

Selway Meadows Westslope Cutthroat Trout population restoration

State(s): Montana

Managing Agency/Organization: Montana Fish Wildlife and Parks

Type of Organization: Government

Project Status: Underway

Project type: WNTI Project

Project action(s): Barrier Removal or Construction, Riparian or Instream Habitat Restoration, Monitoring, Education/Outreach

Trout species benefitted: Westslope Cutthroat Trout

Population: Selway Creek and tributaries

Project summary: This project will install a fish barrier that will directly result in re-establishment of a genetically unaltered Westslope Cutthroat Trout (WCT) population of over 25,000 individuals that will occupy about 48 miles of stream. The funding requested through this proposal would be spent exclusively on construction of the fish passage barrier. Barrier design, cost estimation, and engineering oversight have already been funded. Once the barrier is completed, the upstream non-native trout population would be removed using piscicide and a WCT population will be re-established from genetically diverse and unaltered aboriginal donor populations. Installation of a fish barrier to restore genetically pure WCT to the Selway Meadows watershed meets WNTI, NFHP, USFS, and State of Montana goals. Re-establishment of WCT will also benefit conservation of Western Pearlshell Mussel and result in an intact native aquatic assemblage in a publicly accessible drainage that will be featured as an educational example showcasing desired management by the U.S. Forest Service.

Problem the Project Addresses: Large-scale Westslope Cutthroat Trout (WCT) restoration projects are needed to significantly improve regional population status and benefit other native aquatic fauna. In the upper Missouri River Basin (MT) genetically unaltered WCT persist in less than 3% of their historic range. Long-term viability is further constrained because most populations are confined to short reaches of headwater streams; on average extant populations are isolated in less than 4 stream miles and lack a migratory life history. Resultantly, reestablishment of meta-populations founded with genetically unaltered aboriginal sources is among the highest interagency conservation priorities. Western pearlshell mussel is an S2 species in Montana that has notably declined statewide, including in Selway Meadows. Because WCT is the preferred intermediate host in pearlshell's reproductive cycle, cutthroat reestablishment is key to expanding and securing its viability in this watershed.

Strong commitment to habitat protection and stewardship make Selway Meadows an ideal WCT restoration opportunity. In 2007 the U.S. Forest Service acquired 1200 acres of private valley bottomlands in SW Montana called Selway Meadows because of its substantial aquatic and wildlife values. The purchase consolidated ownership and provided public access to a highly attractive stream and meadow system. Since acquisition the Forest Service has worked to improve and protect habitat quality throughout the drainage. Riparian grazing standards consistent with the Revised Forest Plan were implemented and three grazing enclosures were constructed. Instream flow evaluations resulted in replacement of inefficient and broken irrigation infrastructure and implementation of an irrigation plan that will improve watershed resiliency to climate change. Two tributaries were reconnected to the mainstem of Selway Creek and extensive geomorphologic and water quality work has occurred to evaluate the potential for active and passive restoration throughout the watershed. A lasting investment to improve and maintain aquatic habitat values through management and stewardship has been made.

Restoration of WCT to Selway Meadows will restore an intact, native aquatic assemblage. Native WCT have been replaced by non-native brook, brown, and rainbow trout, which now dominate the fishery in the Selway Creek watershed. Native Western Pearlshell mussels still occur in low numbers and are restricted to a relatively short segment of Selway Creek. Pearlshells are capable of living over 100 years and the population structure is skewed toward very old individuals, suggesting successful reproduction has been nominal to non-existent for decades with WCT absence being the primary factor limiting recruitment. Installation of a fish passage barrier will allow permanent removal of upstream non-natives with piscicide and restoration of genetically unaltered WCT. The 48 miles of productive fish-bearing streams upstream of the proposed barrier would result in a restored population of over 25,000 WCT, which would be among the strongest in the upper Missouri River basin.

Objectives: This project will install a fish barrier that will directly result in re-establishment of a genetically unaltered WCT population of over 25,000 individuals that will occupy about 48 miles of stream. The funding requested through this proposal will be spent exclusively on construction of the fish passage barrier; design, cost estimation, and engineering oversight has already been funded. Once the barrier is completed, the upstream non-native trout population would be removed using piscicide and a WCT population will be re-established from genetically diverse and unaltered aboriginal donor populations. Re-establishment of WCT will also benefit conservation of Western Pearlshell Mussel and result in an intact native aquatic assemblage in a publicly accessible drainage that will be featured as an educational example of desired management by the U.S. Forest Service.

This project will result in establishment of a WCT meta-population founded with genetically unaltered aboriginal sources, thereby satisfying goals described in the interagency Status and Conservation Needs for Westslope Cutthroat Trout in Southwest Montana, Montana's Comprehensive Fish and Wildlife Strategy, the Montana Statewide Fishery Management Plan, and specific Montana statute.

Partners:

- Montana Fish Wildlife and Parks
- U.S. Forest Service – Beaverhead-Deerlodge National Forest
- National Fish and Wildlife Foundation
- Future Fisheries Improvement Program, MT FWP
- Trout Unlimited – Montana
- U.S. Forest Service Resource Advisory Committee

Project Monitoring: Re-establishment of a genetically unaltered Westslope Cutthroat Trout population in Selway Meadows that is isolated from non-native fishes will define project success. Ultimately, Montana Fish, Wildlife & Parks will be responsible for all aspects of population restoration and maintenance and the U.S. Forest Service will be responsible for habitat management; however, the agencies will work in partnership to ensure a viable WCT population persists in high-quality habitat in perpetuity. Similarly, the agencies will collaborate on monitoring.

Evaluation of the constructed barrier will occur by the design engineer, whose formal assent is required prior to closing the construction contract and issuing payment. Evaluation of piscicide treatment effectiveness will dictate subsequent treatment schedule and define success of non-native removal. We anticipate conducting eDNA sampling at 250 meter intervals throughout the watershed during the summer following initial treatment. Follow up treatment will occur based on results. Treatments will continue until all non-natives are successfully eradicated from the drainage upstream of the barrier. All transferred WCT will be individually genotyped prior to being moved to ensure they are genetically unaltered. Final evaluation of the transferred population will occur by electrofishing to assess distribution and abundance and by analysis of genetic diversity of the re-established population. The population will be considered restored when deemed to be self-sustaining as indicated by evidence of natural reproduction, expanded distribution, increasing abundances, and composition genetically diverse individuals.

Funding Source(s): National Fish Habitat Action Plan

Project cost: \$20,000

Start Date: 09/01/2019 **Completion Date:** 10/31/2020

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