

# Cottonwood Creek Fish Passage Barrier Project for Native Fish Security

**State(s):** Montana

**Managing Agency/Organization:** Montana Trout Unlimited

**Type of Organization:** Nonprofit

**Project Status:** Scheduled for 2020

**Project type:** WNTI Project

**Project action(s):** Barrier construction, Riparian Restoration, Monitoring, Outreach/Education

**Trout species benefitted:** Westslope Cutthroat Trout

**Population:** Cottonwood Creek, tributary to Blacktail Deer Creek in the Beaverhead River drainage

**Project summary:** The goal of this project is twofold: to increase an aboriginal Westslope Cutthroat Trout (WCT) population in secured high-value habitat in Cottonwood Creek and increase the availability of genetically-pure WCT for reintroductions across the Upper Missouri River Basin. WCT currently inhabit a 0.6-mile reach above a natural fish barrier in Cottonwood Creek, a tributary to Blacktail Deer Creek in the Beaverhead River drainage. The fish passage barrier will secure an additional 4.5 miles of stream that harbor a unique, genetically pure-strain of native Westslope Cutthroat Trout (WCT). A fivefold increase in the secure population from ~600 to 2500 fish is expected in five successful spawning seasons. This genetically pure population will be key in native WCT reintroductions scheduled to take place across the Upper Missouri watershed, including [WNTI's 2019 project funded on Selway Creek](#).

Montana Trout Unlimited is partnering with Montana Fish, Wildlife, and Parks on the agency's 30-year plan to increase genetically pure populations of WCT in the Missouri River drainage from less than 5% to 20% as described in the Interagency Status and Conservation Needs for Westslope Cutthroat Trout in Southwest Montana. The project also satisfies the goals of Montana's Comprehensive Fish and Wildlife Strategy, the Montana Statewide Fishery Management Plan, and specific Montana statute.

**Problem the Project Addresses:** WCT, a WNTI 2020 focal species, currently inhabit 59% of their native range (Shepard et al, 2002), with genetically pure populations in the Upper Missouri Basin occupying less than 5% (FWP, 2019). Multiple factors, such as habitat degradation and fragmentation, competition and predation from introduced species, hybridization, and historic angler harvest, have caused a marked decline in WCT populations and range. In the Beaverhead River Sub-basin, Cottonwood Creek supports one of only five genetically pure populations of WCT. Small population size and range, and competition from introduced species present the greatest threat to this WCT population. Once the barrier is complete, the upstream non-native fish will be removed using a piscicide. Immediate action is required before this population is genetically or demographically extirpated. This population of approximately 600 WCT is classified as being "high priority at risk" in the Westslope Cutthroat Trout Status and Conservation within the Beaverhead, Red Rock and Ruby River Sub-basins of Southwest Montana, published on February 7th, 2019. Populations of WCT are considered secure when they are isolated from non-native fishes, have a minimum population of 2,500 fish, and occupy more than 5 miles of habitat, to ensure long-term persistence. The addition of a wooden drop structure fish barrier on Cottonwood Creek addresses these major limiting factors by isolating the pure WCT populations from rainbow, rainbow-cutthroat hybrids and brown trout, increasing the population from ~600 to 2,500 fish, and increasing stream habitat from 0.6 to 5.1 miles. This structure has a 7 foot drop and a minimum lifespan of 50 years. The barrier is 16 feet upstream of a historic cattle crossing that will be hardened with native materials, reducing hoot shear and sediment load in the stream.

## Partners:

- Montana Trout Unlimited
- Montana Fish, Wildlife and Parks
- Matador Ranch
- George Grant Chapter of Trout Unlimited
- Chuck Robbins Chapter Trout Unlimited
- Bureau of Land Management
- US Forest Service
- Trout and Salmon Foundation
- Western Native Trout Initiative

**Project Monitoring:** Increasing the genetically pure population of WCT in Cottonwood Creek to 2,500 individuals through natural reproduction that are isolated from non-native fish will define project success. The

constructed barrier will be evaluated by the design engineer. Evaluation of the piscicide treatment effectiveness will be conducted by Montana Fish, Wildlife and Parks through eDNA sampling at 250-meter intervals throughout the secured stream reach following initial treatment. The eDNA results will dictate the subsequent treatment schedule. Long-term monitoring of the WCT population will be conducted by mark-recapture statistical analysis. Using this aboriginal WCT population to re-establish populations on other projects throughout the Upper Missouri River Basin is another measure of success. Vegetative success will be monitored by pre and post photo points. A net-gain of zero invasive plants will be another measure of success.

**Funding Source(s):** Western Native Trout Challenge registration fees

**Project cost:** \$7,500

**Start Date:** 05/4/2020 **Completion Date:** 12/31/2020

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