

## Deep Creek Floodplain Restoration Project

**State(s):** Oregon

**Managing Agency/Organization:** Trout Unlimited

**Type of Organization:** Nonprofit

**Project Status:** Underway

**Project type:** WNTI Project

**Project action(s):** Riparian or Instream Habitat Restoration

**Trout species benefitted:** Redband Trout

**Population:** Deep Creek (tributary of the North Fork of the Crooked River)

### Project summary:

The Deep Creek Floodplain Restoration project will complement a series of activities implemented and planned to improve aquatic habitat conditions and riparian function within the Deep Creek watershed. The Deep Creek watershed represents the most interconnected habitat for Redband Trout in the Crooked River basin. Proposed activities would occur in the lower half of Deep Creek and dovetail with recently completed work including Crazy and Jackson creeks. The purpose and need for these restoration activities is to enhance and recover habitat for regionally listed sensitive aquatic species such as Redband Trout and Columbia spotted frog and other riparian dependent aquatic, wildlife, and plant species. Currently, floodplain habitat is deficient in large woody debris, pools, and exceeds standards for bank stability and width/depth ratios. Our project includes placement of Large Woody Debris complexes in 6 distinct sections, plug and fill work to aggrade the channel in the lower reach, and planting native riparian plants in and around the impacted floodplain. We will be monitoring pool development, activation of relic side channels, sediment size and sorting, water temperature, planting success, and grazing standards.

**Problem the Project Addresses:** Deep Creek's water and flow has become disconnected from historic floodplains with a corresponding increase in the energy and transport capacity of the channel. As the floodplain has become incised due to a lack of large wood in the system, constraints from the adjacent road or impacts from excessive grazing, the main channel has straightened and high flow is scouring most of the smaller spawning gravels. Substrate size in the existing channel is 5-10 times that of relic channel gravel. Riparian vegetation has been converted to xeric species like sage, as the incised channel has allowed the water table to drop and abandon side channels. Root causes are the same, and mentioned above. In reference locations where the water table is high, we find healthy sedge populations and this indicates that sedge and other riparian species would likely inhabit the whole valley floor given an intact water table. Large wood is lacking in most of the Deep Creek system. Roads have negatively altered hydrology by confining streams and forcing high flows to transport wood downstream. Natural wood recruitment has been reduced, as wood has been removed from the system or habitat has changed due to other management impacts. Roads have negatively altered hydrology by confining streams and reducing the access to and area within the floodplains, wetlands, and meadows. More water is concentrated into a smaller area during high flows, in turn negatively affecting riparian habitat and inhibiting its function to provide roughness for infiltration, slow release water storage, sediment deposition, and erosion prevention.

**Objectives:** This project will meet all 4 goals of the WNTI Strategic Plan, as we will provide benefits Redband Trout, restore an intact watershed that has been degraded by human activities, implement a collaborative approach to increase funding to implement high-priority projects for the conservation and enhancement of Redband trout, and finally we will implement an effective communication, education and outreach programs as a tool to increase public awareness. Since this project takes place on U.S. Forest Service land, the purpose and need for these restoration activities is also to advance Forest Service Riparian Management Objectives (RMOs) and recover habitat for regionally and state listed sensitive aquatic species such as Redband Trout and Columbia spotted frog and other riparian dependent aquatic, wildlife, and plant species.

Specific project objectives:

1. Six sections of stream and up to 50 large wood placement sites, at least 5 new pools and refuge areas created after two years.
2. 150 acres of floodplain planted with native species which mimic natural community composition, 75% survival after three years.

3. Reduce temperature to meet State standards outlined in Deep Creek Water Quality Restoration Plan and have the lower Deep Creek valley serve as a temperature refuge for the North Fork Crooked River watershed.

4. Activation of channels at various flows, and dynamic channel pattern development through avulsion, bar development, and oxbow formation.

5. Restore dynamic hydrologic function including floodplain connectivity, sediment and nutrient storage and sorting. Size of the sediment in the main channel will be reduced by 20%.

**Partners:**

- Trout Unlimited
- U.S. Forest Service - Ochoco National Forest
- Oregon Department of Fish and Wildlife

**Project Monitoring:**

Trout Unlimited and the U.S. Forest Service have crafted a monitoring plan with the Oregon Dept. of Fish and Wildlife. We have performed baseline monitoring at this point, and we intend to track the following variables:

- Number of new pool areas created
- % of planted plants surviving
- Temperature of the water
- Number of relic channels reactivated
- Size of the sediment in main channel
- Change in Redband Trout abundance in the project area.

**Funding Source(s):** National Fish Habitat Action Plan (co-funded by WNTI and the Desert Fish Habitat Partnership)

**Project cost:** \$32,916.00

**Start Date:** 09/01/2017 **Completion Date:** 9/30/2019

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