Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Genetic Integrity of Westslope Cutthroat Trout in the Gallatin River Watershed, Yellowstone National Park
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Montana State University
Effective Dates: 4/1/2005 - 12/31/2006
Funding Amount: $6,000
Investigators and Agency Representative:

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Project Abstract:

Westslope cutthroat trout have inhabited the waters of Yellowstone National Park (YNP) and the surrounding ecosystems for more than 9,000 years. Due to habitat loss and fragmentation on non-public lands in its native Rocky Mountains, the westslope cutthroat trout population is now threatened. Until the last century, when non-native fish were introduced to the park in the late 1800's through indiscriminate fish stocking programs, YNP's westslope cutthroat trout population was fairly isolated and did not face the dangers of habitat fragmentation that westslope cutthroat did outside of the park. Today, because of interbreeding between native cutthroat and non-native fish within the park and habitat loss outside the park, the once-abundant westslope cutthroat is considered a "species at risk." A status assessment by Yellowstone fishery staff indicates that westslope cutthroat trout currently occupy less than 50% of their historic range in YNP, and most of these populations are hybridized. Genetically pure cutthroat have only been found in one small tributary in the park, the North Fork (NF) of Fan Creek. However, recent results suggest that this population may also be lost to hybridization with nonnative rainbow trout.

The potential exists that Fan Creek or other isolated, remote streams within the Gallatin River watershed of Yellowstone N.P. continues to support ecologically and economically significant and genetically pure populations of Westslope cutthroat trout. In order to confirm this, laboratory analysis of tissue support to verify the genetic integrity of native cutthroat trout is needed.

The goal of this project is to verify the genetic integrity of native Westslope cutthroat trout of the upper Gallatin River drainage through analysis of tissue samples.

Objectives:
1)Analyze tissue samples of cutthroat trout on an individual basis, so results can be related to fish length, size, maturity, and life history strategies of these fish.
2)Analyze tissue samples of cutthroat trout on a site-specific basis, so results can be interpreted spatially within the drainage to understand distributions of genetically pure and introgressed fish.
3)Analyze tissue samples of cutthroat trout with an emphasis on determination of the presence of the Westslope cutthroat trout subspecies, and potentially nonnative rainbow trout, Yellowstone cutthroat trout, or introgressed forms of these species.

Outcomes with Completion Dates:
30 September 2005 –Preliminary results of genetics tests and Progress Report
01 April 2006 – Preliminary results of analyses, Annual Progress Report
31 December 2006 – Final Report completed and submitted to Yellowstone National Park

Keywords: westslope cutthroat trout, genetics, hybridization, species at risk, Yellowstone National Park, Montana State University

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Date Annual Report Received:
Date Final Report Received:
Publications, etc. on file: