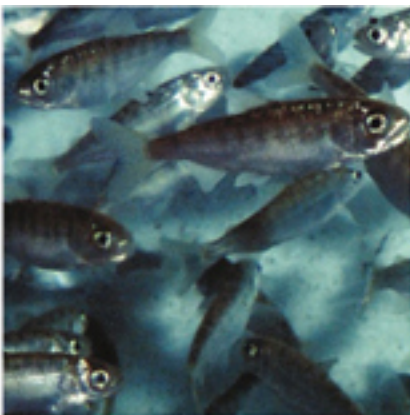


Protect and Restore Lolo Creek Watershed

Annual Report 2005 - 2006

July 2006

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Protect & Restore Lolo Creek Watershed

Annual Report CY 2005

(3/1/05 - 2/28/06)

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Abstract

The Nez Perce Tribe Department of Fisheries Resource Management, Watershed Division approaches watershed restoration with a ridge-top to ridge-top approach. Watershed restoration projects within the Lolo Creek watershed are coordinated with the Clearwater National Forest and Potlatch Corporation.

The Nez Perce Tribe began watershed restoration projects within the Lolo Creek watershed of the Clearwater River in 1996. Fencing to exclude cattle for stream banks, stream bank stabilization, decommissioning roads, and upgrading culverts are the primary focuses of this effort. The successful completion of the replacement and removal of several passage blocking culverts represent a major improvement to the watershed. These projects, coupled with other recently completed projects and those anticipated in the future, are a significant step in improving habitat conditions in Lolo Creek.

Acknowledgements

Acknowledged below is a list of people who worked very hard on this project demonstrating great enthusiasm and commitment to make it a success.

U.S. Forest Service, Clearwater National Forest: Anne Conner, Engineer

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Potlatch Corporation: Don Pence, Construction Supervisor

A & K Construction: Alan Fowler, owner

Mark Deyo Construction: Mark Deyo, owner

Nez Perce Tribe:

Project Leader: Heidi McRoberts, Biologist III

Engineering Lead: Mark Johnson, Engineer

Culvert and Road Project Inspection: Bobby Hills, Biologist II

Monitoring and Evaluation Project Lead: Alison Tompkins, Biologist I

Habitat Monitoring Crew: Christa Sobotta, Technician I

Jess Brewer, Technician I

Mark VanderVelden, Biologist III

Background

The Lolo Creek Watershed, located within the Clearwater River subbasin, is 157,000 acres and is located within the 1855 treaty territory of the Nez Perce Tribe on a matrix of Clearwater National Forest, Idaho Department of Lands, Potlatch Corporation, and private property. Lolo Creek, a tributary to the Clearwater River, supports anadromous and resident fish, including, Chinook salmon, Coho salmon, steelhead trout, pacific lamprey, and various trout species. Historically, the Lolo Creek watershed has been impacted by logging, road building, mining, farming, and grazing. The goal of this project is to restore access to pristine habitats within the Lolo Creek watershed, and to reduce sedimentation from at-risk culverts. The identified limiting factors for salmonids in this watershed include cobble embeddedness, temperature, connectivity (passage barriers).

The Lolo Creek Watershed restoration project began in 1996 through the Early Action Watershed Program to enhance fish habitat, reduce sediment delivery, and protect riparian areas from excessive grazing. In 1997, a Challenge Cost-Share Agreement was developed between the Nez Perce Tribe (NPT) and the Clearwater National Forest (CNF). Since 1997, the Nez Perce Tribal Fisheries/Watershed Program, in cooperation with the Clearwater National Forest, has obliterated over 59 miles of road. About nineteen miles of fence were constructed and maintained within the Lolo Creek watershed, to protect riparian and culturally significant areas from negative impacts from cattle grazing. Two cattle guards were installed within the fence line, where it crossed roads. Riparian planting, in excess of 8,000 native trees, have been planted along the stream banks of the tributaries of Lolo Creek, which will increase shade, reduce temperature and sediment input, and increase large woody debris recruitment.

This project was a cooperative effort between the U.S. Forest Service and the Nez Perce Tribe on federal lands and a cooperative effort between Potlatch Corporation and the Nez Perce Tribe on private lands. An inventory and analysis of culverts in the Lolo Creek drainage was completed in 2004. Culvert replacements are prioritized based on the presence of fish in the tributary, the extent of the passage problem at the culvert, amount of habitat available above the culvert, and potential of culvert failure. Fourteen culverts have been replaced in the Lolo Creek watershed since 2000, including six culverts in 2005 located on both land managed by the Clearwater National Forest and private property owned by Potlatch Corporation. In addition, this project also included the removal of drainage culverts on road adjacent to Blonde Creek.

Work Elements

- A. WE: 165 - Produce Environmental Compliance Documentation- Provide NEPA Information to BPA for Projects on Private Lands
- B. WE: 165 - Produce Environmental Compliance Documentation- Provide NEPA Information to BPA for Projects on Forest Service Lands
- C. WE: 118: Coordination - Prepare Partnering Agreements with Clearwater National Forest & Agreements with Potlatch Corporation
- D. WE: 174 - Produce Plan - Identify Culvert Restoration Projects
- E. WE: 175 - Produce Design and/or Specifications - Designs for all Culverts
- F. WE: 184 - Install Fish Passage Structure - Replace Blonde Creek Culvert #1
- G. WE: 184- Install Fish Passage Structure - Replace Blonde Creek Culvert #3
- H. WE: 184 - Install Fish Passage Structure - Replace Kate Creek Culvert
- I. WE: 184 - Install Fish Passage Structure - Replace Weaver Creek Culvert
- J. WE: 184 - Install Fish Passage Structure - Replace Dora Creek Culvert
- K. WE: 184 - Install Fish Passage Structure - Replace Eva Creek Culvert
- L. WE: 38 - Improve/Relocate Road - Improve 0.5 Miles of Road along Blonde Creek
- M. WE: 38 - Improve/Relocate Road - Improve Lolo Creek Road
- N. WE: 33 - Decommission Road - Lolo Creek Road Removal
- O. WE: 33 - Decommission Road - Improve Drainage along Blonde Creek
- P. WE: 186 - Operate and Maintain Habitat/Passage - Maintain Fence
- Q: WE: 47 - Plant Vegetation - Plant Riparian Vegetation
- R. WE: 157 - Collect/Generate/Validate Field and Lab Data - Stream Habitat Data Collection
- S. WE: 157 - Collect/Generate/Validate Field and Lab Data - Collect Data on Roads that were removed

T. WE: 157 - Collect/Generate/Validate Field and Lab Data -Collect Data on Culverts that were replaced

U. WE: 162 - Analyze/Interpret Data - Lolo Creek Data Analysis

V. WE: 119 - Manage and Administer Projects - Management, Coordination and Communication

W. WE: 132 - Produce Annual Report - Annual Report

Results

Coordination and Management

Coordination and pre-work meetings between the Nez Perce Tribe and the Clearwater National Forest were held prior to field season to organize activities that would be completed and protocols that would be used to complete those activities. In addition, coordination between Nez Perce Tribe and Potlatch Corporation for culvert replacements was conducted during a field visit. Written agreements were signed between the Nez Perce Tribe and both the Clearwater National Forest and Potlatch Corporation to document each entities roles in the project as well as the cost share for each agency.

Riparian Enhancement

Approximately 2,000 trees were planted in the riparian zone of Jim Brown Creek, where cattle grazing has been excluded since 1999. Tree species included alder, Douglas hawthorn, Drummond willow, and Red Osier dogwood.

Trees were planted along the riparian zone to provide streambank stabilization, and large woody debris recruitment for shade, which reduces stream temperatures.

Trees were planted and disturbed area were grass seeded in several areas of Blonde Creek in conjunction with ongoing culvert removals, replacements and road obliteration to enhance shade and cover and restore natural riparian environment.

Hydrologic Connectivity/Fish Passage Barriers

Inventory was completed on all culverts within the Lolo Creek drainage that fall on Clearwater National Forest or Potlatch Corporation lands. This inventory data was entered into a database and prioritized for future culvert replacement projects. Several projects were selected for passage improvements in 2005 including 6 culvert replacements and 2 culvert removals. In partnership with the Clearwater National Forest the Weaver, Kate, Eva, and Dora Creek culverts were replaced. In partnership with Potlatch Corporation two culverts were replaced and 2 culverts were removed in the Blonde Creek drainage. Design surveys were completed in the fall of 2004, and the final designs were completed during the winter. All of these projects were cost-shared with other partners, with the Idaho Office of Species Conservation (IOSC) contributing \$146,142.78, the Clearwater National Forest contributing \$17,670, and Potlatch Corporation contributing \$10,700. Pre-bid tours were conducted in May through June and the bids were subsequently reviewed and awarded for construction. The Blonde Creek projects were completed in early August, the Eva, Kate and Dora culverts were completed in early October and the Weaver Creek work was finished by October 15th.

Eva, Kate, and Dora Creek Replacements- These sites are located in the Eldorado Creek drainage, a main tributary to Lolo Creek. The new culverts are designed to embed each culvert, size for the active channel width or 100-yr. flood

event (whichever is larger), allowing for substrate throughout the culvert bottom, and natural sediment movement by the road crossing location.



Figure 1. Kate Creek before and after culvert replacement.

Blonde Creek- Two culverts were replaced, and two culverts were removed and the stream restored to natural condition. A portion of this project also included removing drainage culverts, minor road improvements, and road obliteration on adjacent roads. Natural streambed simulation was implemented on each culvert installation, using the guidance of several recently published documents. Squash pipe (pipe-arch) structures were used with substrate throughout the length of the culverts when possible to mimic natural streambed conditions.



Figure 2. Blonde Creek in progress construction photos.

Of significant note the upper most removal site was somewhat more challenging and extensive than most culvert replacements. In addition to removing the log culvert barrier at this site the work also included removing over 100 ft of existing road fill and using the 400 cubic yards of fill material to re-grade the site and restore the stream channel to its original location. This eliminated a badly

eroding newly diverted channel, and restored hydrologic connectivity between two natural wetland areas that had been isolated by the previous road construction.

Weaver Creek culvert- One culvert was replaced in the lower Weaver Creek drainage. The existing metal culvert was replaced with a larger 9.0-ft. round metal culvert with substrate retention structures embedded below the stream grade to aid in maintaining substrate materials in the bottom of the culvert.



Figure 3. Outlet of the Weaver Creek culvert replacement before and after.

Road Decommissioning & Improvements

Four road segments were prioritized and prepared for contracting for decommissioning and improvement during the summer of 2005. The four road segments totaled 2.6 miles of road that were treated in the Lolo Creek drainage on Forest Service and Potlatch Corporation lands. These projects varied in size and included road obliteration and re-contour, removal of 4 culverts, and surfacing and drainage improvements for erosion control on an existing access road.



Figure 3. Typical road obliteration at Blonde Creek and road improvements at Lolo Creek..

Riparian Protection

Maintenance of the 19-mile of riparian protection fence that protects Jim Brown and Musselshell Creeks was completed in May 2005. All dilapidated sections of fence were repaired and take down fence sections at water gaps were put-up for the grazing season.

Monitoring

Automatic temperature loggers were deployed in June 2005 and retrieved in September 2005 at ten locations within the Lolo Creek watershed. In five of the locations the temperature loggers were placed at the same location as they have been in past years to accommodate repetition in data collection. New sites were established at the five other locations. These locations were in various sub drainages in the watershed including Jim Brown Creek, Musselshell Creek, Yoosa Creek, Yackus Creek, Eldorado Creek and Lolo Creek.

Results will be reported in the 2005 Lolo Creek monitoring report.

Snorkel surveys were performed in Jim Brown Creek, a tributary to Lolo Creek. Additional snorkel surveys were performed in the main stem Lolo Creek by the BPA Project *Nez Perce Tribal Hatchery Monitoring and Evaluation* (83-350-03).

Nez Perce Tribal staff implemented the Road Obliteration Effectiveness Monitoring Plan on the Clearwater National Forest. The purpose of the plan is to evaluate the road obliteration projects. Data collected included but was not limited to: longitudinal profiles, cross-sections, and vegetation surveys. This data will provide vegetation establishment rates, potential surface erosion, and changes in stream channel morphology, plus other natural factors.

Post construction monitoring for culvert replacements occurred 2 to 3 weeks after construction and included a rod and level survey to determine contract compliance and obtain baseline information on the newly constructed culvert, substrate and inlet/outlet channel conditions. No substantial deviations from the project design were found. The culverts were also monitored by optical observation for substrate retention throughout the culvert, to sustain stream simulation. In addition, fish surveys will be completed above the culverts to identify whether species are accessing habitat above the structure. The Nez Perce Tribe will perform these surveys and continued annual monitoring of the installations as funding allows.

Results will be reported in the 2005 Lolo Creek culvert monitoring report.

Discussion

More watershed restoration work remains to be completed in the Lolo Creek drainage. Culvert inventory analysis and prioritization were completed for the watershed in 2005, which will provide an outlook of culvert work in future years.

Existing roads are being prioritized for decommissioning by a cooperative effort of the Nez Perce Tribe and the Clearwater National Forest.

Further riparian plantings are warranted in the Jim Brown and Musselshell Creek drainages to augment the previous years planting. Vegetation density and diversity are not at the desired/recommended levels. Shade is needed to cool water temperatures and LWD recruitment will provide habitat for anadromous fish species.

Monitoring and evaluation will continue in the following years with focus on temperature recorders, and measurement of physical habitat parameters. In addition, the road obliteration and culvert monitoring program will continue as projects are completed. Culvert monitoring sites will be revisited on one, two, five and ten year intervals.

Costs

The following table is a break down of the rounded expenditures for the project.

	Cost
Salary	\$90,733.39
Fringe	\$24,507.66
Sub-contracts	\$75,518.44
Training	\$50.00
Travel	\$1,478.90
Vehicles	\$7,615.68
Supplies	\$1,437.92
Materials	\$3,085.76
Computer Services	\$2,174.00
Rent	\$683.22
Indirect Costs	\$39,023.47
	\$246,308.44