

Restoring Meadow Habitat in the Columbia Basin

An example stream restoration in mountainous habitat - the 4.5 km Lower Red River Restoration Project

What was done and why?

Recovery of Columbia River anadromous fish stocks is a top priority and meadow habitat in the mountainous terrain of North Central Idaho is very limited and often heavily impacted. Historically, Red River provided spawning and rearing habitat for a large diversity of native anadromous and resident salmonid species including Chinook salmon (*Oncorhynchus tshawytscha*), steelhead trout (*Oncorhynchus mykiss*), westslope cutthroat trout (*Oncorhynchus clarki lewisi*), bull trout (*Salvelinus confluentus*), and mountain whitefish (*Prosopium williamsoni*).

During the period 1936 to 1996, hydraulic mining and agriculture straightened the river channel, reducing the channel length and eliminating meanders in the project reach. This initiated a series of physical responses, including increases in channel slope, shear stress, and velocity which increased the erosion of bed and banks. As the channel has downcut, there has been a diminishing interaction between the channel and floodplain and a decline in the groundwater table. These physical changes induced loss of riparian vegetation resulting in less cover and habitat diversity while increasing stream temperatures and bank erosion. Consequently, resident and anadromous fish species were limited at all life stages by lack of cover, suitably-sized substrate and warm water temperatures. The Lower Red River Meadow Restoration Project was initiated in 1994 through the cooperation of the Bonneville Power Administration (BPA), Idaho Department of Fish and Game (IDFG) and several conservation groups.

Who was involved?

This project was primarily funded by the Bonneville Power Administration and administered by the Idaho County Soil and Water Conservation District. The site is managed by the IDFG. The consultant design and implementation team included LRK Communications, Wildlife Habitat Institute and Terragraphics, Inc. The Scientific Steering Community comprised stake-holders, including the IDFG, Idaho Department of Environmental Quality, Nez Perce Tribe and USFS Nez Perce National Forest. The University of Idaho and local high schools participated in monitoring and research activities.

Where can I see the results of this project?

The project is located at the Red River Wildlife Management Area. From Grangeville, drive for 2 hours due east along Highway 14 along the South Fork Clearwater River. Turn right just before Elk City toward Dixie and after 10 minutes the canyon opens up into the Lower Red River Meadow. The entrance to

RRWMA is clearly marked on the right hand side. Please contact IDFG prior to visiting the RRWMA to confirm access is not currently restricted due to elk calving and to meet with local staff, if desired.

Why is this a model project?

- Very specific restoration objectives and performance metrics were established early in the process. The monitoring program is one of the most comprehensive in the region.
- A range of restoration approaches can be viewed in the Upper and Lower meadows of Red River .
- This project has been developed as a "living classroom" with a strong hands-on educational component and interpretative materials. The old ranch house has been restored to provide accommodation, and the site is used as an outdoor classroom. Agencies, schools and Universities regularly use the ranch house to hold short courses or classes.
- Supplemental funds from the National Science Foundation and other groups have allowed a range of research projects and educational activities to be conducted. <http://www.redriver.uidaho.edu>
- The Nez Perce Tribe and USFS are currently completing a watershed assessment providing a holistic view of restoration in the watershed.

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Red River restoration reach under construction



Red River after restoration



Monitoring the restoration project on the Red River



Restoration, monitoring, and education