

LADD MARSH CHANNEL RECONSTRUCTION & WETLAND RESTORATION

Completion Report

Performance Period

January 1, 2007 to December 31, 2010

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Prepared for:

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Background

The Ladd Creek system is a major tributary of Catherine Creek, which is a tributary to the Grande Ronde River. Historically Ladd Creek was likely a significant steelhead producer and possibly had limited spring chinook production. The forks of Ladd Creek were channelized to drain wetlands for agricultural use in the late 1800's and early 1900's. Channelization, irrigation withdrawals, agricultural land conversion and construction of I-84 have dramatically reduced steelhead production. Current steelhead spawning numbers are unknown. There are resident rainbow trout in the headwaters. Fish use is limited in the project area due to the channelization and limited habitat diversity.

Extensive channelization has caused a lowering of the water table, reduction in water storage, in-channel habitat simplification, invasion of non-native reed canary grass and elimination of native riparian shrub and sedge vegetation. Conversion to crop land has furthered the vegetative conversion.

Project Location

All of the restoration activities occurred on the ODFW-managed Ladd Marsh Wildlife Management Area on the West Fork, Middle Fork and East Forks of Ladd Creek. Ladd Creek is a tributary of Catherine Creek. Legal description is: T.3S.R38E, portions of sections 25, 35, 36; T.3S.R.39E., portion of section 31.

Project Description

The goal of the project was to restore near-historic channel configuration and hydrology by implementing a variety of restoration activities including channel restoration and re-establishment of hydrology capable of supporting hydrophytic riparian and wetland vegetation. Artificial and natural native/native-like tree, shrub, and grassland communities will be established. The approximate size of the affected landscape is 900 acres.

Specific objectives were:

- promote natural, stable stream channels and in-stream habitat diversity
- Improve water quality (sediment, nutrient, water temperatures)
- Increase groundwater recharge
- Improve wetland habitats for riparian/wetland dependent species
- Increase suitable rearing habitat for anadromous and resident salmonids

The project was sponsored by the Grande Ronde Model Watershed (GRMW) in cooperation with the Oregon Department of Fish and Wildlife (ODFW). The GRMW was the fiscal agent, conducted ESA consultation, did the construction contracting and procured Oregon State Historic Preservation Office cultural resource clearance. ODFW designed the project, supervised construction and did the revegetation work.

The project was delayed 2 years from the proposed schedule. Implementation of the project was scheduled to begin in July 2007. The beginning of construction was delayed to November 2009 due to a delay in completing channel designs. Channel construction and wood placement, originally scheduled to be completed in November 2007 began in November 2009 and was completed in October 2010. Revegetation work started in the fall of 2009 and was completed by the fall of 2010. The construction contract was awarded to Partney Construction of La Grande, Oregon.

Work Accomplished

The following planning, design and monitoring activities were accomplished:

- Topographic GPA survey of the project area (ODFW)
- ESA consultation and permitting (GRMWP and ODFW)
- Cultural Resource Survey and SHPO Section 106 clearance (GRMW)
- Final project design; channel construction, revegetation, channel reclamation (ODFW)
- Pre-project aquatic inventory on the East Fork, Middle Fork and West Forks of Ladd Creek (ODFW Fish Research)
- Pre-project photo-points

The following restoration work was accomplished:

- 5.4 miles of reconstructed channel (East Fork, Middle Fork and West Forks of Ladd Creek)
- 3.3 miles of channel reclamation (filling ditches)
- Large wood placement, 246 pieces
- Revegetation, 17,100 willow & dogwood cuttings, 1,275 containerized tree seedlings, 7,500 rooted shrubs, 31,700 sedge/rush plugs and 950 # of native grass seed.
- Replacement of Pierce Road culvert with full channel-spanning bridge

Expenditures

Ladd Marsh Channel Reconstruction & Wetland Restoration			
Agency/Organization	Cash	In-kind	Expenditures
Bonneville Power Administration	X		\$274,573
Oregon Watershed Enhancement Board	X		\$81,793
Blue Mt. Habitat Restoration Council	X		\$97,592
Oregon Department of Fish and Wildlife		X	\$46,237
			<u>\$500,195</u>

Monitoring

ODFW will conduct the following monitoring activities:

- Channel and bank stability (ODFW/CTUIR) - post construction, annual (5 yrs +) – x-sections, longitudinal profiles, photo-points, habitat surveys
- Vegetation survival/success, wetland habitats (ODFW/CTUIR) – vegetation surveys, photopoints
- In-channel habitat and fish use/production (ODFW) – periodic habitat surveys, photo-points
- Water quality monitoring (ODFW/CTUIR) – primarily temperature during warm season flow periods
- Noxious weed management (survey and treatment) – Ladd Marsh Wildlife Area

Changes to Proposal

The actual length of new channel, as determined after final design, was reduced from 6.1 miles, originally planned, to 5.4 miles. The proposed grade control structures (15) were not deemed necessary by the project designer, and were not installed.

Replacement of the culvert at Pierce Road was not originally part of the project. Final channel designs revealed that the Pierce Road open-bottom arch was not at an appropriate elevation to accommodate the higher elevation of the new channel. The culvert was replaced with a 22 foot full-channel-spanning bridge.

The Hwy 203 concrete box culvert was not replaced. ODOT funds, as well as the Federal Aviation Administration funds (mitigation funds through Union County Airport expansion project) were not available. The airport mitigation funds are expected to become available in 2011 or 2012. When funds are received the GRMW will request ODOT or other cost-share funding to complete the new bridge.

Lessons Learned

The project nearly doubled the length of the Ladd Creek Channels as well as created much more diversified fish habitat as a result of the meandering channel configuration and large wood additions. The previously existing channels (ditches) provided essentially no habitat diversity (pools, wood) and were over grown with non-native reed canary grass. Much more diverse riparian vegetation (sedges, willow) will provide additional habitat complexity as riparian vegetation matures. About 35 acres of wetland were restored and 8 acres created.

This project compliments the following past, on-going or planned projects:

- Lower Ladd Rechannel and Wetland Restoration, Ladd Marsh, 2002, ODFW, Ducks Unlimited, City of La Grande
- Middle Fork Ladd Rechannel, Ladd Marsh, 2005, ODFW, COE
- Middle Fork Ladd I-84 Passage (Glory Hole), upstream of Ladd Marsh, Proposed, ODOT
- Shaw Creek Fish Passage & Sediment Reduction, upstream of Ladd Marsh, 2006, GRMWF, Forest Capital
- Smutz Draw Fish Passage & Sediment Reduction, upstream of Ladd Marsh, 2002, ODF, Boise Cascade
- Smutz Draw Fish Passage, 2006, USFS
- Numerous completed additional Ducks Unlimited wetlands projects on the Ladd Marsh Wildlife Management Area

This project as well as previous and planned projects on the Ladd Creek system will vastly improve Ladd Creek habitat for ESA-listed Snake River summer steelhead and resident rainbow trout. Additional benefits will accrue such as improved downstream water quality, increased ground water recharge and enhanced late-season stream flow, and improved wetland habitats for riparian/wetland dependent species.

Project Map

Figure 1

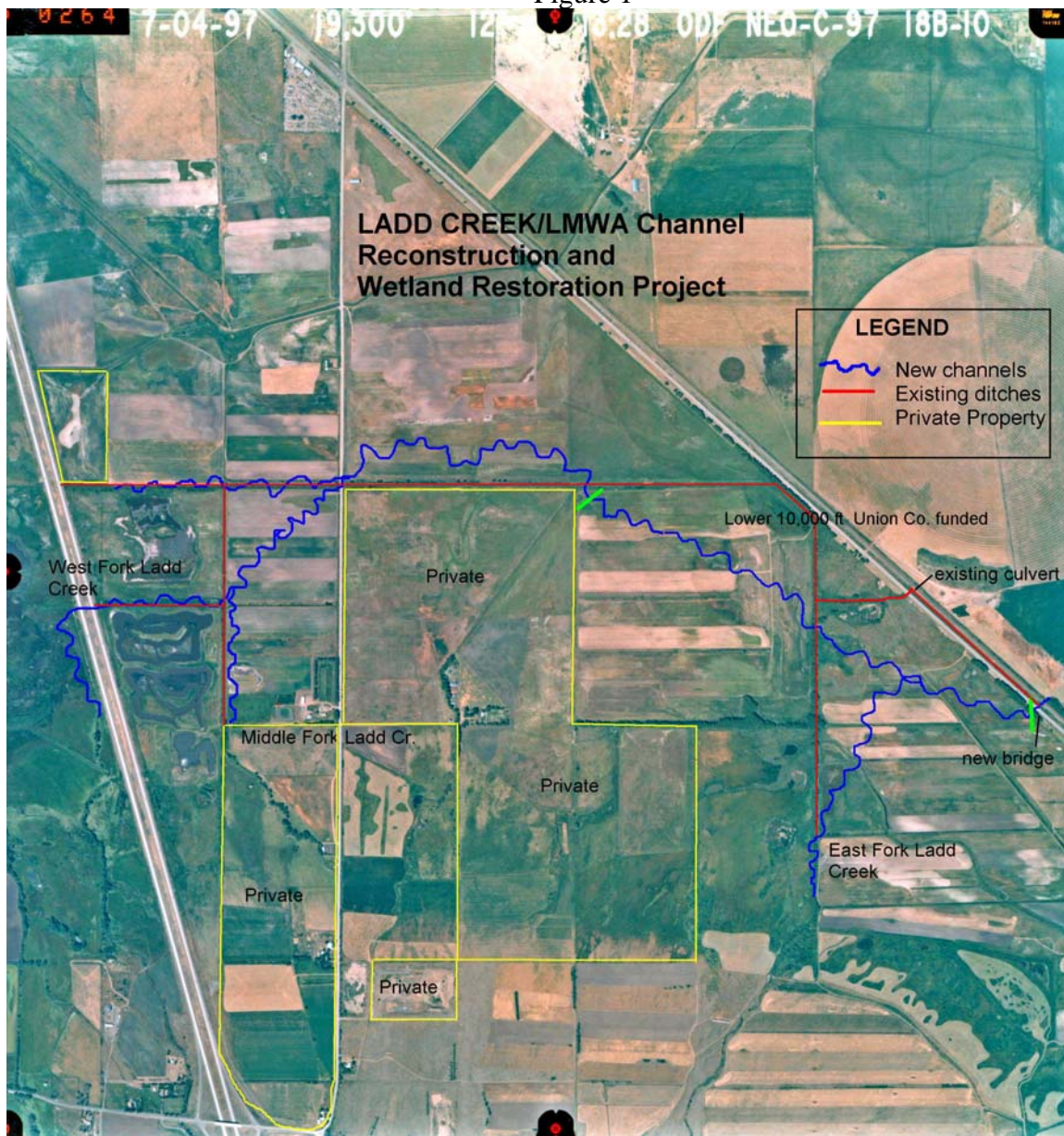


Figure 1 shows the location of the reconstructed channels in blue. Wood was randomly placed in and adjacent to the new channels throughout the entire length of all of the reconstructed channels. Ditches, shown in red, with the exception of two segments at the lower end, were reclaimed by filling with excavated material from the newly constructed channels. The bridge shown on the far right of the figure was not completed due to unavailability of ODOT and FAA funds. When that bridge is completed the new channels will be connected at the lower end and the remaining ditches reclaimed.

Photo-Points

Two of several photo-points are included in this report. Photo-points were established using GPS and were taken aerially from a helicopter to better depict changes from pre-project to just before project completion. There are many more ground photo-points that are not included in the report.

PP-1



Photo taken 3-29-07 pre-project showing the existing mainstem Ladd Creek channel (ditch) flowing east. The field in the center of the photo will be the location of the new channel. Note the complete absence of shade on the south side of the channel.



Photo taken 4-26-10. New channel is constructed but not yet connected at the upper end. The old channel (ditch) is not yet reclaimed. The ditch was filled in and the channel connected in July/August 2010. Note the constructed floodplain on either side of the channel and wood placements.

PP-2



Photo taken 3-29-07 of the Middle Fork Ladd Creek looking downstream (north). Note the lack of shade.



Photo taken 4-26-10. The new channel has not been connected. Note the excavated material stockpiled on the right side of the old channel. This material was pushed into the channel in July/August 2010.



Photo taken 3-1-10. Example of a completed habitat structure on the Middle Fork Ladd Creek.



Photo taken 8-26-10 of the reclaimed mainstem Ladd Creek just below Pierce bridge. This is the same ditch reach shown in PP-1.



Pre-project open-bottom culvert at Pierce Road crossing



Post-project bridge at Pierce Road crossing