or specimen documentation of the occurrence.
S = Suspected occurrence: Species is not documented on land administered by the BLM or the Forest Service, but may occur on the unit because: 1) BLM District or National Forest is considered to be within the species' range and 2) appropriate habitat is present or 3) known occurrence of the species (historic or current) in vicinity such that the species could occur on BLM or FS land.

c/ Pacific Connector Pipeline Project: mollusks and red tree vole documented within 500 feet of the proposed pipeline; all other species are documented within 3 mi of the proposed pipeline.

d/ Effect of Impact:
Species federally listed or proposed for listing:
NE = No Effect
NLAA = Not Likely to Adversely Affect
LAA = Likely to Adversely Affect

All other species:
NI = No Impact
MIIH = May Impact Individuals or Habitat, but is not likely to contribute to a trend toward federal listing or loss of viability of the species

e/ Aquatic Invertebrates are included in table O-4 in appendix O.

References:
Species Status and Occurrence: FWS 2013g; ORBIC 2006a, 2006b, 2012, and 2013; Marshall et al. 2006; ISSSSP 2011; NSR 2012; ODFW 2008c, 2013d; BLM 2006a; Forest Service 2006b.
Expected Habitat: Adamus et al. 2001 ; Csuti et al. 2001 ; NatureServe 2013 ; ORBIC 2006b ; Gilligan et al. 1994 ; Kozloff 1976 ; ISSSSP 2014.

TABLE O-4

Special Status Fish Species and Aquatic Invertebrates That May Occur Near the JCE & PCGP Project

Common and/or Scientific Name	Status [a/]				Life History and Expected Habitat	Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forests Service	Waterbodies Crossed by Project/ Documentation in Vicinity of Project Area [c/]		
Nonanadromous Freshwater Fish											
Western Brook Lamprey *Lampetra richardsoni*		SC			Non-parasitic and nonanadromous. Ammocoetes in stream eddies with silt and/or sand substrates. Adults spawn over gravel late April - early June	Coos Douglas Jackson			Most perennial streams west of the Cascades.	MIIH	Potential disturbance or change to habitat.
Upper Klamath redband trout *Oncorhynchus mykiss newberrii*	SOC	SV		SEN	Highly erosive landscapes with high gradients, steep slopes, and high solar radiation; occupies remnant streams in seven Pleistocene lake beds in Oregon. Highly fragmented and isolated populations.	Klamath		F-W-D RRS-D	Spawning occurs in Spencer Creek from mouth to RM 12; most spawning occurs between Roads 100 and 110.	MIIH	Potential disturbance or change to habitat.
Umpqua chub *Oregonichthys kalawatseti*	SOC	SC	SEN	SEN	Endemic to the mainstem and South Umpqua River, resident species. Occupies habitats with higher current velocities; spawning occurs primarily in rocky areas.	Douglas	MD-D RO-D	UMP-D	Tenmile Creek (1971); endemic to Umpqua and South Umpqua rivers.	MIIH	Potential disturbance or change to habitat.
Millicoma dace *Rhinichthys cataractae ssp.*	SOC	SV	SEN		Endemic to Coos Basin, resident species. Prefers swift current associated with cobble and boulders and probably high velocity waters.	Coos Douglas	CB-D		South Fork Coos River.	MIIH	Potential disturbance or change to habitat.
Klamath largescale sucker *Catostomus snyderi*	SOC				Limited to Upper Klamath Basin and its tributaries. In rocky pools, runs of creeks, and small rivers (with moderate gradient), lakes and reservoirs Spawning usually occurs from late March to mid-April, and sometimes earlier in small tributary streams.	Klamath		F-W-D RRS-S	Upper Klamath Lake and tributaries.	MIIH	Potential disturbance or change to habitat.

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Special Status Fish Species and Aquatic Invertebrates That May Occur Near the JCE & PCGP Project

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	Federal	State	BLM	Forest Service		County	BLM	Forests Service	Waterbodies Crossed by Project/ Documentation in Vicinity of Project Area [c/]		
Anadromous and Marine Fish											
River lamprey *Lampetra ayresii*	SOC				Anadromous species; migrates to sea and returns to freshwater to spawn in the spring. Freshwater habitat includes rivers and creeks, with low to moderate gradients and pools and riffles. Marine habitats are near shore and estuarine habitats include bay/sound and river mouths and tidal rivers.	Coos Douglas			Coastal drainages.	MIIH	Potential disturbance or change to habitat.
Pacific lamprey *Lampetra tridentata*	SOC	SV			Anadromous species, spawning habitat is similar to salmonids including cool, flowing water and clean gravel. Rearing areas are slow-moving backwaters with fine sediment. Larvae spend several years in freshwater before transforming and migrating to the ocean.	Coos Douglas Jackson Klamath	CB-D LV-D MD-D RO-D		Coos Bay and coastal drainages.	MIIH	Potential disturbance or change to habitat.

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Chinook salmon *Oncorhynchus tshawytscha* Oregon Coast ESU Coastal Spring SMU		SC			Anadromous species that rears in the Pacific Ocean for most of its life and spawns in freshwater streams. Most enter Oregon's coastal rivers April to December, but some start in February. Spawning generally occurs from August to early November for spring Chinook. Preferred spawning and rearing areas have a low gradient (<3%); adults often ascend to higher gradient reaches to find spawning areas. Spawns and rears in a range of sizes of streams and rivers, and often uses estuaries for rearing. Adults require deep pools within proximity to spawning areas where they hold and mature between migration and spawning.	Coos Douglas			North and South Umpqua Rivers, and Umpqua HUs.	MIIH	Potential disturbance or change to habitat.

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Chinook salmon *Oncorhynchus tshawytscha* Southern Oregon and Northern California Coast ESU Rogue Spring SMU Rogue Fall SMU		SV	SEN	SEN	Anadromous species that rears in the Pacific Ocean for most of its life and spawns in freshwater streams. Most enter Oregon's coastal rivers April to December, but some start in February. Spawning generally occurs from October to early March. Preferred spawning and rearing areas have a low gradient (<3%); adults often ascend to higher gradient reaches to find spawning areas. Spawns and rears in a range of sizes of streams and rivers, and often uses estuaries for rearing. Adults require deep pools within proximity to spawning areas where they hold and mature between migration and spawning.	Jackson	CB-D MD-D	RRS-D	Rogue River and tributaries (spawning and rearing).	MIIH	Potential disturbance or change to habitat.
Chum salmon *Oncorhynchus keta* Pacific Coast ESU Coastal SMU		SC	SEN	SEN	Anadromous species that rears in the Pacific Ocean for most of its life and spawns in freshwater streams in the fall. Utilizes low gradient, gravel-rich, barrier-free freshwater habitats and productive estuaries. Juveniles migrate to estuarine environments after emergence.	Coos Douglas	CB-D RO-D	UMP-I RRS-I	Unknown.	NI	Does not occur in Project vicinity.
Steelhead *Oncorhynchus mykiss* Klamath Mountains Province ESU Rogue Summer SMU		SV	SEN		Anadromous species; juveniles rear in freshwater streams 1-4 years. Adults live in marine environment prior to spawning in winter or spring. May spawn more than once.	Jackson	CB-D MD-D		Upper Rogue River.	MIIH	Potential disturbance or change to habitat

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	Federal	State	BLM	Forest Service		County	BLM	Forests Service	Waterbodies Crossed by Project/ Documentation in Vicinity of Project Area [c/]		
Steelhead *Oncorhynchus mykiss* Oregon Coast ESU Coastal Winter SMU	SOC	SV	SEN	SEN	Anadromous species; juveniles rear in freshwater streams 1-4 years. Adults live in marine environment prior to spawning mostly in winter or spring. May spawn more than once.	Coos Douglas	CB-D MD-D RO-D	UMP-D RRS-D	Coos, Coquille, South Umpqua, and Umpqua HUs.	MIIH	Potential disturbance or change to habitat.
Coho salmon *Oncorhynchus kisutch* Southern Oregon/Northern California Coast ESU Rogue (and Klamath) SMU	T/CH	SV			Juvenile summer and winter rearing and spawning often located in small headwater streams. Juvenile and adult migration corridors, as well as spawning areas are found in tributaries, mainstream reaches, and estuarine zones. Growth and development of adults occurs primarily in near- and off-shore marine waters. Spawning occurs late summer to mid-winter, and juvenile migration occurs in spring.	Jackson	CB-D MD-D	RRS-D	Klamath River, Rogue River; Upper Rogue HU.	LAA	Potential disturbance or change to habitat.
Coho salmon *Oncorhynchus kisutch* Oregon Coast ESU Coastal SMU	T/CH	SV			Juvenile summer and winter rearing and spawning often located in small headwater streams. Juvenile and adult migration corridors, as well as spawning areas are found in tributaries, mainstream reaches, and estuarine zones. Growth and development of adults occurs primarily in near- and off-shore marine waters. Spawning occurs November to March, and juvenile migration occurs in spring.	Coos Douglas	CB-D RO-D MD-D	UMP-D RRS-D	Coos Bay, Coquille River, South Umpqua River; South Umpqua Sub-basin HU, and Coos Sub-basin HU.	LAA	Potential disturbance or change to habitat.

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Eulachon *Thaleichthys pacificus* Southern DPS	T/CH				Rivers that are glacier-fed and/or have peak spring freshets are used for spawning. Adults spend 3 to 5 years in saltwater before returning to freshwater to spawn from late winter through early summer, with specific timing dependent on geographic region. Adults are thought to imprint on estuaries, which are also used by juveniles before dispersing through shallow nearshore areas to deeper areas over the continental shelf.	Coos Douglas			Pacific Ocean and Coos Bay.	LAA	Potential presence in Coos Bay. Impacts from turbidity and entrainment are possible.
Green sturgeon *Acipenser medirostris* Southern DPS	T				Spawns in deep pools in large, turbulent river mainstems, generally from March through July. Utilizes marine waters and estuaries.	Coos Douglas	CB-D	RRS-I	Pacific Ocean and Coos Bay estuary to head of tide.	NLAA	Potential disturbance or change to habitat, potential mortality (subadults).
Cowcod *Sebastes levis*	SOC				Marine environments; 68-1200 feet depths; soft and hard bottoms, canyons.	Coos				NI	Not documented in Project vicinity.
Aquatic Invertebrates											
Great Basin ramshorn *Helisoma newberryi newberryi*				SEN	Larger lakes, slow rivers, larger spring sources, and spring-fed creeks; burrows in soft mud.	Klamath		F-W-S	Klamath River (T38S R9E, 1997) 3.6 mi N of MP 200.06.	NI	Not documented in Project vicinity.
Montane peaclam *Pisidium ulttramontanum*			SEN	SEN	Associated with open water lake, river, and stream habitat. Freshwater, herbaceous wetlands, and shallow water; benthic species. Occurs in streams, lakes or pools that are spring-influenced, and prefers sand or gravel substrates. Often occurs on roots of *Salicornia* species.	Klamath	MD-S	F-W-D	PV (T40S,R11E,S25; no date): approximately 0.2mi S of MP 221.83; Lost Sub-basin.	MIIH	Potential disturbance, mortality, and loss or modification of habitat.

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California floater mussel *Anodonta californiensis*	SOC		STR	STR	Low elevation lakes and lake-like streams with shallow water. Shallow muddy or sandy habitats in larger rivers, reservoirs, and lakes. Reaches maturity within 4 to 5 years with a lifespan of 10 to 15 years.	Coos Klamath		UMP-S RRS-S F-W-D	MP 17.24-20.96 (Coquille River historic population); Coos, Coquille, and Upper Klamath sub-basins.	MIIH	Potential disturbance, mortality, and loss or modification of habitat.
Western ridged mussel *Gonidea angulata*			SEN	SEN	Creeks and rivers with varying substrates in Pacific drainages, rarely found in lakes or reservoirs.	Coos Douglas Klamath	CB-S RO-D LV-S	F-W-D RRS-S UMP-S	South Umpqua River, Middle Fork Coquille River, and Lost River near Merrill.	MIIH	Potential disturbance, mortality, and loss or modification of habitat.
Pinto abalone *Haliotis kamtschatkana*	SOC				Typically in low intertidal zone. Feeds mostly on kelp and drift algae. Spawns April to June.	Coos			Rare in Coos Bay.	MIIH	Potential for disturbance and habitat modification if species is present.
Newcomb's littorine snail *Littorina subrotundata*	SOC		SEN	SEN	Inhabits salt marshes at the edge of bays and estuaries on glasswort/pickleweed; tolerant of fresh and saltwater. Cold, clear, well-oxygenated water on a various types of sand bottoms. Found in upper intertidal zones. Eggs are laid in moist locations in June or July and hatchlings emerge beginning in mid-July through early August.	Coos	CB-D		Historical occurrence on the North Spit, approximately 1 mile SW of the Project.	MIIH	Potential disturbance, mortality, and loss or modification of habitat.
Fall Creek pebblesnail *Fluminicola sp. Nov.*			STR		Large cold springs and outflows including medium-sized creeks; gravel/cobble substrate.	Jackson Klamath	MD-D		Upper Klamath Sub-basin.	NI	Not documented in Project vicinity.
Keene Creek pebblesnail *Fluminicola sp. Nov.*			STR	STR	Small to medium sized springs and spring-influenced creeks.	Jackson Klamath	MD-D LV-D	RRS-D F-W-S	Upper Rogue and Upper Klamath sub-basins.	NI	Not documented in Project vicinity.

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Fredenburg pebblesnail *Fluminicola sp. Nov.*			STR S&M-A	S&M-A	Freshwater in Middle Rogue and Upper Klamath sub-basins; possibly extirpated. Found in narrow and shallow small, cold spring runs, on cobbles and gravel.	Jackson Klamath	MD-D		Upper Klamath sub-basin.	NI	Not documented in Project vicinity.
Toothed pebblesnail *Fluminicola sp. Nov.*			STR		Very large, cold springs and their outflow with exceptionally good water quality and gravel or boulder substrates.	Jackson	MD-D		Upper Rogue and Upper Klamath sub-basins.	NI	Not documented in Project vicinity.
Klamath Rim pebblesnail *Fluminicola sp. Nov.*			STR S&M-A	S&M-A	Gravel or boulder substrates with flowing water (cold, oligotrohpic water with high dissolved oxygen); rarely found in springs, avoids dense macrophyte beds.	Klamath	MD-S	RRS-D F-W-S	Upper Klamath Sub-basin.	NI	Not documented in Project vicinity.
Turban pebblesnail *Fluminicola turbinformis*				SEN	Found to date only in one, large oligotrophic spring complex with very cold water, in semi-arid sage scrub. Abundant *Rorippa* and *Mimulus* flora present. Substrate is mud, basalt gravel, bedrock and cobble, with bedrock predominate in area of occurrence.	Klamath		F-W-D		NI	Not documented in or near Project area.
Casebeer pebblesnail *Fluminicola sp. Nov.*			STR	STR	Freshwater.	Klamath	LV-S	F-W-S	Lost Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Crooked Creek pebblesnail *Fluminicola sp. Nov*.				STR	Freshwater.	Klamath		F-W-D		NI	Not documented in or near Project area.
Lake of the Woods pebblesnail *Fluminicola sp. Nov.*			STR	STR	Freshwater.	Klamath	LV-D	F-W-D RRS-D	F-W NF: within ROW near MP 171.05.	MIIH	Potential mortality and loss or modification of habitat.
Lost River pebblesnail *Flumunicola sp. Nov.*				STR	Occurs in cold, swift-flowing freshwater in large spring-fed creeks, often near shore. Substrates usually sand-cobble. Periphyton and perilithon grazer.	Klamath		F-W-S	Lost Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.

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Tigerlily pebblesnail *Fluminicola sp. Nov.*			STR	STR	Freshwater in Upper Klamath sub-basins; possibly extirpated.	Klamath	LV-S	F-W-D		NI	Not documented in or near Project area.
Odessa pebblesnail *Flumunicola sp. Nov.*				STR	Freshwater.	Klamath		F-W-D		NI	Not documented in or near Project area.
Ouxy Spring pebblesnail *Flumunicola sp. Nov.*				STR	Freshwater in Upper Klamath Sub-basins, possibly extirpated	Klamath		F-W-D		NI	Not documented in or near Project area.
Wood River pebblesnail *Flumunicola sp. Nov.*				STR	Freshwater.	Klamath		F-W-D		NI	Not documented in or near Project area.
Tall pebblesnail *Flumunicola sp. Nov.*				STR	Freshwater in Upper Klamath sub-basins; possibly extirpated. Springs and spring runs; substrates include mud, silt, sand to gravel, cobble, and boulders.	Klamath		F-W-S		NI	Not documented in or near Project area.
Shasta crayfish *Pacifastacus fortis*	E				Pit River drainage system in Shasta County, California.					NI	Not documented in or near Project area.
Klamath Lake springsnail *Pyrgulopsis sp. Nov*				STR	Freshwater.	Klamath		F-W-D	Lost Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Lost River springsnail *Pyrgulopsis sp. Nov*			STR	STR	Freshwater.	Klamath	LV-S	F-W-S	Lost Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Pristine springsnail *Pristinicola hemphilla*			STR	STR	Inhabits freshwater springs, spring outflow channels, and spring-influenced stream reaches with cobble substrates, slow to moderate flows, and shallow, cold, clear waters that are relatively undisturbed.	Jackson	MD-D	RRS-D		NI	Not documented in or near Project area.
Archimedes springsnail *Pyrgulopsis archimedis*				SEN	Freshwater in Upper Klamath and Lost River sub-basins, possibly extirpated. Prefers gravel-boulder basalt and pumice substrates. Completely aquatic with a lifespan of 1 year.	Klamath		F-W-D	Lost Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Crooked Creek springsnail *Pyrgulopsis intermedia*			SEN		Freshwater, possibly extirpated. . Clear, cold springs, spring-influenced creeks with gravel-boulder substrates.	Klamath	LV-S			NI	Not anticipated to occur in watersheds crossed by the Project.

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Jackson Lake springsnail *Pyrgulopsis robusta*			SEN	SEN	Freshwater, possibly extirpated. Cold water habitats, predominantly large springs and spring-influenced portions of streams, lakes, and rivers. Found on a variety of substrates. Semelparous; lays eggs on hard substrates. Emergence of young snails in summer and fall. Lifespan of approximately 1 year.	Klamath	LV-S			NI	Not anticipated to occur in watersheds crossed by the Project.
Lined rams-horn *Vorticifex effusa diagonalis*			SEN	SEN	Freshwater; possibly extirpated. Large streams, spring-influenced lakes, and highly oxygenated cold water on boulder-gravel substrate. Semelparous with a lifespan of 1-2 years. Eggs are laid from spring to fall; they attach to plants, stones, or other objects. No larval stage. Not active in the winter.	Klamath		F-W-D		MIIH	Potential loss or modification of habitat.
Klamath rams-horn *Vorticifex klamathensis klamathensis*				STR	Freshwater, possibly extirpated in Upper Klamath Lake and Lost sub-basins. Spring-fed lakes and spring-influenced streams, but not springs. Very cold, highly oxygenated water with boulder-gravel substrate. Semelparous with a lifespan of 1-2 years. Lays eggs from spring to fall. Hatches as young snails.	Klamath		F-W-D	Lost Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Sinitsin rams-horn *Vorticifex klamathensis sinitsini*				STR	Freshwater; possibly extirpated in Upper Klamath Lake sub-basins, springs and spring runs, substrates include mud, silt, sand, gravel, cobble, and boulders. Hermaphroditic and capable of self-fertilization. Semelparous with a lifespan of 1 year.	Klamath		F-W-S		NI	Not documented in or near Project area.

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Robust walker *Pomatiopsis binneyi*			SEN	SEN	Freshwater; possibly extirpated Coos Sub-basin. Seeps, rivulets, shallow mud banks and marsh seepages leading into shallow streams. Semi-aquatic.	Coos	CB-S	RRS-D		NI	Not documented in or near Project area.
Pacific walker *Pomatiopsis californica*			SEN	SEN	Freshwater; possibly extirpated from Coos Sub-basin. Semi-aquatic; inhabits wet leaf litter and vegetation adjacent to flowing or standing water in humid, shaded areas.	Coos	CB-D	RRS-S	Coos Subbasin.	MIIH	Potential mortality and loss or modification of habitat.
Marsh walker *Pomatiopsis chacei*			STR	STR	Freshwater, shaded, swampy sites, margins of seeps, springs, and stable streams with gravel substrate.	Coos	CB-S	RRS-S		NI	Not documented in or near Project area.
Scale lanx *Lanx kalmathensis*			SEN	SEN	Spring-influenced portions of large lakes and streams or limnocrene springs with boulder-cobble substrates and well-oxygenated, cold water.	Klamath	MD-S	F-W-D RRS-S	Lost and Upper Klamath sub-basins.	NI	Not documented in or near Project area.
Rotund lanx *Lanx subrotunda*			SEN	SEN	Found in unpolluted rivers and large streams at low to moderate elevations, in highly oxygenated, swift-flowing, cold water on stable cobble, boulder, or bedrock substrates.	Coos Douglas	CB-S RO-D	F-W-D UMP-D	Distribution includes portions of the North Umpqua River below the confluence with Little River, all of Little River, portions of the South Umpqua River and major tributaries above Roseburg, and Cow Creek.	NI	Not documented in or near Project area.

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Highcap lanx *Lanx alta*			SEN	SEN	Freshwater in Middle Rogue and Upper Klamath sub-basins; possibly extirpated. Larger tributaries and outcrops, on upper surfaces of bedrock and bedrock outcrops. Cold, fast-flowing, highly oxygenated, clear water. Semelparous with a lifespan of 1 to 2 years. Eggs are laid from spring to fall. No larval stage. Feeds through scraping.	Jackson Klamath	MD-D	F-W-D RRS-D		NI	No suitable habitat in Project area.
Denning's agapetus caddisfly *Agapetus denningi*	SOC		STR	STR	Creeks; possibly extirpated. Streams with cobble, boulder, or bedrock substrates free of fine sediment. Streams often have an open mixed deciduous-coniferous canopy. Larvae are aquatic and feed by scraping periphyton and fine detritus from rock and wood. Univoltine, from egg development through 5 larval instars, pupate and emerge as adults in one year. Feeds through scraping.	Jackson	MD-S	RRS		NI	Not documented in or near Project area.
Cascades apatanian caddisfly *Apatania tavala*	SOC				Streams with low to medium current and cobbles or coarse substrate at 4000-6000 feet in elevation. Various degrees of shading required, not present in clearcuts.	Douglas Klamath				NI	Not documented in or near Project area.
Mt. Hood primitive brachycentrid caddisfly *Eobrachycentrus gelidae*	SOC				Very cold streams. Larvae are found on moss on submerged rocks or along edges in small streams. Adults crawl onto sunny snow banks.	Douglas	CB-S			NI	Not documented in or near Project area.

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Green Springs Mountain farulan caddisfly *Farula davisi*	SOC		STR	STR	Not well studied. Probably uses small streams or seeps, maybe marshes. Associated with exposed bedrock having thin streams passing over the bedrock. Univoltine; larvae pupate in aggregations on the underside of rocks and logs.	Jackson	MD-D	RRS-S	Upper Klamath Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Tombstone Prairie farulan caddisfly *Farula reapiri*	SOC				Larvae found in small, cold, spring-fed streams shaded by old growth. Stream mosses abundant, large amounts of woody debris present.	Douglas				NI	Not documented in or near Project area.
Sagehen Creek goeracean caddisfly *Goeracea oregona*	SOC				Creeks or springs.	Douglas Jackson				NI	Not documented in or near Project area.
Schuh's homoplectran caddisfly *Homoplectra schuhi*	SOC			STR	Spring seepage areas in montane forested areas as well as adjacent herbaceous and shrub vegetation. Substrates of unconsolidated coarse particulate organic matter, moss, and gravel with subsurface water flows at moderate velocities.	Jackson Klamath		F-W-S RRS-S	LV (T40S,R6E,S13; 1963): S of MP 184.24; Lost and Upper Klamath sub-basins.	MIIH	Potential mortality and loss or modification of habitat.
A caddisfly (no common name) *Moselyana comosa*			STR	STR	Creeks or springs, forested seeps, particularly subalpine forest seeps.	Douglas Jackson	CB-S MD-S	F-W-S RRS-D UMP-S		NI	Not documented in or near Project area.
A caddisfly (no common name) *Namamyia plutonis*			SEN	SEN	Open water lake, river, and stream habitats. Tends to be found associated with creeks or springs in densely forested old growth or mature forest watersheds. Larvae found in areas of coarse gravel mixed with silt and organic sediment.	Jackson	CB-S	F-W-S RRS-D UMP-S		MIIH	Potential disturbance and modification of habitat.

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	Federal	State	BLM	Forest Service		County	BLM	Forests Service	Waterbodies Crossed by Project/ Documentation in Vicinity of Project Area [c/]		
A caddisfly (no common name) *Rhyacophila chandleri*			SEN	SEN	Very cold larger spring-fed creeks or springs, often with cobble and boulder substrate with high sand/gravel embedding.	Douglas	CB-S		South Umpqua Sub-basin.	MIIH	Potential mortality and loss or modification of habitat.
Haddock's Rhyacophilan caddisfly *Rhyacophila haddocki*			SEN	SEN	Creeks or springs, clear mountain streams, sometimes prefers riffles. In order to develop, larvae and pupae require cool, well-aerated microsites free of excessive fine sediments. Pupae are found on the underside of cobbles at base of riffles, cascades, or bedrock chutes.	Douglas	CB-S	RRS-D		NI	Not documented in or near Project area; extremely restricted range.

a/ Status Key:
Federal Status: T = Threatened, CH = Critical Habitat, SOC = Species of Concern
State Status: SC = Sensitive-Critical, SV = Sensitive-Vulnerable
BLM and Forest Service Status: SEN = Sensitive Species, STR = Strategic Species, S&M = Survey and Manage, letter after S&M = Survey and Manage Species Category (A – F)

b/ Occurrence Key:
BLM: CB = Coos Bay District, RO = Roseburg District, MD = Medford District, LV = Lakeview District
Forest Service: F-W = Fremont-Winema National Forest, RRS = Rogue River-Siskiyou National Forest, UMP = Umpqua National Forest
D = Documented occurrence: A species located on land administered by the BLM or the Forest Service based on historic or current known sites of a species reported by a credible source for which BLM and the Forest Service hasve knowledge of written, mapped or specimen documentation of the occurrence.
S = Suspected occurrence: Species is not documented on land administered by the BLM or the Forest Service, but may occur on the unit because: 1) BLM District or National Forest is considered to be within the species' range and 2) appropriate habitat is present or 3) known occurrence of the species (historic or current) in vicinity such that the species could occur on BLM or FS land.
I = Forest Service Actions Influence Downstream

c/ Documentation within Project Area: Aquatic invertebrates documented within 500 feet of the proposed Pacific Connector Pipeline Project alignment.

d/ Effect of Impact:
Species federally listed or proposed for listing:
NE = No Effect
NLAA = Not Likely to Adversely Affect
LAA = Likely to Adversely Affect
All other species:
NI = No Impact
MIIH = May Impact Individuals or Habitat, but is not likely to contribute to a trend toward federal listing or loss of viability of the species

TABLE O-4

Special Status Fish Species and Aquatic Invertebrates That May Occur Near the JCE & PCGP Project

Common and/or Scientific Name	Status [a/]				Life History and Expected Habitat	Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forests Service	Waterbodies Crossed by Project/ Documentation in Vicinity of Project Area [c/]		

Species Fish Type Abbreviations:

SMU Species Management Unit (Oregon State Designation only)
ESU Evolutionarily Significant Unit (NMFS designation)
DPS Distinct Population Segment (NMFS and FWS designations)

References:
Status and Occurrence References: FWS 2013e, ORBIC 2012; ISSSSP 2011, Kostow 1995, ODFW 2008c, ODFW 2014a.
Life History and Expected Habitat References: Kostow 1995, NatureServe 2013, ODFW 2005, Laufle et al. 1986, Pauley et al. 1986, NMFS 2012, ISSSSP 2014.
Waterbodies Crossed: ORBIC 2012, Kostow 1995.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Bryophytes											
Aloina bifrons			STR		Arid shrub-steppe (sagebrush) and grassland habitat below 4,000 feet. A component of biological soil crusts.		LV-S			NI	Not documented in Project vicinity.
Tiny Notchwort *Anastrophyllum minutum*			SEN	SEN	On peaty soil >5,500 feet. In the *Tsuga mertensiana* zone, typically associated with ledges or at the base of cliffs.	Jackson	MD-S	UMP-S RRS-S FW-S		NI	Not documented in Project vicinity.
Broad-leaved lantern moss *Andreaea schofieldiana*			SEN	SEN	Forms mats on dry and exposed to moist, shaded igneous rocks, montane to subalpine.		CB-S MD-D	UMP-S RRS-D		NI	No suitable habitat in Project area.
Anoectangium aestivum			STR		Moist cliffs, humid cliff crevices, and overhanding rocks, from near sea-level to subalpine, mostly in coastal areas.	Jackson	MD-D			NI	Not documented in Project vicinity.
Anomobryum julaceum (filiforme)			STR	STR	Damp outcrops, earth cliff crevices, cliff crevices, tussock tundra with seeps and late snow melt areas, granitic outcrops.	Klamath	MD-S	UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Spidery threadwort *Blepharostoma arachnoideum*			SEN	SEN	Old growth forests, in mesic habitats, where it most often grows on rotten logs.	Douglas		UMP-D		NI	Not documented in Project vicinity.
Giant fourpoint *Barbilophozia lycopodioides*			SEN	SEN	Forming mats on peaty soil on damp ledges of rock outcrops and cliffs at higher elevations (known sites in OR and WA: 3,400-7,500 feet).			FW-S		NI	Not documented in Project vicinity.
Brotherella roelli			S&M - E	S&M - E	Rotten wood and bark in cool to moist mixed deciduous and conifer forest, usually at low elevations along valley margins.					NI	Not documented in Project vicinity.
Bruchia bolanderi			STR	STR	Montane meadows and streambanks, disturbed soil.	Klamath	LV-S	RRS-D FW-D		NI	Not documented in Project vicinity.
Bryoerythrophyllum columbianum			STR		Arid shrub-steppe (sagebrush) and grassland habitat below 4,000 feet. A component of biological soil crusts		LV-S			NI	Not documented in Project vicinity.
Beautiful bryum *Bryum calobryoides*			SEN	SEN	Rock outcrops and shallow soil	Jackson	RO-S MD-D	UMP-S RRS-D		NI	Not documented in Project vicinity.
Buxbaumia aphylla			STR	STR	Soil and shallow soil over rock.	Douglas Klamath	CB-S MD-S	UMP-D RRS-S FW-D		NI	Not documented in Project vicinity.
Buxabaumia viridis			S&M-D	S&M-D	Grows on rotten stumps and logs, on mineral or organic soils, at middle elevations under cool, shaded humid conditions.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D RRS-D FW-D	MD BLM (2001, 2002): 60' E of TEWA 115.81-N and 150 W of TEWA 115.83-W near MP 115.84; 1 site in TEWA 119.50-W near MP 119.54; none observed by Pacific Connector survey efforts. See the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Bog pouchwort *Calypogeia sphagnicola*			SEN	SEN	Sphagnum containing wetlands.	Coos Douglas	CB-D MD-D	UMP-D RRS-D		NI	Not documented in Project vicinity.
Campylopodiella flagellacea			STR		In California, collected on a seeping metamorphic rock road bank. (Habitat info on the Jackson Co. population is not available.)	Jackson	MD-D			NI	Not documented in Project vicinity.
Campylopus schmidii			SEN	SEN	Nutrient-poor sandy substrates near the coast. Grows on shaded to exposed sand around the edges of vernal pools. Also seen on exposed seasonally flooded sand on deflation plains.		CB-S RO-D			NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Campylopus subulatus			STR		Low-elevation species with suboceanic tendency. In California, found in an oak woodland, Douglas-fir forest and on sand dunes with Pinus contorta from 80-200 m.	Douglas Jackson	CB-S MD-D RO-D			NI	Not documented in Project vicinity.
Spiny threadwort *Cephaloziella spinigera*			SEN	SEN	Wetlands containing Sphagnum.	Klamath	CB-S RO-S MD-D	UMP-S RRS-D FW-D		NI	Not documented in Project vicinity.
Chiloscyphus gemmiparus			STR	STR	On rocks in cold water streams.	Klamath	MD-S	UMP-S RRS-D FW-S		NI	Not documented in Project vicinity.
Racomitrium moss *Codriophorus depressus* (formerly *Racomitrium depressum)*			SEN	SEN	On rocks in montane streams.	Jackson	CB-S RO-S MD-D	UMP-S RRS-S FW-S		NI	Not documented in Project vicinity.
Codriophorus ryszardii			STR	STR	Forming mats on shaded, moist rocks and cliffs along shady streams or in forests, often in the splash zone, but never aquatic. Elevations for known sites in OR and WA: 1,000-6,000 feet.		CB-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Cryptomitrium tenerum			SEN	SEN	Forms small to locally extensive mats on bare, usually shaded and humid soil on hillsides, rock outcrops, and streambanks. In OR, between sea level and 1,000 feet. Root balls and cutbanks are favored habitat in forests.		CB-S	RRS-D		NI	Not documented in Project vicinity.
Didymodon norrisii			STR	STR	Occurs on rock, outcrops, calcareous and volcanic boulders, fields, and cliffs in runoff areas, in low to moderate elevations (200-1,500 m).	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Diplophyllum albicans			S&M-D	S&M-D						NI	Not documented in Project vicinity.
Diplophyllum plicatum			STR S&M - B	STR S&M - B	Moist cool forests on bark, rotting wood, humus and soil.	Coos Douglas	CB-D RO-S MD-D	RRS-S		NI	Not documented in Project vicinity.
Encalypta brevicolla var. crumiana			S&M - B	S&M - B		Jackson	MD-S	UMP-S		NI	Not documented in Project vicinity.
White-mouthed Extinguisher-moss *Encalypta brevicollis*			SEN	SEN	Deep, rocky ravine.	Coos	CB-S MD-S	RRS-D UMP-S		NI	Not documented in Project vicinity.
Candle snuffer moss *Encalypta brevipes*			SEN	SEN	Soil on ledges and in crevices on cliffs, reported from both igneous and siliceous substrates.		CB-S	UMP-S RRS-D		NI	Not documented in Project vicinity.
Entosthodon californicus			STR		Clay or fine sandy soil in disturbed areas such as ditches, roadsides, vernal pools and seasonally flooded areas at moderate elevations. Often mixed in with grass.	Jackson	MD-D			NI	Not documented in Project vicinity.
Banded cord-moss *Entosthodon fascicularis*			SEN	SEN	Seasonally wet, exposed soil in seeps or along intermittent streams. Usually hidden among grasses, other mosses, and litter. Known habitats: grassland, oak savanna, grassy balds, and rock outcrops. In OR, known at elevations below 3,000 feet.		CB-S RO-S MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Ephemerum crassinervium			SEN		Bare soil, high light levels, and seasonal moisture.	Jackson	MD-D			NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Grimmia anomala			STR	STR	On rock, mid to moderately high elevation.	Jackson Klamath	RO-S MD-D LV-S	UMP-S RRS-D FW-D		NI	Not documented in Project vicinity.
Braided frostwort *Gymnomitrion concinnatum*			SEN	SEN	On peaty soil of cliffs and rock outcrops, full exposure or shaded. In OR and WA, it has only been found in subalpine parkland areas.		CB-S RO-S MD-S	UMP-S		NI	Not documented in Project vicinity.
Haplomitrium hookeri			SEN		Growing on soil in full sun, intermixed with other liverworts and hornworts.		CB-S			NI	Not documented in Project vicinity.
Great mountain flapwort *Harpanthus flotovianus*			SEN	SEN	Wet places, often with sphagnum.	Klamath		UMP-S RRS-D FW-D		NI	Not documented in Project vicinity.
Blandow's feather moss *Helodium blandowii*			SEN	SEN	Montane fens, usually with calcareous ground water.	Douglas Jackson Klamath	RO-S MD-S	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Herbertus aduncus			S&M - B	S&M - B	Although often an epiphyte in the northern part of its range, this species is found only on cliffs in Oregon. Its primary associates are mosses and other liverworts. It is found in cool, moist sites in a variety of forest types.					NI	Not documented in Project vicinity.
Hygrohypnum alpinum			STR	STR	A higher elevation species that depends on cold, clean swiftly running mountain streams.	Jackson	MD-S	UMP-S RRS-D		NI	Not documented in Project vicinity.
Iwatsukiella leucotricha			S&M - B	S&M - B	In OR and WA, appears to be restricted to forests along maritime fog-drenched coastal ridges that usually have older *Abies* species present. OR elevations: 2,700-2,900 feet.					NI	Not documented in Project vicinity.
Jamesoniella autumnalis var. heterostipa				STR	Reportedly an obligate aquatic taxon growing over rocks in moving water or forming sometimes extensive, loose mats in lakes.			UMP-S		NI	Not documented in Project vicinity.
Kurzia makinoana			STR S&M - B	STR S&M - B	In old growth forests. Occurs on rocky cliffs and ledges, soil banks and cuts and on decayed wood, rarely on the base of trees, in shaded moist sites or in bogs. Located in humic soils at lower elevations, especially stream terraces, often with liverworts.	Coos	CB-D RO	RRS-S		NI	Not documented in Project vicinity.
Limbella fryei	SOC	C	SEN		On wet rotting wood, leaf litter and lower trunks of tall shrubs in coastal shrub swamps.	Coos Douglas	CB-D			NI	Not documented in Project vicinity.
Gillman's pawwort *Lophozia gillmanii*			SEN	SEN	Found on peaty soil, usually associated with cliffs or ledges. It is an obligate calciphile.			UMP-S FW-S		NI	Not documented in Project vicinity.
Lophozia laxa			SEN		Restricted to well-developed hummocks of Sphagnum in fens and bogs along the coast and in the Cascade Range. Grows in full sun to partial shade. Elevation ranges from sea level to 5,000 feet.		CB-S			NI	Not documented in Project vicinity.
Marsupella emarginata var. aquatica			S&M - B	SEN S&M - B	Old growth forests. Grows in robust colonies attached to submerged rocks in partially shaded cold, flowing, cold perennial stream habitats. Known occurrence at Waldo Lake, Willamette National Forest in the Oregon Cascades.		RO	UMP-S		NI	Not documented in Project vicinity.
Meesia moss *Meesia uliginosa*			SEN	SEN	Wet places, marshes and fens.	Jackson	RO-S MD-D	UMP-S RRS-D FW-D		NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Metzgeria violacea			SEN		Forming mats or mixed with other bryophytes on trunks of trees and shrubs in coastal rainforest. Usually in cool, moist riparian areas or shaded north-facing talus slopes and outcrops.		CB-D		CB: observed ~ 200' NE of ROW near MP 17.44	NI	The single site observed during surveys will be avoided.
Orthodontium gracile			S&M - B	SEN S&M - B	Occurs in old-growth or secondary growth redwood. May be found on the lower bark of trunks, below tree wounds, or downed redwood logs. Typically on redwood bark that has been burned or charred.		RO	RRS-D		NI	Not documented in Project vicinity.
Translucent orthodontium *Orthodontium pellucens*			SEN	SEN	Forming dense cushions or mats on stumps, rotten logs and bark of living redwood trees, confined to redwood groves near the Pacific Ocean. Sometimes on charred wood, or below gaping wounds in trees. In OR, restricted to *Sequoia sempervirens* in extreme SW corner of the state.		MD-S	RRS-D		NI	No suitable habitat in Project area.
Orthotrichum bolanderi			STR	STR	Dry igneous and sedimentary rocks and faces of cliffs in areas with a Mediterranean climate. Elevations probably mostly below 3,000 feet.		CB-S RO-S MD-D	RRS-S		NI	Not documented in Project vicinity.
Orthotrichum euryphyllum			STR	STR	On basalt rocks and outcrops around springs and streambeds. Primarily in dry *Juniperus occidentalis*, *Pinus ponderosa*, and *Artemisia tridentata* associations.		MD-D LV-S	FW-S		NI	Not documented in Project vicinity.
Orthotrichum hallii			STR		On rocks, usually limestone or calcareous sandstone. Occasionally it is found on granite, quartzite or basalt.	Jackson	MD-D			NI	Not documented in Project vicinity.
Tuberous hornwort *Phymatoceros phymatodes*		SEN		SEN	On bare, mineral soil which remains moist until late spring or summer. From near sea level to 650 m (2,100 feet) elevation	Douglas	CB-D RO-S MD-S	RRS-S		NI	Not documented in Project vicinity.
Plagiothecium piliferum		STR		STR	On trees trunks, especially on *Alnus rubra*, moist humid cliffs, and rocks along streams.	Douglas	MD-D	UMP-D		NI	Not documented in Project vicinity.
Pohlia cardotii				STR	On wet soil or along snowmelt streamlets in subalpine and alpine habitats. Elevations range from 6,000-8,000 feet.			RRS-S FW-S		NI	Not documented in Project vicinity.
Pohlia obtusifolia		STR			On moist rich soil in snowmelt areas within the alpine zone.	Jackson	MD-D			NI	Not documented in Project vicinity.
Pohlia sphagnicola		STR		STR	Among the tightly-packed heads of *Sphagnum fuscum* and *Sphagnum capillifolium*, on top of hummocks in coastal and montane bogs and fens.		CB-S	UMP-S		NI	Not documented in Project vicinity.
Pohlia tundrae				STR	Wet acid soil or along snowmelt streamlets in subalpine and alpine habitats. Elevations range from 6,000-8,000 feet.			UMP-S FW-S		NI	Not documented in Project vicinity.
Polytrichum sexangulare				STR	Damp gravelly soil and rocks next to snow-melt streams and areas with late summer snow melt in alpine to subalpine areas. (Note: this is info for *P. sexangulare* var. *vulcanicum*.)			UMP-S FW-S		NI	Not documented in Project vicinity.
Dwarf rock haircap *Polytrichum sphaerothecium*				SEN				UMP-S FW-S		NI	Not documented in Project vicinity.
Polytrichum strictum		STR		STR	Organic soils, particularly on top of Sphagnum hummocks, in coastal and montane bogs and fens.		CB-S	UMP-S		NI	Not documented in Project vicinity.
Bolander's scalemoss *Porella bolanderi*		SEN		SEN	On a variety of rock types (siliceous, calcareous, and metamorphic) and trunks of *Quercus*, *Umbellularia*, and *Acer* macrophyllum. In the Pacific Northwest, known elevations range from 500-3,000 feet.		CB-S RO-D MD-D	UMP-S RRS-D		NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]				Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Blunt water moss *Pseudocalliergon trifarium* (formerly *Calliergon trifarium)*			SEN	SEN	Calcareous fens.	Klamath		RRS-S FW-D		NI	No suitable habitat in Project area.
Ptychostomum cyclophyllum			STR	STR	Wet soil at both low and high elevations.		MD-D	RRS-D		NI	Not documented in Project vicinity.
Racomitrium aquaticum			S&M - B	S&M - B	Forms mats on shaded, moist rocks and cliffs along shady streams or in forests, often in the splash zone, but never aquatic.		CB-S			NI	Not documented in Project vicinity.
Rhizomnium nudum			S&M - B	S&M - B	On moist organic soil, or among rocks or on rotten logs in mid to high elevations.	Douglas	CB-S	UMP-D RRS-S FW-S		NI	Not documented in Project vicinity.
Scapania obscura				STR	On peaty soil close to streams below cold water springs and in snow melt seepage channels. At least in this region, it grows in full sun.			UMP-S		NI	Not documented in Project vicinity.
Schistidium moss *Schistidium cinclidodonteum*			SEN	SEN	On wet or dry rocks or on soil in crevices of rocks and boulders, often along intermittent streams, at elevations of 5,000-11,000 feet.		MD-D	RRS-S FW-S		NI	Not documented in Project vicinity.
Schistidium tenerum			STR		On exposed, dry rock outcrops and on moist shaded soil in crevices on a rock outcrop.		MD-D			NI	Not documented in Project vicinity.
Schistostega pennata			SEN S&M - A	SEN S&M - A	Mineral soil in shaded pockets of overturned tree roots, often with shallow pools of standing water at the base of the root wad; attached to rock or mineral soil around the entrance to caves, old cellars, and animal burrows. Microhabitat requirements include dense shade, high humidity, and some source of reflection of light (i.e., a pool of water)	Douglas Klamath	CB-S RO-S	UMP-D RRS-S FW-S		NI	Not documented in Project vicinity.
Alpine masterwort *Schofieldia monticola*				SEN	Terrestrial, on peaty soil under heather or beside small streams; strictly subalpine-alpine.			UMP-S		NI	Not documented in Project vicinity.
Scouleria marginata			STR	STR	On rocks in streams, often submerged part of the year.	Douglas Jackson	CB-S RO-D MD-D	UMP-D RRS-S		NI	Not documented in Project vicinity.
Purple-vased stink moss *Splachnum ampullaceum*			SEN	SEN	On old dung of herbivores.	Klamath		UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Tetraphis geniculata			SEN S&M - A	SEN S&M - A	A moss that occurs in moist, coniferous forests with down logs; on the cut or broken ends or lower half of large (usually over 15" dbh), decay class 3, 4, and 5 rotted logs, or stumps, and occasionally on peaty banks in moist coniferous forests from sea level to subalpine elevations.		CB-S RO-S	UMP-S		NI	Not documented in Project vicinity.
Thamnobryum neckeroides			STR	STR	Found on both rocks and trees, often in shaded, damp locations in mixed Doug-fir/western hemlock forest with Acer macrophyllum.	Klamath	MD-S	UMP-D RRS-S FW-D		NI	Not documented in Project vicinity.
Tomentypnum moss *Tomentypnum nitens*			SEN	SEN	Medium to rich montane fens where it favors slightly elevated sites such as logs, stumps, or hummocks formed by *Vacccinium uliginosum* and *Betula glandulosa*. Elevations range from 5,000 to 6,000 feet.		RO-S MD-S	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Tortella fragilis			STR	STR	A calciphile that grows on rock or occasionally on dry soil in exposed locations.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Tortella tortuosa var. tortuosa			STR		A calciphile that grows on rock or occasionally on dry soil in exposed locations.		MD-D			NI	Not documented in Project vicinity.
Mucronleaf tortula moss *Tortula mucronifolia*			SEN	SEN	On soil or rock.	Jackson	RO-S MD-D LV-S	RRS-D		NI	Not documented in Project vicinity.
Asano's trematodon moss *Trematodon asanoi*			SEN	SEN	On moist bare soil along the edges of trails, streams and ponds in the subalpine zone. Soils usually have some organic content and are irrigated by meltwater from late-season snowbeds.		RO-S	UMP-S FW-S		NI	Not documented in Project vicinity.
Trichostomum tenuirostre var. tenuirostre			STR	STR			MD-D	RRS-S		NI	Not documented in Project vicinity.
Triquetrella californica			STR		On exposed to shaded soil, rocks, sand, or gravel in dry or moist situations. Reported from trails, roadsides, picnic areas, playgrounds, and rock outcrops from sea level to about 1,600 feet elevation, within 10 miles of the coast.		CB-S	RRS-S		NI	Not documented in Project vicinity.
Tritomaria exsectiformis			S&M - B	SEN S&M - B	Occurs in shady, cool, moist sites such as wet banks of riparian areas, spring heads, decaying logs and associated humus. Also on cliffs, ledges, and rock crevices covered with thin peaty acidic soils. In Oregon, it mostly occurs in peaty soils of mid-elevation coldwater streams.	Douglas Klamath	RO	UMP-D RRS-S FW-D		NI	Not documented in Project vicinity.
Tritomaria quinquedentata			S&M - B	S&M - B	Restricted to organic substrates where perpetually shady, cool, and moist.					NI	Not documented in Project vicinity.
Fungi											
Acanthophysium farlowii			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Albatrellus avellaneus			SEN S&M-B	SEN S&M-B	Presumed mycorrhizal with pine trees, known from Shore Acres in Coos County, in T26S, R14W, Sec. 17 SWNE along Cape Arago area.	Coos	CB-S	RRS-D		NI	Not documented in Project vicinity.
Albatrellus caeruleoporus			STR S&M-B	STR S&M-B	Old growth forest, ranging from near sea level to montane.	Coos	CB-D	UMP-D RRS-S		NI	Not documented in Project vicinity.
Albatrellus dispansus				STR				FW-D RRS-D	RRS: Pacific Connector survey efforts documented 7 observations, of which 2 are in the ROW or UCSA and 4 are within 300 meters of the Pacific Connector Pipeline Project. FW: 2 observations north of UCSA at MP 172.1 in 2014.	MIIH	Potential removal of individuals within ROW; direct and indirect habitat effects.
Albatrellus ellisii			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-S LV	UMP-D RRS-D FW-D	Observed in UMP, RRS, and FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Albatrellus flettii			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).	Douglas Jackson Klamath	MD-S	UMP-D RRS-D	RRS (2011): 1 site 26' NE of TEWA 162.48-N near MP 162.48	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Alpova olivaceotinctus			STR S&M-B	STR S&M-B	Associated with true fir, Douglas-fir, madrone, ponderosa pine, and black oak	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Amanita novinupta			STR		Unknown.	Coos	CB-S			NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]				Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Arcangeliella camphorata			SEN S&M-B	SEN S&M-B	Forms sporocarps beneath soil surface associated with various *Pinaceae* spp., particularly *Pseudotsuga menziesii* and *Tsuga heterophylla* from 600 ft. to 2,800 ft. elevation.	Coos	CB-D MD-S	RRS-D		NI	Not documented in Project vicinity.
Arcangeliella crassa			STR S&M-B	STR S&M-B	Associated with pines, especially Douglas-fir and western hemlock, two known sites from So. Fork Camas area and Wasson Lake road area; CR & WC Ecoregions.	Coos Douglas	CB-D	UMP-S RRS-S FW-D	Observed > 100 feet from ROW in FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Arcangeliella lactarioides			S&M-B	STR S&M-B	Forms sporocarps beneath the soil surface associated with various Pinaceae spp., particularly *Abies magnifica* and *Pinus ponderosa* above 1,650 m elevation.			RRS-S		NI	Not documented in Project vicinity.
Arrhenia lobata				STR	On moss in wet sites, alpine sites or bogs or fens, often around the margins of pools.			FW-D		NI	Not documented in Project vicinity.
Asterophora lycoperdoides			S&M-B	S&M-B			CB-D			NI	Not documented in Project vicinity.
Asterophora parasitica			S&M-B	S&M-B			CB-S MD-D			NI	Not documented in Project vicinity.
Baeospora myriadophylla			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Balsamia alba			STR	STR			MD-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
Balsamia nigrens			STR S&M-B	STR S&M-B	Likely associated with mature stands. Forms sporocarps beneath the soil surface associated with various Pinaceae spp., particularly *Pinus jeffreyi* and *Pseudotsuga menziesii* and at low to mid elevation. (Note: has also been called *B. nigra*.)	Jackson	CB-S MD-D	RRS-D		NI	Not documented in Project vicinity.
Boletus haematinus			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Boletus pulcherrimus			SEN S&M-B	SEN S&M-B	West side Cascades, sporocarps usually solitary in association with mixed conifer (grand fir, Douglas-fir) and hardwoods (tanoak) in coastal forests.	Jackson	CB-S MD-D LV	UMP-D RRS-D FW-D	Observed in RRS and FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Bondarzewia mesenterica			S&M-B	S&M-B	Found in late successional coniferous forests, occasionally mixed with hardwoods; sporocarps have been associated with stumps or snags.	Douglas Jackson Klamath	CB-D RO-D MD-D LV-D	UMP-D RRS-D	RO BLM (2010): 2 sites documented in project area; UMP NF (2010). 6 sites documented in project area; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Brauniellula albipes			STR	STR			MD-S	RRS-S		NI	Not documented in Project vicinity.
Bridgeoporus nobilissimus			SEN S&M-A	S&M-A	On large, dying and dead noble fir and Pacific silver fir in late-successional old-growth forests and on remnant stumps and snags in young and mature second-growth forests in the Pacific silver fir and western hemlock zones in western Washington and Oregon.		RO-S			NI	Not documented in Project vicinity.
Cantharellus subalbidus			S&M-D	S&M-D	Grows as single or gregarious sporocarps in coniferous forests but also in mixed hardwood/conifer woods often associated with but not limited to pines, Douglas-fir, and Pacific madrone.	Coos Douglas Jackson Klamath	CB-D RO-D MD-D LV-D	UMP-D RRS-D FW-D	RO BLM (2010, 2011): 2 sites documented; RRS (2010): one site documented F-W (2000): one site; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Catathelasma ventricosa			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]				Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Cazia flexiascus			STR	STR	Unknown.	Douglas	RO-S MD-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
Chalciporus piperatus (Boletus piperatus)			S&M-D	S&M-D			CB-S			NI	Not documented in Project vicinity.
Chamonixia caespitosa			SEN S&M-B	SEN S&M-B	Forms sporocarps beneath the soil surface associated with various *Pinaceae* spp., particularly *Abies amabilis* and *Tsuga* sp. at high elevation and *Picea sitchensis, Pseudotsuga menziesii,* and *Tsuga heterophylla* in coastal forests.		CB-S MD-S	RRS-D		NI	Not documented in Project vicinity.
Choiromyces alveolatus			STR S&M-B	STR S&M-B	Forms sporocarps beneath the soil surface associated with various *Pinaceae* spp., particularly *Abies* spp., shorepine, Douglas-fir, western hemlock, and mountain hemlock above 1,300 meters.	Douglas Jackson	RO-S MD-D CB-S	UMP-D RRS-D FW-D	Observed in FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; remaining sites may not provide a reasonable assurance of species persistence. MIIH determination is dependent on Forest Service-recommended route modifications that avoid impacts to site.
Choiromyces venosus			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Chroogomphus loculatus			S&M-B	STR S&M-B				UMP-S		NI	Not documented in Project vicinity.
Chromosera cyanophylla			S&M-B	S&M-B	Grows in clusters attached to or under the bark of conifer logs or as solitary to scattered or caespitose (growing in small dense clumps or tufts) on exposed rotted coniferous fir or pine wood.	Douglas Jackson Klamath	RO-D MD-D LV-D	UMP-D RRS-D FW-D	RO BLM (2010, 2011): MD BLM (2010): UMP (2010): RRS (2010): FW (2011); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Chrysomphalina grossula			STR, S&M-B	STR, S&M-B	Coniferous debris, mixed forests and parks.			UMP-S		NI	Not documented in Project vicinity.
Clavariadelphus ligula			S&M-B	S&M-B			CB-D LV MD-D	UMP-D	UMP (2010): 112 ft W of ROW (adj. to UCSA 98.46-W) near MP 100.40; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Clavariadelphus occidentalis			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D RO-D	UMP-D	Observed in UMP, CB and RO; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Clavariadelphus sachalinensis			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		RO-D LV MD-D	UMP-D RRS-D	Observed in RO, UMP, and RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Clavariadelphus subfastigiatus			STR S&M-B	STR S&M-B	On soil or duff, under mixed conifers.	Douglas Jackson	RO-D MD-D CB-S	UMP-D RRS-S		NI	Not documented in Project vicinity.
Clavariadelphus truncatus			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D RO-D LV MD-D	UMP-D RRS-D	Observed in RO, UMP, and RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Clavulina castaneipes var. lignicola			STR S&M-B	S&M-B	Associated with late successional forests. On wood or bark.		CB-S			NI	Not documented in Project vicinity.
Climacocystis borealis			STR	STR			MD-S	RRS-D		NI	Not documented in Project vicinity.
Clitocybe senilis			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
Clitocybe subditopoda			S&M-B	S&M-B						NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Collybia bakerensis			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).	Klamath		FW-D	FW (2000): in UCSA 168.77-W adj. to ROW near MP 168.78; not documented during Pacific Connector surveys (Unit A37).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Collybia [Dendrocollybia] racemosa			STR S&M-B	STR S&M-B	Gregarious, on rotting or mummified remnants of agarics, or seldom in nutrient-rich leaf mulch, in forests. Located in Soup Creek area under dense huckleberry in rotting leaf litter on steep slope.	Douglas Jackson	CB-D MD-D	UMP-D RRS-D	Observed near CL at MP 112.98 in UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Cordyceps capitata			S&M-B	S&M-B		Coos	CB-D			NI	Not documented in Project vicinity.
Cordyceps ophioglossoides			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
*Cortinarius barlowensis (*syn. *Cortinarius azureus)*			SEN S&M-B	SEN S&M-B	Coastal to montane conifer forests up to at least 1,200 m elevation; late successional old-growth association; fruits in autumn.	Douglas	CB-S	UMP-D		NI	Not documented in Project vicinity.
Cortinarius boulderensis			S&M-B	S&M-B			MD			NI	Not documented in Project vicinity.
Cortinarius cyanites			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Cortinarius depauperatus (Cortinarius spilomeus)			STR S&M-B	S&M-B	Moist conifer forests.		CB-S			NI	Not documented in Project vicinity.
Cortinarius magnivelatus			STR S&M-B	STR S&M-B	Montane coniferous forests.		MD-S	FW-D	Observed in FW in 2014.	MIIH*	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Cortinarius olympianus			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD-D	UMP-D RRS-D	Observed in UMP and RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Cortinarius speciosissimus			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Cortinarius tabularis			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Cortinarius umidicola			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Cortinarius valgus			S&M-B	S&M-B			MD			NI	Not documented in Project vicinity.
Cortinarius variipes			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Cortinarius verrucisporus			S&M-B	STR S&M-B	Associated with *Abies magnifica*.	Klamath		RRS-S FW-D	Observed in FW in 2014	MIIH*	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Cortinarius wiebeae			S&M-B	STR S&M-B	Montane coniferous forests.			FW-S		NI	Not documented in Project vicinity.
Craterellus tubaeformis			S&M-D	S&M-D	Grows in wet soil, often near springs, seeps, along streams or in bogs under conifers. It is also found on rotten logs.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D	CB BLM (2010, 2011): RO BLM (2006, 2010): UMP (2006, 2010): see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Cudonia monticola			S&M-B	S&M-B			CB-D	UMP-D		NI	Not documented in Project vicinity.
Cyphellosterium laeve			S&M-B	S&M-B						NI	Not documented in Project vicinity.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Dermocybe humboldtensis			SEN S&M-B	SEN S&M-B	Stabilized dunes on roots of pine and huckleberry species and conglomerate rock and gravelly loam soil with Douglas-fir and ponderosa pine	Douglas	CB-S RO-D MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Destuntzia fusca			S&M-B	STR S&M-B	Forms sporocarps beneath the soil associated with *Lithocarpus densiflorus*, *Pseudotsuga menziesii* & *Tsuga heterophylla*, below 1,000 m elevation.			UMP-S RRS-S		NI	Not documented in Project vicinity.
Destuntzia rubra			S&M-B	STR S&M-B	In association with the roots of *Abies grandis, Arbutus menziesii, Lithocarpus densiflora, Pseudotsuga menziesii,* and *Sequoia sempervirens* at below 650 m elevation.			UMP-S RRS-S		NI	Not documented in Project vicinity.
Dichostereum boreale			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Elaphomyces anthracinus			S&M-B	STR S&M-B	Forms sporocarps beneath the soil surface associated with the roots of Pinus ponderosa in Oregon.			FW-S		NI	Not documented in Project vicinity.
Elaphomyces decipiens			STR	STR			MD-S	RRS-S		NI	Not documented in Project vicinity.
Elaphomyces reticulatus			STR	STR			MD-S	RRS-D		NI	Not documented in Project vicinity.
Elaphomyces subviscidus			STR S&M-B	STR S&M-B	Forms sporocarps beneath the soil surface associated with the roots of *Pinus contorta* and *Tsuga mertensiana* at high elevation (2,200 m).		MD-S CB-S	RRS-S FW-S		NI	Not documented in Project vicinity.
Endogone acrogena			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Endogone oregonensis			STR S&M-B	S&M-B	Roots of Sitka spruce, Douglas-fir, and western hemlock, below 350 m elevation, known from Cascade Head, Lincoln County and on Roseburg BLM.	Douglas	CB-S RO-D			NI	Not documented in Project vicinity.
Entoloma nitidum			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Fayodia bisphaerigera (Fayodia gracilipes)			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
Fevansia aurantiaca			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Galerina atkinsoniana			S&M-B	S&M-B			MD	UMP-D	Observed in UMP in 2014.	MIIH*	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Galerina cerina			S&M-B	S&M-B			CB			NI	Not documented in Project vicinity.
Galerina heterocystis			S&M-E	S&M-E			CB-S MD			NI	Not documented in Project vicinity.
Galerina sphagnicola			S&M-E	S&M-E						NI	Not documented in Project vicinity.
Galerina vitaeformis			S&M-B	S&M-B	Found mostly on soil in association with a variety of mosses but also on moss-covered logs.	Douglas	CB-D RO-D	UMP-D RRS-D	RO BLM (2010): UMP (2010): RRS (2010); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Gastroboletus imbellus			S&M-B	STR S&M-B	Occurs in Pacific Silver Fir (50%) and Mountain Hemlock (50%) series at elevations of 2,528-5,169 feet. Associated with roots of grand fir, subalpine fir and mountain hemlock.			UMP-S		NI	Not documented in Project vicinity.
Gastroboletus ruber			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Gastroboletus subalpinus			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).			FW-D	FW: 129 ft S of ROW near MP 172.48	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

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Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Gastroboletus turbinatus			S&M-B	S&M-B			CB-S MD			NI	Not documented in Project vicinity.
Gastroboletus vividus			SEN S&M-B	SEN S&M-B	Associated with *Abies magnifica* and *Tsuga mertensiana*.		MD-S	UMP-S RRS-D FW-S		NI	Not documented in Project vicinity.
Gastrosuillus amaranthii			S&M-E	S&M-E						NI	Not documented in Project vicinity.
Gastrosuillus umbrinus			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Gautieria magnicellaris			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Gautieria otthii			STR S&M-B	S&M-B	Forms sporocarps beneath the soil surface associated with the roots of *Pinus ponderosa* and other *Pinaceae* between 800 m and 1,650 m elevation.		MD-S CB-S			NI	Not documented in Project vicinity.
Gelatinodiscus flavidus			S&M-B	S&M-B			MD-D			NI	Not documented in Project vicinity.
Glomus pubescens			STR		Hypogenous fungi in coniferous forests.	Coos Douglas	CB-S RO-S			NI	Not documented in Project vicinity.
Glomus radiatum			STR S&M-B	STR S&M-B	Forms sporocarps beneath the soil surface associated with the roots of *Chamaecyparis nootkatensis* and *Sequoia sempervirens* below 1,650 m elevation.		CB-S	RRS-S		NI	Not documented in Project vicinity.
Gomphus bonarii			S&M-B	S&M-B			MD-S	UMP-D RRS FW-D		NI	Not documented in Project vicinity.
Gomphus clavatus		S&M-B	S&M-B		See the Survey and Manage Report (appendix K of this EIS).		MD	UMP-D	Observed in UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Gomphus kauffmanii		STR S&M-B	STR S&M-B		Deep humus under pine and spruce species, closely gregarious	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D RRS-D FW-D	Observed in RRS and FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Gymnomyces fragrans		SEN	SEN				MD-S	UMP-S RRS-D		NI	Not documented in Project vicinity.
Gymnomyces abietis		S&M-B	S&M-B		See the Survey and Manage Report (appendix K of this EIS).			RRS-D	Observed in RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; remaining sites may not provide a reasonable assurance of species persistence. MIIH determination is dependent on Forest Service-recommended route modifications that avoid impacts to species.
Gymnomyces monosporus		STR			Unknown.	Douglas	CB-S RO-D MD-S			NI	Not documented in Project vicinity.
Gymnomyces nondistincta		S&M-B	S&M-B							NI	Not documented in Project vicinity.
Gymnopilus punctifolius		S&M-B	S&M-B				MD			NI	Not documented in Project vicinity.
Gyromitra esculenta		S&M-F	S&M-F		See the Survey and Manage Report (appendix K of this EIS).	Coos Douglas Jackson Klamath	CB-D RO-D MD-D LV-D	UMP-D RRS-D	Observed in RO BLM (2010, 2011), UMP (2010), and RRS (2010)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Gyromitra infula			S&M-B	S&M-B	Found in coniferous and hardwood forests, in disturbed and undisturbed sites, and sites with charred or uncharred woody debris.	Coos Douglas Klamath	CB-D RO-D MD-D LV-D	UMP-D RRS-D	Observed in RO BLM (2010, 2011), UMP (2010, 2011): RRS (2010); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Gyromitra melaleucoides			S&M-B	S&M-B	Grows on or adjacent to well-decayed wood in moist coniferous forests.	Douglas Jackson Klamath	RO-D MD-D LV-D	UMP-D RRS-D FW-D	Observed in RO BLM (2010), UMP (2010, 2011), RRS (2010, 2011), FW (2011); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Gyromitra montana			S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).	Jackson Klamath	RO-D MD-D LV-D	UMP-D RRS-D FW-D	Observed in RO BLM (2010), UMP (2011), RRS (2010, 2011), and FW (2011).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Hebeloma olympianum			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Helvella crassitunicata			SEN S&M-B	S&M-B	Scattered or gregarious on soil along trails in montane regions with *Abies* spp.		RO-S MD-S			NI	Not documented in Project vicinity.
Helvella elastica			S&M-B	S&M-B			CB-S MD-D			NI	Not documented in Project vicinity.
Helvella maculata			S&M-B	S&M-B	Found at low to mid elevations under mixed conifers or hardwoods; sporocarps are scattered to gregarious. It is not restricted to old growth and has been found in a wide variety of habitats including suburban habitats and rotation age conifer stands.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D	Observed in UMP (2010): 1 site 71' N of MP 105.07; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Hydnotrya inordinata			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Hydnotrya subnix			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Hydnum umbilicatum			S&M-B	S&M-B	Grows as solitary or gregarious, on ground in duff of coniferous forests.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D	Observed in CB BLM (2010): RO BLM (2010, 2011) and UMP (2010, 2011); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Hydropus marginellus (Mycena marginella)			STR S&M-B	STR S&M-B	Conifer wood, *Abies*, *Pinus*.		CB- D	RRS-S		NI	Not documented in Project vicinity.
Hygrophorus albicarneus			STR		Unknown.	Klamath	RO-S MD-S			NI	Not documented in Project vicinity.
Hygrophorus caeruleus			S&M-B	SEN S&M-B	Occurs in soil in association with roots of *Pinaceae* spp. near melting snowbanks.			UMP-D RRS-D FW-D	Observed in RRS and FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Hygrophorus karstenii			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Hygrophorus vernalis			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Hypomyces luteovirens			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
Leptonia occidentalis var. occidentalis			STR				MD-S			NI	Not documented in Project vicinity.
Leptonia subeuchroa				STR				RRS-S		NI	Not documented in Project vicinity.
Leptonia violaceonigra			STR	STR			MD-D	RRS-S	Observed in RRS within the ROW near MP 162.49.	MIIH	Removal of or damage to individuals.
Leucogaster citrinus			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-S MD-D	RRS-S UMP-D	Observed in UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Leucogaster microsporus			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Leucogaster odoratus				STR				UMP-S RRS-S		NI	Not documented in Project vicinity.
Macowanites chlorinosmus			STR S&M-B	S&M-B	Found in association with the roots *of Picea sitchensis* and *Tsuga heterophylla* below 200 m elevation.		CB-S			NI	Not documented in Project vicinity.
Macowanites lymanensis			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Macowanites mollis			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Marasmius applanatipes			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Martellia fragrans			S&M-B	S&M-B			MD			NI	Not documented in Project vicinity.
Martellia idahoensis			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
Mycena hudsoniana			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Mycena monticola			S&M-B	S&M-B		Douglas Klamath	RO-D MD-D LV-D		Observed in FW in 2014.	MIIH *	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Mycena overholtsii			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).			FW-D	Observed in FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Mycena quinaultensis			STR S&M-B	STR S&M-B	Found in gregarious, caespitose clusters on senescent conifer needles or uncommonly on decayed wood in conifer forests.		CB-S RO-S MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Mycena tenax			STR S&M-B	STR S&M-B	Densely gregarious in duff under fir, Douglas-fir, spruce, and redwood trees, known from several coastal sites in Douglas, Lane, and Lincoln Counties; fruits in spring and autumn.	Douglas	CB-S	UMP-S RRS-D		NI	Not documented in Project vicinity.
Mythicomyces corneipes			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Neolentinus adhaerens			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Neolentinus kauffmanii			S&M-B	S&M-B			CB-S	FW-D		NI	Not documented in Project vicinity.
Neournula pouchetii			S&M-B	S&M-B	Inhabits coniferous forest stands ranging from early seral stages (35 years old) to old growth more than 200 years old.	Coos Douglas	CB-D RO-D MD-D	UMP-D	Observed in RO BLM (2010, 2011): and UMP (2010, 2011) ; see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Nivatogastrium nubigenum			S&M-B	S&M-B			MD	FW-D	Observed in FW (2000); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Nolanea verna var. isodiametrica			STR		Mainly under conifers.	Douglas	RO-S MD-D			NI	Not documented in Project vicinity.
Octaviania cyanescens			S&M-B	STR S&M-B	Found with *Tsuga mertensiana* at 1,900 m elevation.			UMP-S		NI	Not documented in Project vicinity.
Octavianina macrospora			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Octavianina papyracea			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Otidea leporina			S&M-B	S&M-B			CB-D MD-D			NI	Not documented in Project vicinity.
Otidea onotica			S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).	Coos Douglas Jackson Klamath	CB-D RO-D MD-D LV-D	UMP-D	Observed in RO BLM (2010, 2011) and UMP (2010).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Otidea smithii			STR S&M-B	STR S&M-B	On exposed soil, moss, litter or humus under Douglas fir, western hemlock, ponderosa pine, bigleaf maple, Oregon white oak and black cottonwood.		CB-S RO-D MD-S	RRS-D	Observed in RO-BLM in 2014, 95.5 ft. N of TEWA at MP 61.3.	MIIH	Potential impacts to individuals or habitat; remaining sites may not provide a reasonable assurance of species persistence. MIIH determination is dependent on BLM-recommended route modifications that avoid impacts to species.
Phaeocollybia attenuata			S&M-D	S&M-D	See the Survey and Manage Report (appendix K of this EIS).		CB-D RO-D MD		Observed in CB and RO; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phaeocollybia californica			STR S&M-B	STR S&M-B	Roots of Sitka spruce, Pacific silver fir and western hemlock	Douglas	CB-D RO-D MD-D	RRS-D		NI	Not documented in Project vicinity.
Phaeocollybia dissiliens			STR S&M-B	S&M-B	On soil, litter and humus is association with roots of Pacific fir, Sitka spruce, Douglas fir and western hemlock principally in Western Hemlock series (67%) at elevations of 313-2,431 feet.		CB-D RO-S MD-D			NI	Not documented in Project vicinity.
Phaeocollybia fallax			S&M-D	S&M-D	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD		Observed in CB (1999); site delineated within ROW and TEWA near MP 36.18 – majority of site SW of project; not observed during Pacific Connector survey efforts from 2010 through 2012.	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phaeocollybia gregaria			SEN S&M-B	S&M-B	Associated with the roots of Sitka spruce and Douglas-fir in Sitka spruce (50%) and western hemlock (50%) series at elevations of 477-1,486 feet.		CB-S RO-S			NI	Not documented in Project vicinity.
Phaeocollybia kauffmanii			S&M-D	S&M-D	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD-D		Observed in CB; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phaeocollybia lilacifolia			STR				CB-D			NI	Not documented in Project vicinity.
Phaeocollybia olivacea			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD-D	RRS-D	Observed in CB; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phaeocollybia oregonensis			SEN S&M-B	S&M-B	On soil in association with roots of Douglas-fir, western hemlock and Pacific silver fir, primarily in western hemlock series (75%) at elevations of 826-3,817 feet.		CB-D RO-S MD-S			NI	Not documented in Project vicinity.
Phaeocollybia piceae			S&M-B	S&M-B	Grows in sandy to well-drained humus soil in coniferous and mixed hardwood-coniferous forests and is found associated with the roots of western hemlock, Sitka spruce, Pacific silver fir, and Douglas-fir at low to medium elevations along the Pacific Coast and approximately 80 miles inland throughout its range.		CB-D MD-D		Not observed during Project surveys; however, agency databases indicate there is a site in the vicinity of the Project documented in 2012 near MP 21.5 in CB. See the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phaeocollybia pseudofestiva			STR S&M-B	STR S&M-B	Associated with *Pinaceae*, mixed conifers, and hardwoods; fruits in October - January and April – July.	Coos Douglas	CB-D RO-S MD-D	RRS-S		NI	Not documented in Project vicinity.
Phaeocollybia radicata			STR	STR	Conifer forest: Douglas-fir, salal, sword-fern.	Coos	CB-D	RRS-S		NI	Not documented in Project vicinity.
Phaeocollybia scatesiae			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D		Observed in CB; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Phaeocollybia sipei			S&M-B	S&M-B	Occurs in humus, litter, or soil in coniferous and mixed hardwood-coniferous forests at elevations ranging between approximately 350 and 3,550 feet. Found associated with the roots of western hemlock, Douglas-fir, Sitka spruce, Pacific silver fir, and red fir.		CB RO		Not observed during Project surveys; however, agency databases indicate there is a site in the vicinity of the Project documented in 2012 near MP 21.3 in CB. See the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phaeocollybia spadicea			S&M-B	S&M-B	Occurs in humus litter or soil in coniferous or mixed hardwood-coniferous forests in coastal and inland regions at elevations up to about 3,200 feet. Found associated with hemlock, Douglas-fir, spruce, fir, and pine trees.		CB-D MD		Not observed during Project surveys; however, agency databases indicate there is a site in the vicinity of the Project documented in 2012 near MP 21.5 in CB. See the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Phellodon atratus (Phellodon atratum)			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
Pholiota albivelata			S&M-B	S&M-B			CB-S			NI	Not documented in Project vicinity.
Pithya vulgaris			S&M-D	S&M-D	Grows on wet, dead, usually broken and detached branch tips and twigs of fir and redwood in montane habitats often near snowbanks.	Douglas	RO-D MD-D	UMP-D RRS-D	Observed in UMP (2010): and RRS (2010, 2011); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Plectania melastoma			S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).	Coos Douglas	CB-D RO-D MD-D	UMP-D	Observed in UMP (2010, 2011).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Plectania milleri			S&M-B	S&M-B	Mossy bank, under mixed conifers, on conifer duff.	Jackson Klamath	MD-D LV-D	UMP-D RRS-D	Observed in UMP (2010, 2011): and RRS (2011): ; see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Podostroma alutaceum		STR S&M-B	STR S&M-B		Conifer forests.		CB-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Polyozellus multiplex		S&M-B	S&M-B		See the Survey and Manage Report (appendix K of this EIS).		CB-S MD-D	RRS-D	Observed in ROW near MP 162.44 in RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Psathyrella quercicola		STR	STR		Unknown.	Jackson	RO-S MD-S	RRS-S		NI	Not documented in Project vicinity.
Pseudaleuria quinaultiana		STR S&M-B	S&M-B		Occurs on disturbed microsites (trail sides, recent windthrow mounds) in low elevation old-growth forest that includes *Picea sitchensis, Pseudotsuga menziesii,* and *Tsuga heterophylla.*		CB-S			NI	Not documented in Project vicinity.
Pseudorhizina californica (formerly Gyromitra californica)		S&M-B, SEN	S&M-B, SEN		Forest edges, disturbed sites.	Douglas Jackson Klamath	RO-S MD-S	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Ramaria abietina		STR S&M-B	STR S&M-B		In duff under conifers, especially Monterey cypress and Coast Redwood; from late fall to late winter.	Douglas	RO-D MD-D CB-S	UMP-S RRS-D		NI	Not documented in Project vicinity.
Ramaria amyloidea		SEN S&M-B	SEN S&M-B		In humus or soil under *Abies* ssp., Douglas-fir, and western hemlock from September to October.	Douglas	RO-S	UMP-D RRS-S		NI	Not documented in Project vicinity.
Ramaria araiospora (var. araiospora or var. rubella)		S&M-B	S&M-B		See the Survey and Manage Report (appendix K of this EIS).		CB-D	UMP-D	Observed in CB and UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Ramaria aurantiisiccescens		S&M-B	S&M-B				CB-D MD-D	UMP-D FW-D		NI	Not documented in Project vicinity.
Ramaria botrytis var. aurantiramosa		STR S&M-B	STR S&M-B		Form coralloid sporocarps in humus or soil that mature above the surface of the ground.	Douglas Klamath	RO-S	UMP-D RRS-S FW-D		NI	Not documented in Project vicinity.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Ramaria celerivirescens			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD		Observed in CB; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Ramaria claviramulata			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Ramaria concolor f. marrii			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Ramaria concolor f. tsugina			STR S&M-B	S&M-B	In humus or soil under *Abies* ssp., Douglas-fir, and western hemlock in October.	Coos	CB-S RO-S			NI	Not documented in Project vicinity.
Ramaria conjunctipes var. sparsiramosa			STR S&M-B	STR S&M-B	On ground in moist conifer forests in fall.	Coos	CB-D RO-D MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Ramaria coulterae			STR S&M-B	STR S&M-B	Unknown; fruits spring-early summer.	Jackson Klamath	RO-S MD-D	RRS-S FW-D	Observed in FW in 2014.	MIIH *	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Ramaria cyaneigranosa			S&M-B	S&M-B			CB-D MD-D			NI	Not documented in Project vicinity.
Ramaria gelatiniaurantia			STR S&M-B	STR S&M-B	Occurs on litter and soil, associated with *Pinaceae* spp.		CB-D RO-S	RRS-S		NI	Not documented in Project vicinity.
Ramaria gracilis			STR S&M-B	STR S&M-B	Fruits in humus or soil and matures above the surface of the ground. Associated with *Abies* spp., *Pseudotsuga menziesii*, and *Tsuga heterophylla*		CB-S MD-S	RRS-S		NI	Not documented in Project vicinity.
Ramaria hilaris var. olympiana			S&M-B	S&M-B			CB-D			NI	Not documented in Project vicinity.
Ramaria largentii			STR S&M-B	STR S&M-B	In humus or soil under *Abies* ssp., Douglas-fir, western white pine, and western hemlock in October.	Jackson	CB-S RO-D MD-D	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Ramaria lorithamnus			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Ramaria maculatipes			STR S&M-B	STR S&M-B	Fruits in humus or soil and matures above the surface of the ground. Associated with *Abies* spp., *Pseudotsuga menziesii*, and *Tsuga heterophylla*.		MD-D	UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Ramaria rainierensis			STR S&M-B	STR S&M-B	In humus or soil under *Abies* ssp Douglas-fir and western hemlock in December and March.	Coos	CB-D MD-D	UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Ramaria rubella var. blanda			SEN S&M-B	S&M-B	Fruits on wood in conifer forests.		RO-D CB-D			NI	Not documented in Project vicinity.
Ramaria rubribrunnescens			STR S&M-B	STR S&M-B	Terrestrial under *Pinaceae* ssp. in October and November.	Coos Douglas	CB-D RO-S MD-D	UMP-D RRS-S	Observed in UMP in 2014.	MIIH*	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Ramaria rubrievanescens (RARU5)			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD-D	UMP-D	Observed in UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

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Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Ramaria rubripermanens (RARU6)			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD-D	UMP-D FW-D	Observed in UMP and FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Ramaria spinulosa var. diminutiva			SEN S&M-B	SEN S&M-B	Terrestrial under *Pinaceae* ssp. in October and November.	Douglas	CB-S RO-D MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Ramaria stuntzii			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D	UMP-D	Observed in UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Ramaria suecica			STR S&M-B	STR S&M-B	On litter; fruits in autumn	Douglas	RO-D CB-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Ramaria thiersii			STR S&M-B	STR S&M-B	Terrestrial under *Pinaceae* ssp. in June.	Douglas Jackson Klamath	RO-S MD-D	UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Ramaria verlotensis			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Rhizopogon abietis			STR S&M-B	STR S&M-B			MD-D CB-S	UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Rhizopogon atroviolaceus		S&M-B	STR S&M-B					RRS-S FW-S		NI	Not documented in Project vicinity.
Rhizopogon bacillisporus		STR	STR				MD-D	RRS-S FW-D			
Rhizopogon brunneiniger		STR S&M-B	STR S&M-B	Associated with roots of various *Pinaceae* ssp. in low to high elevation conifer forests in September and October.	Douglas	CB-S RO-S MD-S	UMP-D RRS-D		NI	Not documented in Project vicinity.
Rhizopogon chamaleontinus		SEN S&M-B	SEN S&M-B	Found in association with the roots of Pseudotsuga menziesii and scattered Pinus lambertiana at 1,100 m elevation.		RO-S MD-S	RRS-D		NI	Not documented in Project vicinity.
Rhizopogon clavitisporus		STR	STR	Unknown.	Jackson	RO-S MD-S	RRS-S			
Rhizopogon ellipsosporus		SEN S&M-B	SEN S&M-B	Associated with roots of Douglas-fir and sugarpine in October.	Jackson	MD-D CB-S	RRS-D		NI	Not documented in Project vicinity.
Rhizopogon evadens var. subalpinus		S&M-B	S&M-B			LV	FW-D	FW: 1 site (1999) documented in TEWA 168.85-N; Pacific Connector Pipeline Project rerouted here to avoid HYCA and BOPU; see the Survey and Manage Report (appendix K of this EIS).	NI	The single site observed during surveys will be avoided.
Rhizopogon exiguus		SEN S&M-B	SEN S&M-B	Associated with the roots of *Pseudotsuga menziesii* and *Tsuga heterophylla* at 950 m elevation.		CB-S RO-S MD-D MD-S	UMP-S RRS-D		NI	Not documented in Project vicinity.
Rhizopogon flavofibrillosus		STR S&M-B	STR S&M-B	Associated with roots of various *Pinaceae* ssp. in mid to high elevation conifer forests from July through November.	Douglas	CB-S RO-D MD-S	UMP-S RRS-D FW-S		NI	Not documented in Project vicinity.
Rhizopogon inquinatus		S&M-B	SEN S&M-B	Found in association with the roots of *Pinus jeffreyi*, *Pseudotsuga menziesii* and *Tsuga heterophylla* from 500 to 1,400 m elevation.			UMP-S		NI	Not documented in Project vicinity.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Rhizopogon rogersii			STR	STR			MD-D	RRS-S		NI	Not documented in Project vicinity.
Rhizopogon semireticulatus			STR	STR	Under mixed conifers including *Pinus ponderosa, Pinus contorta, Pseudotsuga menziesii , Larix occidentalis, Abies lasiocarpa, Arbutus menziesii* and *Quercus* sp.	Douglas, Jackson	RO-D MD-S	RRS-D FW-S		NI	Not documented in Project vicinity.
Rhizopogon subclavitisporus			STR	STR	In duff under mixed conifers.		MD-D	RRS-S		NI	Not documented in Project vicinity.
Rhizopogon subpurpurascens				STR				RRS-D		NI	Not documented in Project vicinity.
Rhizopogon truncatus			S&M-D	S&M-D	See the Survey and Manage Report (appendix K of this EIS).		CB-S MD-D	UMP-D RRS-D	Observed in UMP and RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Rhizopogon variabilisporus			STR	STR	Unknown.	Jackson	RO-S MD-D	RRS-S FW-D		NI	Not documented in Project vicinity.
Rhodocybe speciosa			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Rickenella swartzii (Rickenella setipes)			STR S&M-B	STR S&M-B	Moist, shaded locations, typically in moss beds; known from coastal forests in the fall; locally abundant in small troops on or among mosses under hardwoods.	Coos Douglas	CB-D RO-S MD-D	RRS-S		NI	Not documented in Project vicinity.
Russula mustelina			S&M-B	S&M-B						NI	Not documented in Project vicinity.
Sarcodon fuscoindicus			STR S&M-B	STR S&M-B	Found on soil; fruits in autumn and winter.	Douglas	CB-S RO-D MD-S	UMP-D RRS-S	Observed in UMP, 27.5 ft. N of UCSA at MO 111.1	MIIH*	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Sarcodon imbricatus			S&M-B	S&M-B	Solitary to gregarious on the ground, in the woods and described as scattered, or in arcs in mixed hardwood/conifer woods.	Douglas Jackson Klamath	CB-D RO-D MD-D LV-D	UMP-D RRS-D FW-D	Observed in RO BLM (2010): UMP (2010): RRS (2010, 2011): and FW (2010, 2011); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Sarcosoma latahense			S&M-B	S&M-B		Coos Douglas	CB-D RO-D MD-D			NI	Not documented in Project vicinity.
Sarcosphaera coronaria			S&M-B	S&M-B	Grows on the ground in clusters, scattered, or solitary in duff, or beneath the ground surfaces in soil under coniferous forests.	Jackson Klamath	RO-D MD-D LV-D	UMP-D RRS-D FW-D	Observed in RO BLM (2011): UMP (2010, 2011), RRS (2010, 2011), and FW (2011, 2014); see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Sedecula pulvinata			S&M-B	STR S&M-B	Found in association with the roots of *Abies concolor, A. lasiocarpa, A. magnifica, Picea engelmannii,* and *Pinus contorta* above 2,000 m elevation.			RRS-D FW-D	Observed in RRS; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; remaining sites may not provide a reasonable assurance of species persistence. MIIH determination is dependent on Forest Service-recommended route modifications that avoid impacts to species.
Sowerbyella rhenana			S&M-B	S&M-B			CB-D MD-D			NI	Not documented in Project vicinity.
Sparassis crispa			S&M-D	S&M-D	See the Survey and Manage Report (appendix K of this EIS).		CB-D MD-D	UMP-D	Observed in UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

TABLE O-5

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Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Spathularia flavida			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-S RO-D	RRS-D	Observed in RRS and RO; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Stagnicola perplexa			S&M-B	SEN S&M-B				UMP-S RRS-D		NI	Not documented in Project vicinity.
Stropharia albovelata (formerly Pholiota albivelata)			STR		Scattered under conifers on conifer litter from late April through early January.	Coos	CB-S			NI	Not documented in Project vicinity.
Thaxterogaster pavelekii			SEN S&M-B	S&M-B	Associated with roots of Sitka spruce and lodgepole pine in Sitka Spruce (63%) and Western Hemlock (37%) series at elevations of 17-588 feet.		CB-S			NI	Not documented in Project vicinity.
Tremiscus helvelloides			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-D RO-D MD-D	UMP-D	Observed in RO and UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Tricholoma venenatum			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		RO-D	UMP-D	Observed in RO and UMP; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Tricholomopsis fulvescens			S&M-B	STR S&M-B	Found solitary on decayed conifer wood above 1,000 m elevation.			UMP-S RRS-S		NI	Not documented in Project vicinity.
Tuber asa			STR S&M-B	S&M-B	Found in association with the roots of *Pseudotsuga menziesii* and *Tsuga heterophylla* at 170 to 500 m elevation in Oregon.		CB-S			NI	Not documented in Project vicinity.
Tuber pacificum			STR S&M-B	S&M-B	Low elevation moist coniferous forests.	Coos	CB-S			NI	Not documented in Project vicinity.
Tylopilus porphyrosporus (Tylopilus pseudoscaber)			S&M-D	S&M-D			CB-D			NI	Not documented in Project vicinity.
Urnula craterium			STR	STR	Moist ground in spring; fallen oak branches.	Jackson	MD-S	RRS-S			
Lichens											
Anaptychia crinalis			STR		Rangewide, on sheltered rock (often calcareous), bark and soil, from sea level to 9,000 ft elevation. In the Pacific Northwest, on bark (Picea, Pinus, Thuja) and wood in sand dunes and headlands along the immediate coast.		CB-D			NI	Not documented in Project vicinity.
Bryoria bicolor			STR		In the Pacific Northwest, on windswept, exposed trees along the immediate coast and over mossy rocks, heath, and bark of conifers on windswept and fog-drenched summits at highest elevations along the immediate coast. Rock types here are basalt.		CB-S			NI	Not documented in Project vicinity.
Horsehair lichen *Bryoria pseudocapillaris*			S&M-B	S&M-B	Grows on exposed or moderately exposed coastal trees, shrubs, and (once) on rock, primarily in late seral and old-growth shorepine scrub forests of dunes, marine terraces, and in Sitka spruce forests along the edges of coastal lagoons, estuaries, and headlands at or near sea level (0 - 75 m elevation; 0-250 ft.). Occurring in sites with moderated temperature and high humidity provided by frequent fog.		CB-D RO-S			NI	Not documented in Project vicinity.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Bryoria spiralifera			SEN S&M-B	S&M-B	Grows on exposed or moderately exposed coastal trees, shrubs, and (once) on rock, primarily in late seral and old-growth shorepine scrub forests of dunes, marine terraces, and in Sitka spruce forests along the edges of coastal lagoons, estuaries, and headlands at or near sea level (0 - 75 m elevation; 0-250 ft.). Occurring in sites with moderated temperature and high humidity provided by frequent fog.	Coos Douglas	CB-D RO-S			NI	Not documented in Project vicinity.
Bryoria subcana			SEN S&M-B	SEN S&M-B	Grows on conifer bark in forests of coastal bays, streams, dune forests, and high precipitation ridges within 30 mi (50 km) of the ocean. Inhabits areas of high humidity, mostly in late-seral to old-growth stands.	Coos Douglas	CB-D RO-S	RRS-S		NI	Not documented in Project vicinity.
Bryoria tortuosa			S&M-A/D	S&M-A/D	Frequently grows on oaks and pines (also on other trees and shrubs) in well-lit, open stands, within the relatively dry Douglas-fir Zone and Ponderosa Pine Zone east of the Cascade crest in Oregon and Washington, the low-elevation eastern Siskiyou Mountains, and in oak woodlands of the Willamette Valley.	Jackson	MD-D		Observed in MD BLM (2007, 2014); see Survey and Manage standalone document.	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Buellia oidalea			STR S&M-E	S&M-E	Bark of various shrubs, hardwoods, and conifers, maritime (< 1 km from coastline), known from Oregon Dunes NRA.	Douglas Jackson	CB-S MD-D			NI	Not documented in Project vicinity.
Calicium abietinum			S&M-B	S&M-B			CB-D			NI	Not documented in Project vicinity.
Calicium adspersum			SEN S&M-E	S&M-E	Highly textured bark on the boles of old growth conifer trees.	No Data	CB-S RO-S			NI	Not documented in Project vicinity.
Calicium glaucellum		S&M-F	S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).	Douglas Jackson	RO-S MD-S	UMP-D	RO BLM, MD BLM, and UMP N.F: occasional occurrences observed along the ROW during 2007/2008 surveys.	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Calicium viride		S&M-F	S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).	Douglas Jackson	CB-D RO-D MD-D	UMP-D	CB BLM, RO BLM, MD BLM, UMP N.F; commonly observed along the ROW during 2007/2008 surveys.	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Calicium quercinum		STR	STR	STR	The single known occurrence in the Pacific Northwest is on bark of old *Quercus garryana* trunks in an open grove.		RO-S MD-S	UMP-S		NI	Not documented in Project vicinity.
Caloplaca stantonii		STR			On rocks near coast.	Coos	CB-S			NI	Not documented in Project vicinity.
Cetrelia cetrarioides		S&M-E	S&M-E				CB-D			NI	Not documented in Project vicinity.
Chaenotheca chrysocephala		S&M-B	S&M-B	S&M-B	Frequent on bark and wood of old conifers including *Abies* spp., *Picea* spp., *Pseudotsuga menziesii*, *Thuja plicata* and decorticated snags. Prefers semi-open forests at relatively low elevations (80-1,150 m) and is most abundant on conifer trunks in mixed forests and in edge habitats, also in relatively young stands.		CB-D RO-D MD-D		Observed in CB, RO, and MD; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Chaenotheca ferruginea		S&M-B	S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		CB-S RO-D		Observed in RO; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Chaenotheca furfuracea		S&M-F	S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).		CB-D RO-D		Observed in CB BLM on edge of ROW near MP 27.03; observed in RO BLM approx. 90' NE of ROW near MP 61.39 and in ROW near MP 75.66	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Chaenotheca subroscida		STR S&M-E	STR S&M-E	STR S&M-E	Restricted to bark of old trees with most known occurrences on conifers > 200 years old, occasionally found on younger trees southward in Klamath region, 7 sites found in Oregon.	Douglas Jackson	RO-D MD-D CB-S	UMP-D RRS-D FW-D	Observed in RO, RRS, and FW; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Chaenothecopsis pusilla			S&M-E	S&M-E			CB-S			NI	Not documented in Project vicinity.
Cladidium bolanderi			SEN	SEN	On a variety of rock types (sandstone, chert, granite, serpentine) on coastal bluffs and coastal grasslands. Presumably nitrophilous because of its occurrence where birds roost. Elevations from sea level to 1,000 feet.		CB-S			NI	Not documented in Project vicinity.
Cladonia norvegica			S&M-B	S&M-B	Decaying wood and bark at the base of conifers in humid shady forests.		CB-D			NI	Not documented in Project vicinity.
Collema nigrescens			S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).		RO-D MD-D		Observed in RO and MD; see the Survey and Manage Report (appendix K of this EIS).	NI	The single site observed during surveys will be avoided.
Collema undulatum var. granulosum			STR	STR	On periodically moistened calcareous rocks or on mosses over rocks, occasionally on soil. In Oregon it was found in full shade on a steep upper slope of exposed non-calcareous bedrock, with seeps providing lime to the rock surface.	Jackson	RO-S MD-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
Dendriscocaulon intricatulum			S&M-B	S&M-B	See the Survey and Manage Report (appendix K of this EIS).		MD-D		Observed in MD within TEWA 115.33-W near MP 115.49 and on edge of TEWA 133.40-N near MP 133.4; not S&M in Jackson County.	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Dermatocarpon luridum			S&M-B	S&M-B			CB-S	RRS-S UMP-D FW-S		NI	Not documented in Project vicinity.
Mouse ears *Erioderma sorediatum*			SEN		Humid sites on trees and shrubs near the coast.	Coos	CB-D			NI	Not documented in Project vicinity.
Fuscopannaria saubinetii (Pannaria saubinetii)			S&M-F	S&M-F	See the Survey and Manage Report (appendix K of this EIS).		CB-S		Documented at one site proposed for rock removal on Coos Bay BLM District Lands.	MIIH	Minimal disturbance at one site; however, site persistence would be maintained following project implementation.
Heterodermia japonica			STR		In the Pacific Northwest, currently known only from twigs of *Picea sitchensis* in old-growth, fog-drenched coastal headland forest.		CB-S			NI	Not documented in Project vicinity.
Heterodermia leucomelos			SEN	SEN	On mossy hardwoods or rock faces with some light.	Coos Douglas	CB-D	RRS-S		NI	Not documented in Project vicinity.
Heterodermia sitchensis			STR S&M-E	S&M-E	Restricted to the immediate coast. The north-facing, foreshore exposure in Oregon seems to indicate a requirement for high humidity.		CB-S			NI	Not documented in Project vicinity.
Hypogymnia duplicata			STR S&M-A	S&M-A	Mid-elevation moist western hemlock stands, old-growth Douglas-fir, mature western hemlock/Douglas-fir forest, moist Pacific silver fir or noble fir forests, Sitka spruce, riparian forest and later-successional forest, along ridgetops in Oregon Coast Range, also on red alder in sedge-sphagnum bogs in Oregon Coast Range. Elevation 330-1660m (1,100-5,450 ft.).		CB-S RO-S			NI	Not documented in Project vicinity.
Hypogymnia oceanica			S&M-F	S&M-F						NI	Not documented in Project vicinity.
Hypogymnia pulverata			SEN	SEN	The single known site in the Pacific Northwest is in coastal forest, where it was collected in litterfall from branches of Picea sitchensis near the top of a forested dune.		CB-S			NI	Not documented in Project vicinity.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Hypogymnia vittata			S&M-E	S&M-E						NI	Not documented in Project vicinity.
Hypogymnia subphysodes			STR		The single known site in the Pacific Northwest is in coastal sand dunes, where it was collected on branches of *Pinus contorta* in the *Pinus contorta/Arctostaphylos* plant association. Elsewhere in its range it occurs on dead wood, bark, twigs, and rocks.		CB-S			NI	Not documented in Project vicinity.
Hypotrachyna revoluta			SEN S&M-E	S&M-E	On rocks, trunks of alders growing on streambanks and lakesides.	Coos	CB-S			NI	Not documented in Project vicinity.
Treepelt lichen *Leioderma sorediatum*			SEN	SEN	On shrubs (huckleberry and manzanita) and mossy conifer branches in humid coastal forests.	Douglas	CB-S			NI	Not documented in Project vicinity.
Lecanora caesiorubella ssp. Merrillii			STR	STR	On bark of trees and shrubs, and on decaying wood (including redwood fenceposts) in dry, open deciduous or coniferous woodland, chaparral, and salt marsh from sea level to about 1500 ft elevation.		CB-S	RRS-D		NI	Not documented in Project vicinity.
Lecanora pringlei			STR	STR	Unknown.	Jackson Klamath	RO-S MD-D LV-S	UMP-S RRS-S FW-S		NI	Not documented in Project vicinity.
Leptogium burnetiae var. hirsutum			STR S&M-A	STR S&M-A	Usually on hardwood trunks and branches but also on decaying logs and rocks. In mesic open forests.	Jackson	MD-S	UMP-S RRS-S FW-S		NI	Not documented in Project vicinity.
Leptogium cyanescens			SEN S&M-A	SEN S&M-A	Occurs in mixed conifer and Douglas-fir stands, and in maple and willow thickets in both riparian and upland habitats.	Douglas Jackson	CB-S MD-D RO-D	RRS-S UMP-S FW-S		NI	Not documented in Project vicinity.
Leptogium platynum			STR		On soil or rock, usually near seeps or areas wet most of the year.	Coos	CB-D		CB (2007): In ROW near MP 40.20	MIIH	Removal of or damage to individuals.
Leptogium plicatile			STR		Moist, calcareous rocks or soil. In Oregon, it has been found on non-calcareous rocks with seeps providing lime to the rock surface, in a seasonally wet small meadow, low trees and brush providing 10% cover, at an elevation of about 200 m.		MD-D			NI	Not documented in Project vicinity.
Leptogium rivale			S&M-B	S&M-B			MD	UMP RRS FW		NI	Not documented in Project vicinity.
Leptogium teretiusculum			STR S&M-E	STR S&M-E	Usually on oaks in dry to mesic open mixed conifer forests.	Douglas Jackson	CB-S RO-D MD-D	UMP-S RRS-D	MD (2001, 2014) 328ft. SW of TEWA near MP 115.32; Within, N, and W of TEWA near MP 131. RRS (2014) 55.6ft. W of UCSA near MP 157.6; see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Lobaria linita			SEN S&M-A	SEN	On trees, shrubs, mossy rocks or alpine sod. Montane to alpine.	Douglas Jackson	CB-S RO-S MD-D	UMP-D RRS-S		NI	Not documented in Project vicinity.
Microcalicium arenarium			SEN S&M-B	S&M-B	Forms small colonies on free-living green algae or leprose lichens growing in drier microhabitats such as bark, wood, root, and rock faces that are sheltered from precipitation. In the Pacific Northwest, probably restricted to old-growth forests because its host species often appear only in forests older than 100 years. Known elevations are below 2,000 feet.		CB-S			NI	Not documented in Project vicinity.

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	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Nephroma bellum			S&M- F	S&M-F						NI	Not documented in Project vicinity.
Nephroma isidiosum			S&M-E	S&M-E						NI	Not documented in Project vicinity.
Nephroma occultum			S&M-B	S&M-B	Found on branches of old-growth Douglas-fir, western hemlock, and Pacific silver fir; elevation 305-975 m (1,000-3,200 feet).		CB-S MD-S RO-D	RRS-D UMP-D		NI	Not documented in Project vicinity.
Niebla lichen *Niebla cephalota*			SEN S&M-A	S&M-A	Strictly a coastal species but may extend up to 15 miles inland where influenced by the coastal fog belt; occurs on exposed trees shrubs, and less often on rocks or bark; elevation <75 m (250 ft). Found on exposed Sitka's spruce, Hooker's willow, Monterey cypress, and shore pine in open forest, forest edges, and scrublands.	Coos	CB-D RO			NI	Not documented in Project vicinity.
Pannaria rubiginosa			SEN S&M-E	S&M-E	Low elevation coastal shrub thickets on wet deflation plains, mature Douglas-fir/western hemlock forest, and old growth conifer forest dominated by Douglas-fir, Sitka spruce, and western red cedar.	Coos Douglas	CB-S MD-S	RRS-S UMP-S		NI	Not documented in Project vicinity.
Peltigera pacifica			S&M-E	S&M-E	See the Survey and Manage Report (appendix K of this EIS).		CB-D RO-D MD-D	RRS-S UMP-D	Observed in RO; see the Survey and Manage Report (appendix K of this EIS).	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Peltula euploca		STR	STR		On noncalcareous rock in open and very dry to damp.	Jackson Klamath	RO-S MD-D LV-D	RRS-S FW-S		NI	Not documented in Project vicinity.
Pilophorus nigricaulis		SEN			Grows primarily on volcanic rock substrates (basalt and andesite). Habitats have been described as lava flows, cliffs, rock outcrops, talus slopes, and large boulders.		RO-S			NI	Not documented in Project vicinity.
Platismatia lacunosa		S&M-C	S&M-C							NI	Not documented in Project vicinity.
Pseudocyphellaria mallota		SEN	SEN		Old conifers or understory hardwoods and shrubs in late successional forests.	Douglas		UMP-D		NI	Not documented in Project vicinity.
Pseudocyphellaria perpetua (Pseudocyphellaria sp. 1)		S&M-B	S&M-B		Oregon Coast on old growth conifer trees in western hemlock forests, sand late-seral Douglas-fir forests.		CB-D RO-S			NI	Not documented in Project vicinity.
Pseudocyphellaria rainierensis		S&M-A	S&M-A		Epiphyte primarily on conifer trees in cool, humid, old-growth to climax forests in the Western Hemlock or lower Pacific Silver Fir zones; elevation between 100 m to 1,220 m (330-4,000 ft).		CB-D RO-S	UMP-D		NI	Not documented in Project vicinity.
Pyrrhospora quernea		S&M-E	S&M-E			Coos Douglas				NI	Not documented in Project vicinity.
Ramalina pollinaria		SEN S&M-E	SEN S&M-E		Bark and wood, usually in low elevation swamps.	Coos Jackson?	CB-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
Ramalina thrausta		S&M-A	S&M-A		Occurs more often on older trees and in older-aged stands, and in sheltered humid forests though it is found at timberline and on coastal cliffs in moist, sheltered habitats, most common along water or in coastal fog zones.		CB RO-D MD		Observed in RO BLM (2010); see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

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Schaereria dolodes			STR	STR	On bark of conifers and decaying wood in mature, dry, open forests. Elevation ranges from about 1,500 feet at the northern edge of its range to 11,000 ft elevation at the southern end of its range.		CB-S RO-D MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Sclerophora peronella			STR				RO-D			NI	Not documented in Project vicinity.
Sigridea californica			STR	STR	On bark of trees and shrubs, and on decaying wood in dry, open deciduous or coniferous woodland and chaparral.		CB-S	RRS-S		NI	Not documented in Project vicinity.
Stenocybe clavata			S&M-E	S&M-E						NI	Not documented in Project vicinity.
Stereocaulon spathuliferum			SEN	SEN	On rock.	Not within counties affected by Project.	RO-S			NI	No suitable habitat in Project area.
Teloschistes flavicans			SEN S&M-A	S&M-A	Forested headlands and dunes of the coastal fog belt, especially on capes or peninsulas, at sites less than 200 m (600 ft) elevation. Found on oak, shore pine, Sitka spruce, shrubs, moss, and soil.	Coos	CB-D RO			NI	Not documented in Project vicinity.
Texosporium sancti-jacobi	SOC		SEN	SEN	Arid to semi-arid shrub-steppe, grassland or savannah communities up to 1,000 m in elevation. It requires natural openings or gaps in arid vegetation that are not maintained by fire.		LV-S	FW-S		NI	Not documented in Project vicinity.
Thelenella muscorum var. octospora			STR	STR	In the Pacific Northwest, a component of biological soil crusts in semi-arid shrub-steppe and grassland below elevations of 4,000 feet.		LV-S	FW-S		NI	Not documented in Project vicinity.
Thelomma mammosum			STR		On acidic rock near coast.	No Data	CB-S			NI	Not documented in Project vicinity.
Tholurna dissimilis (south of Columbia River)			S&M-B	S&M-B	On krummholz subalpine fir and Engleman spruce on windswept ridges in the upper montane and subalpine zones up to timberline. Elevation from just above sea level to 2,042 m (6,700 ft.), in old growth forests.		RO			NI	Not documented in Project vicinity.
Umbilicaria hirsuta			STR	STR	The single known population in Oregon occurs on the vertical face of an igneous rock outcrop (noncalcareous) with an intermittent seep, in partial shade.		RO-S MD-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
Usnea hesperina			S&M-B	S&M-B			CB-S MD-S			NI	Not documented in Project vicinity.
Usnea longissima			S&M-A/F	S&M-A/F	Occurs in old-growth and late successional conifer stands, and in hardwood stands and lowland riparian woodland areas. It can also grow in clear-cut and other young stands where there is suitable substrate (i.e. conifers and hardwoods) for colonization.		CB-D MD-D RO-D	UMP-D	CB: 166' E of ROW near MP 16.92; 1 site observed 80' NE of ROW near MP 27.35 (2007); 1 site observed on edge of ROW near MP 27.43 (2007); see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Usnea rubicunda			STR	STR	On trees in open moist forests.	Coos	CB-D	UMP-D RRS-S FW-D		NI	Not documented in Project vicinity.
Vezdaea stipitata			STR	STR	Unknown.	Douglas	RO-D MD-S	UMP-S		NI	Not documented in Project vicinity.
Vascular Plants											

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Pink sand verbena *Abronia umbellata ssp. breviflora*	SOC	E			Beaches and foredunes of the Pacific Coast. In Oregon and north, restricted to beaches, and rarely occurs in foredune environments. Occurs on fine sand between the high-tide line and the long-term driftwood zone. Occurs in areas of sand movement. Most populations occur on broad beaches and/or near the mouths of creeks or rivers.	Coos Douglas	CB-D			NI	Species does not occur within the Project area.
California maiden-hair *Adiantum jordanii*			SEN	SEN	Rocky areas in moist woods.	Coos Douglas	CB-D RO-D MD-D	UMP-S RRS-D FW-S		NI	Not documented in Project vicinity.
Cusick's giant-hyssop *Agastache cusickii*			SEN		Dry, rocky sites and often on talus slopes.		LV-D			NI	Not documented in Project vicinity.
Henderson's bentgrass *Agrostis hendersonii*	SOC		STR		Vernal pools, Agate Desert	Jackson	MD-S			NI	Not documented in Project vicinity.
Bolander onion *Allium bolanderi var. bolanderi*			STR	STR	Gravelly areas in forest openings.	Jackson?	MD-D	RRS-D		NI	Not documented in Project vicinity.
Geyer's onion *Allium geyeri var. geyeri*			SEN	SEN	Moist, open slopes, meadows, or stream banks in mountains.		LV-D			NI	Not documented in Project vicinity.
Peninsular onion *Allium peninsulare*			SEN	SEN	Dry open or wooded slopes and flats to 3000 ft; valley grassland, foothill woodlands; March through June.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Sanborn's Onion *Allium sanbornii var. sanbornii*			STR		Heavy serpentine clay; 700-1,400 m.	Jackson	MD-S			NI	Not documented in Project vicinity.
Long-stemmed androsace *Androsace elongata ssp. acuta*			STR		Found on slopes between 0 - 4000 feet within chapparral, foothill woodland, northern coastal scrub, coastal sage scrub.	Jackson	MD-S			NI	Not documented in Project vicinity.
Koehler's rockcress *Arabis koehleri var. koehleri*	SOC	C	SEN		Rocky cliff sites.	Douglas	RO-D			NI	Not documented in Project vicinity.
Rogue Canyon rockcress *Arabis modesta*	SOC		STR	STR	Known only from the Rogue River canyon near Galice, Josephine County.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Crater Lake rock-cress *Arabis suffrutescens var. horizontalis*	SOC	C		SEN	High elevation open sites with pumice. Known sites in Crater Lake NP.	Jackson		UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Gasquet (hairy) manzanita *Arctostaphylos hispidula*	SOC		SEN	SEN	Rocky serpentine soils or sandstone, open forests.	Douglas	CB-D RO-S MD-S	RRS-D		NI	Outside of known (or probable) range
Shasta arnica *Arnica viscosa*			SEN	SEN	High elevation, open rocky sites; known in Deschutes, Klamath, Douglas Co, OR; In Fremont-Winema NF, found at a few sites in wilderness along the Cascade Crest and on Pelican Butte.	Douglas Klamath	MD-S	UMP-D RRS-S FW-D		NI	Not documented in Project vicinity.
Coastal sagewort *Artemisia pycnocephala*			SEN	SEN	Rocky or sandy soils, coastal strand.	Coos	CB-D			NI	No suitable habitat in Project area.
Grass-fern *Asplenium septentrionale*			SEN	SEN	Grows on shady, moist, north faces of large rocks; only known in North Umpqua.	Dougals Jackson Klamath	RO-S MD-S	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Applegate's milk-vetch *Astragalus applegatei*	E	E			Occurs in flat-lying, seasonally moist, strongly alkaline soils dominated by greasewood with sparse, native bunch grasses and patches of bare soil.	Klamath			Sites documented near ROW between MP 195.35 and 196.50. Historical documentation between MP 191.7 – 194.11.	LAA	Impacts to potential habitat that has not been surveyed; impacts to individuals if present.

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Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
California milk-vetch *Astragalus californicus*			SEN		Dry open areas in shrubland.	Jackson	MD-D			NI	Not documented in Project vicinity.
Gambel milk-vetch *Astragalus gambelianus*			SEN		Open grassy areas, shrublands.	Jackson	MD-D			NI	Not documented in Project vicinity.
Geyer's milk-vetch *Astragalus geyeri var. geyeri*			SEN		Chenopod scrub, Great Basin scrub		LV-S			NI	Not documented in Project vicinity.
Lemmon's milk *Astragalus lemmonii*			SEN	SEN	Great Basin scrub, meadows and seeps, marshes and swamps (lake shores). NOTE: According to 10/23/2012 plant meeting in Corvallis, *H. lemmonii* should be *H. cooperi* (*H. lemmonii* not in OR).	Klamath		FW-D		NI	Not documented in Project vicinity.
Peck's milk-vetch *Astragalus peckii*	SOC	T			Very dry sites, on loose, sandy soil or pumice. Often found in/along dry water courses, in sagebrush or rabbitbrush openings in lodgepole pine forests (in the south) or in western Juniper woodlands (in the north), occ. on barren flats.	Klamath	LV-S	FW-D		NI	Species has not been documented in Project vicinity and no suitable habitat is present in Project area.
Bastard kentrophyta *Astragalus tegetarioides*		C	SEN	SEN	Dry sandy soil in Ponderosa pine forests (1,460-1,620 m).		LV-D			NI	Not documented in Project vicinity.
Marsh baccharis *Baccharis douglasii*			STR		Moist salt marshes, coastal strands, stream edges, hillsides, railroads; 0–1,200 m.		CB-S			NI	Not documented in Project vicinity.
Bensonia *Bensoniella oregana*	SOC	C	SEN	SEN	Wet meadows and moist streamside sites in pre-Cretaceous metasedimentary rock at elevations above 4,000 feet.	Coos Douglas	CB-D RO-D MD-D	RRS-D	One site located (2011) in RO BLM approximately 150' E of existing Signal Tree Road Quary (MP 47.00)	NI	The single site observed during surveys will be avoided.
Crenulate moonwort (Crenulate grape-fern) *Botrychium crenulatum*		C	SEN	SEN	Marshes, meadows above 4000 ft.	Douglas Jackson	LV-D	FW-S		NI	Not documented in Project vicinity.
Victorin's grape-fern *Botrychium minganense*			S&M-A	S&M-A	Various: old-growth forests and riparian zone (not wet soils), subalpine and lush meadows, mossy talus slopes under bigleaf maple, road cuts, shrub lands, and alder thickets.		RO-S	UMP-S		NI	Not documented in Project vicinity.
Mountain grape-fern *Botrychium montanum*			S&M-A	S&M-A	Occurs in dark coniferous forests, usually near swamps and streams from 1000-3000m (3300-9800 ft.) in elevation.		RO			NI	Not documented in Project vicinity.
Pumice grape-fern *Botrychium pumicola*		T			Loose volcanic soil, frost pockets and lodgepole pine basins (1,520-2,470 m).	Klamath	LV-S	UMP-S RRS-S FW-D		NI	Species has not been documented in Project vicinity and no suitable habitat is present in Project area.
Dwarf brodiaea *Brodiaea terrestris*			SEN	SEN	Grassland, open woodlands.	Coos	CB-D			NI	Not documented in Project vicinity.
Densetuft hairsedge *Bulbostylis capillaris*			STR		Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest.		MD-S			NI	Not documented in Project vicinity.
Brewer's reedgrass *Calamagrostis breweri*			SEN	SEN	Restricted to subalpine habitats in a narrow elevation range in Oregon. Most populations in Oregon occur between 5,000-6,000 feet. Usually found in moist meadows with limited vegetative competition.			UMP-S		NI	Not documented in Project vicinity.
The dalles water-starwort *Callitriche fassettii*				STR	Forested wetlands.			FW-S		NI	Not documented in Project vicinity.
Winged water-starwort *Callitriche marginata*			SEN		Ponds, vernal pools.	Jackson	MD-D			NI	Not documented in Project vicinity.

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Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Cox's (Crinite) mariposa-lily *Calochortus coxii*	SOC	E			Typically grows in serpentine grasslands and forest margins most often on shady, north-facing, mesic sites near ridgelines.	Douglas	RO-D MD-S		RO (T28S,R5W,S34,35; 1998, 2008–SBS resurvey): within construction right-of-way between MP 75.04-75.33; RO (T29S,R5W,S9,10,3;1992): 0.4 mi S of MP 73.98.	MIIH	Impacts to individuals and habitat.
Greene's mariposa-lily *Calochortus greenei*	SOC	C	SEN	SEN	Grows on dry, bushy hillsides in southern Jackson County.	Jackson Klamath	MD-D	FW-S		NI	Not documented in Project vicinity.
One-leaved mariposa-lily *Calochortus monophyllus*			SEN		Wooded slopes, clay loam soils.	Jackson Klamath	MD-D			NI	Not documented in Project vicinity.
Broad-fruit mariposa-lily *Calochortus nitidus*	SOC		SEN	SEN	Open rocky areas or dry meadows .	Jackson	MD-S			NI	Not documented in Project vicinity.
Shasta star-tulip *Calochortus nudus*			STR	STR	Moist grassy areas, meadows, lake and bog margins, 1,200-2,500 m.	Jackson	MD-S	RRS-S		NI	Not documented in Project vicinity.
Siskiyou mariposa lily *Calochortus persistens*	FC	C	SEN		Open rocky areas.	Jackson	MD-D			NI	Not documented in Project vicinity.
Umpqua mariposa-lily *Calochortus umpquaensis*	SOC	E			Transitional zone between forest and grassland, on serpentine soils (270-820 m).	Douglas Jackson	MD-S RO-D	UMP-D	No documentation within 0.1 mi (500ft) of Pacific Connector Pipeline Project; however, large populations have been documented 1.2+mi E of MP 99.55 on Umpqua National Forest.	MIIH	Although individuals were not documented within ROW during surveys, unoccupied suitable habitat would be impacted during Project construction.
Howell's camassia *Camassia howellii*	SOC	C	SEN	SEN	Grassy wet meadows, swampy ground, and transitional areas between wet meadows and coniferous woodlands.	Jackson	RO-S MD-D	RRS-D		NI	No suitable habitat in Project area.
Slender-flowered evening-primrose *Camissonia graciliflora*			SEN	SEN	Open rocky grassy and shrublands, usually clay soils.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Colville's toothwort *Cardamine nuttallii var. covilleana*			STR		Moist, shaded hillsides, wet, open pine forests.	Jackson	MD-D			NI	Not documented in Project vicinity.
Awned sedge *Carex atherodes*			STR		Wetlands, shallow water.	Klamath	LV-D			NI	Not documented in Project vicinity.
Short-stemmed sedge *Carex brevicaulis*			SEN	SEN	Rocky or sandy soils.	Coos Douglas	CB-D RO-S			NI	Not documented in Project vicinity.
Capitate sedge *Carex capitata*			SEN	SEN	Wet places.	Jackson Klamath	MD-D LV-S	RRS-D FW-D		NI	Not documented in Project vicinity.
Bristly sedge *Carex comosa*			SEN	SEN	Wet places.	Klamath	RO-S MD-D	RRS-S		NI	Not documented in Project vicinity.
Cordilleran sedge *Carex cordillerana*			SEN	SEN	Naturally disturbed, rocky slopes with organic layer and leaf litter in mesic mixed forests, or disturbed, open, grassy slopes; 500-2,400 m.			FW-D		NI	Not documented in Project vicinity.
Crawford's sedge *Carex crawfordii*			SEN	SEN	Moist or wet places.	Jackson	CB-D MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Dry-spike sedge *Carex davyi*				STR	Moist meadows, rocky slopes; 1,500-3,200 m; subalpine coniferous forest, upper montane coniferous forest.			FW-S		NI	Not documented in Project vicinity.
Lesser panicled sedge *Carex diandra*			SEN	SEN	Meadows.		LV-D	UMP-S FW-D		NI	Not documented in Project vicinity.
Needleleaf sedge *Carex duriuscula*				STR	Dry prairies, sagebrush grasslands, openings in dry forests.			FW-S		NI	Not documented in Project vicinity.

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Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]				Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
A sedge *Carex klamathensis*			SEN	SEN	Chaparral, cismontane woodland, meadows, and seeps.		MD-D	RRS-D		NI	Not documented in Project vicinity.
Slender sedge *Carex lasiocarpa var. americana*			SEN	SEN	Bogs, shallow water.	Klamath	LV-D	UMP-S FW-D		NI	Not documented in Project vicinity.
Bighead sedge *Carex macrocephala*			SEN	SEN	Sandy beaches, sand dunes.	Coos Douglas	CB-D			NI	Not documented in Project vicinity.
Spikenard sedge *Carex nardina*			SEN	SEN	Exposed arctic and alpine tundra, usually calcareous cliffs, rocky slopes, ridges, and summits; 50-3,300 m.	Douglas		UMP-D		NI	Not documented in Project vicinity.
Sierra nerved sedge *Carex nervina*			SEN	SEN	Moist to wet places.	Jackson	MD-S	RRS-D		NI	Not documented in Project vicinity.
Russet sedge *Carex saxatilis*				SEN	Fens, bogs, wet tundra, roadside ditches, shores of lakes, ponds, and slow moving streams, often in shallow water, 1-3,700 m.			FW-S		NI	Not documented in Project vicinity.
Dark alpine sedge *Carex subnigricans*			SEN	SEN	Moist rocky slopes, alpine meadows; above 2,500 m.		LV-S			NI	Not documented in Project vicinity.
Native sedge *Carex vernacula*			SEN	SEN	Moist alpine tundra, moist forest openings just below treeline.		LV-S	UMP-S FW-D		NI	Not documented in Project vicinity.
Green-tinged paintbrush *Castilleja chlorotica*			SEN	SEN	Grows on dry gravelly or sandy slopes; Elevation 6000 - 8000 feet; late June through mid-August. Found in shrub openings on slopes and ridges.	Klamath	LV-S	FW-D		NI	No suitable habitat in Project area.
Mendocino coast indian paintbrush *Castilleja mendocinensis*			STR		Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal prairie, coastal scrub.		CB-S			NI	Not documented in Project vicinity.
Cliff paintbrush *Castilleja rupicola*	SOC				Inhabits rocky ridges, outcrops, and crevices, exposed slopes, dry to mesic cliffs, scree, and talus, with various aspects.	Douglas				NI	Not documented in Project vicinity.
Split-hair paintbrush *Castilleja schizotricha*				SEN	Decomposed granite or marble at high elevations.	Jackson		RRS-D		NI	No suitable habitat in Project area.
Desert chaenactis *Chaenactis xantiana*			SEN	SEN	Open, deep, loose sandy (rarely gravelly) soils, arid and semiarid shrublands, chaparral.		LV-D			NI	Not documented in Project vicinity.
Coville's lip-fern *Cheilanthes covillei*			SEN	SEN	Rock outcrops, cliffs.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Fee's lip-fern *Cheilanthes feei*			SEN	SEN	Calcareous cliffs and ledges, usually on limestone or sandstone; 100-3,800 m.		LV-S	FW-S		NI	Not documented in Project vicinity.
Coastal lip-fern *Cheilanthes intertexta*			SEN	SEN	Rock outcrops, cliffs.	Douglas Jackson	MD-D	RRS-S FW-S		NI	Not documented in Project vicinity.
Narrow-leaved amole *Chlorogalum angustifolium*			SEN	SEN	Clay soils in dry grassland.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Oregon timwort *Cicendia quadrangularis*			SEN	SEN	Openings.	Coos Douglas	CB-D RO-D	RRS-D		NI	Not documented in Project vicinity.
Bulb-bearing water-hemlock *Cicuta bulbifera*			STR	STR	Wetlands and lake and stream margins.	Klamath	LV-S	FW-S		NI	Not documented in Project vicinity.
Tall bugbane *Cimicifuga elata var. elata*		C				Douglas				NI	Not documented in Project vicinity.

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Andrew's bead-lily *Clintonia andrewsiana*				STR	Moist, coastal redwood forests; 0--400 m.			RRS-S		NI	Not documented in Project vicinity.
Spoonwort *Cochlearia officinalis*			STR		Sea bird nesting areas on offshore rocks.	Coos	CB-S			NI	Not documented in Project vicinity.
Mt. Mazama collomia *Collomia mazama*			SEN	SEN	Dry woods at high elevations; July and August; True fir/lodgepole pine forest, meadows, and meadow edges; On Fremont-Winema NF, found in Lost Creek, Horse Creek, Rock Creek and Cherry Creek drainages, Klamath RD.	DouglasJacksonKlamath		UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Spleenwort-leaved goldthread *Coptis asplenifolia*			S&M-A	S&M-A	Occurs in moist forests and bogs, at low to middle elevations, in areas with a strong maritime influence.		RO			NI	Not documented in Project vicinity.
Threeleaf goldthread *Coptis trifolia*			S&M-A	S&M-A	Associated with small wetland areas located within mature coniferous forests in the Western Hemlock Zone and Silver Fir Zone at an elevation of 1000-1160 m (3280-3800 feet) above sea level. Soils are poorly drained histosols.		RO			NI	Not documented in Project vicinity.
Pt. Reyes bird's-beak *Cordylanthus maritimus ssp. palustris*	SOC	E			Inhabits salt marshes along the coast, sometimes growing just above tidewater in wet areas.	Coos	CB-D		No documentation within 0.1 mi (500ft) of Pacific Connector Pipeline Project; however, it has been documented on the shorelines of: Jordan Cove, 0.2 mi N of MP 0.76; Haynes Inlet 0.4 mi N of MP 1.37; Pony Slough 0.4 mi S of MP 1.37.	MIIH	Construction of the Project has the potential to impact individual plants found within and near the proposed Project (including both the LNG Project area and the pipeline), however, plants adjacent to the construction areas would be protected through the appropriate installation of safety and silt fence.
Coldwater corydalis *Corydalis aquae-gelidae*	SOC	C	S&M-C	S&M-C	Found in close proximity to seeps, springs, or streams with relatively cold water, a substrate of gravelly-sand, upper level canopy closure of 70% to 90%, and little herbaceous competition. Located in the Western Hemlock and Pacific Silver Fir Zones. Elevation range between 370-1310 m (1200-4260 ft.).		RO			NI	Not documented in Project vicinity.
Soleri's pygmy-weed *Crassula solierii*				STR	Vernal pools, shores of lakes and streams; 0-2,100 m. NOTE: Spelled *C. solieri* in numerous references.			FW-S		NI	Not documented in Project vicinity.
Seaside cryptantha *Cryptantha leiocarpa*			SEN		Coastal strand, northern coastal scrub.		CB-D			NI	Not documented in Project vicinity.
Milo baker's cryptantha *Cryptantha milobakeri*			SEN	SEN	Rocky or gravelly soils in conifer openings, chaparral or oak woodlands.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Baker's cypress *Cupressus bakeri*	SOC		SEN	SEN	Scattered on dry wooded slopes, usually in serpentine soil.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Snowline spring-parsley *Cymopterus nivalis*			SEN	SEN			LV-D			NI	Not documented in Project vicinity.
Short-pointed cyperus *Cyperus acuminatus*			SEN	SEN	Wet, low places in valley and lowlands, edges of tempory pools, ponds, streams, ditches.	Jackson	MD-S	RRS-S		NI	Not documented in Project vicinity.
Clustered lady's slipper *Cypripedium fasciculatum*	SOC	C	SEN S&M-C	SEN S&M-C	Perennial herbaceous plant, found on serpentine substrate and occurs in a variety of habitats, although primarily in older Douglas-fir forests on old stream terraces. The largest populations in southwestern Oregon tend to occur on moist stream terraces, but others inhabit dry rocky up-slope sites. Elevation ranges from 330-1155 m (1000-6400 ft.).	Douglas Jackson	RO-S MD-D CB-S LV-S	UMP-D RRS-D	Private (1994): 30ft. N of MP 104.10 in construction ROW; see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.

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Mountain lady's slipper *Cypripedium montanum*			S&M-C	S&M-C	Inhabits a wide variety of substrates in wooded communities with 60-80 percent canopy closure. Generally found growing in mixed conifers and mixed evergreen/oak woodland plant communities. Elevation range: 495- 2146 m (1500- 6500 ft.).		MD-D RO-D LV-D	UMP RRS-D FW	See the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Red larkspur *Delphinium nudicaule*			SEN	SEN	Rocky openings, often in talus on moist slopes.	Douglas Jackson	RO-S MD-D	RRS-D		NI	Not documented in Project vicinity.
Few-flowered bleedingheart *Dicentra pauciflora*			SEN	SEN	Openings in coniferous forests, in volcanic and granitic soils; 1,200-2,700 m.		MD-D	RRS-D		NI	Not documented in Project vicinity.
Howell's whitlow-grass *Draba howellii*		C	SEN	SEN	Rocky summits, cracks in granite walls, rock crevices; 1,900-2,700 m.		MD-D	RRS-D		NI	Not documented in Project vicinity.
Short seeded waterwort *Elatine brachysperma*			SEN	SEN	Occurs almost always under natural conditions in wetlands.		LV-D	UMP-S FW-S		NI	Not documented in Project vicinity.
Bolander's spikerush *Eleocharis bolanderi*			SEN	SEN	Fresh, often summer-dry meadows, springs, seeps, stream margins; 1,000–3,400 m.	Klamath	LV-D	FW-D		NI	Not documented in Project vicinity.
Oregon willow herb *Epilobium oreganum*		C	SEN	SEN	Grows in bogs at low elevations. Known only from Josephine County.	Douglas	RO-S MD-D	RRS-D		NI	No suitable habitat in Project area.
Siskiyou willow herb *Epilobium siskiyouense*	SOC	C		SEN	Scree and talus on Serpentine ridges.	Jackson		RRS-D		NI	No suitable habitat in Project area.
Golden fleece *Ericameria arborescens*			SEN	SEN	Dry foothill slopes, in chaparral; 90–2,000 m.		CB-D MD-S	RRS-D		NI	Not documented in Project vicinity.
Siskiyou daisy *Erigeron cervinus*			SEN	SEN	Rocky streamsides.	Jackson	CB-S MD-D	RRS-D		NI	Not documented in Project vicinity.
Cliff (rock) daisy Erigeron petrophilus				SEN	Rocky foothills to montane forest.	Jackson		RRS-D		NI	Not documented in Project vicinity.
Cusick's buckwheat *Eriogonum cusickii*		C	SEN	SEN	Sandy, volcanic flats, mixed grassland and sagebrush communities, montane conifer woodlands; of conservation concern; 1,300-1,500 m.		LV-D			NI	Not documented in Project vicinity.
Lobb's buckwheat *Eriogonum lobbii*			SEN	SEN	Gravelly to rocky or talus slopes, mixed grassland, buckbrush, manzanita, and sagebrush communities, montane, subalpine, or alpine conifer woodlands.		MD-S	RRS-D		NI	Not documented in Project vicinity.
Del norte buckwheat *Eriogonum nudum var. paralinum*			STR		Sandy to gravelly flats, mesas, or coastal bluffs, mixed grassland and manzanita communities, oak and scattered conifer woodlands.		CB-S			NI	Not documented in Project vicinity.
Prostrate buckwheat *Eriogonum prociduum*	SOC	C	SEN	SEN	Areas of barren rocky or gravelly volcanic soils within juniper or sagebrush habitat.	Klamath	LV-D	FW-D		NI	Not documented in Project vicinity.
Green buckwheat *Eriogonum umbellatum var. glaberrimum*			SEN	SEN	Sandy to gravelly slopes, sagebrush communities, aspen and montane conifer woodlands; 1,600-2,300 m.		LV-D	FW-D		NI	Not documented in Project vicinity.
Russet cotton-grass *Eriophorum chamissonis*			SEN	SEN	Bogs along the coast.	Coos	CB-D			NI	No suitable habitat in Project area.
Large-leaved filaree *Erodium macrophyllum*			STR		Open sites grassland and shrubland.	Jackson	MD-S			NI	Not documented in Project vicinity.

TABLE O-5

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Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Pacific wallflower *Erysimum menziesii ssp. Concinnum*			STR		Coastal bluff scrub, coastal dunes, coastal prairie.		CB-S			NI	Not documented in Project vicinity.
Howell's adder's tongue *Erythronium howellii*			SEN	SEN	Found in open woods primarily in the upper Illinois River basin, mostly in serpentine soil; April and May.	Jackson	MD-D	RRS-D		NI	Outside of known (or probable) range
Gold poppy *Eschscholzia caespitosa*			SEN	SEN	Grows on dry, brushy slopes and flat areas, mostly along roadsides; known in southern Douglas County; March through early June.	Douglas	RO-S MD-D	RRS-S		NI	No suitable habitat in Project area.
Wayside aster *Eucephalis vialis (Aster vialis)*	SOC	T	S&M-A	S&M-A	Areas of natural and man-made disturbance, edges and openings in woodlands and forests, both in second and old-growth, and shaded roadsides.	Douglas Jackson	CB-S RO-D MD-D	UMP-S RRS-D	Approx. 8 plants observed along EAR MP 79.42 in 2007 on RO BLM; see the Survey and Manage Report (appendix K of this EIS)	MIIH	Potential impacts to individuals or habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Umpqua swertia *Frasera umpquaensis*		C	SEN	SEN	Elevations 4500 - 6500 feet in conifer forests, in damp, shaded or sometimes open environments; June through August.	Douglas Jackson	RO-S MD-D	UMP-D RRS-D		NI	Not documented in Project vicinity.
Butte county fritillaria *Fritillaria eastwoodiae*			STR		Dry benches and slopes, sometimes on serpentine, in chaparral or beneath conifers; 500-1,500 m.	Jackson	MD-S			NI	Not documented in Project vicinity.
Gentner's fritillary *Fritillaria gentneri*	E	E			Often occupies grassland and chaparral habitats within, or on the edges of, dry open mixed woodland at elevations below 5,064 feet.	Douglas Jackson	MD-D	RRS-D	Sites documented in project area (2008, 2011): 2 plants 50' and 120' from EAR 128.05; one plant in TEWA (modified project to avoid) and other *Fritilleria* leaves; one plant adjacent to TEWA 128.01-W near MP 128.09; 2 plants located 1.2 mi SE of MP 134.43 (MD: T35S,R1E,S12; 2005).	LAA	Impacts to potential habitat that has not been surveyed; impacts to individuals if present.
Purdy's fritillary *Fritillaria purdyi*			STR		Dry hillsides, open woods and thickets (150-1,520 m).		MD-S			NI	Not documented in Project vicinity.
Boreal bedstraw *Galium kamtschaticum, West Cascades*			S&M-A	S&M-A	Inhabits moist, cold, coniferous forests, and mossy places throughout its range. Generally found underneath dense shrub cover.		RO			NI	Not documented in Project vicinity.
Warner mt. bedstraw *Galium serpenticum ssp. Warnerense*			SEN	SEN	Meadows in subalpine forest.		LV-D	FW-D		NI	Not documented in Project vicinity.
Newberry's gentian *Gentiana newberryi var. newberryi*			SEN	SEN	High alpine meadows of the Cascade Mountains ; wet meadows and meadow edges, generally 5,000' and above ; August and September, On Fremont-Winema NF found on Klamath RD.	Klamath		UMP-S RRS-S FW-D		NI	Not documented in Project vicinity.
Elegant gentian *Gentiana plurisetosa*			SEN	SEN	Meadows in lodgepole forest, red fir forest, or yellow pine forest.		MD-S	RRS-D		NI	Not documented in Project vicinity.
Waldo gentian *Gentiana setigera*		C	SEN	SEN	Meadows in yellow pine forest, red fir forest, wetland-riparian. Almost always under natural conditions in wetlands.		CB-D MD-D	RRS-D		NI	Not documented in Project vicinity.
Seaside gilia *Gilia millefoliata*			SEN	SEN	Stabiilized coastal dunes.	Coos Douglas	CB-D			NI	No suitable habitat in Project area.
Beautiful stickseed *Hackelia bella*			SEN	SEN	Forest openings, roadsides.	Jackson Klamath	MD-D	RRS-S		NI	Not documented in Project vicinity.
Salt heliotrope *Heliotropium curassavicum*			SEN	SEN	Moist to dry saline soils.	Klamath	LV-D	FW-S		NI	No suitable habitat in Project area.
Short-leaved evax *Hesperevax sparsiflora var. brevifolia*			STR		Sandy bluffs and flats.	Coos	CB-D MD-S			NI	Not documented in Project vicinity.

TABLE O-5

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Common Name and/or Scientific Name	Status [a]				Expected Habitat	Documented or Suspected Occurrence [b]				Effect of Impact [d]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c]		
Shaggy hawkweed *Hieracium horridum*			SEN	SEN	Rocky places.	Jackson Klamath	MD-D	RRS-S		NI	Not documented in Project vicinity.
Shaggy horkelia *Horkelia congesta ssp. congesta*	SOC	C	SEN		Open dry ground and rocky flats.	Douglas Jackson	RO-D			NI	Not documented in vicinity of project.
Henderson's horkelia *Horkelia hendersonii*	SOC			SEN	Endemic to summits of a few granite peaks in southern Jackson County.	Jackson		RRS-D		NI	No suitable habitat in Project area.
Three-toothed horkelia *Horkelia tridentata ssp. tridentata*			SEN	SEN	Granitic soils.	Jackson	RO-S MD-D	RRS-D		NI	Not documented in Project vicinity.
Whorled marsh-pennywort *Hydrocotyle verticillata*			SEN		Swampy ground, lake margins.	Coos Douglas	CB-S			NI	Not documented in Project vicinity.
Cooper's goldflower *Hymenoxys lemmonii*			SEN		Roadsides, open areas, meadows, on slopes, along drainages and streams.		LV-D			NI	Not documented in Project vicinity.
California globe-mallow *Iliamna latibracteata*			SEN	SEN	Grows in coastal ranges in Coos and Douglas counties; June and July.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-D RRS-D		NI	Not documented in Project vicinity.
Shelly's ivesia *Ivesia rhypara var. shellyi*			SEN		Found on either light colored ash-tuff or on outcrops of volcanic ash deposited with riverbed gravels. Habitat is very dry and relatively barren with no canopy cover.		LV-D			NI	Not documented in vicinity of project.
Shockley's ivesia *Ivesia shockleyi*			SEN	SEN	Subalpine forest, bristle-cone pine forest, alpine fell-fields.		LV-S	FW-D		NI	Not documented in Project vicinity.
Kellogg's rush *Juncus kelloggii*			STR		Swampy or sandy ground.	Klamath	MD-S			NI	Not documented in Project vicinity.
Fragrant kalmiopsis *Kalmiopsis fragrans*	SOC		SEN	SEN	Cliffs and rock outcrops, known only from North Umpqua River	Douglas	RO-S	UMP-D		NI	Not documented in Project vicinity.
Bush beardtongue *Keckiella lemmonii*			SEN	SEN	Rocky slopes, chaparral.	Jackson	MD-S	RRS-D		NI	Not documented in Project vicinity.
Large-flowered goldfields *Lasthenia macrantha ssp. Prisca*		C	SEN		Coastal bluffs, 0-500 m.		CB-D			NI	Not documented in Project vicinity.
Thin -leaved peavine *Lathyrus holochlorus*	SOC		SEN	SEN	Thickets and open woods, low elevations, fence rows.	Douglas	RO-S			NI	Not documented in Project vicinity.
Nevada peppergrass *Lepidium montanum var. nevadense*			STR		Sand dunes or deep sand.		LV-S			NI	Not documented in Project vicinity.
Columbia lewisia *Lewisia columbiana var. columbiana*			SEN	SEN	Reported on three mountains in the southeastern portion of Douglas County; May through July.	Douglas		UMP-D		NI	Not documented in Project vicinity.
Lee's lewisia *Lewisia leana*			SEN	SEN	Grows on high elevation serpentine ridges; late May through August.	Douglas Jackson	RO-S MD-D	UMP-S RRS-D		NI	Not documented in Project vicinity.
Kellogg's lily *Lilium kelloggii*	SOC		STR	STR	Grows on sandstone/sedimentary type of soil in dry wooded areas; June.	Klamath	CB-S MD-S	RRS-S		NI	Not documented in Project vicinity.
Western lily *Lilium occidentale*	E	E			Poorly drained, organic soils on the edges of coastal bogs (0-100 m) that are within 4 miles of the Pacific Coast.	Coos	CB-D			NLAA	Not documented in Project vicinity.

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Bellinger's meadowfoam *Limnanthes floccosa ssp. bellingeriana*	SOC	C	SEN	SEN	Seasonally wet depressions above 2500 ft; seasonally wet meadows in Klamath County.	Jackson Klamath	MD-D	RRS-D	RRS: approx. 2,300 plants within 0.5 acre ~95-255' S of TEWA 154.09-W near MP 154.1; approximately 30,000 plants within 0.8 ac within and south of the ROW near MP 154.75 and TEWA 154.72-W; MD: 15 plants 173' NE of TEWA near MP 128.98	MIIH	Impacts to individuals and habitat; however, remaining sites would provide a reasonable assurance of species persistence.
Large-flowered meadowfoam *Limnanthes pumila ssp. grandiflora*	E/CH	E			Periphery of vernal pools at 1,230-1.310 feet, near the wetter, inner edges.	Jackson	MD-S		Documented in project area 0.05 mi N of Medford Industrial Park pipe storage yard; 0.06 mi W of Burrill Lumber pipe storage yard. Additional documentation within vernal pool fairy shrimp federally designated critical habitat (see above) but over 0.1 mi (500 ft) from Pacific Connector Pipeline Project area.	LAA	Indirect impacts to habitat and individuals due to potential disruption in hydrologic connection.
Dwarf wooly meadowfoam *Limnanthes floccosa ssp. pumila*	SOC	T			Small depressions in thin clay soil overlying old basalt at the edges of deep vernal pools which dry by mid-summer, generally in full sun.	Jackson	MD-D			NI	Not documented in Project vicinity.
Slender meadow-foam *Limnanthes gracilis ssp. gracilis*		C	SEN	SEN	Found in Douglas, Jackson, and Josephine counties in very wet areas (early spring) and often in serpentine soil; March through May. Vernal pools.	Douglas Jackson	RO-D MD-D	RRS-S		NI	Not documented in Project vicinity.
Western marsh-rosemary *Limonium californicum*			SEN		Coastal strands, salt marshes.	Coos	CB-D			NI	No suitable habitat in Project area.
Aristulate lipocarpha *Lipocarpha aristulata*			SEN	SEN	Wet soil at an elevation of 100 to 400 m. In Washington, has been found along shorelines and islands below high water on silty substrates.	Klamath	LV-S	FW-S		NI	Not documented in Project vicinity.
Cook's lomatium *Lomatium cookii*	E/CH	E			Margins of vernal pools in the Agate Desert, usually with native forbs and introduced annual grasses.	Jackson	MD-D	RRS-S	No documentation within 0.1 mi (500 ft) of Pacific Connector Pipeline Project; however, it has been documented within 1.0 mile of Medford Industrial Park, Burrill Lumber, Oregon Opportunities, Avenue C & 7th Street, Avenue F & 11th Street , and Rouge Aggregates pipe storage yards.	NLAA	Species not documented during surveys of suitable habitat.
Englemann's desert-parsley *Lomatium engelmannii*			SEN	SEN	Chaparral, red fir forest, yellow pine forest.		MD-S	RRS-D		NI	No suitable habitat in Project area.
Packard's lomatium *Lomatium packardiae*			STR				LV-S			NI	Not documented in Project vicinity.
Stipuled trefoil *Lotus stipularis*			SEN	SEN	Open forests, chaparral, disturbed sites.	Jackson	RO-S MD-D	RRS-D		NI	Not documented in Project vicinity.
Mt. Ashland lupine *Lupinus lepidus var. ashlandensis*	SOC	C		SEN	Sandy or gravelly soils at low to alpine elevations.	Jackson		RRS-D		NI	No suitable habitat in Project area.
Nevada lupine *Lupinus nevadensis*			SEN		Sagebrush scrub.		LV-D			NI	Not documented in Project vicinity.

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Kincaid's lupine *Lupinus sulphureus var. kincaidii*	T/CH	T			Native grasslands and open oak woodlands at low elevations in the Willamette and Umpqua Valleys. Also known to occur on roadsides.	Douglas Jackson	RO-D	UMP-D	3 populations documented in project area (2007, 2008): MP 57.84-57.92, MP 59.60, and MP 96.5-96.9; it has been documented 1.5 NE of MP 56.06 (Private: T28S,R7W,S31; 1999); 2.2 mi SW of MP 96.11 (RO/Private:T31S,R3W,S4,5,8,9; 2003); 1.5 miE of MP 98.88 (UMP: T31S,R2W,S8; 1992).	LAA	Removal of plants and indirect impacts to habitat.
Tracy's lupine *Lupinus tracyi*			SEN	SEN	Dry open montane forest.	Douglas Jackson Klamath	MD-S	RRS-D		NI	Not documented in Project vicinity.
Bog club-moss *Lycopodiella inundata*			SEN	SEN	Bogs, muddy depressions, and pond margins. On Fremont-Winema NF one site in Yoss Creek drainage on Chiloquin RD.	Coos Douglas Klamath	CB-D	FW-D		NI	Not documented in Project vicinity.
Lyrate malacothrix *Malacothrix sonchoides*			SEN		Usually on dunes or in deep, fine sand in arroyos and on plains in Joshua tree woodlands, grasslands, Ephedra-Coleogyne associations; 300-2,100 m.		LV-D			NI	Not documented in Project vicinity.
White meconella (fairypoppy) *Meconella oregana*	SOC	C	SEN	SEN	Grows in open areas that are wet in the spring at low elevations. Known from sites in the Willamette Valley and the Columbia Gorge.	Douglas Jackson	RO-S MD-D	RRS-S		NI	Not documented in Project vicinity.
Coast microseris *Microseris bigelovii*			SEN		Open sandy soil or sandy pockets on rocky headlands.	Coos	CB-D			NI	No suitable habitat in survey area.
Douglas' microseris *Microseris douglasii ssp. douglasii*			STR		Grassy flats and hillsides in heavy hard packed soil.	Jackson	MD-S			NI	Not documented in Project vicinity.
Detling's microseris *Microseris laciniata ssp. detlingii*	SOC				In moist rocky meadows, open grasslands, and in clay soils.	Jackson	MD-D	RRS-D	MD: approx. 300 plants observed in ROW near MP 129.26; approx. 100 plants observed 62' from TEWA near MP 131.39; approx. 15 plants observed 150' from ROW near MP 141.23; approx. 7 acres for site associated with point location (60' from ROW) occurs in TEWA, UCSA, and ROW near MP 141.53.	MIIH	Potential trampling, fragmentation, and habitat modification, although these impacts would be avoided and minimized through fencing off, marking, and not disturbing sensitive plants found along the right-of-way, restoring disturbed areas to their preexisting condition, and controlling for noxious weeds.
Bolander's monkeyflower *Mimulus bolanderi*			SEN	SEN	Openings in chaparral, burns and disturbed areas. Applegate Valley.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Congdon's monkeyflower *Mimulus congdonii*			SEN	SEN	Openings in oak woodland and chaparral. Applegate Valley.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Disappearing monkeyflower *Mimulus evanescens*	SOC	C	SEN	SEN	Vernally moist sites along perennial and intermittent streams; receding margins of lakes, ponds, and reservoirs within juniper/sagebrush habitats.	Klamath	LV-D	FW-D		NI	No suitable habitat in Project area.
Broad-toothed monkeyflower *Mimulus latidens*			SEN		Valley grassland, foothill woodland, wetland-riparian; 0-2,500 feet. Occurs almost always under natural conditions in wetlands.		LV-D			NI	Not documented in Project vicinity.
Tri-colored monkeyflower *Mimulus tricolor*			SEN	SEN	Grows at low elevations in clay soil, preferreing vernal pools; scattered in Klamath County; late May through June.	Klamath	LV-D	FW-D		NI	Not documented in Project vicinity.
Siskiyou monardella *Monardella purpurea*			STR	STR	Mixed evergreen forest, yellow pine forest.		CB-D MD-D	RRS-D		NI	Not documented in Project vicinity.
Howell's montia *Montia howellii*		C				Douglas				NI	Not documented in Project vicinity.

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Annual dropseed *Muhlenbergia minutissima*				SEN	Pinyon-juniper woodland, sagebrush scrub, yellow pine forest, wetland-riparia; between 4,000 and 7,500 feet.			FW-S		NI	Not documented in Project vicinity.
Sessile mousetail *Myosurus sessilis*		C		STR	Vernal pools and alkalai flats; 10-1,600 m.			FW-S		NI	Not documented in Project vicinity.
Slender nemacladus *Nemacladus capillaris*			SEN	SEN	Dry slopes, burned areas.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Wolf's evening primrose *Oenothera wolfii*	SOC	T								NI	Species has not been documented within Project area.
Adder's-tongue *Ophioglossum pusilum*			SEN	SEN	Open fens, wet meadows, grassy slopes, roadside ditches.	Coos Douglas	CB-S	UMP-D RRS-D		NI	Not documented in Project vicinity.
Slender Orcutt grass *Orcuttia tenuis*	T/CH				Vernal Pools with a very well developed soil profile.	Klamath				NI	Not documented in Project vicinity.
Coffee fern *Pellaea andromedifolia*			SEN	SEN	Rock outcrops, cliffs.	Coos Douglas Jackson	CB-D RO-D MD-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
Bird's-foot fern *Pellaea mucronata ssp mucronata*			SEN	SEN	Rocky dry openings.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Blue-leaved penstemon *Penstemon glaucinus*	SOC		SEN	SEN	Openings in mid to high elevation pine, fir, and mt hemlock communities. Well-drained volcanic soils along rocky points and ridges.	Klamath	LV-S	FW-D		NI	Not documented in Project vicinity.
Red-rooted yampah *Perideridia erythrorhiza*	SOC	C	SEN	SEN	Moist meadows, forest edges below 4500'.	Douglas Jackson Klamath	RO-D MD-D	UMP-S RRS-D FW-D		NI	Not documented in Project vicinity.
Silvery phacelia *Phacelia argentea*	SOC	T			Sandy beach dunes and bluffs near the coast.	Coos	CB-D			MIIH	Species was not documented during surveys; however, suitable habitat remains to be surveyed.
Playa phacelia *Phacelia inundata*	SOC		SEN		Alkaline flats, dry lake margins. Elevation 4800 - 6400 feet.	Klamath	LV-D			NI	No suitable habitat in Project area.
Siskiyou phacelia *Phacelia leonis*			SEN	SEN	Red fir forest.		MD-S	RRS-D		NI	Not documented in Project vicinity.
American pillwort *Pilularia americana*			SEN	SEN	Vernal pools, mud flats, lake margins.	Jackson Klamath	MD-S	RRS-S FW-S		NI	Not documented in Project vicinity.
Whitebark pine *Pinus albicaulis*	C			SEN	Although its role in the plant community is changing, whitebark pine historically dominated many of the upper subalpine plant communities of the western United States. It showed scattered occurrence on the Olympic Peninsula, the southern Cascades and other ranges of southern Oregon.	Douglas Jackson Klamath		UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Gray Pine *Pinus sabiniana*			STR	STR	Infertile soils in mixed conifer and hardwood forests.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Austin's plagiobothrys *Plagiobothrys austiniae*			SEN		Vernally wet areas, along road and trail edges.	Jackson	MD-D			NI	Not documented in Project vicinity.

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Coral seeded allocarya *Plagiobothrys figuratus var. corallicarpus*	SOC	C	SEN	SEN	Low elevation meadows and moist clearings and fields.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Greene's popcorn flower *Plagiobothrys greenei*			SEN	SEN	Vernal pools.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Rough popcorn flower *Plagiobothrys hirtus*	E	E			Grows in open, seasonal wetlands in poorly- drained clay or silty clay loam soils at elevations ranging from 100 to 900 ft.	Douglas	RO-D	UMP-S		LAA	Potential impacts to individuals in suitable habitat that has not been surveyed.
Desert allocarya *Plagiobothrys salsus*	SOC		SEN	SEN	Playas in alkali sink, wetland-riparian.	Klamath	LV-D	FW-S		NI	Not documented in Project vicinity.
Large round-leaved orchid *Platanthera orbiculata var. orbiculata*			S&M-C	S&M-C	Infrequent distribution. Generally found in mature to old-growth stands, primarily at lower to mid elevations up to 914 m (3000 ft.). Often in rich, damp humus in the deep shade of heavily forested (mature- to old-growth) areas.		RO			NI	Not documented in Project vicinity.
Timber bluegrass *Poa rhizomata*			SEN	SEN	Dry Douglas-fir/ponderosa pine forests.	Jackson	MD-D	UMP-S RRS-S		NI	Not documented in Project vicinity.
San Francisco bluegrass *Poa unilateralis*			STR		Coastal strand, northern coastal scrub, coastal sage scrub.		CB-S			NI	Not documented in Project vicinity.
Profuse-flowered mesa mint *Pogogyne floribunda*	SOC		SEN	SEN	Vernal pools, seasonal lakes.	Klamath	LV-D	FW-S		NI	Not documented in Project vicinity.
Silvies valley desert combleaf *Polyctenium fremontii var. bisulcatum*			STR		Mud flats, dry meadows, sagebrush areas, edge of vernal pools, shallow soil on basalt, dry streambeds and swales, gravel bars, rocky wash; 1,000-2,700 m.		LV-S			NI	Not documented in Project vicinity.
California sword-fern *Polystichum californicum*			SEN	SEN	Creek banks and canyouns in redwoods and mixed evergreen forests.	Coos Douglas	CB-D RO-D	UMP-D RRS-S		NI	Not documented in Project vicinity.
Rafinesque's pondweed *Potamogeton diversifolius*				SEN	Shallow water, ditches, ponds, lakes.	Klamath		FW-S		NI	Not documented in Project vicinity.
California chicory *Rafinesquia californica*			SEN	SEN	Chaparral, recent burns, in the Applegate Valley.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.
Southern Oregon buttercup *Ranunculus austrooreganus*		C	SEN		Oak woodlands, chaparral and dry grasslands.	Jackson	MD-D			NI	Not documented in Project vicinity.
Redberry *Rhamnus ilicifolia*			SEN	SEN	Chaparral in Applegate Valley.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
White beakrush *Rhynchospora alba*			SEN		Marshes, bogs.	Jackson	CB-D MD-S			NI	Not documented in Project vicinity.
Brownish beakrush *Rhynchospora capitellata*			STR	STR	Coastal salt marsh, yellow pine forest, wetland-riparian. Occurs almost always under natural conditions in wetlands.		CB-S	RRS-S		NI	Not documented in Project vicinity.
Straggly gooseberry *Ribes divaricatum var. pubiflorum*			SEN	SEN	Coastal bluffs, forest edges; 0-1,500 m.		MD-D	RRS-S		NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Thompson's mistmaiden *Romanzoffia thompsonii*			SEN	SEN	Sunny, vernally wet mossy rocks.	Douglas Jackson	CB-D RO-D MD-S	UMP-D RRS-D		NI	Not documented in Project vicinity.
Columbia cress *Rorippa columbiae*		C	SEN	SEN	Along intermittent and perennial streams and lakeshores: banks, sandbars, vernal pools, lakebeds, and ditches.	Klamath	MD-D LV-D	RRS-S FW-D		NI	Not documented in Project vicinity.
Lowland toothcup *Rotala ramosior*			SEN	SEN	Open, wet gravelly soil around ponds (5-400 feet in western Oregon).		LV-S	UMP-S FW-S		NI	Not documented in Project vicinity.
Polished willow *Salix laevigata*				STR	Riparian forests along streams, seepage areas, springs, subalkaline or brackish lakeshores, canyons, ditches; 0-2,200 m.	Klamath		FW-S		NI	Not documented in Project vicinity.
Wolf's willow *Salix wolfii*			SEN		Stream banks, springs, wet meadows, bogs; 2,000-3,800 m. (NOTE: this source lists S. wolfii var. wolfii as the variety occurring in Oregon.)		LV-S			NI	Not documented in Project vicinity.
Joint-leaved saxifrage *Saxifragopsis fragarioides*			SEN	SEN	Grows on dry cliffs in the high Siskiyou Mountains.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Scheuchzeria *Scheuchzeria palustris ssp. americana*				SEN	Grows in ponds and along streams in Oregon Cascades.	Douglas Klamath		UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Water clubrush *Schoenoplectus subterminalis* (formerly *Scirpus subterminalis*)			SEN	SEN	Lakes, ponds, marshes.	Coos Douglas Klamath	CB-D RO-S MD-S LV-S	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Slender bulrush *Scirpus heterochaetus*			STR		Lake margins	Klamath	LV-S			NI	Not documented in Project vicinity.
Drooping bulrush *Scirpus pendulus*			SEN	SEN	Marshes, wet meadows, ditches.	Jackson	CB-S RO-S MD-D	RRS-D		NI	Not documented in Project vicinity.
California fetid adderstongue *Scoliopus bigelovii*				SEN	Redwood and coastal coniferous forests, mossy mountain stream banks, shaded slopes; 0--500 m.			RRS-D		NI	Not documented in Project vicinity.
Rogue River stonecrop *Sedum moranii*		C	SEN	SEN	Steep south to west facing slopes and rock outcrops (200-275 m).		MD-D	RRS-D		NI	Not documented in Project vicinity.
Bog groundsel *Senecio triangularis var. angustifolius*			STR		Sphagnum bogs near the coast.	Coos	CB-D			NI	Not documented in Project vicinity.
Verrucose sea-purslane *Sesuvium verrucosum*			SEN	SEN	Valley grassland, coastal sage scrub, alkali sink, wetland riparian.		LV-D	FW-S		NI	Not documented in Project vicinity.
Henderson sidalcea *Sidalcea hendersonii*	SOC		SEN		Wet meadows, tidal marshes and flats at low elevations.	Douglas	CB-D			NI	Not documented in vicinity of project.
Hickman's checkerbloom *Sidalcea hickmanii ssp. nov. (hickman's)*			SEN		Shallow soil in open rocky areas. Known from one site in Sams Valley.	Jackson	MD-D			NI	Not documented in vicinity of project.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Maple-leaved sidalcea *Sidalcea malachroides*				STR	Disturbed habitat in coastal prairie, mixed evergreen forest, redwood forest.			RRS-S		NI	Not documented in Project vicinity.
Coast checkermallow *Sidalcea malviflora ssp. patula*	SOC	C	SEN	SEN	Open coastal forest.	Coos	CB-D	RRS-D		NI	Not documented in Project vicinity.
Bolander's catchfly *Silene hookeri ssp. bolanderi*			SEN	SEN	Oak and douglas fir woodlands; 100-1,000 m.		MD-D	RRS-D		NI	Not documented in Project vicinity.
Serpentine catchfly *Silene serpentinicola*			STR	STR	Grassy, gravelly, or rocky openings in chaparral, woodlands, and coniferous forest on serpentine; of conservation concern; 100-800 m.		MD-S	RRS-S		NI	Not documented in Project vicinity.
Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	SOC		SEN		Known in the Umpqua and southern Willamette valleys.	Douglas	RO-D			NI	Not documented in Project vicinity.
Parish's horse-nettle *Solanum parishii*			SEN	SEN	Chaparral, dry conifer openings, recent burns.	Jackson	MD-D	RRS-D		NI	Not documented in Project vicinity.
Western sophora *Sophora leachiana*		C	SEN	SEN	Dry, open areas, open mixed woodlands, roadcuts and clearcuts (140-460 m).		MD-D	RRS-D		NI	Not documented in Project vicinity.
Common jewel flower *Streptanthus glandulosus*			SEN	SEN	Serpentine areas. (Note: this source lists the subspecies *S. g. josephinensis* as occurring in Oregon.)		MD-D	RRS-S		NI	Not documented in Project vicinity.
Howell's streptanthus *Streptanthus howellii*		C	SEN	SEN	Dry, serpentine slopes, mixed evergreen forests, open pine woods or brushy areas (485-1,220 m).		CB-S MD-D	RRS-D		NI	Not documented in Project vicinity.
Broadleaf pondweed *Stuckenia striata*			STR		Sagebrush scrub, wetland-riparian. Occurs almost always under natural conditions in wetlands.		LV-S			NI	Not documented in Project vicinity.
Long-flowered snowberry *Symphoricarpos longiflorus*			SEN		Pinyon-juniper woodland.		LV-D			NI	Not documented in Project vicinity.
Howell's tauschia *Tauschia howellii*	SOC	C		SEN	Granitic gravel ridgetops above 6000 ft.	Jackson		RRS-D		NI	No suitable habitat in Project area.
Short-podded thelypody *Thelypodium brachycarpum*	SOC		SEN	SEN	Alkaline flats, lake margins in shrub steppe and near edges of pine forests.	Klamath	LV-S	FW-D		NI	No suitable habitat in Project area.
Howell's thelypody *Thelypodium howellii ssp. howellii*	SOC		STR		Moist alkaline soils, open, wet or dry meadows and marshes (1,200-1,550 m).	Klamath	LV-S			NI	Not documented in Project vicinity.
Greene's tuctoria *Tuctoria greenei*	E/CH				Bottoms of dried vernal pools on the eastern side of the Sacramento and San Joaquin Valleys	Klamath				NI	Not documented in Project vicinity.
Leiberg's clover *Trifolium leibergii*		C	SEN		Grows on a distinct habitat characterized by a thin, gravelly soil layer consisting of decomposing (broken-down) volcanic ash "tuff." Underneath the thin layer of soil is the solid "tuff," which has deep cracks running through it.		LV-D			NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		
Siskiyou trillium *Trillium kurabayashii*			SEN	SEN	Rich, moist conifer-hardwood forest, slopes, especially lower slopes, predominantly deciduous flat woods along streams, edges of Sequoia groves, and alder, vine maple, and fern thickets along streams, especially older, higher flood terraces, not the lowest and wettest; at higher elevations, both in forests and in open grassy meadows with scattered oak trees.		CB-D	RRS-D		NI	Not documented in Project vicinity.
Leach's brodiaea *Triteleia hendersonii var. leachiae*	SOC	C			Open and wooded slopes in the Siskiyou Mountains of Josephine, Curry, and Douglas counties.	Coos	CB-D MD-S			NI	Not documented in Project vicinity.
Sierra brodiaea *Triteleia ixioides ssp. anilina*			STR		Coniferous forest edge, often in sand or gravel.	Jackson	MD-S			NI	Not documented in Project vicinity.
Golden triteleia *Triteleia ixioides ssp. scabra*			STR		Scrub edges, mixed conifer forest, in clay and granite soils.	Jackson	MD-S			NI	Not documented in Project vicinity.
Ithuriel's spear *Triteleia laxa*			STR		Open forests, mixed conifer or foothill woodlands, grasslands on clay soil; 0-1,500 m.	Jackson	CB-S			NI	Not documented in Project vicinity.
Humped bladderwort *Utricularia gibba*			SEN		Shallow water, mud.	Coos Douglas	CB-D RO-S			NI	Not documented in Project vicinity.
Lesser bladderwort *Utricularia minor*			SEN	SEN	Shallow water.	Coos Douglas Jackson Klamath	CB-D RO-S MD-D	UMP-D RRS-D FW-D		NI	Not documented in Project vicinity.
Northern bladderwort *Utricularia ochroleuca*				SEN				UMP-S FW-S		NI	Not documented in Project vicinity.
Western bog violet *Viola primulifolia ssp. occidentalis*		C	SEN	SEN	Serpentine bogs.	Douglas	CB-S MD-D	RRS-D		NI	No suitable habitat in Project area.
Dotted water-meal *Wolffia borealis*			SEN	SEN	Freshwater ponds and slow flowing ditches in which water has somewhat high levels of organic material. Occurs in natural ponds as well as in log and sewage treatment ponds (350-1,500 feet).	Jackson	RO-D MD-D	UMP-S		NI	Not documented in Project vicinity.
Columbia water-meal *Wolffia columbiana*			SEN	SEN	Free floating in quiet water.	Douglas Jackson	RO-D MD-S	UMP-S RRS-S		NI	Not documented in Project vicinity.
Small-flowered death camas *Zigadenus fontanus*	SOC		SEN	SEN	Rocky openings in chaparral in Applegate Valley.	Jackson	MD-D	RRS-S		NI	Not documented in Project vicinity.

TABLE O-5

Special Status Plant (Vascular and Non-Vascular) and Fungi Species That May Occur Near the JCE & PCGP Project

Common Name and/or Scientific Name	Status [a/]				Expected Habitat	Documented or Suspected Occurrence [b/]				Effect of Impact [d/]	Impact Reasoning
	Federal	State	BLM	Forest Service		County	BLM	Forest Service	Within Vicinity of Project Area [c/]		

a/ Status Key:
Federal Status: E = Endangered, T = Threatened, C = Candidate, SOC = Species of Concern, CH = Critical Habitat
State Status: E = Endangered, T = Threatened, C = Candidate
BLM and Forest Service Status: SEN = Sensitive, STR = Strategic, S&M = Survey and Manage species, letter after S&M = Survey and Manage Species Category (A – F)

b/ Occurrence Key:
BLM: CB = Coos Bay District, RO = Roseburg District, MD = Medford District, LV = Lakeview District
Forest Service: F-W = Fremont-Winema National Forest, RRS = Rogue River-Siskiyou National Forest, UMP = Umpqua National Forest

D = Documented occurrence: A species located on land administered by the BLM or the Forest Service based on historic or current known sites of a species reported by a credible source for which BLM and the Forest Service have knowledge of written, mapped or specimen documentation of the occurrence.
S = Suspected occurrence: Species is not documented on land administered by the BLM or the Forest Service, but may occur on the unit because: 1) BLM District or National Forest is considered to be within the species' range and 2) appropriate habitat is present or 3) known occurrence of the species (historic or current) in vicinity such that the species could occur on BLM or Forest Service land.

c/ **Pacific Connector Pipeline Project**: Botanical and fungi species documented within approximately 400ft-wide survey corridor, which generally included the Project ROW, TEWAs, and UCSAs plus a 100-foot buffer. The observations listed are based on project survey reports (SBS 2008a, 2010, 2011a, 2011c), and may differ from the sites discussed in the Survey and Manage Report (appendix K of this EIS).

d/ Effect of Impact:
Species federally listed or proposed for listing:
NE = No Effect
NLAA = Not Likely to Adversely Affect
LAA = Likely to Adversely Affect

All other species:
NI = No Impact
MIIH = May Impact Individuals or Habitat, but is not likely to contribute to a trend toward federal listing or loss of viability of the species
*Persistence evaluation incomplete at the time of FEIS publication, determination based on preliminary findings.

References
Status: ISSSSP 2011; FWS 2013g; Forest Service 2011; BLM 2011; Forest Service and BLM 2011; ORBIC 2010a, 2012; ODA 2013; Currin 2013.
Expected Habitat: British Columbia Ministry of Environment 2009; BLM 2007; Calflora 2013; CNPS 2013; Castellano and O'Dell, 1997; Center for Plant Conservation, 2011; Cushman and Huff 2007; eFloras.org, 2013; Fryer, 2002; Morefield , 2001; ORBIC 2004, 2010a; ODA 2013; Oregon Flora Project 2013; Oregon State University 2013; ISSSP 2014; Eastman 1990; Pojar and MacKinnon 1994; BLM 2004; Hickman 1993; Hitchcock et al. 1969; Castellano et al. 1999; Arora 1986; Christy and Wagner 1996; Lawton 1971; Norris and Shevok 2004a and b; McCune and Geiser 1997; Brodo et al. 2001; Norvell 1998.
Documented and Suspected Occurrences: ISSSSP 2011; BLM 2006; ORBIC 2012; Forest Service 2006a; NRCS 2001; Siskiyou BioSurvey various dates (see biological survey reports submitted as a standalone document).

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
Coos Bay BLM District														
Conifers														
10	FCO D1-=2007	1	0.94	0.80				1.74	0.31		0.51			
	FCO D1RC1-=2010	1	1.46	0.17				1.63	0.65		1.06			
20	FCO D1-=1992	1	0.00	0.04				0.04						
	FCO D1-=1994	1	5.88	2.92				8.80	1.84		3.07			
30	FCO D1-=1988	1	3.93	2.66				6.59	0.93		1.77		0.00	0.00
	FCO D1-=1989	1		0.19				0.19					0.00	0.00
	FCO D1-=1990	1	4.40	3.65			2.16	10.20	1.87		3.00			
	FCO D3-=1982	3	2.42	0.72				3.14	1.05		1.72			
40	FCO D3-=1974	3	3.43	0.33			0.98	4.74	1.11		1.84	4.74		4.74
	FCO D3-=1976	3	0.99	0.50				1.49	0.28		0.50		0.00	0.00
	FCO D3-=1977	3	0.09	0.19				0.27	0.01		0.02			
	FCO D3-=1978	3	4.53	0.82				5.35	1.36		2.29	2.23		2.23
50	FCO D3-=1961	3	7.49	1.22				8.71	2.46		3.96	1.56		1.56
	FCO D3-=1962	3				0.73		0.73				0.73		0.73
	FCO D3=1964	3	2.64	2.46			0.28	5.38	0.86		1.43			
	FCO D3-=1964	3	0.15					0.15	0.06		0.11			
	FCO D3-=1966	3	3.83	0.93				4.75	1.21		2.02			
	FCO D3H2-=1967	3	9.63	3.27			2.33	15.23	3.02		5.02		1.32	1.32
	FCO D3H2-=1968	3	3.27	0.28				3.55	1.04		1.73	3.55		3.55
	FCO D3PC2H3-=1965//H1-1965	3	0.51	0.31				0.82	0.17		0.29	0.82		0.82
60	FCO D3-=1951	3	0.71	0.53				1.24	0.19		0.31			
	FCO D3-=1953	3	0.46	0.12				0.59	0.16		0.26			
	FCO D3-=1955	3	5.68	1.84				7.52	1.82		3.04			
	FCO D3-=1960	3	1.21	0.16				1.38	0.41		0.68			
	FCO D3GF3-=1951	3	6.48	2.14				8.62	2.03		3.34			
	FCO D3H3-=1960//H1-1960	3				0.49		0.49				0.49		0.49
80	FCO D3=1940	3	0.47	0.08			0.36	0.91	0.13		0.22			
	FCO D3-=1940	3	10.35	1.64			3.84	15.82	3.33		5.54		4.26	4.26
	FCO D3H2-=1940	3					0.00	0.00						
90	FCO D4-=1930	4	4.04	0.65				4.69	1.32		2.19		0.86	0.86

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
130	FCO D3-=1890	3	4.97	0.02				4.98	1.58		2.63		4.98	4.98
	FCO D4=1890	4	4.82	0.05			1.20	6.06	1.68		2.89		3.82	3.82
	FCO D4-=1890	4	0.38	0.10				0.48	0.10		0.18		0.48	0.48
160	FCO D4=1860	4	0.14				0.09	0.23	0.07		0.11		0.16	0.16
	FCO D4-=1860	4	11.82	0.63			3.81	16.26	4.43		7.17		16.09	16.09
190	FCO D4=1830	4				0.35		0.35				0.35		0.35
210	FCO D4=1810//D2=1920	4				0.07		0.07				0.07		0.07
240	FCO D4-=1780	4	3.90	0.09				3.99	1.21		2.02		3.99	3.99
320	FCO D5-=1700	5	0.89	0.13				1.02	0.28		0.47	1.02		1.02
	Conifers Total		*111.91*	*29.61*		*1.65*	*15.04*	*158.21*	*36.97*		*61.36*	*15.57*	*35.95*	*51.52*
Hardwoods														
90	FHD RA3=1930	3	0.06	0.15				0.21	0.00		0.00			
240	FHD D51780//MY4RA3=1890	5	1.34	0.43				1.77	0.43		0.71			
	Hardwoods Total		*1.40*	*0.58*				*1.98*	*0.43*		*0.72*			
Mixed Conifer and Hardwood														
50	FMX D3RA3=1962	3	1.45	0.85				2.30	0.45		0.76			
	FMX HD3D3=1961	3	0.17					0.17	0.04		0.12			
60	FMX D3RA3-=1955	3	0.02	0.03				0.05						
	FMX D3RA3-=1960	3	0.75	0.41				1.16	0.23		0.39			
	FMX RA3D3=1957	3	1.84	0.56				2.40	0.46		0.79			
130	FMX D4-1890//RA3=1920	4	0.68	0.62				1.30	0.19		0.31		1.30	1.30
	Mixed Conifer and Hardwood Total		*4.91*	*2.46*				*7.37*	*1.37*		*2.36*		*1.30*	*1.30*
Non-Forest / Other														
N/A	NA	N/A	0.42	0.25				0.67	0.16		0.27			
Roads / Mainte-nance	NH	N/A				2.36		2.36				2.36		2.36
Rock Outcrop	NR	N/A	0.41	1.03			0.13	1.57	0.08		0.13			
Utility Corridor	NU	N/A	0.90	0.86				1.76	0.25		0.56			
Not in Model	(blank)	N/A	0.04	0.03			0.00	0.07	0.01		0.02	0.06	0.00	0.06

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Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
	Non-Forest / Other Total		*1.77*	*2.17*		*2.36*	*0.13*	*6.43*	*0.50*		*0.99*	*2.42*	*0.00*	*2.42*
	Coos Bay District Total (Note: 0.66 acres associated with roads not included in table)		***119.99***	***34.82***		***4.01***	***15.17***	***173.99***	***39.27***		***65.43***	***17.98***	***37.25***	***55.23***
Roseburg BLM District														
Conifers														
10	FCO D1-=2006	1	0.91	0.31				1.22	0.30		0.48			
	FCO D1P1-=2006	1	1.42	0.95			0.70	3.07	0.45		0.75			
20	FCO D1=1991	1	0.11	0.13			0.28	0.52	0.05		0.09			
	FCO D1-=1991	1	5.17	0.97			3.40	9.54	1.75		2.92	0.00	0.24	0.24
	FCO D1-=1992	1	2.37	0.16			0.14	2.67	0.92		1.51	2.67		2.67
	FCO D1IC1P1-=1996	1	1.76	2.33			0.17	4.25	0.54		0.91			
	FCO D1P1-=1994	1	2.97	3.33			0.61	6.91	0.96		1.63			
	FCO D1P1IC1=1995	1	1.73	0.49			2.46	4.68	0.55		0.91			
30	FCO D1-=1982	1	0.41	0.03			1.49	1.93	0.21		0.34			
	FCO D1-=1983	1	1.32	0.12				1.44	0.61		0.99	1.44		1.44
	FCO D1-=1984	1	2.38	1.49			1.67	5.54	0.70		1.19	1.85	0.00	1.85
	FCO D1-=1986	1	2.75	0.61				3.36	0.83		1.39	3.36		3.36
40	FCO D2-=1975	2	0.32				1.85	2.17	0.11		0.24	2.17		2.17
	FCO D2-=1976	2	6.63	0.81				7.44	1.80	0.02	3.08			
	FCO D2-=1978	2	0.17					0.17			0.00	0.17		0.17
	FCO D2=1980	2	0.72	0.02			2.88	3.62	0.35		0.60			
	FCO D3-=1972	3	3.26	1.32			0.23	4.81	1.03	0.04	1.71			
	FCO D3-=1975//D2MA1-1980	3	4.33	1.38			6.16	11.87	1.27		2.14			
50	FCO D2-=1965	2				1.07		1.07				1.07		1.07
	FCO D3-=1963/D2=1975/D11975	3	1.22					1.22	0.38		0.64	1.22		1.22
	FCO D3IC3=1964	3		1.03				1.03				1.03		1.03
60	FCO D2-=1960	2				0.02		0.02				0.02		0.02
	FCO D3-=1960	3	0.83	0.09			0.47	1.38	0.19		0.32			
	FCO D3GF3=1960	3	2.38	0.61				2.99	1.05		1.67			
	FCO D3P3-=1960	3	4.61	3.33			1.52	9.45	1.42		2.34	9.45		9.45
70	FCO D2=1950	2	0.66	0.68				1.35	0.01		0.09			
	FCO D3=1950	3	0.12	1.31			0.01	1.44	0.05		0.09			
	FCO D4=1945	4				1.74		1.74				1.74		1.74

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
110	FCO D3-=1910	3	0.25				0.83	1.07	0.06		0.09	1.07		1.07
120	FCO D3=1900	3	1.11	0.24			2.34	3.69	0.34		0.57			
	FCO D3-=1900	3	1.53	0.32			2.30	4.15	0.41		0.63			
	FCO D3-1900//D1-1987	3	2.13	0.10			5.12	7.35	0.69		1.14			
	FCO D3D4=1900	3	3.80	0.98			5.03	9.81	1.19		1.98			
	FCO D3D8=1900	3	6.26	2.54			0.42	9.23	2.03		3.39	9.23		9.23
	FCO D3IC3=1900	3	1.14	0.01			1.47	2.63	0.51		0.85			
	FCO D3P2=1900	3	0.44	0.06			1.72	2.22	0.16		0.35			
130	FCO D3D4-=1890	3	3.92	1.35			7.50	12.78	1.23		2.05			
140	FCO D3=1872	3	1.10	0.55			1.28	2.92	0.15		0.33			
	FCO D3D4-=1880	3	1.85	0.38			2.47	4.70	0.58		0.95		0.00	0.00
	FCO D3IC3-1880//D1P1IC1SP1=2001	3	2.64	1.37			3.21	7.22	0.42		0.82			
	FCO D3IC8-=1880	3	0.20					0.20	0.09		0.16			
150	FCO D3=1870	3	1.09	0.25			2.04	3.38	0.32		0.53			
	FCO D3IC4-=1870	3	0.60				0.80	1.40	0.02		0.05	1.40		1.40
	FCO D4-1870//D3=1870	4	1.74	0.53			1.55	3.83	0.28		0.46	0.00	3.37	3.37
	FCO D4-1870//D3=1890	4	9.31	2.89			4.15	16.35	2.94		4.90		16.35	16.35
	FCO GF3D3=1870//D2GF2=1950	3	2.93					2.93	0.93		1.54		2.90	2.90
160	FCO D4-1860//D3IC3-1900	4		0.00			0.95	0.95						
	FCO D4D3-1860//D1SP1IC1-=2002	4	0.15	0.42			0.00	0.57	0.02		0.09			
180	FCO D4D3-=1840	4	0.88	3.12			2.68	6.69	0.40	0.06	0.65			
190	FCO D4=1830//D3-1870	4	0.01	0.05			0.18	0.23			0.00			
	FCO D4-1830//D3=1870	4	0.53	0.44			0.72	1.69	0.33		0.47		0.23	0.23
	FCO D4IC8-1830//D1SP1P1IC1-2001	4	3.26	6.59			0.67	10.52	0.97		1.58			
200	FCO D4=1820	4	0.56	0.13			0.21	0.90	0.26		0.43			
240	FCO D4=1780	4	9.02	0.77			2.04	11.82	3.00		4.97	6.84		6.84
	FCO D4-=1780	4	3.99	1.35				5.34	1.67		2.71	5.34		5.34
	FCO D4=1780//D2=1940	4	2.95	0.25				3.20	0.97		1.61	3.20		3.20
	FCO D4=1780//D3=1870	4					0.01	0.01						
	FCO D4=1780//H3D8-1890	4				0.15		0.15				0.15		0.15

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
	FCO D4D3-=1780	4	0.20	0.11			0.67	0.99	0.07		0.15	0.99		0.99
	FCO D4IC3-=1780//D3=1900	4	2.86	0.36				3.22	0.29		0.56	3.22		3.22
	FCO D4IC4=1780//D3MA2-1880	4	5.54	1.80			11.31	18.65	1.63		2.73		7.86	7.86
	FCO D4IC4-1780//D3=1900	4	4.55	0.99			7.60	13.14	1.38		2.26	3.07		3.07
	FCO D4IC4-1780//D3=1920	4	1.55	0.33			3.96	5.85	0.49		0.84		5.78	5.78
	FCO D4MA8-1780//D1=1950	4	3.44	3.23				6.67	1.19		1.90			
	FCO D4P8=1780	4		0.55				0.55						
	FCO D4WF8-1780	4	1.70	0.09			4.39	6.19	0.95		1.46			
	Conifers Total		*131.80*	*53.67*		*2.98*	*101.66*	*290.10*	*41.50*	*0.11*	*69.24*	60.72	36.74	97.45
Mixed Conifer and Hardwood														
10	FMX P1D1-=2005	1	1.59	0.78			3.38	5.75	0.49		0.81			
50	FMX MA2D3-=1969	2	2.46	0.68			1.78	4.92	0.79		1.31			
140	FMX D3MA2=1875	3	4.30	0.84			2.09	7.23	1.44		2.40			
200	FMX D4IC4=1820//D3MA2=1910	4	6.20	0.13			12.87	19.21	1.95		3.24	19.21		19.21
240	FMX D4-1780//D3IC3MA2=1900	4					0.21	0.21						
	Mixed Conifer and Hardwood Total		*14.55*	*2.42*			*20.34*	*37.32*	*4.66*		*7.77*	*19.21*		*19.21*
Non-Forest / Other														
Natural Grass / 120	NG D3IC2=1900	3	1.89	0.95			0.01	2.85	0.55		0.91			
Rock Outcrop	NR	N/A	1.20	0.48			0.13	1.81	0.44		0.67			
Utility Corridor	NU	N/A	0.52	0.34			1.17	2.03	0.09		0.15			
Not in Model	(blank)	N/A	0.77	0.15			0.15	1.07	0.29		0.47	0.10		0.10
	Non-Forest / Other Total		*4.37*	*1.92*			*1.46*	*7.76*	*1.37*		*2.20*	*0.10*		*0.10*
	Roseburg District Total (Note: 0.95 acres associated with roads not included in table; 0.09 acre in operational.)		***150.73***	***58.01***		***2.98***	***123.46***	***335.18***	***47.53***	***0.11***	***79.20***	***80.03***	***36.74***	***116.76***
Medford BLM District														
Conifers														

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
20	FCO P1MA1D1PY1CO1-=1991	1				0.03		0.03						
30	FCO D1CO1CH1WF1P1=1986	1	0.13	1.70			0.02	1.85	0.01		0.02			
	FCO D1IC1NH1P1WF1-=1981	1	1.23	0.32				1.55	0.45		0.75			
	FCO D1P1-=1987	1	0.84				0.61	1.45	0.44		0.68			
	FCO D1SP1IC1P1WF1-=1988	1		0.00				0.00						
	FCO P1D1CO1D2P2-=1989	1		0.03				0.03						
	FCO P1D1IC1WF1NH1-=1989	1	3.14	1.92				5.06	0.99		1.65			
	FCO P1D1MA2=1988	1	5.79	2.12			0.42	8.33	1.80		2.99			
	FCO P1D1WF1LP1IC1-=1990	1	1.95	0.51				2.46	0.61		1.02			
	FCO P1NH1D1WF1IC1-=1988	1	0.21	0.28				0.49	0.10		0.16			
	FCO P1PD1IC1WF1D1-=1988	1	1.16					1.16	0.37		0.61			
	FCO P1WF1NH1D1IC1-=1988	1	2.86	0.77				3.63	0.90		1.50			
60	FCO D3WF3MA3IC3=1955//D2WF2MA2IC2-=1980	3	1.69	0.84			0.13	2.66	0.53		0.89			
70	FCO D3D2WF2IC2-1950//P1MA1D1WF1IC1-=1992	3	1.14	0.23				1.36	0.39		0.66			
80	FCO D4D3D5WF3WF4-=1937//WF2D1-1989	4	2.22	0.33			0.86	3.41	0.70		1.16			
100	FCO D3WF3-1920//D3D2WF1MA2WF2-=1960	3	3.16	0.30			0.80	4.26	0.83		1.42			
	FCO D3WF4D4IC4P3-1913	3	1.19	0.23			0.02	1.43	0.42		0.69			
130	FCO D3D4D2P2IC4=1888//OM1WF1IC1D1-	3	1.59	0.32			3.02	4.94	0.82		1.32			
	FCO P3D3-1890	3	1.04	0.90			0.00	1.94	0.30	0.01	0.54			
	FCO P4D4-1890//D2P2-=1920	4	0.93	0.36				1.30	0.29		0.49			
140	FCO D3-=1880	3	0.00	0.09				0.09						
	FCO D3P3-1880//D2HD3-1930	3	0.51	0.21				0.72	0.16		0.27			
160	FCO D4P4-1860//D3P3HD3SP3D2=1910	4	2.22	1.31			0.00	3.54	0.66		1.08			
170	FCO D3=1850	3	0.05	0.04			0.05	0.14	0.03		0.04			
	FCO D3P4-1850//D1-1900	3	4.69	1.45			1.73	7.87	1.58		2.61			

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
	FCO D4=1850	4	2.40	0.94			1.57	4.91	0.98		1.56			
	FCO D4P4-1850//D2-=1910	4	2.53	0.72			0.94	4.19	0.65		1.12			
	FCO D4P4-1850//D2P2-=1940	4	1.00	0.01			0.63	1.64	0.29		0.48			
	FCO P3D3=1850	3	1.77	0.95			0.15	2.87	0.45		0.76			
	FCO P3D3=1850//IC2=1940	3	1.57	0.33			0.67	2.56	0.39		0.68			
	FCO P3HD3D3-1850	3	1.78	0.63			0.58	3.00	0.55		0.92			
	FCO P4-1850//D2IC2-=1940	4	4.43	0.55			2.27	7.25	1.39		2.31			
	FCO D3D4P4=1800//D2D1-1920	3	0.39	0.02			0.24	0.65	0.12		0.19			
	FCO D4IC4=1800//D2IC2=1940	4	0.91	0.80			0.17	1.89	0.40		0.64			
220	FCO D4P4=1800//D2HD2=1940	4	2.16	0.96			0.91	4.04	0.68		1.13			
	FCO D4P4-1800//D2-=1940	4	0.24	0.24				0.48	0.07		0.17			
	FCO P4D3-1800//D1-1920	4	3.80	1.00			1.38	6.19	1.20		2.01			
	FCO P4D3-1800//D2IC1D1=1900	4	1.06	0.58			0.15	1.79	0.28		0.46			
270	FCO P4D4=1750//D2IC2=1940	4	0.81	0.14				0.96	0.34		0.57			
320	FCO D4=1700//D3D2-1880	4	3.08	0.80			1.07	4.96	0.99		1.65			
	Conifers Total		*65.71*	*22.92*		*0.03*	*18.39*	*107.05*	*21.13*	*0.01*	*35.22*			
Hardwoods														
90	FHD WO2MA1CO1P2-1930	2	2.01					2.01	0.62		1.04			
100	FHD WO2-1920	2	2.99	0.70			0.69	4.38	0.94		1.57			
120	FHD WO2-1900	2	10.46	3.98			0.97	15.41	3.43		5.63			
	FHD WO2CO2=1900	2	2.45	0.02				2.47	0.79		1.31			
170	FHD WO2=1850	2	5.34	1.64			2.37	9.35	1.58		2.63			
220	FHD WO2-1800	2	0.37	0.02				0.40	0.15		0.26			
	Hardwoods Total		*23.62*	*6.37*			*4.03*	*34.02*	*7.51*		*12.43*			
Mixed Conifer and Hardwoods														
40	FMX NH1D1D2WF1P1-=1977	1	1.91	0.71				2.61	0.62		1.03			
60	FMX D1MA1-=1958	1	1.29	0.15			0.60	2.04	0.54		0.86			
100	FMX D3HD3=1915	3	2.56	0.42			3.30	6.28	1.00		1.60			
	FMX WO2P21920	2	4.85	1.83				6.69	1.52		2.54			
	FMX D4P4-1900//D2HD2=1940	4	2.48	1.31			0.97	4.75	0.79		1.31			
120	FMX WO2D1P2-1900	2	1.28	1.03				2.31	0.39		0.66			
	FMX WO2D2-1900	2	1.80	0.89			0.51	3.21	0.45		0.77			

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	**FOI Code b/**	**DBH Class c/**	**Construction Right-of-Way**	**Temporary Extra Work Space**	**Hydrostatic or TARs/PARs**	**Rock Source/Disposal**	**Uncleared Storage Area**	**Total d/**	**30-foot Maintenance Corridor**	**Aboveground Facilities**	**50-foot Permanent Easement**	**Mapped LSR Units**	**Unmapped LSRs**	**Total LSRs**
	FMX WO2P3CO2D2-1895	2	10.89	6.20			2.69	19.78	3.14		5.28			
130	FMX P3HD3D3-1890	3	3.08	1.67				4.75	0.96		1.60			
140	FMX P3D3-1880//HD2-1940	3	0.33	0.53				0.86	0.13		0.22			
	FMX P3WO2-1880//D2-1940	3	2.06	1.08			0.02	3.16	0.67		1.12			
	FMX WO2P2-1880	2	2.07	0.26				2.33	0.62		1.05			
	FMX WO2P3-1880	2	7.91	1.68	0.13			9.72	2.42		4.04			
150	FMX WO3P3-1870//WO2IC1P1-1910	3	3.03	0.56			0.42	4.01	0.96		1.61			
	FMX WO3P3-1870//WO2P1IC1-1920	3	3.34	1.54				4.87	1.07		1.78			
170	FMX D3-1850//D2MA2-=1910	3	1.22	0.52				1.73	0.40		0.66			
	FMX D3P3-1850//D2HD2-=1940	3	1.98	0.83			0.72	3.53	0.22		0.50			
	FMX HD3D4=1850	3	0.03	0.02			0.03	0.08	0.01		0.02			
	Mixed Conifer and Hardwood Total		*52.11*	*21.22*	*0.13*		*9.26*	*82.72*	*15.92*		*26.66*			
Non-forest / Other														
Natural Grass	NG	N/A	10.75	5.42			0.45	16.62	3.30		5.50			
Roads / Maintenance	NH	N/A	2.60	4.83			0.50	7.93	0.84	0.05	1.37			
Rock Outcrop	NR	N/A	18.44	3.88			1.96	24.28	5.94		9.90			
Utility Corridor	NU	N/A	1.36	0.15				1.51	0.44		0.73			
Not in Model	(blank)	N/A	0.02	0.02			0.00	0.04	0.01		0.01			
	Non-forest / Other Total		*33.17*	*14.29*			*2.91*	*50.38*	*10.53*	*0.05*	*17.51*			
	Medford District Total (Note: 3.72 acres associated with roads not included in table; 0.15 acre in operational.)		**174.61**	**64.80**	**0.13**	**0.03**	**34.59**	**274.17**	**55.10**	**0.06**	**91.82**			
Lakeview BLM District														
Conifers														
100	FCO J3-1918//NB1-=1952	3	2.96	0.58				3.54	0.94		1.56			

TABLE O-6

Forest Operations Inventory Impacted by the PCGP Project

Forest Operations Inventory (FOI)			PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) Within Associated LSR		
Age Class a/	FOI Code b/	DBH Class c/	Construction Right-of-Way	Temporary Extra Work Space	Hydrostatic or TARs/PARs	Rock Source/Disposal	Uncleared Storage Area	Total d/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	Mapped LSR Units	Unmapped LSRs	Total LSRs
130	FCO WF3D3-=1916/WF3D3=1934/WF1-1993	3	9.43	2.26				11.69	2.93		4.88			
	FCO P4-=1883/P3-1948/WF1-1991	4	1.63	0.27				1.90	0.54		0.90			
	FCO WF3=1886/D2WF2-1956/WF1P1D2-1995	3	0.80	0.43				1.23	0.30		0.51			
	Conifers Total		*14.83*	*3.54*				*18.37*	*4.71*		*7.84*			
	Lakeview District Total		**14.83**	**3.54**				**18.37**	**4.71**		**7.84**			

a/ Age Class: Ten-year age class that is managed by BLM and covers a 10-year range. For example, Age 10 includes stands between ages 5-15, Age 20 includes stands between ages 16-25.
b/ Dominant Overstory codes: D = Douglas-fir, P = Ponderosa Pine, H = Western Hemlock, GF = Grand Fir, WF = White Fir, IC = Incense Cedar, RC = Red Cedar, MA = Pacific Madrone, WO = White Oak, CO = California Black Oak, CH = Cherry, NH = Non-commercial hardwood, SP = Sugar Pine, PC = Port-Orford Cedar, J = Juniper, RA = Red Alder, LP = Lodgepole Pine
c/ DBH Class: 1 = 0-5inch DBH (seedlings and saplings); 2 = 5-11inch DBH (pole timber); 3 = 11-21inch DBH (small sawtimber); 4 = 21+inch DBH (large sawtimber); 5 = 21+ DBH (large old-growth Douglas-fir); 8 = No data.
d/ Total excludes "Associated LSR," which is already included in the "PCGP Construction Impacts" acres.

Note: BLM FOI Coverage, June 2015

This table is an updated version of Table 3C-1 from Pacific Connector's Resource Report 3.

TABLE O-7

PAGs on the Umpqua, Rogue River-Siskiyou, and Fremont-Winema National Forests

		PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) within Associated LSR		
USDA-FS Forest	Plant Association Groups (PAGs) a/	Construction Right-of-Way	Temporary Extra Work Space	Permanent Access Road (PAR)	Rock Source/Disposal	Uncleared Storage Area	Total b/	30-foot Maintenance Corridor	Aboveground Facilities	50-foot Permanent Easement	PCGP Construction	30-foot Maintenance Corridor	50-foot Permanent Easement'
Umpqua NF	Douglas fir/Oregon grape-salal-oceanspray-mod.elev.	28.83	4.71			14.55	48.09	8.73		14.51	31.90	8.35	13.85
	Douglas fir/poison oak-warm, often low elevation	11.64	10.80			4.30	26.73	3.22		5.39	0.67	0.21	0.36
	Douglas fir-Canyon live oak-cool, dry - SW Oregon	1.83	0.28			0.81	2.91	0.54		0.95	2.11	0.54	0.95
	Douglas fir-chinquapin-salal-SW Oregon	11.22	1.62				12.83	3.71		6.07	12.83	3.71	6.07
	Grand fir/oceanspray-poison oak-westside low elevation	0.04				0.61	0.65				0.04		
	Western hemlock/Oregon grape-salal	0.87	0.17			0.19	1.23	0.18		0.29	1.04	0.18	0.29
	Western hemlock/rhododendron-Cascades	0.61	0.07			0.01	0.69	0.18		0.30	0.68	0.18	0.30
	Western hemlock-warm, transitional to Douglas fir zone	0.10				0.37	0.47			0.01	0.10		0.01
	White fir/Oregon grape	25.45	13.48			5.09	44.02	8.53		14.26	2.67	0.63	1.09
	White fir/rhododendron	3.32	0.49				3.81	1.16		1.96	3.81	1.16	1.96
	White fir-Douglas fir-warm, dry	5.72	1.29			0.11	7.11	2.01		3.37	4.97	1.50	2.52
	White fir-western hemlock/Oregon grape	9.04	2.85		2.35	4.85	19.09	2.94		4.92	10.08	2.01	3.36
	Not currently in model c/	25.41	4.86	0.58	2.00	11.24	44.09	8.07		13.45	6.18	1.43	2.38
	Umpqua NF Total	***124.07***	***40.61***	***0.58***	***4.35***	***42.12***	***211.74***	***39.28***		***65.47***	***77.07***	***19.91***	***33.14***
Rogue River NF	Douglas fir/poison oak-warm, often low elevation	26.02	5.59			12.57	44.18	7.88		13.12	31.61	7.88	13.12
	Mountain hemlock/Alaska huckleberry	0.65				0.21	0.86	0.21		0.35	0.65	0.21	0.35
	Mountain hemlock/grouse whortleberry-big huckleberry-cool,dry	2.32	0.51			1.26	4.10	0.76		1.28	2.83	0.76	1.28
	Mountain hemlock/rhododendron-warm	3.41	0.47			1.85	5.73	1.14		1.88	3.88	1.14	1.88
	Shasta red fir-Cascade Province, SW Oregon	20.81	3.93			8.96	33.70	6.43		10.74	24.74	6.43	10.74
	White fir/Oregon grape	65.34	17.07		4.52	28.33	115.26	20.81		34.70	82.40	20.81	34.70
	White fir-Douglas fir-warm, dry	2.09	4.42			1.54	8.06	0.81		1.39	6.52	0.81	1.39
	White fir-Shasta red fir	36.69	15.13		0.39	15.13	67.33	11.85		19.68	51.82	11.85	19.68
	Not currently in model c/		3.47	0.91			4.38				3.47		
	Rogue River NF Total	***157.33***	***50.60***	***0.91***	***4.91***	***69.85***	***283.60***	***49.89***		***83.15***	***207.93***	***49.89***	***83.15***

TABLE O-7

PAGs on the Umpqua, Rogue River-Siskiyou, and Fremont-Winema National Forests

		PCGP Construction Impacts (Acres)						PCGP Operation Impacts (acres)			Area Impacted (acres) within Associated LSR		
USDA-FS Forest	**Plant Association Groups (PAGs) a/**	**Construction Right-of-Way**	**Temporary Extra Work Space**	**Permanent Access Road (PAR)**	**Rock Source/Disposal**	**Uncleared Storage Area**	**Total b/**	**30-foot Maintenance Corridor**	**Aboveground Facilities**	**50-foot Permanent Easement**	**PCGP Construction**	**30-foot Maintenance Corridor**	**50-foot Permanent Easement'**
Fremont-Winema NF	grassland/steppe	0.44				0.14	0.58	0.14		0.23			
	Shasta red fir-Cascade Province, SW Oregon		0.09				0.09				0.09		
	White fir/Oregon grape		0.21			0.13	0.33				0.19		
	White fir-Shasta red fir	1.79	0.52			0.76	3.06	0.57		0.95	0.20		
	Not currently in model c/	66.38	11.23			10.53	88.13	21.30		35.50			
	Fremont-Winema NF Total	***68.60***	***12.04***			***11.55***	***92.20***	***22.01***		***36.69***	***0.49***		
	Overall Total	**350.00**	**103.26**	**1.49**	**9.26**	**123.53**	**587.54**	**111.18**		**185.30**	**285.49**	**69.79**	**116.28**

a/ Description of PAGs can be found within Section 3.3.1.2 in Resource Report 3.
b/ Total excludes "Associated LSR," which is already included in the "PCGP Construction Impacts."
c/ Acreages were not defined in the GIS PAG data downloaded from ECOSHARE: Interagency Clearinghouse of Ecological Information (http://www.reo.gov/ecoshare/).

Note: January 30, 2011 SWOPAG

This table is an updated version of Table 3C-2 from Pacific Connector's Resource Report 3.