Partnership for the Umpqua Rivers

Your Watershed Council

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Report Approved
8/3/2015

Fate and Days Creeks Stream Restoration

OWEB Project # 210-2063

Project Monitoring Report – Year Three

Exhibit D

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July 17, 2015

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8/5/15

Background

Days Creek and its tributary, Fate Creek, are located in the upper reaches of the South Umpqua River Watershed, an area which historically produced great numbers and variety of fish and wildlife species. Because of its importance, the South Umpqua River Watershed has been the focus of many coordinated, strategic restoration efforts over the years. Within the watershed, a handful of streams, including Fate Creek and Days Creek, have been identified as having high intrinsic potential for coho habitat, upon remediation of issues such as fish passage barriers, instream habitat and riparian vegetation issues. As is typical of most watersheds throughout the Umpqua basin, these streams originate in steep, heavily-timbered areas that become increasingly agricultural in use as the gradient decreases. The impact of logging and grazing around the streams has accumulated over the years, leading to dense areas of invasive plants, bank erosion and lack of instream structures necessary to provide essential habitat and stream complexity.

Fate and Days creeks particularly are of unique importance to the South Umpqua 5th field watershed. Fate Creek runs perennially and is one of the coldest tributaries in the watershed. On Fate Creek Ranch, the location of part of this project, a large impoundment holds water throughout the summer, creating critical refuge for juvenile coho during the most stressful months of the year. A breeding population of red-legged frogs has been located near this pool, as well. In four separate locations, beaver activity, such as lodge and dam building, has been observed on the ranch.

For the past 22 years, the owners of Fate Creek Ranch have taken tremendous strides toward restoring and protecting nearly two miles of streams flowing through their property. The first step was to fence livestock out of the entire riparian corridor. During this time, the landowners have worked closely with the Partnership for the Umpqua Rivers (PUR) to implement several projects. Fate Creek borders the western edge of the property while Days Creek flows parallel to the southern edge. The streams nearly form an "L," though they do not quite converge on the property. Approximately 1 mile of Fate Creek runs though the ranch. Fish passage is now completely unimpeded in the Fate Creek drainage once the county culvert under Days Creek Road was replaced, two low-water crossings were replaced with bridges and a dam was retrofitted on the ranch and upstream, on adjacent BLM-managed lands, another dam was removed and a culvert was replaced to meet fish passage standards. Where Days Creek flows across the ranch, the landowners have participated in projects to create three hardened crossings and add log/boulder structures in the late 1990s. The structures were not successful over the long term due to the use of under-sized materials. PUR and the landowners effectively restored three acres of the riparian area on reaches of both Fate Creek and Days Creek in 2008 by treating and removing Himalayan blackberry and replanting native trees and shrubs. After all of these issues were addressed and treated, two acres of blackberry on Days Creek remained and instream habitat and channel complexity were still lacking in both streams.

Over the years, the owners of Fate Creek Ranch have balanced thoughtful ranch management practices with dedicated resource stewardship. The results of the combination have measurably benefited numerous fish and wildlife species, including

those listed in the Oregon Conservation Strategy (2006) as species of concern for the Klamath Mountains Ecoregion: coastal cutthroat trout, Oregon coast coho, Pacific lamprey, brook lamprey, Oregon vesper sparrow, western purple martin, northern red-legged frog, common kingsnake, and the western pond turtle. While it continually becomes more important to facilitate identified species of concern, the native flora and fauna species also benefited are too many to list here.

The BLM has taken an active role in stream restoration in the Days Creek area, but only manages a few miles of High Intrinsic Potential (HIP) coho habitat. The majority of the HIP habitat is on private land, and few private landowners are embracing the salmon recovery work in this area. That is why work on the Fate Creek Ranch is so exceptional because of the other fish passage, dam removal, non-native vegetation removal projects they have completed over the years.

Project Description

This project involved the placement of 20 whole trees and 400 boulders in Days Creek and 8 whole trees, 61 logs and 100 boulders into Fate Creek. The landowners worked with PUR to identify trees to cut from the Fate Creek Ranch for the project, as well as a group of cedar that would be pulled out and placed whole, and with a rootwad into Fate Creek. This participaton from the landowner allowed PUR to get bigger, longer trees for the project because the ones harvested on the ranch were not trucked anywhere. This was also a significant cost savings for a portion of the logs. Other logs came from a hazard tree removal project along the Tiller-Trail Highway. The landowner took down the majority of his New Zealand hotwire fence so that the whole trees could be cat-skidded down to the staging sites. The project began on September 10th and finished up on September 16th. After the instream project was complete, the riparian restoration project began. The window for fall herbicide application was over in 2010 so PUR and the landowner decided to begin the project in 2011. Almost simultaneously, in May 2011, PUR was offered free trees as well as free labor for planting. The Roseburg BLM had a surplus of big leaf maple, western red cedar and vine maple that PUR was more than happy to take off of their hands. The question of how to get the trees planted was soon answered when the Glide High School teacher of natural resources offered his students for a day of work in order to show them a restoration site. Fate and Days Creeks were the perfect location to take advantage of these opportunities. The students were able to observe an ongoing restoration project and discuss the immediate positive benefits as well as witness the importance of site maintenance until establishment is secure. In one day, the students helped clear the previously planted trees and shrubs of grasses, thistles and blackberries that were starting to regain a foothold, replaced tubes that had been outgrown with larger ones, and planted 90 trees where other plants had not survived. Tubes and stakes were placed to protect the plants and a thick layer of raw sheep wool was spread at the base of each plant to help with moisture retention during the drier months. Onsite work continued in September with blackberry removal on Days Creek. A mower with a flail head was used to completely mulch the remaining two acres of blackberry that inundated the southern side of the creek. Herbicide treatment was used to kill the blackberry in the mowed areas, as well as spot-treat the previously treated areas where it was starting to return. The next step involved planting

a wide variety of over 400 native trees and shrubs and spreading native seed mix, specially developed for riparian areas and beneficial to the livestock on the other side of the fence of the restoration work. Wool was used again as a natural, less expensive alternative to tree mats. The wool was observed during the winter of 2011/2012 and was seen to have controlled weeds very well. Blackberry sprouts, predominantly in the sunniest areas, were also observed during winter 2012 and a plan was made to spot-spray the resprouts while they were tender in the early spring.

Changes to original proposal

The original instream project design called for 100 cut logs to be placed into Fate Creek and for 500 boulders to be placed in Days Creek. No wood was intended to go in Days Creek on the Fate Creek Ranch. This was due in part to the inability to truck large enough logs or trees into the Days Creek project sites from off-site. In 2010, PUR began working with project partner landowners to provide a portion of the logs needed for instream projects, since many of our rural landowners also own timber, and often it is of cull-log quality. The Lyons at the Fate Creek Ranch worked with the PUR planner to identify some trees they were willing to cut and sell to the project. They also identified a group of cedar trees to donate to the project and be placed in Fate Creek. The cost of the materials was the same as every other project, but the trucking was eliminated for those logs. Besides the cost savings, the project was greatly improved by the addition of the whole trees. OWEB approved project funds to pay for riparian work after reviewing the request and budget. In total, PUR was able to clear almost 3 acres of blackberry and replant 2 acres. The other acre already had enough native plants already established. The riparian project was originally scheduled to start in fall of 2010, but instead started in spring of 2011. This threw off the spray and planting schedule. Match for the project was originally supposed to come from a local salmon habitat improvement program, but those funds were not awarded. Instead, match is going to be claimed from the upstream BLM-sponsored project that was developed as part of a PUR-BLM partnership in Days Creek. The salmon funds were going to cover the majority of the riparian work, therefore no money was asked for from OWEB to cover this kind of project work. PUR worked with the OWEB project manager to come up with a budget and a plan to complete the riparian project using the savings from contracted services and materials in the OWEB budget.

Lessons Learned

Purchasing project materials from landowners requires a little more work than from my traditional wood and rock sources, but the savings in shipping, and the chance to place whole trees is worth it. The project is overall more effective when whole trees can be placed, but these cannot be trucked in. The wool used as vegetation control worked out very well. PUR is already working with several landowners to receive donated wool if it were to become available. It is cheaper and easier to place than paper brush mats, and seems to hold up longer. OWEB may consider telling other councils about this use of undesirable wool.

Meeting Goals

The Fate and Days Creek instream project was successful in enhancing more than 2 miles of Fate Creek and Days Creek. The project was done cooperatively between the Fate Creek Ranch, PUR, ODFW, and the Roseburg District BLM. In Fate Creek, 100 boulders, 40 logs, and 8 trees were used to create 14 habitat structures. In lower Days Creek another 20 trees and 400 boulders were used at 11 sites to enhance fish habitat. In upper Days Creek, on BLM property, 77 more logs and 15 trees were placed at 15 sites to enhance fish habitat. In total, 500 boulders, 43 trees, and 117 logs were placed. Riparian blackberry was cleared along 1/2 mile of lower Days Creek and replanted with a variety of native plants and Fate Creek had an additional 80 big leaf maple planted. As the photos show, this project has been very effective at reducing winter velocities in both Fate and Days Creeks, and reconnecting parts of the creeks with the flood plain. The winter flows move an amazing amount of substrates through both creeks, imbedding many of the logs and boulders and creating remarkable substrate aggradations behind the structures. In addition deep pools were formed beneath and downstream of the structures providing good coverage for migrating adults as well as great rearing spots for young salmonids. The riparian plantings are showing good survival and invasive weed re-growth is being held to a minimum.

Not only are winter velocities still being reduced but the past two summers have seen historically low flows with Days Creek going subsurface in many locations throughout the project. However the pools that have formed below the structures are holding significant amounts of cool water (and fish fry) and are recreating surface flow.

Maintenance and Modifications

The structure placements have required no modifications. They have been stable through high winter flows. In the fall of 2012 the landowners had the blackberry sprouts along Days Creek sprayed in exchange of allowing the sprayer to cut cedar bows from their forest. It is estimated that the value was $1000. Spraying of spring grass growth to reduce water consumption around the trees was performed in June 2013 this cost $1500 to spray around the young trees on Fate and Days Creeks. This year no further maintenance has occurred but the trees seem to have had a good start and are taking off.

Costs

Category	Unit Number	Unit Cost	Total
Travel	miles	0.55/mile	-
Staff Time Monitoring	1 hours	49.82	$ 49.82
Staff Time Report	2 hours	44.81	$ 89.62
		Total:	$ 139.44

Public Awareness

The PUR and BLM Days Creek Restoration Cooperative Project was featured during the 2012 session of the Master Watershed Stewards Class that PUR and Douglas County Extension sponsored. An entire field day was spent out at Days Creek on the BLM and private lands walking through the instream and riparian restoration projects. Dr. Guillermo Giannico from OSU joined the group and spoke about local fisheries concerns and answered questions from the group. Everyone was very impressed at the amount of gravel already piled up behind the instream structures, and also with the wool used as vegetation control around the native plants. The Glide High School students who did planting of trees also learned a lot about salmon and stream restoration during their day on the ranch.

During the summer of 2013, the landowner attended two PUR outreach meetings in Myrtle Creek as part of the Myrtle Creek Restoration Planning Technical Assistance Grant from OWEB and gave a presentation with photos of the work done on Fate Creek Ranch and how it benefitted the landowner as well as fish.

No tours occurred this past year but as PUR is focusing outreach to landowner in the Days Creek area this project will be available as a demonstration project for landowners to see what PUR has been able to accomplish because the landowners are always willing to host tours of the stream restoration work done on their property.

Photo #1
Days Creek Site 1
Pre Project
July 2010
The log in the foreground had moved from one of the first restoration efforts done in the county in the early nineties. It was relocated upstream and became part of a new log structure.

Photo #2
Days Creek Site 1
Boulder weir
September 2010
After project completion.

Photo #3
Days Creek Site 1
The boulder weir has become imbedded with gravel substrate on the upstream side and has created a large pool on the downstream side that is still 4 foot deep when this photo was taken on July 27, 2013. There were many coho fry in the pool.

Photo #4 Days Creek Site 1
Boulder weir is essentially unchanged since last year. Photo was taken July 27, 2014, the same day of the year as last year's photo. There was slightly more stream flow than last year even though the drought conditions in the county were worse. Again, Coho fry were seen in the downstream pool.

Photo #5 Days Creek Site 1
July 14, 2015 The boulders continue to aggrade gravel upstream and maintain deep scour pool dowstream. Again coho fry are seen in the pool.

Photo #6
Days Creek Site 3
September 2010
Log and structure placement just after placement.

Photo #7
Days Creek Site 3
December 2012 during high flow event. This structure is slowing flow allowing substrate to drop out upstream as well as spreading the flow out to connect with the flood plane.

Photo #8
Days Creek Site 3
July 2013
A huge amount of substrate Has accumulated behind the log/boulder structure imbedding the boulders and log. A nice pool is formed downstream.

Photo #9
Days Creek Site 3
July 2014
The large amount of substrate that accumulated behind the log/boulder structure imbedding the boulders and log is still present and slightly deeper. The downstream pool contained coho fry.

Photo #10
Days Creek Site 3
July 2015
Essentially unchanged from last year's photo #9 above.

Photo #11
Days Creek Site 3
Pre Project from downstream.
July 2010

Photo #12
Days Creek Site 3 from downstream
December 2012
During high flow event.

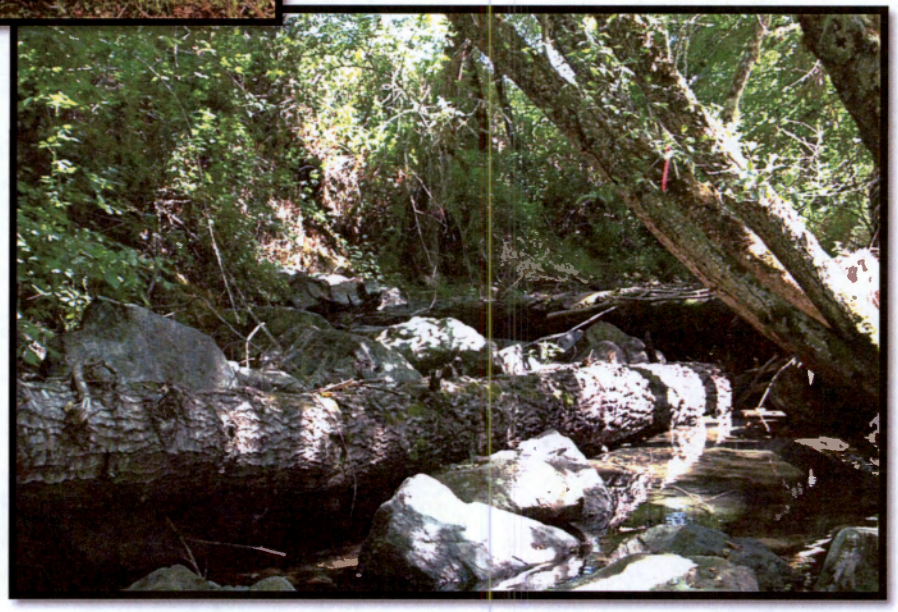

Photo #13
Days Creek Site 3
From downstream
July 2013
Boulders and logs stationary, creating great cover and pools.

Photo #14
Days Creek Site 3
From downstream
July 2014

Photo #15
Days Creek Site 3
From downstream
July 2015

A tree seen on the bank in Photo #14 has fallen into the creek adding more complexity to the structure.

Photo #16
Upstream site on Days Creek winter after implementation.

Photo #17
Upstream site on Days Creek accumulating large amounts of substrate and woody debris between structures.
July 2013

Photo #18
Upstream site on Days Creek downstream of structures more huge deposition of gravel burying a number of boulders.
July 2013

Photo #19
Upstream site on Days Creek
downstream of structures
July 27, 2014

Photo #20
Upstream site on Days
Creek, taken from first
log in Photo #16
July 27, 2014

Photo #21
Upstream site on Days Creek, taken from first log in Photo #19 above. Quite a change occurred at this site. Two of the largest logs that were highest in the structure washed out and move downstream. The lowest log which was imbedded in gravel did not move. So much gravel has gathered downstream of this log, that the boulders on now totally covered in aggraded gravel.

Photo #22
Landowner showing growth of one of the cedar plantings along Days Creek.
July 2013.

Photo #23
Landowner showing growth of planted cedar along Days Creeek. (Not same tree as in July 2013)
July 2014

July 2015
We failed to get a new picture of the trees but they were present and had experienced a large growth spurt.

Photo #24
Mid-Fate Creek structure
looking upstream
July 2013

Photo #25
Mid-Fate Creek structure
looking upstream
July 2014

Photo #26
Same site on Fate Creek as in Photo #25 taken from upstream looking downstream. Huge amount of accumulation of woody debris.

Photo #27
Same site July 2014
The large log and smaller one to left are nearly embedded in substrate.

Photo #28
Same Mid-Fate Creek structure as in Photos #24 & 25
looking upstream
July 2015
A riparian tree just upstream has falling into the creek adding further naturally placed structure to the creek.

Photo #29 July 2015

This strucutre is further up Fate Creek and had not been pictured before in our reports. It was created with boulders and some unlimbed trees. It has gathered so much more woody debris that you can barely see the creek producing some wonderful protected pools.