

Colorado River Cutthroat Trout - *Oncorhynchus clarkii*

Abundance: Rare

Status: NSS2 (Ba)

NatureServe: G4T3 S1

Population Status: Greatly restricted in numbers and distribution - extirpation is not imminent.

Limiting Factor: Other: habitat availability is limited by the presence of introduced, non-native salmonids and introgression continues to be an issue. Although significant population gains have been made by eliminating introduced, non-native species and reintroducing Colorado River cutthroat trout, non-native species still occupy much of the historic range of Colorado River cutthroat trout.

Comment:

Introduction

The Colorado River cutthroat trout (CRC) is the only trout native to the Green and Little Snake river drainages in Wyoming. This subspecies of cutthroat trout is also native to Utah and Colorado. At the completion of the systematic review by members of the Colorado River cutthroat trout interagency team in 2005 determined that 21,386 miles of stream habitat were identified as habitat historically (circa 1800) occupied by CRC (Hirsch et al. 2006). The recent update indicates only 20,088 miles of stream were historically occupied by CRC (Hirsch et al. 2013). The estimated amount of historical range in Wyoming is 4,059 miles and currently CRC conservation populations occupy 13% of the historic range (Hirsch et al. 2013).

Colorado River cutthroat trout were petitioned for listing under the endangered species act (ESA) in 1999. The FWS concluded in a 90-day finding in 2004 that the petition did not have sufficient or substantial information to warrant listing (FR 69(76):21151-21158, 04/20/04).

Colorado River cutthroat trout are spectacularly colored during spawning. The spots are large and somewhat concentrated in the caudal area (Baxter and Stone 1995). Spawning typically starts after peak flows which is usually during June and as late as early July for higher elevation streams and lakes. They feed mostly on aquatic and terrestrial invertebrates. Colorado River cutthroat trout historically occupied large rivers and lakes but are now typically found in headwater streams.

See the Green River Basin aquatic basin chapter in the current SWAP for more information relative to this fish.

Habitat

In Wyoming, the Colorado River cutthroat trout can be found in the Green River, Black's Fork and Little Snake River drainages. Some of the healthiest and purest populations of this subspecies occur in small stream tributaries of the Little Snake River in Carbon County and in the Wyoming Range of Sublette County. Colorado River cutthroat trout prefer clear, cold water, naturally-fluctuating flows, low levels of fine sediment, and complex habitats.

Problems

- h Nonnative species have contributed to the decline of this fish either through hybridization, competition for habitat, or competition for food and spawning sites.
- h Past and current livestock grazing practices have altered riparian and in-stream habitat, water quality and sediment transport regimes. Ramifications of this practice includes loss of instream cover and channel complexity, increased water temperature, bank erosion and loss of preferred substrate.
- h Land management actions such as oil and gas exploitation, roads, culverts, domestic grazing, and timber harvest have had negative impacts to watersheds.
- h Lack of aspen regeneration has impacted beaver persistence in these watersheds.
- h Habitat fragmentation caused by dams, road crossings, grade control structures, diversions, etc. are in some cases limiting gene flow and threatening the persistence of this fish.

Conservation Actions

- h Prevent stocking with non-native species that are likely to negatively influence populations.
- h Continue to work with private landowners and other agencies to reduce entrainment issues.
- h Work with other agencies with implementation of the CRC Conservation Agreement and Strategy.
- h Complete genetic analysis of all potential CRC populations
- h Maintain the North Piney Lake CRC brood source
- h Implementation of the Conservation Strategy for Colorado River cutthroat trout will eliminate or reduce threats to this subspecies of cutthroat trout (CRCT Coordination Team 2006).
- h Represent the WGFD on the interagency Colorado River cutthroat trout conservation team and help implement the Range-wide Conservation Agreement and Strategy for Colorado River cutthroat trout (CRCT Coordination Team 2006). Complete CRC accomplishment reports annually and present this information to the CRCT Coordination Team annually..
- h Complete next 5 year CRC Status Assessment.
- h Evaluate potential restoration opportunities on public and private lands.
- h Identify populations of Colorado River cutthroat trout or habitat that will support Colorado River cutthroat trout that would benefit from isolation by a fish migration barrier and/ or chemical rehabilitation to remove non-native species.
- h Increase public awareness and support for native fish species.
- h Complete Bare Creek piscicide treatment and reintroduce CRC
- h Investigate options to use transplants or streamside spawning operations for future restoration projects.

Monitoring/Research

Continue to complete basin wide habitat and population surveys for those watersheds that support CRC populations.

Continue to supplement some CRC populations with hatchery fish as needed and continue to monitor the success of those stocks.

Continue to monitoring the success of stocked CRC in the LaBarge watershed.

Continue to complete WHAM habitat surveys for all CRC watersheds and identify potential restoration opportunities.

Complete genetic analysis for all CRC populations

Recent Developments

Wyoming Game and Fish summarized actions, including changes to historic and current range that have been discovered, habitat enhancement that have occurred (whether those actions were completed by the WGFD or in cooperation with other state and federal agencies), current harvest regulations to protect CRC, current fish disease status, threats to CRC populations from exotic organism such as *Myxobolus cerebralis* (Whirling Disease parasite, WD), and other management actions taken to protect or enhance existing CRC populations (WGFD 2007).

Colorado River cutthroat trout have been reestablished in the LaBarge watershed which includes 58 stream miles. More information on this watershed and restoration plan can be located in the LaBarge Watershed Fisheries Management Plan for Colorado River Cutthroat Trout (Sexauer 2000) and the LaBarge Creek Rehabilitation Plan (Sexauer 2006). WHAM surveys were completed in the LaBarge watershed (Roadifer and Sexauer 2010). Fish passage issues in LaBarge watershed restoration area are being addressed.

The conservation agreement and strategy for Colorado River cutthroat trout was updated (CRCT Coordination Team 2006).

The 2005 - 2010 Colorado River Cutthroat Trout Status Assessment was completed in 2013.

Supplementation of Colorado River cutthroat trout in several tributary streams located within the Wyoming Range and Wind River mountain range.

Continue to implement piscicide treatment in Bare Creek, tributary to South Cottonwood Creek. Fish migration barrier was constructed on Bare Creek in 2015.

Entrainment studies will be implemented in 2015 on a couple diversions located in South Cottonwood watershed. This work will be completed by WGFD and TU.

Investigate the use of transplants or streamside spawning operations for the reintroduction of CRC in Bare Creek, post piscicide treatment.

Wyoming Range forage reserve and Triple Peak Forage reserve are providing protection to the headwaters of several Colorado River cutthroat trout streams.

Graduate research project: Investigate stocking options (timing of stocking, size of fish at stocking, and months of domestication in the hatchery), emigration, and survival of stocked CRC in LaBarge watershed. This work is being completed by a graduate student at the University of Wyoming.

AFLP analysis completed for several streams in the Wyoming Range. Wyoming reference populations have been established.

M.S. Graduate research project completed in the South Fork, Middle Fork and North Fork Beaver creeks. Girard, Carlin E., The Effects of Oil and Natural Gas Development on Water Quality, Aquatic Habitat, and Native Fish in Streams along the Wyoming Range. M.S., Department of Zoology and Physiology, August 2015.

Dissertation proposal: Ecological Responses to Stressors in Headwater Streams of the Wyoming Range. This project is a continuation of the work completed by Carlin Girard. Specifically, this project will assess the effects of stressors related to energy development, livestock grazing, and annual hydrologic differences on fish physiology and immunology, fish population dynamics, and macroinvertebrate community structure and function. Richard Walker is a PhD candidate at the University of Wyoming.

Completed Basin Management Plans for all watersheds supporting Colorado River cutthroat trout.

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SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: February 2016. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.