

# THE ROLE OF BARRIERS IN THE CONSERVATION OF McCLOUD RIVER REDBAND TROUT.

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McCloud River redband trout (*Oncorhynchus mykiss* spp.) are currently threatened by displacement from exotic brook and brown trout and genetic introgression from introduced rainbow trout hatchery stock. Remaining stocks of relatively non-introgressed populations are relegated to tributaries of the Upper McCloud River. McCloud River redband trout are highly valued by sport fishermen for their brilliant coloration, and have important conservation value due to their retention of extant genetic material, adaptation to marginal habitat, and as a possible seed source for reclamation of invaded habitat.

In 1994, due to the threats posed by invasive species and land use practices, McCloud River redband trout were listed as a Candidate species under the Federal Endangered Species Act by the U.S. Fish and Wildlife Service. Through the efforts of private and government entities, a 1998 conservation agreement led to their eventual removal from the Candidate species list. Despite de-listing, the threat of invasive salmonids remains and efforts to preserve this unique fish are still being evaluated.

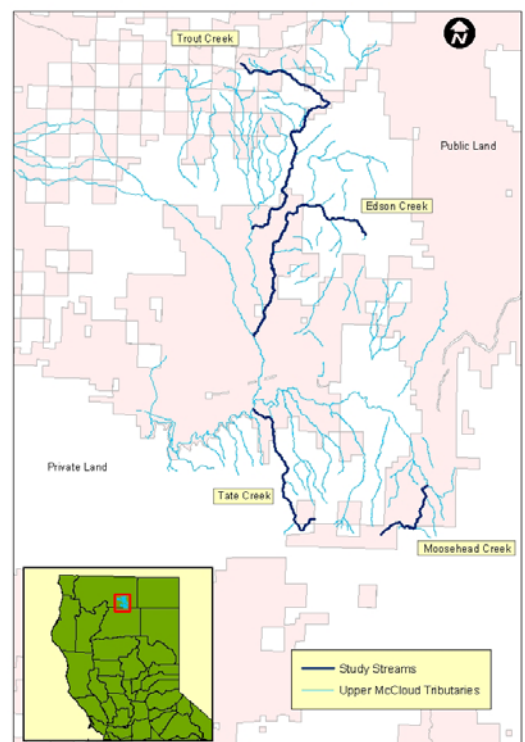
Potential strategies for McCloud River redband trout conservation include deliberate isolation of remaining stocks above stream barriers. Failure to isolate native populations may result in extinction from the threats posed by invasion and hybridization. However, isolation imposes an additional suite of risks if small populations are restricted to headwater reaches. Isolated reaches must contain resources sufficient to support populations large enough to maintain long term genetic viability. Distribution and abundance of McCloud River redband trout in relation to existing barriers is largely unknown.

This project will assess the effectiveness of an isolation management strategy in tributaries within the McCloud River redband trout refugium by: 1) determining the location and effectiveness of barriers in Tate and Trout creeks and the range of flows over which they are operational; 2) estimating abundance, distribution, biomass, mortality, and condition factor within Trout and Tate creeks in relation to barriers; and 3) estimating minimum stream length above barriers necessary for population viability using fish abundance from surveyed streams.

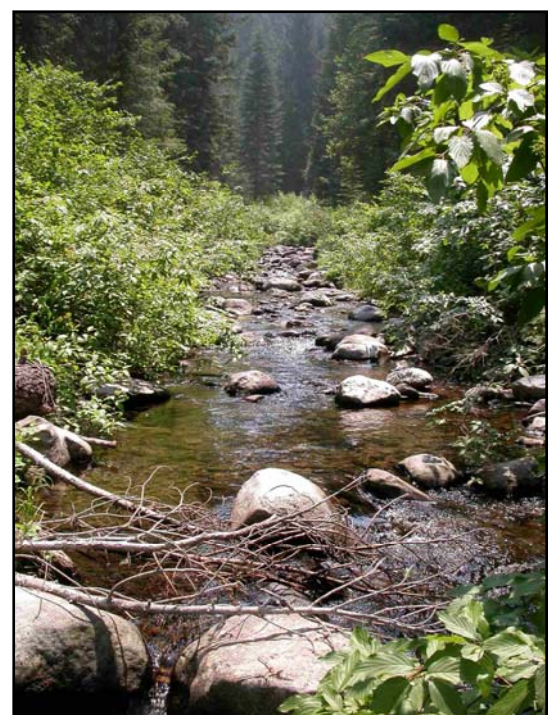
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McCloud River Redband Trout



Upper McCloud River Catchment



Tate Creek