

# Blackfoot River Yellowstone Cutthroat Habitat Improvement

**State(s):** Idaho

**Managing Agency/Organization:** Idaho Department of Fish and Game

**Type of Organization:** Government

**Project Status:** Ongoing

**Project type:** WNTI Project

**Project action(s):** Riparian or Instream Habitat Restoration, Monitoring, Education/Outreach. Project assesses, restores or enhances 2.5 stream miles, and one population.

**Trout species benefitted:** Yellowstone Cutthroat Trout

**Population:** Blackfoot River

**Project summary:** The Blackfoot River one of the most productive watersheds for Yellowstone Cutthroat Trout (YCT) throughout their distribution and historically supported a remarkable recreational fishery. Today, the cutthroat population remains depressed and faces many challenges. The lasting effects of intensive livestock grazing and phosphate mining have degraded coldwater fish habitat and impaired the function of the watershed. A combination of land use impacts and biological interactions (i.e., American White Pelican predation) have reduced YCT populations in the Upper Blackfoot River.

The Blackfoot River has been over widened, downcut, and lacks complexity in the form of multiple macrohabitat types and riparian plant assemblage structure. Severe channel downcutting and lack of woody riparian vegetation has resulted in unstable banks, little overhead shading, and reduced organic contributions to the stream. The degraded instream and riparian habitat have increased the impact of avian predation, which has become an increasingly important factor limiting YCT recovery in the system. As such, the ongoing habitat enhancement actions in the basin are seeking to improve physical habitat for fishes in a way that lessens negative intraspecific interactions, while simultaneously enhancing habitat to meet the broad biological requirements of YCT.

The project is part of a 3-year effort to enhance YCT habitat on the Blackfoot River where it flows through Idaho Department of Fish and Game's (IDFG) Blackfoot River Wildlife Management Area (BRWMA). The BRWMA is a 972 ha public property that contains a variety of upland, riparian and instream macrohabitats. The property encompasses 10 km of the Blackfoot River immediately downstream from the confluence of Lanes and Diamond creeks. This portion of the Blackfoot River supports the highest densities of YCT in the system and serves as important transition and spawning habitat for adfluvial YCT migrating from Blackfoot Reservoir.

The project includes long-term protections from upland livestock grazing and includes post-treatment maintenance in the form of riparian vegetation plantings and irrigation. The project includes 3 phases intended to treat equal portions of the 10 km reach over three years.

**Problem the Project Addresses:** The Blackfoot River is likely the most productive system for Yellowstone Cutthroat Trout (YCT) throughout their distribution and historically supported a remarkable recreational fishery. The YCT population exhibits resident, fluvial, and adfluvial life forms. A combination of land use impacts and biological interactions (i.e., American White Pelican predation) have been implicated in the decline of YCT populations in the Upper Blackfoot River. The legacy effects of intensive livestock grazing and dispersed phosphate mining in the watershed have degraded coldwater fish habitat and reduced the function of the river system. Degraded instream and riparian habitat have resulted in the near complete absence of cover and security habitat used to avoid avian predators; as such, predation has become an increasingly important factor limiting YCT recovery in the system and is inherently linked to habitat change. In general, the Blackfoot River has been over widened, downcut, and lacks complexity in the form of multiple macrohabitat types and riparian plant assemblage structure. The riparian corridor along the Blackfoot River is currently composed largely of annual grasses, and the woody vegetation component is depauperate, seral, and scarce. Severe channel downcutting and lack of woody riparian vegetation has resulted in unstable banks, little overhead shading, and reduced organic contributions to the stream. As such, the ongoing habitat enhancement actions in the basin are seeking to improve physical habitat for fishes in a way that lessens negative intraspecific interactions while simultaneously enhancing habitat to meet the broad biological requirements of YCT.

This project addresses both underlying long term causes of habitat degradation, along with immediate habitat restoration techniques to accelerate benefits native trout. The project leverages passive habitat rehabilitation methods against active techniques to promote long-term habitat improvement, following treatment. The project involves a cooperative partnership with adjacent property owners and livestock producers to develop grazing management plans that protect and enhance tributary YCT spawning habitat on private lands, as well

as controlled livestock grazing benefits on the Blackfoot River Wildlife Management Area along the Blackfoot River. This partnership has reduced degradation by livestock grazing and existing grazing management plans continue to positively influence fish habitat. Combined with active restoration techniques, this project will fundamentally improve aquatic and riparian habitat for one of Idaho's most important Yellowstone Cutthroat Trout population with a diversity of life history forms.

**Objectives:** This project addresses objectives identified in IDFG's Yellowstone Cutthroat Trout Management including:

- Reconnect oxbows, alcoves, and side channels to enhance rearing habitat capacity.
- Raise the water table approximately 18 inches to reconnect the river to its floodplain. This in turn will expand wet meadow and riparian habitats, improving degraded conditions from historic land use practices.
- Remove reed canary grass on stream banks, herbicide treat remainder and replant with native vegetation (seeding, planting, and whole willow clump transplants)
- Reseeding/replanting of all disturbed areas
- Control noxious weeds within the project area.
- Improve riparian habitat through livestock grazing agreements, riparian fencing projects, and long-term monitoring program.
- Minimize the impact of avian predators on YCT adfluvial spawning migration from Blackfoot Reservoir.
- Increase the population of Yellowstone Cutthroat Trout in the 6-mile reach on the Blackfoot River Wildlife Management Area.

**Partners:**

- Idaho Department of Fish and Game
- Southeast Idaho Habitat Improvement Team (HIT)
- Upper Blackfoot Confluence
- Bear Lake Grazing Association
- Trout Unlimited
- Caribou County
- Natural Resources Conservation Service
- Idaho Department of Environmental Quality
- USDA Forest Service: Caribou-Targhee National Forest
- Idaho Department of Lands
- Idaho Fish and Wildlife Foundation
- Rocky Mountain Elk Foundation
- Sagebrush Steppe Land Trust
- Western Native Trout Initiative

**Project Monitoring:** The IDFG implements a robust monitoring program to assess trends in the status of this population, and that program dates back more than 40 years. The IDFG is responsible for monitoring the fish population and assemblage responses, along with changes to instream and riparian habitat characteristics through time. Fishery monitoring occurs annually and consists of standardized boat electrofishing transects used to sample and mark YCT and other species. In addition, redd surveys are conducted annually at index tributaries to assess trends in adult spawner abundance. The program monitors YCT abundance, survival, age and size structure, adfluvial adult escapement, and life history trends. The IDFG recently developed a robust integrated population model that is used to estimate age specific survival and abundance by life form. The model is currently used to evaluate predation management objectives but will allow IDFG to estimate the effect of habitat treatments in various ways. Physical habitat assessment will be conducted using a combination of ground and remote sensing techniques. Currently, a Before-After-Control-Impact (BACI) design is being using to assess changes in physical habitat and the associated fish community. Physical habitat data was collected for two years prior to treatment using the methods referenced above and will be used as a baseline for which to compare future samples. Habitat characteristics and metrics being evaluated include: wetted width, depth, proportion of bank type, overhead cover, substrate composition, riparian vegetation community composition, treatment efficiency (e.g., sediment trap accumulation), and water table flux.

**Funding Source(s):** National Fish Habitat Action Plan

**Project cost:** \$85,000

**Start Date:** 06/2022 **Completion Date:** 11/2024

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