R & E Grant Application 13-15 Biennium

Project #: 13-018

Bilger Creek Restoration

Project Information

R&E Project Request:	$21,732.00
Match Funding:	$62,344.00
Total Project:	$84,076.00
Start Date:	7/1/2013
End Date:	6/15/2015
Project Email:	Eric@umpquarivers.org
Project Biennium:	13-15 Biennium
Organization:	Partnership for the Umpqua Rivers (Tax ID #: 93-1298800)

Fiscal Officer

Name:	Debbie Thornton
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Applicant Information

Name:	Matthew Ruwaldt
Address:	1758 NE Airport Rd Roseburg, OR 97470
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Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Project Summary

This project is NOT part of ODFW's 25 Year Angling Plan.

Activity Type: Habitat

Summary: Bilger Creek, in the South Umpqua Watershed, is home to coho and Chinook salmon, steelhead, cutthroat trout, and Pacific lamprey. However, fish survival is limited by: 1) lack of quality in-stream habitat such as that provided by large wood; 2) a deficit of trees in the riparian zone to provide shade and bank stability; and 3) poor water quality. PUR and ODFW will work with private landowners to clear blackberry, plant native trees, and place 80 logs and 400 boulders at 19 sites in Bilger Creek. We expect this

restoration work to increase anadromous fish production in the Myrtle Creek Watershed.

Objectives:

The objective of this project is to increase anadromous fish production in Bilger Creek through habitat restoration that will address limiting factors to fish survival. The limiting factors to be addressed are: lack of summer rearing and winter refuge habitat, lack of instream and overhead cover, excessive flow rates, poor water quality, and high summer water temperatures. This will be accomplished through the placement of 80 logs and 400 boulders throughout 19 sites and 1 mile in Bilger Creek. We will remove blackberry by hand and machine and plant willows and dogwood in the riparian area.

Additional phases of work are currently planned for further restoration of Bilger Creek. PUR plans to work with Douglas County in 2013 and 2014 to replace two sets of culverts that limit, but do not entirely prohibit, upstream fish passage; PUR plans to work with other landowners in the watershed to continue instream enhancement work; and PUR plans to develop projects to exclude livestock from the creek and enhance degraded riparian areas. These actions will address the limiting factors to fish in this creek.

Fishery Benefits:

Placing large wood and boulders in Bilger Creek is expected to improve salmon habitat by increasing the amount of deep, cool pools, and off-channel habitat needed by fish to survive in the stream during high winter flows and high summer temperatures. By increasing winter and summer survival of juvenile fish, this project will increase the number of outgoing salmonid smolts from the Myrtle Creek Watershed. A second benefit of the project would be to increase the water storage capacity of what is now a bedrock dominated, incised stream. Building up gravel behind each of the structures would increase the height of the local water table. Summer low flows stress juvenile fish in Myrtle Creek and this increased water supply during the summer months could help to increase smolt fitness and survival. This will result in more adult fish returning to the Umpqua Basin and improve recreational and commercial fishing opportunities.

Watershed Benefits:

This project will improve the overall health of the watershed and address habitat and water quality limitations to fish production. Strategically placing logs and boulders in the stream and replacing riparian blackberry with willows and dogwood will result in the following benefits to the watershed.

Improve stream complexity and riparian vegetation structure:
- Aggradation of substrates resulting in quality spawning gravels for salmonids;
- Creation and deepening of pools;
- Dissipation of energy to prevent bank erosion;
- Creation of diversity in water depth, flow velocity, substrate and structure;
- Retention of coarse and organic particulate matter;
- Preventing incision;

- Providing habitat for amphibians, insects, small mammals and birds;
- Connecting the stream with the floodplain; and
- Creating side channels.

This project is also expected to improve water quality and quantity by reducing stream temperatures, sediment inputs, and raising the water table.

Current Situation:

The project area is located within the Myrtle Creek 5th field watershed (76,247 acres) in southern Douglas County. The major land uses in the area are timber management and, to a lesser extent, agriculture. The Roseburg District BLM manages 41% of the watershed with the remaining 59% split between private ownership and the City of Myrtle Creek. The watershed is a high priority within the Umpqua Basin for instream and riparian improvement because of the extremely high intrinsic potential (HIP) for coho salmon production identified by ODFW and BLM. Other fish species present in the watershed include winter steelhead, fall Chinook salmon, resident and sea-run Oregon Coast cutthroat trout, Pacific lamprey, chub, dace, suckers and shiners.

The Myrtle Creek Watershed has the second highest amount of Oregon Coast (OC) coho high intrinsic potential (HIP) density in the Roseburg District BLM area and has been identified as a priority watershed for stream and riparian restoration by BLM and ODFW biologists. Loosely defined, HIP habitat is based on the premise that “If you build it, they will come.” In other words, within this HIP area, where fish habitat is present, and fish passage possible, it supports coho. The BLM, PUR and ODFW have worked to complete a variety of instream restoration, riparian improvement and culvert replacement work since the late 1990’s. The focus on this watershed and the ensuing project work is ongoing with additional projects in the planning and funding and implementation phases. According to the BLM, only 12 miles of the HIP habitat for OC coho lie on federally managed lands, most of which lies in the upper portions of the watershed, where instream project work is currently planned for 2014-2015 implementation. The other 82 miles of HIP habitat lie on private lands in the middle and lower reaches, where most of the limiting factors to fish are seen and instream and riparian habitat remain degraded.

Bilger Creek is a tributary of North Myrtle Creek and the watershed is 5,588 acres. Bilger Creek has more than four miles of HIP coho habitat, most of which is in poor condition. See HIP Map included with additional materials. According to the Myrtle Creek Assessment and Action Plan (2003) and the Umpqua Basin Action Plan (2007), a variety of limiting factors to fish and wildlife populations have been identified in Bilger Creek. Due to many historic and some current land use practices, much of the instream and riparian habitat is degraded. Riparian areas lack diverse species composition and have narrow (less than two potential tree lengths) buffer widths. Stream connectivity issues include culverts that block or hinder fish passage to habitat upstream. Streams are incised and therefore have a poor connection to floodplains and limit side channel habitat. Stream morphology issues such as the lack of large wood, poor riffle and pool ratios, and poor pool depths limit survival of fish during periods of high winter flows and high summer water temperatures. Water quantity is an issue because water rights may exceed water availability, especially in the

late summer. Surface water temperatures exceed the 303d standards throughout much of the watershed. High levels of bacteria have been found at the mouth of Bilger Creek. Turbidity is often very high during and after storm events. The data from year to year has confirmed that these issues are ongoing in Bilger Creek and not a onetime occurrence. High levels of E. coli, turbidity and stream temperatures are dangerous for fry and smolt survival.

In a partnership with Oregon DEQ, OWEB and Roseburg BLM, PUR has collected water quality data from many of the Myrtle Creek tributary streams for the last 7.5 years. Temperature, dissolved oxygen, conductivity, turbidity, pH, nitrogen, and E. coli data were collected from monthly grab samples at 18 sites throughout the watershed, and 24-hour summer temperature monitoring was conducted at an additional 10 sites. PUR's data has consistently identified specific sites of concern for most of the water quality parameters that we monitor. One of these sites is Bilger Creek.

Alternatives:

This project will use a large excavator to place cut logs and boulders into the creek. Alternative designs that can create similar quality fish habitat include the use of a line pulling machine to line logs into the creek ($350-$1,250/log or tree), or to use a helicopter to place the logs ($350-$450/log) into the creek. Because the road access is so good throughout the project area, the excavator is the lowest-cost option for this project ($55/log plus mobilization, see budget for log and boulder placement costs.

Designer:

Terry Burleson, PUR Planner/Hydrologist
Matt Ruwaldt, PUR Estuary Biologist
Dan Jenkins, ODFW Western Oregon Habitat Biologist
Eric Himmelreich, ODFW Western Oregon Habitat Biologist

Methods:

Project Design:
- Structures have been designed to emulate successfully functioning sites in South Fork Deer Creek, a very similar project area located six miles to the north.

- ODFW biologists, Dan Jenkins and Eric Himmelreich, have determined the locations, designs, and material needs for each of the new structures based on guidelines found in the Guide to Placement of Wood, Boulders, and Gravel for Habitat Restoration (Jan. 2010).

- Placement techniques will be “slide emulation” and “adding boulders to a wood project” due to the dominance of bedrock and unsorted large sized bedload.

- Logs will be 40’ long with an average diameter of 24 inches.

- Boulders will be .75 to 1.0 cy.

- Structures will consist of a boulder oval, with gaps between each rock (2 sites), boulder ovals or clusters overlaid by logs (7 sites), log-only structures (9 sites) and a boulder cluster field (1 site). All will be placed with a large excavator.

- GPS points have been recorded for every structure placement site.

- Log and boulder placement sites have been identified and will be flagged along the road and field for staging.

- Areas under the riparian canopy that are infested with blackberry will be marked for clearing.

- Areas where substrate is expected to build up above log and boulder structures will be targeted for willow and red osier dogwood planting.

Project Implementation:
- Logs (80) and boulders (400) will be purchased and staged in early July, once funds are available.

- A crew will come through in late July to clear the blackberry and pile the canes, prior to excavator project work. The landowner will use his brushing machine to clear blackberry that is encroaching on the hay fields.

- Approximately 1 mile of stream will be enhanced with excavator-placed logs (80) and boulders (400). PUR and ODFW staff will work together to coordinate the staging, traffic control and placement of logs and boulders.

- Willow and dogwood cuttings will be planted around structure sites and where erosion is present during the winter after project placement.

- Best Management Practices will be used for sediment abatement and will consist of weed-free straw bales placed across the creek during implementation.

- Disturbed areas will be seeded and mulched to prevent the spread of blackberry and other invasive species.

- A crew will come through in mid winter to plant willow and red osier dogwood stakes throughout the project area.

Post-Project Monitoring:
ODFW and PUR will work together to monitor photo points and other sites to determine the overall effectiveness of the project. Effectiveness of the structure placements will be determined by a combination of structure integrity after high water events, the amount of winter refuge created during high water events, and the survival of the associated plantings.

Project Coordination and Planning:
- Coordinate ODFW and PUR biologists with contractors.

- Keep close contact with the private landowners.

- Purchase materials, transport purchased and donated materials and stage and prepare materials.

- Prepare schedule of items for log and boulder placement contracts.

- Award contracts.

- Inspect project installation and post-project site rehabilitation-planting, seeding and mulching.

- The project will be covered by the Division of State Lands (DSL) General Authorization (GA) permit.

Inspector: Dan Jenkins (ODFW), Eric Himmelreich (ODFW), Terry Burleson (PUR)

Funding Elements: R&E Funds will be used to: 1)purchase materials – 28 logs, 6 pounds of native seed mix and 1500 willow and dogwood stakes; 2)stage logs and boulders; 3)clear blackberry and plant willow and dogwood stakes; and 4) support administrative services.

Partners: Yes

Partnership with the landowner, the Davis Family, is very important to the success of this project. Wayne Davis recently purchased a flail mower and will machine clear black berries and work with a hand crew to pile brush and burn the piles. This riparian work is in addition to other major brushing projects he is doing to reduce invasive weeds and improve his property. PUR is also pursuing another potential project on Davis Family property located on South Myrtle Creek. The family would like to remove an old push-up dam that stretches across the creek. This family is new to the watershed but incredibly committed to the health and well being of the fishery.

ODFW Western Oregon Stream Restoration Program Biologist, Dan Jenkins, will be responsible for the log and boulder structure designs. Dan has been designing and implementing in-stream restoration projects for PUR for eight years. He has extensive experience working to enhance and restore fish populations and their habitats within the State of Oregon and has worked on 23 instream restoration projects with PUR.

ODFW Western Oregon Stream Restoration Program Biologist, Eric Himmelreich, will be responsible for flagging sites and determining materials stockpile locations and staging areas. Eric will make a final site evaluation and will direct the instream project implementation. Eric has one year of experience in this program and seven years of experience leading and managing restoration projects at a Soil and Water Conservation District.

The Partnership for the Umpqua Rivers staff hydrologist (Terry Burleson 7 yrs. experience) and estuary biologist (Matt Ruwaldt 4 yrs. experience) will consult with Dan and Eric regarding all project planning and designs and will be responsible for writing permits, purchasing the logs and boulders, scheduling the riparian work, and inspecting all project work. The hydrologist has an M.S. in Forest Hydrology/Forest Engineering from Oregon State University. The estuary biologist 6 years of field experience with the Fish and Wildlife Service prior to working with PUR and has a degree in biology from Wisconsin-Madison.

Existing Plan: Yes

1. The Umpqua Basin Action Plan (2007) lists Bilger Creek as having poor instream habitat, ditches, and riparian areas as well as high levels of E. coli bacteria. Recommendations include adding large wood and boulders to improve pools and collect gravels, plant riparian vegetation, examine possible ditching in the channel, and limit livestock access to the stream.

2. The Myrtle Creek Watershed Assessment and Action Plan (2003) identified poor fish habitat, water quality and riparian zones as limiting factors to fish production in Bilger Creek. The action plan recommends the replacement of fish passage blocking culverts, as well as the placement of instream wood to increase fish survival.

3. The ODFW High Intrinsic Potential Maps show Bilger Creek as having low quality winter habitat but the highest (.8 – 1.0 mi./mi.2) intrinsic potential.

4. Oregon Coastal Coho Assessment states that habitat (stream complexity) and ocean conditions are the highest threat to the ESU viability in 2005 (page 65, Coho Assessment, Part 1: Synthesis). The coho assessment also highlights that the Umpqua Basin is home to 20% of spawning coho from the OR Coast ESU.

5. Oregon Plan for Salmon and Watersheds (1997): This project is a voluntary salmon restoration action that is being undertaken due to coordinated local, state and federal support.

6. Bilger Creek Restoration Plan: PUR and ODFW plan to address Bilger Creek in three additional phases: replace two fish passage barrier culverts, restore two more miles of instream habitat and exclude livestock from riparian areas as well as restore riparian plant communities.

7. PUR Strategic Plan: Goal 1: Improve Water Quality and Fish Populations, item a: Implement projects that address a minimum of 10 fish passage barriers including culvert and bridge replacements/removals. At least 3 of these barriers will have a score of 60 or greater in the UBFAT database; item b:Implement a minimum of 10 instream projects including log and boulder placements. This project is intended to address both of these strategic plan action items.

8. Roseburg District BLM Coho HIP Density vs. BLM Ownership: This graphic shows that Myrtle Creek Watershed has the second highest HIP density of the watersheds in the district.

Affected Contacted: Yes

Affected Supportive: Yes

Affected Comments: We have been working closely with the private landowners and ODFW Habitat Restoration Biologists, Dan Jenkins and Eric Himmelreich. Our main landowner, Wayne Davis, has also agreed to allow PUR to use the completed project as an area to bring other interested landowners and recruit them for additional project work in Bilger Creek.

Project Schedule/Participants/Funding

Activity	Date	Participants
Obtain OR DSL GA Permit for instream work	3/1/2013	Terry Burleson
Acquire materials	4/1/2013	Terry Burleson
Solicit quotes for and award contracts	5/15/2013	PUR's ED- Eric Riley
Clear blackberry	7/1/2013	Eric Riley, Davis Family
Place log and boulders instream	7/15/2013	Himmelreich- ODFW
Plant willow and dogwood	11/15/2013	Terry Burleson
Inspect project	12/15/2013	PUR Staff, ODFW, Landowners
Post-project monitoring	12/15/2013	PUR Staff, ODFW Staff

Affected Species:

Chinook Salmon
Coho Salmon
Pacific Lamprey
Sea Run and Resident Cutthroat Trout
Steelhead

Project Permits

Name	Issued By	Secured?	Date Secured	Date Expected
DSL General Authorization	DSL	No	1/1/0001	3/1/2013

Project Monitoring

Organization	Address	Activity	Frequency
PUR & ODFW	1758 NE Airport Road Roseburg, OR 97470	Photo point monitoring	Annually for 3 years

Project Maintenance

This project has no maintenance plans.

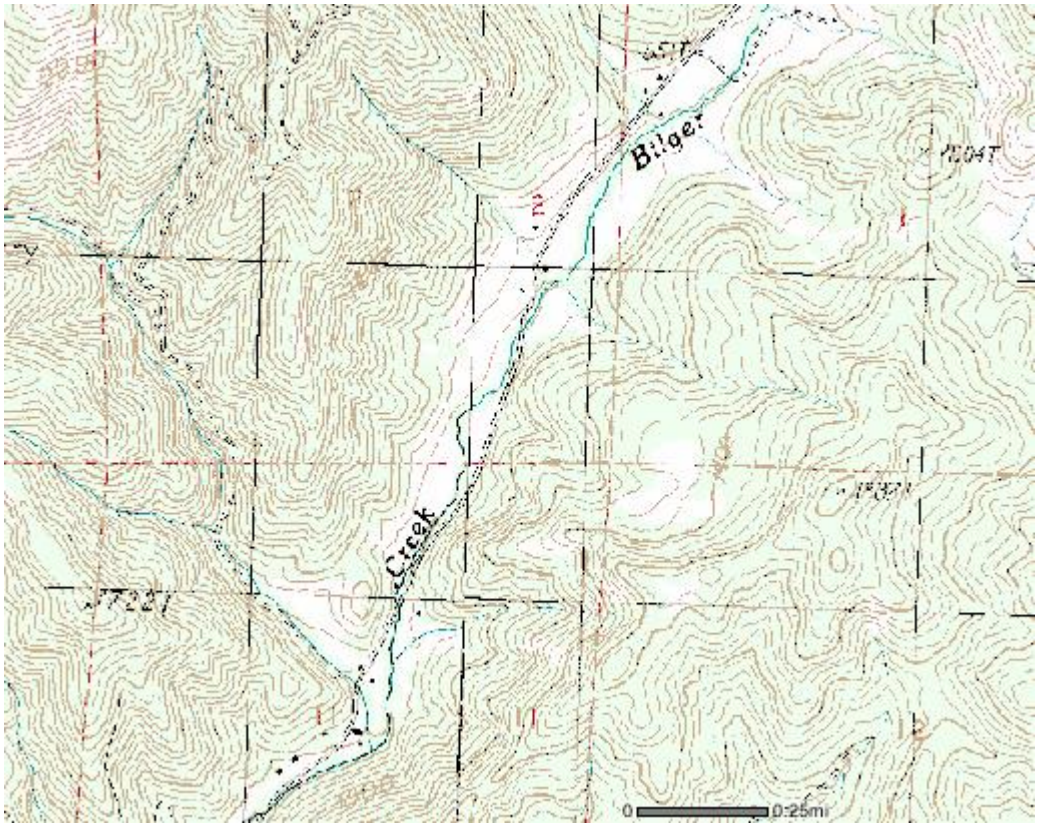
Project Match Funding

Funding Source	Cash	In-Kind	Other	Description	Total	Secured?	Conditions?	Comments
R&E Request	$21,732.00	$0.00	$0.00		$21,732.00	No	No	
OWEB	$46,930.00	$0.00	$0.00		$46,930.00	Yes	No	
ODFW	$0.00	$2,450.00	$0.00		$2,450.00	Yes	No	
Davis Family	$0.00	$3,430.00	$0.00		$3,430.00	Yes	No	
Meyer Memorial Trust	$2,734.00	$0.00	$0.00		$2,734.00	Yes	No	
All Rock	$0.00	$6,800.00	$0.00	Boulders donated at pit	$6,800.00	Yes	No	
				Total Match Funding:	$84,076.00			

Project Budget

Item	Item Type	Units	Unit Cost	R&E Funds	Match Funds	Total
Land Use Form	Administration	1	$60.00	$0.00	$60.00	$60.00
PUR Administrative costs	Administration	1	$5,219.00	$1,422.00	$3,797.00	$5,219.00
Boulder Staging	Contracted Services	400	$20.00	$4,000.00	$4,000.00	$8,000.00
Excavator Mobilization	Contracted Services	1	$2,000.00	$0.00	$2,000.00	$2,000.00
Excavator-based boulder placement	Contracted Services	400	$20.00	$4,000.00	$4,000.00	$8,000.00
Excavator-based log placement	Contracted Services	80	$55.00	$0.00	$4,400.00	$4,400.00
Hand clear blackberry/replant willow	Contracted Services	5	$300.00	$1,500.00	$0.00	$1,500.00
Log Staging	Contracted Services	80	$45.00	$0.00	$3,600.00	$3,600.00
Machine clear blackberry	Contracted Services	2	$1,000.00	$0.00	$2,000.00	$2,000.00
Site rehabilitation	Contracted Services	19	$20.00	$0.00	$380.00	$380.00
Davis Family	Personnel	7	$150.00	$0.00	$1,050.00	$1,050.00
ODFW W. OR. restoration biologists	Personnel	7	$350.00	$0.00	$2,450.00	$2,450.00
PUR Executive Director	Personnel	2	$406.00	$0.00	$812.00	$812.00
PUR Project Planner	Personnel	22	$388.00	$0.00	$8,536.00	$8,536.00
Boulders	Supplies/Materials /Services	400	$17.00	$0.00	$6,800.00	$6,800.00
Logs	Supplies/Materials /Services	80	$350.00	$10,000.00	$18,000.00	$28,000.00
Seed Mix	Supplies/Materials /Services	6	$10.00	$60.00	$0.00	$60.00
Willow and dogwood stakes	Supplies/Materials /Services	1500	$0.50	$750.00	$0.00	$750.00
Mileage	Travel	900	$0.51	$0.00	$459.00	$459.00
					Total Budget:	$84,076.00

Project Map



Additional Files

Click a link to view that particular file.

501c3 tax exemption

Attachments

Award Letter

Landowner agreement

ODFW Letter of support

Signature Authorization Page