

Sheep Creek Stewardship Project Completion Report

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Sheep Creek Stewardship Project 2023 Implementation



INTRODUCTION

The Sheep Creek Stewardship Project is located on Sheep Creek, which originates high in the Blue Mountains and flows into the Grande Ronde River in Vey Meadows. This project took place across 4.5 miles of Wallowa-Whitman National Forest (WWNF) and Vale District Bureau of Land Management (BLM) land. Approximately 2.5 miles were completed in the first phase funded partially by the Bonneville Power Administration (BPA).

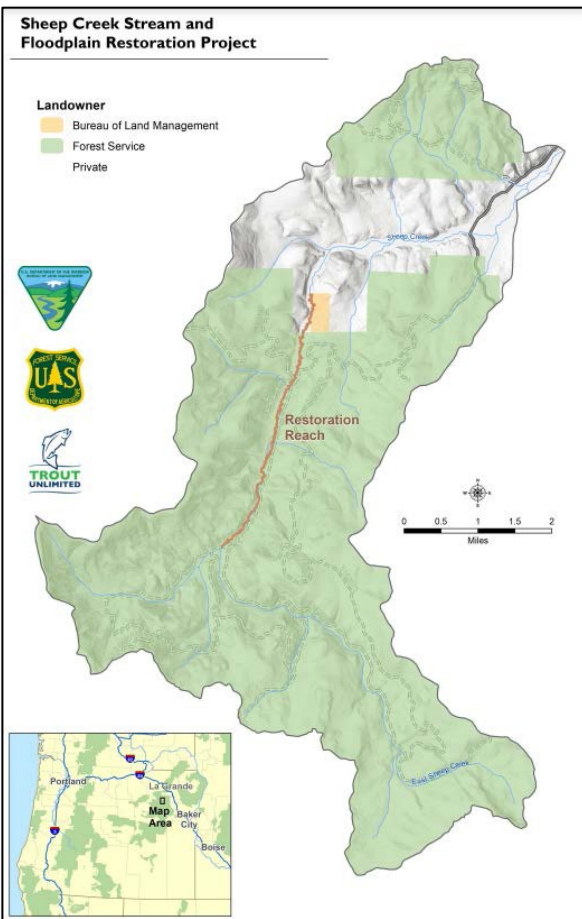
Trout Unlimited in partnership with the Bureau of Land Management, the US Forest Service, Grande Ronde Model Watershed, Oregon Watershed Enhancement Board, and BPA, implemented this phase of work on Sheep Creek.

Sheep Creek and its meadow habitats are not in proper functioning ecological condition due to historic anthropogenic influences. The overall goal of this project is to achieve proper ecological form and function of Sheep Creek and its meadows, and thereby enhance habitat for Snake River Basin Spring/Summer Chinook, Snake River Basin steelhead, resident Redband trout, bull trout and numerous other aquatic and terrestrial species. This includes habitat for beaver and other small mammal, floodplain ecosystem engineers.

This phase included a mix of restoration and stewardship actions that will set the system on a trajectory towards greater ecological health. The actions include material augmentation in stream to create wetland habitat and speed up aggradation, placement of woody debris and post-assisted beaver mimicry structures, riparian floodplain thinning, and the restoration of a connected wetland. Each of these actions will increase floodplain and channel complexity for Lower Snake River steelhead, Chinook, and lamprey populations.

This BPA construction funding supported the project team in treating 2.5 miles of stream, creating, and deepening approximately 38 pools, placing 377 pieces of large wood and 45 root wads/BDAs/PALs, and reconnecting 15 acres of wetland habitat.

The project is a collaborative effort between WWNF, BLM, Trout Unlimited (TU), Grande Ronde Model Watershed Council, Wolf Water Resources, BPA, Bureau of Reclamation, Oregon Watershed Enhancement Board, and other funding partners.



PROJECT LOCATION & PRIORITY

Sheep Creek is a major tributary to the Upper Grande Ronde River. It is in the Sheep Creek Subwatershed (HUC 170601040105) within the Upper Grande Ronde River Watershed (HUC 1706010401). The floodplain project is located along Forest Road 5160 and 5182, approximately twenty-four miles southwest of La Grande, Oregon. The project area includes US Forest Service Wallowa-Whitman National Forest lands and Bureau of Land Management Vale District lands.

Sheep Creek is designated as a Tier 1 (highest) priority for restoration by the Upper Grande Ronde Restoration Prioritization ATLAS. The ATLAS tool is a geospatial restoration prioritization plan developed in coordination with BPA by local fish biologists, researchers, engineers, hydrologists, practitioners, and stakeholders.

PROJECT PURPOSE - GOALS AND OBJECTIVES

The overall goal and purpose of this project was to achieve proper ecological form and function of Sheep Creek and its meadows, and thereby restore habitat for the imperiled Snake River Basin Spring/Summer Chinook and Snake River Basin Steelhead. The project team used the following goals to achieve the project purpose.

Subgoal 1: Physical - Restore Hydrologic Function

In the meadow reach increase hydration of laterally confined channel to improve groundwater retention. Use Large Woody Debris (LWD) to restore stream grade, reduce hydraulic efficiencies, and increase floodplain meadow inundation time. LWD structures will be placed in locations to increase roughness and back up water. Restoring hydraulic form and function will

facilitate an increase in floodplain water storage, flow attenuation, and spring and seep connection. Longer periods of floodplain inundation will moderate extreme high and low seasonal temperatures. Instream LWD structure types designed to meet these goals include channel spanning structures, lateral forcing structures, and floodplain wood.

Subgoal 2: Biological - Improve Fish Habitat

Restore channel habitat complexity. Existing LWD fish habitat structures constructed in 2013 will be modified, and additional LWD structures will be constructed. These structures will enhance scour pool habitat, cover, and floodplain connection. The structures will increase hydraulic complexity and zero velocity refugia on active channel margins. This will facilitate water retention, gravel deposition and sorting, and LWD recruitment. LWD structure types designed to meet fish habitat goals include adjusting and adding racking material to existing habitat structures; gravel bar wood placements to improve sediment routing and storage; and channel spanning structures to back water into pool habitat around existing structures.

The project team believes that the restoration treatment approach will lead to the project meeting its overall goals over time. The near-term as-built objectives were met on the project. The floodplain ecosystem is functioning better at various iterations of the annual hydrograph and the whole floodplain environment is set up to be more dynamic. The project team plans to continue to steward the system and take adaptive approaches until the ecosystem is on the appropriate trajectory towards self-sustaining ecological function.

PROJECT OUTCOMES

Installed 377 pieces of large wood in the channel and surrounding floodplain, as well as 45 rootwads/BDA/PALs for habitat complexity, hydraulic roughness, and floodplain connectivity.

Planted 4,000 plus riparian shrubs for rehab and riparian plant community recovery.

HABITAT RESPONSE: Improved aquatic connectivity for all species at all life stages, improved floodplain connectivity, increased floodplain acreage, increased native vegetation, increased large wood recruitment, improved off-mainstem beaver habitat, and significantly enhanced habitat complexity.

FISH RESPONSE: Improved aquatic connectivity for anadromous and resident fish populations at all life stages; improved habitat complexity for shade, pool habitat, cover, and spawning habitat; and improved rearing habitat. Long term goal of improved riparian shrub cover for shade, insect habitat and other positive fish benefits.

PROJECT PHOTO GALLERY



Photo: This photo demonstrates the inundation at baseflows on Sheep Creek after the 2023 construction implementation.



Photo: This photo shows the construction operators hard at work in the 2023 construction season.



Photo: This photo shows the planting crews planting riparian shrubs/sedges/rushes in the Fall 2023