

Gray Prairie/ Gray Creek Restoration

State(s): Oregon

Managing Agency/Organization: Ochoco National Forest

Type of Organization: Federal

Project Status: Ongoing

Project type: WNTI Project

Project action(s): Riparian or In-Stream Habitat Restoration and Monitoring. This project will restore 3.4 miles of stream, reconnect an additional two miles of stream, and 41 acres of wetland.

Trout Species Benefitted: Interior Redband Trout

Population: Upper Crooked River Watershed

Project summary: Historically, Gray Prairie had beaver influence and a dense willow and sedge riparian community. Groundwater-saturated floodplains provided hyporheic exchange and water retention, providing perennial cold water. These headwaters meadows play an important role in resisting stream temperature and baseflow changes due to climate change. Currently, the meadow is heavily incised, with upland grasses and sagebrush-dominated terraces. Inset floodplains are narrow and meadow saturation is minimal. Sedges are limited to streambanks and willow are few and far between. Water retention in the meadow is far below potential. Gray Prairie and the downstream reaches of Gray Creek have faced these issues as well as some more localized impacts. These include disconnection from historic floodplains, the disappearance of historically dense willow thickets, and the extirpation of well-established beaver colonies (due to a lack of hardwoods). Restoration will focus on reconnecting floodplains and the functionality of the meadows and implementing different grazing management strategies.

Problem the Project Addresses: Gray Prairie and Gray Creek are key components of an ecologically critical watershed. Problems within the overall Upper North Fork Crooked River (UNFCR) watershed include incision of existing stream and meadow systems (and subsequent loss of water table elevation leading to impacts to floral and faunal species and habitat), impacts from cattle grazing, high-density roads, road-stream crossings, conifer encroachment on meadows, and vegetative conditions that are outside of the range of historic variability. These factors impact ecosystem functionality, floral and faunal species, their habitat, and the resiliency of the landscape to climate change. Other restoration efforts have addressed many of these issues over the last decade, including the [Greater Williams Prairie Restoration Area Project \(GWPPRA\)](#) previously funded by WNTI. Road closures, vegetative treatments, range improvements, and stream and meadow restoration activities have all occurred as part of the ongoing watershed-scale, ridge-top to valley-bottom restoration.

Gray Prairie and the downstream reaches of Gray Creek have faced these issues as well as some more localized impacts. These include disconnection from historic floodplains, disappearance of historically dense willow thickets, and the extirpation of well-established beaver colonies (due to a lack of hardwoods). Historically, Gray Prairie was intensely grazed by cattle, resulting in incision of the meadow and stream, lowered water table, and near total loss of mature willow. Grazing management has since been adjusted to more appropriate utilization standards. However, the stream system is now confined to a much narrower inset floodplain width between abandoned floodplain terraces colonized by sagebrush and upland grasses. Groundwater stores are much lower and narrower than other reference meadow reaches. Historic off-channel backwaters and side-channels are now abandoned and perched on the terraces. Available fish habitat is much more limited, and the primary shade component, willows, are no longer abundant. Hydrologically, the system does not function as a "sponge" and does not have a clear recovery timeline without restoration intervention. Restoration efforts will focus on restoring the "sponge" functionality of the meadow, providing the growing conditions necessary to return healthy willow populations, planting new willows, reconnecting historic floodplains and side-channels, and adaptively managing grazing activities to promote recovery. Restoring hydrologic function, coupled with improved grazing management practices and future adaptive grazing management, should allow for active grazing without degradation.

Jackson Creek subwatershed is another key component of the headwaters North Fork Crooked River. It faces all of the same problems as Gray Creek. Derr Creek has seen significant restoration investment in past years, including under the All Hands, All Brands partnership. Jackson Creek and Happy Camp Creek have also seen restoration investment in recent years. The headwaters of the North Fork Crooked River will continue to face climate change-related challenges from decreased snowpack, increased summertime water temperatures, decreased baseflows, and higher frequency of fires and floods. The GWPPRA continues to build climate resiliency through extensive restoration actions. This project partners with the GWPPRA and Lower Deep Creek Restoration to ensure functional, high-quality habitat exists in the headwaters and downstream, allowing Interior Redband Trout populations to persist.

Objectives:

- Use low-tech, process-based restoration (LTPBR) techniques to restore the system to a functional, self-sustaining state.
- Use LTPBR to slow water, raise water elevation, and aggrade incised streambeds.
- Reconnect floodplain and side-channels and plant willows to increase natural beaver recruitment.

Partners:

- | | |
|-----------------------------------------------|------------------------------------------|
| • All Hands, All Brands for Public Lands | • Backcountry Hunters and Anglers |
| • Heart of Oregon Corps | • North American Non-Lead Partnership |
| • Rocky Mountain Elk Foundation | • Oregon Department of Fish and Wildlife |
| • Oregon Hunters Association, | • Oregon Department of Forestry |
| • National Wild Turkey Federation | • Central Oregon Conservation Corps |
| • Western Beavers Cooperative | • Discover Your Forest |
| • Theodore Roosevelt Conservation Partnership | • Western Native Trout Initiative |

Project Monitoring: Ochoco National Forest aquatics, wildlife, and botany staff will be responsible for short-term (1-5yrs post-implementation) and long-term (5-10yrs post implementation) monitoring of the project.

Monitoring methodology will include:

Photo Points—willow recolonization, greenline expansion, floodplain and side-channel reconnection, LTPBR structure status, overall project response.

Personal Observation—LTPBR structure status, adaptive management needs, floodplain and side-channel reconnection, willow planting success, effectiveness of adaptive grazing, overall project response.

American Beaver Activity Inventory Protocol—Several established survey reaches exist within the project area. These have been surveyed pre-project and will be resurveyed every two years. Protocol may be used on a larger scale through multiple project areas.

Greenline width expansion—Available spatial data will be used to quantify acres of greenline change over time. Intervals of measure will be determined by the availability of aerial imagery.

Side-channel reconnection: reconnected side-channels will be monitored and the number and length will be measured.

These measures will gauge project success as well as adaptive management needs. As stream elevations increase and floodplains and side-channels are reconnected, building on existing LTPBR structures or installing new ones may be necessary to meet project goals. A certain percentage of LTPBR structures will blow-out in the short-term. Each of these instances will be assessed for adaptive action to meet project goals.

Funding Source(s): National Fish Habitat Action Plan

Project cost: \$31,457 WNTI funds, Total project cost \$93,677

Start Date: 06/20/2023 **Completion Date:** 09/27/2026

Project Contacts: Yann Lapotre, Ochoco National Forest, Paulina Ranger District, yann.lapotre@usda.gov