

Protect and Restore Mill Creek Watershed

Annual Report
2002 - 2003



DOE/BP-00004271-1

January 2004

This Document should be cited as follows:

McRoberts, Heidi, "Protect and Restore Mill Creek Watershed", Project No. 2000-03600, 8 electronic pages, (BPA Report DOE/BP-00004271-1)

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

This report was funded by the Bonneville Power Administration (BPA), U.S. Department of Energy, as part of BPA's program to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. The views in this report are the author's and do not necessarily represent the views of BPA.

Protect and Restore Mill Creek Watershed

Annual Report

June 1, 2002 - May 31, 2003

Prepared by:

Heidi McRoberts

Nez Perce Tribe Fisheries/Watershed Program
P.O. Box 365
Lapwai, Idaho 83540

Prepared for:

U.S. Department of Energy
Bonneville Power Administration
Division of Fish and Wildlife
P.O. Box 3621,
Portland, OR 97208-3621

Project Number 2000-036-00

Contract Number 00004271

January 2004

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 Mill Creek watershed are coordinated with the Nez Perce National Forest.

The Nez Perce Tribe began watershed restoration projects within the Mill Creek watershed of the South Fork Clearwater River in 2000. Progress has been made in restoring the watershed through excluding cattle from critical riparian areas through fencing. During the FY 2002, trees were planted in riparian areas in the meadow of the upper watershed. In addition, a complete inventory of culverts at road-stream crossings was completed. Culverts have been prioritized for replacement to accommodate fish passage throughout the watershed. Maintenance to the previously built fence was also completed.

Background

Mill Creek is located in the South Fork Clearwater River, within the Nez Perce Tribe ceded territory of 1855 and within the Nez Perce National Forest.

Mill Creek is a long linear watershed encompassing over 23,000 acres. It is of particular importance to steelhead and westslope cutthroat trout. Chinook salmon are also present within the watershed. This watershed is considered a population stronghold for steelhead and westslope cutthroat trout.

Management activities have affected aquatic processes within this drainage. Encroaching roads and grazing processes have degraded the stream/riparian processes.

The upper meadow of Mill Creek has been severely impacted by cattle grazing for several years. Grazing and the trampling of stream banks by cattle are a significant annual disturbance to riparian zones, which have led to changes in riparian plant communities. Aerial photographs taken in 1927 indicated that 80% of the stream banks were lined with riparian hardwood shrubs. In the same photograph, taken in 1990, riparian shrubs lined only 5% of the stream banks. The present riparian community consists of grasses and forbs.

Roads have been constructed in the Mill Creek watershed, and the majority of these roads were constructed several decades ago. Road/stream crossing assessments reveal that passage for aquatic species through many of the structures are either not adequate or not functioning at all.

Objectives & Tasks

The objectives of this project were to address watershed concerns that are limiting to anadromous fish habitat. Anadromous fish that are targeted for restoration are spring Chinook salmon and steelhead trout. Since the majority of the watershed is managed by the US Forest Service, coordination with them was critical to the success of the project. Coordination with them is an on-going effort at the pre-work, planning, and implementation stages.

On-the-ground objectives include:

1. Restore meadow and riparian plant communities to enhance fish and wildlife habitat.
 - a. Evaluate re-vegetation plan.
 - b. Purchase/gather vegetation for planting.
 - c. Plant vegetation.
2. Return passage to inaccessible tributary habitat and alleviate sediment sources associated with culverts.
 - a. Identify culverts to be surveyed through cooperation with the Nez Perce National Forest.
 - b. Inventory identified culverts for fish passage and sediment problems.
 - c. Survey identified culverts to be replaced.
3. Protect riparian habitat as it provides critical habitat for fish and wildlife.
 - a. Maintain cattle exclosure fence through repair of any damaged or destroyed sections of fence, including the cattle guard.
4. Monitor and evaluate success of implementation projects and determine future needs based on these results.
 - a. Implement Mill Creek Restoration Effectiveness Monitoring Plan to determine trend in habitat conditions as a result of restoration projects.

Results

Coordination

Coordination meetings between the Nez Perce Tribe and the Nez Perce 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.

After culvert inventories were completed and prioritized for replacement, NEPA was sub-contracted to Herrera Environmental Consultants to complete a Categorical Exclusion document for the future project of replacing barrier culverts. Cultural Resource surveys were sub-contracted to the Nez Perce Tribe Cultural Resource Department. Engineering surveys for the design of new culverts was sub-contracted to the Nez Perce National Forest.

Riparian Enhancement

Approximately 1,700 trees were planted in the riparian zone of Mill Creek within the upper meadow that was fenced in 2000 to exclude cattle grazing. Tree species included drummond willow, red osier dogwood, and alder. Trees are planted along the riparian zone to provide streambank stabilization, and large woody debris recruitment for shade, which reduces stream temperatures.

Fish Passage Barriers

Inventory of all culverts at road/stream crossing sites was completed during the 2002 field season. 26 culverts were surveyed using the National Inventory and Assessment Procedure for Identifying Barriers to Aquatic Organism Movement at Road-Stream Crossings. Data was inputted into the FishXing database to determine whether crossing structures were passable by aquatic species. From the results six culverts were prioritized for replacement. These culverts include Merton Creek, Black George Creek, Hunt Creek, Corral Creek, Camp Creek, and Heppner Creek.



Figure 1. Drop at outlet of culvert within Mill Creek watershed. Passage barriers exist at culverts when outlets are not in contact with the stream bottom.

Riparian Protection

Maintenance of the 3 miles of riparian protection fence that surrounds the upper Mill Creek meadow was completed in May 2003. All dilapidated sections of fence were repaired and cheater bars were installed at gates for easier pedestrian access.

Maintenance to the cattleguard that was installed in 2001 was completed in August 2002. The cattleguard was reset to a grade level with the road surface.

Monitoring

Stream discharge was collected at the established gaging station on Mill Creek. Measurements were recorded on May 24, 2002, January 9, 2003, and April 14, 2003.

Physical monitoring parameters were not collected in 2002 since data collection is on a rotational basis and not every parameter collected each year.

Fish data was collected through snorkel surveys by the BPA Project *Nez Perce Tribal Hatchery Monitoring and Evaluation* (83-350-03).

Discussion

Additional restoration work remains to be completed in this watershed. During the FY2002, culvert inventories were completed and a prioritization of culverts to be replaced. Implementation of culvert replacement is scheduled to begin during field season 2004; contracts will be prepared in FY 2003. Culverts are expensive to replace, so the six priority culverts will likely take several years to complete.

Further riparian plantings are warranted since the riparian zone is virtually devoid of vegetation. Shade is needed to cool water temperatures and LWD recruitment will provide habitat for anadromous fish species.

Monitoring and evaluation will be increased in the following years with more discharge measurements, temperature recorders, and measurement of physical habitat parameters.

Costs

Tasks	Cost
Planning & Design	\$29,756
Construction & Implementation	\$27,353
Operation & Maintenance	\$13,531
Monitoring & Evaluation	\$9,753
	\$80,393