

Lower McCoy Creek Wet Meadow Restoration

State(s): Idaho

Managing Agency/Organization: Trout Unlimited

Type of Organization: Conservation organization (Non-Profit)

Project Status: Ongoing

Project type: WNTI Project

Project action(s): Riparian or In-Stream Habitat Restoration, Monitoring, and Education/Outreach. This project will restore 2.1 miles of stream and 77 acres of wetland.

Trout Species Benefitted: Yellowstone Cutthroat Trout

Population: McCoy Creek, Upper Snake Watershed

Project summary: The McCoy Creek Wet Meadow Restoration Project is a Trout Unlimited (TU) and Caribou-Targhee National Forest (CTNF) project to improve habitat for Yellowstone Cutthroat Trout and other native species through wet meadow restoration and floodplain reconnection on 2.1 miles of degraded stream. The activities that degraded this site to a single thread, incised channel began in the 1800s and include beaver trapping, settling, livestock grazing, hay production, and placer mining. These activities ended in the 1990s when CTNF acquired the land, but the project site has been unable to recover independently. We believe this section of McCoy Creek can be restored to conditions more representative of how it functioned before the 1800s by promoting wet meadow development and floodplain processes to address incision. The project is necessary to bring the creek back to a stable landform by elevating the streambed and reconnecting it to the historic floodplain, creating more areas of inundation. The project design uses a combination of process-based and more traditional stream restoration techniques to restore floodplain connectivity, encourage multiple flow paths, increase habitat complexity, and enhance beaver activity. Creating more complex habitat will result in greater resiliency and productivity of fish populations. The project will improve habitat conditions for adfluvial and resident Yellowstone Cutthroat Trout and all species that benefit from riparian wetlands. The project will elevate riffles, narrow the channel, and add roughness via large wood. Large wood will serve to trap sediment, aggrade the channel, and provide diverse habitat. The project will secure and enhance the existing 34 acres of wet meadow habitat and add up to 43 additional acres. Juvenile rearing habitat, which is currently limited in the McCoy Creek system, will increase dramatically in the project area. A high-flow refuge habitat, which is lacking in much of the 28 miles of upstream habitat, will be established. The project area will once again become a wet meadow complex sustained by natural floodplain processes. It will improve water quality through sediment reduction and more diverse and productive habitat.

Problem the Project Addresses: This project seeks to bring this portion of McCoy Creek back to its full ecological potential. While most of the McCoy drainage consists of narrow valleys, higher gradients, and large cobble to small boulder substrates, the restoration site consists of large valley width, low gradient, and gravel substrate indicative of a productive depositional area. The present channel is a single thread system in various stages of aggradation, widening, or degradation, with ecosystem values in the range of 12 to 27— although some stretches of the system have been elevated closer to anastomosing values due to beaver activity. The activities that degraded this site to a single thread channel spanned over a century. Degradation began with beaver trapping in the early 1800s, followed by the arrival of settlers and livestock grazing. These settlers continued the removal of beaver and ranched and hayed this land until the 1990s, when CTNF acquired it. Further degradation and destruction resulted from the discovery of gold in the canyon and associated placer mining. These actions contributed to the system's decline to what it is today and what many accept as normal. While it could be argued that beaver activity is already taking this system in the proposed direction, recent high-flow events in 1997 and 2011 have demonstrated the ability of this unstable system to change abruptly. Beaver-induced progress has occurred under relatively low flow years since 2011. However, this beaver activity has not resulted in floodplain reconnection, so stream power in future high-flow events will likely be largely confined within the channel. Because of this, a high-water year is likely to destroy dams, erode the channel, and set this section of stream back once again. This project is, therefore, designed to raise riffle elevations and add structure that will reconnect the system to its floodplain during bankfull flows. Large wood will be introduced to increase beaver dams' longevity, roughness, and create habitat complexity. In the elevated stream channel, beaver dams will create more floodplain connections and flooding during baseflows. Creation of a multi-thread, valley-wide system with greater floodplain activity will improve resiliency to high-flow events and promote long-term stability. This new floodplain habitat will provide high-flow refuge for fish populations, which data shows has decreased post-2011. Floodplain wetlands also provide abundant rearing habitat for juvenile trout, toads, frogs, nongame fish, waterfowl, and other species. While this project will not immediately recreate what was lost, it sets the stage so flows and beaver can help this site become again what it once was. As beavers regain their complex role on the landscape, the processes that originally formed this wide, flat valley bottom will stabilize it once again.

Objectives:

- Reconnect the channel to the floodplain by elevating riffles and creating more robust large woody debris and beaver dam structures.
- Reestablish the project site as a depositional, anastomosing, beaver-dominated system more representative of how it functioned before anthropogenic disruption.
- Increase habitat complexity for Yellowstone Cutthroat Trout and other native species by creating multiple flow paths, the addition of large wood, and enhanced floodplain connectivity.
- Engage community volunteers and local stakeholders interested in riparian conservation and restoration activities to learn about and cultivate a connection to the resource.

Partners:

- Jackson Hole One Fly
- Local Highway Technical Assistance Council (LHTAC)
- Trout Unlimited
- Idaho Transportation Dept Region 6
- Western Native Trout Initiative
- Caribou-Targhee National Forest

Project Monitoring: CTNF and TU will monitor this system through orthomosaic drone imaging. The project's success will be assessed by measuring the acreage of new and enhanced wetland and wet meadow habitat, new side-channel and meander scroll activation, and visible increase in beaver activity. Through this same imagery, the site will be monitored by CTNF for conditions requiring modifications or adding large wood or gravel. Review of existing aerial photos has provided a baseline for project monitoring. The entire restoration site will be walked during 2-3 post-project run-off events. If the project comes in under budget, the remaining funds will be maintained to address areas of concern identified through adaptive management. Otherwise, additional funds will be sought out for future project site modifications. In the Tincup Creek project, due to an incomplete understanding of valley slope and channel-beaver interactions, an area was identified that needed to be revisited and critical plug elevation adjustments made to avoid a large channel cut-off event. The success of this project modification resulted from monitoring and Tincup Creek being a multiyear project. The area of concern was plugged in 2017. Through monitoring and adaptive management practices the plug elevations were lowered in 2021 after other options were unsuccessful. The lesson learned through the Tincup Creek project is to provide for multiple flow paths. The design of this project incorporates that knowledge. In the 2.1-mile McCoy Creek project, valley, channel, and floodplain interactions may require adjustment after the system responds to these new inputs. Continued project monitoring will ensure that any design shortcomings or project vulnerabilities are addressed adaptively before damage to project benefits occurs. Beaver removal does not appear to be an issue in McCoy Creek as this area is only accessible by snowmobile for much of the trapping season. If issues are identified, project partners will work with Idaho Fish and Game to resolve project impacts as beaver dams are a key element to this process-based approach.

Funding Source(s): National Fish Habitat Action Plan

Project cost: WNTI \$60,000, Total \$255,000

Start Date: 08/01/2023 **Completion Date:** 10/31/2026

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