

Colorado River Cutthroat trout (*Oncorhynchus clarkii pleuriticus*)

Data: Conservation Strategy for Colorado River Cutthroat Trout-2006; Range-Wide Status of Colorado River Cutthroat Trout – 2005
Partners: CO, WY, UT, BLM, FS, FWS, Tribes

Species Status Review: The Colorado River cutthroat trout (CRCT) is designated as a species of special concern by Colorado and Wyoming, and a Tier I species in Utah (those species that are either federally listed or for which a conservation agreement has been implemented). Prior to 1995, this fish was a Federal Category 2 candidate species, but does not occur in the candidate list proposed by the U.S. Fish and Wildlife Service in 1996 (50 CFR Part 17, 61 FR 7600), as use of categories 1, 2, etc. was eliminated in this proposed rule. The CRCT is classified as a sensitive species by Regions 2 and 4 of the USFS and by the BLM in Colorado, Wyoming, and Utah. Through the petition process of ESA, the FWS concluded in a 90-day finding in April 2004 that a December 1999, a citizen-based petition to list CRCT did not contain sufficient or sub-stancial information to indicate a listing may be war-ranted (FR 69(76):21151-21158, 04/20/04). Currently, the CRCT is undergoing a “12-month finding” review in response to Court Order following the April 2004 FWS decision.

Sportfishing Status of the Colorado River Cutthroat Trout:

CRCT are considered a game fish by all state, federal and tribal agencies that manage this subspecies. Consequently, all populations have sport fish value and are managed as such by the various states, national parks and tribes, regardless of their genetic status. Special regulations requiring catch-and-release, limited harvest, and terminal tackle restrictions have been applied where needed to maintain trout populations in all three states. Many CRCT populations tend to lie in remote headwater drainages with difficult access, which has served to minimize angling pressure. The tendency for these populations to be composed largely of small-sized fish may also reduce

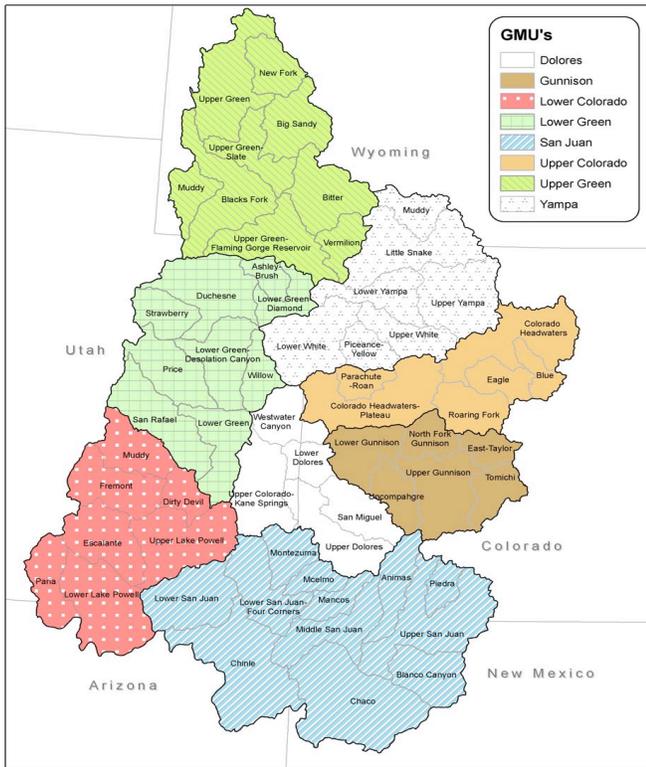
interest by anglers wishing to harvest fish. Wyoming has closed some cutthroat waters to fishing where angler harvest was thought to be a concern. Utah has imposed seasonal closures to protect spawning populations and wild brood stocks. In addition, the National Park Service has closed four CRCT waters to fishing to protect broodstocks, small populations, and spawning fish. Angler support for Colorado River Cutthroat conservation management programs is strong in all three states and is considered an important asset to conservation and management programs.

Colorado River Cutthroat Trout Distribution:

Colorado River cutthroat trout historically occupied portions of the Colorado River drainage in Wyoming, Colorado, Utah, Arizona, and New Mexico. The range of the Colorado River cutthroat has been divided into eight Geographic Management Units (GMUs) to bring a finer level of resolution to population descriptions and habitat distribution. CRCT currently occupy about 3,022 miles of habitat. CRCT currently occupy about 1,359 miles in Colorado (45% of total currently occupied habitat; 10% of Colorado historical habitat), 1,111 miles in Utah (37% of total current; 32% of Utah historical), and 552 miles in Wyoming (18% of total current; 13% of Wyoming historical). The Lower Green GMU contained the largest amount of occupied habitat (791 stream miles), followed by the Upper Green GMU (691mi), Upper Colorado GMU (601 mi), Yampa GMU (404 mi), Gunnison GMU (292 mi), San Juan GMU (119 mi), Lower Colorado GMU (64 mi), and the Dolores GMU (60 mi), respectively. In addition, as of 2003, the CRCT Conservation Team was also tracking 41 lakes (1,123 surface acres) containing conservation populations. (Hirsch, et al. 2005)

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Range and GMU's of the CRCT



A total of 285 separate CRCT populations currently occupying 1,796 miles of habitat are designated as “conservation populations” (59% of currently occupied habitat, 8% of historical).

These conservation populations are spread throughout the historical range, occurring in 34 of the 51 hydrologic units historically occupied by CRCT. Two-thirds of these conservation populations are isolated from other populations, isolated populations occurred in 739 miles or 41% of occupied habitat; well-connected meta-populations occupy 280 miles or 16% of occupied habitat. Of the 285 designated conservation populations, 153 (54%) tested as genetically unaltered or were viewed as being potentially unaltered. The 2006 assessment shows CRCT currently are well distributed across their historical range.

Colorado River Cutthroat Habitat

Requirements: Maintenance of CRCT populations necessitates that aquatic habitats provide for all the life history requirements of the fish. CRCT are generally found in higher elevation small streams, beaver ponds and lakes rather than large rivers. These habitats feature cold, clear-running well-oxygenated water, cobble-boulder-gravel substrates, balanced pool-riffle ratios, pH ranging from 6-9, good riparian cover, and they can persist in areas with high gradients, although that is not a necessary habitat requirement. Water temperatures should not exceed 21-22 C and optimally fall in the range of 12-15 C. Given the high elevation these fish occur in, sufficient depth of pools is necessary for over-wintering.

Concerns, Issues, or Obstacles relative to the Conservation and Improvement of the status of Bonneville Cutthroat Trout:

Population Viability Concerns:

Genetic testing of CRCT of all populations has not been completed and existing tests were not conducted in a randomly. Consequently, the available genetics information does not fully describe the range-wide genetic status of CRCT. Genetic risk is defined by the nature of future introgression of non-CRCT genes into a conservation population. The biggest genetic concerns for CRCT are: 1) an accurate inventory of genetic status, 2) determination of which brood stocks to use in restoration, and 3) getting the geneticists to agree on methods and status of populations (what was once pure may no longer be considered pure).

The 2006 CRCT Status review examined the genetic status of CRCT in Colorado, Utah and Wyoming. Results of genetic sampling were extrapolated across the currently occupied segments from which the samples were taken, which may include one or more miles

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of occupied habitat. No evidence of introgression was found from samples covering about 782 miles (68% of tested area, 26% of occupied habitats, and 4% of historical habitats. CRCT identified in 470 miles (16% of occupied habitats and 2% of historical habitats) were suspected of being genetically unaltered, based on the absence of introduced hybridizing species and the lack of records that identify stocking of hybridizing species, good meristic characteristics, or the population was adjacent to a pure population. CRCT in about 367 miles (12% of occupied habitats or 2% of historical habitat) were hybridized based on genetic testing.

Disease and Invasive Species Concerns

Cutthroat trout are susceptible to common salmonid diseases, including whirling disease, which is caused by the myxosporean *Myxobolus cerebralis* (Mc). Colorado River cutthroat trout exposed to *Mc* in sentinel fish experiments suffered significantly greater mortality from the infection than most other non-native salmonids (Nehring 1998). Very little is known about other diseases and parasites of this subspecies.

Transmission of diseases to wild cutthroat trout populations through hatchery-based fish stocking is also recognized as a potential, but low-level concern. The three states have statewide policies and regulations that address fish health status, disease certification for stocked fish, and stocking protocols which are designed to reduce disease concerns.

In Colorado and Utah the presence of New Zealand Mud Snails presents an opportunity for this invasive to be spread to native trout waters, however the concern is low due to the elevation and temperature of CRCT habitats.

Habitat Concerns

Continued habitat degradation is one of the major threats to the continued improvement of the CRCT status. The CRCT status report and conservation strategy identified poorly managed water development projects, water withdrawal, livestock grazing, oil and gas energy development, mining, poor timbering management, and associated road building as significant habitat threats to CRCT. In addition, natural climatic events such as drought, floods, and fires can threaten populations of CRCT, especially when stream populations remain fragmented, small and isolated. The main concern is continued or increased isolation and fragmentation of CRCT populations as a result of habitat perturbations.

Introduced Species Concerns

The introduction and subsequent spread of non-native trout has been one of the greatest threats to the status of CRCT since stocking in CRCT habitats first began over 100 years ago. Competition, predation, and hybridization from other salmonids including rainbow, brook and brown trout, as well as genetically compromised cutthroat, continue to pose a threat to the expansion and conservation of CRCT. In the 2006 Status report, 1,334 miles of occupied habitat (44% of occupied habitats and 6% of historical habitats) were identified as having the potential of being hybridized due to the presence, or past stocking, of hybridizing nonnative species or subspecies

Overutilization Concerns

Sufficient regulations are in place to protect CRCT populations from over-fishing by recreational angling. In addition, controls over scientific collection permitting and collection for genetic testing have helped to reduce the risk from monitoring programs. Overuse does not appear to have contributed to the decline of the species.

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Energy Development Concerns

There may be increased pressure on BVCT habitats from energy exploration in the near future. The potential for development impact is most likely to occur in Colorado, especially on the Roan Plateau. Habitat degradation, along with contamination and loss of ground water due to surface disturbance, drilling and extraction constitute the greatest concerns.

Opportunities for Improvement of the Status of CRCT:

The goal of the Conservation Strategy for Colorado River cutthroat trout is to assure the long-term viability of CRCT throughout their historic range. Areas that currently support CRCT will be maintained, while other areas will be managed for increased abundance. New populations will be established where ecologically and economically feasible, while the genetic diversity of the species is maintained. The cooperators envision a future where threats to wild CRCT are either eliminated or reduced to the greatest extent possible. (Conservation Strategy for CRCT – 2006).

The Strategy also identified seven specific objectives:

- **Identify and characterize all CRCT core and conservation populations**
- **Secure and enhance conservation populations**
- **Restore populations**
- **Secure and enhance watershed conditions**
- **Public outreach**

- **Data sharing**
- **Coordination**

Population Surveys, genetic analyses, and fish population manipulation

CRCT Restoration potential:

The CRCT Status Review group evaluated the restoration or expansion potential of unoccupied CRCT habitat and made judgments on current suitability and determined that 4,749 miles of this habitat (26%) is unsuitable based on current habitat limitations (e.g., excessive temperatures, significantly reduced stream flows, channel alteration, etc.) or because the fisheries of such were judged to be associated with recreational importance to make consideration of their use in CRCT conservation unrealistic at this time. The remaining stream miles (13,253) of suitable habitat were carried through the assessment and rated in relation to the potential for restoration or expansion of CRCT populations. Of the 13,253 miles of suitable but unoccupied habitat, only 176 miles (1%) were judged to have high potential for CRCT restoration or expansion. Another 406 miles (3%) had intermediate restoration or expansion potential. One or more missing pieces of information. (CRCT Status Review, 2006)

Key actions include:

Continue to locate and assess CRCT populations
Conduct standardized surveys and genetic analyses to measure introgression or purity

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Expand CRCT populations through restoration, reintroductions, and non-native fish control in priority watersheds
Updating this database with data from a well-designed field monitoring program to could serve as a barometer to monitor the status of CRCT over time.

Key Actions to be addressed:

Maintain or enhance regulatory actions to prevent destruction of habitat
Enforce regulatory mechanisms that prevent impacts associated with recreational angling
Enhance and maintain regulatory mechanisms that prevent diseases or illegal introduction of nuisance species

CRCT Habitat Manipulations:

Restoration of Colorado River cutthroat trout habitat will have to address both habitat quality issues and issues of spatial limitations. Current efforts to CRCT have been directed toward improving in-stream conditions and restoring limited stream fragments, as well as putting in place protective barriers to isolate key populations.

Key actions include:

Restore and improve altered channel and riparian zone habitats
Restore and enhance water flow , quality and sediment regimes
Address public and private land ,management and O&G development practices to protect habitat
Monitor and evaluate natural catastrophe impacts like fire and drought

Regulatory Actions to enhance CRCT status:

Maintaining the sportfish status of the CRCT and utilizing regulations to control over-utilization will be an important component of maintaining the health of CRCT populations. In addition, working with others to maintain appropriate regulations for prevention of disease, water quality impairment, and habitat disturbance are important considerations. [fishing regulations will be trivial compared to land use policies and actions.]

Highest Priority Objectives for the 8 GMU’s for CRCT are:

Dolores GMU - Highest Priority Watersheds and projects include:

- Woods Lake 20 miles
- Muddy Creek 2.5 miles
- Fall Creek 4 miles
- Priest Lake 9.9 acres

Gunnison GMU - Highest Priority Watersheds and projects include:

- Cochetopa Creek 3 miles
- Henson Creek 5 miles
- Deep Creek
- Big Dominguez Creek

Lower Colorado GMU - Highest Priority Watersheds and projects include:

- Short Lake (E Fk Boulder Cr) 2 acre lake
- Tasha Creek 5 miles
- Boulder Creek 7.5 miles
- Lower Pine Creek 8.5 miles
- Calf Creek 5 miles
- Kolob Reservior Broodstock
- Dougherty Basin Fish trap

Lower Green GMU - Highest Priority Watersheds and projects include:

Not available

San Juan GMU - Highest Priority Watersheds and projects include:

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Navajo River 2.5 miles
Hermosa Creek #2 (45802) 5 miles

Upper Colorado GMU - Highest Priority Watersheds and projects include:

Payne Creek 1 miles
Pettingell Lake 1 miles (+10 acre lake)
Ranch Creek (S Fk) 1 miles
Swan River (N Fk) 2.5 miles
Butler Creek 3 miles
Parachute Creek (E Fk) 2 miles
Abrams Creek 3 miles
Cunningham Creek 2.5 miles
Battlement Res #3 10 acre lake

Upper Green GMU - Highest Priority Watersheds and projects include:

Middle Fork Sheep Creek 9 miles
Tamarack Lake 79 acres
Lost Lake 3 miles

Yampa GMU - Highest Priority Watersheds and projects include:

Coal Creek (East and West) 8 miles
Cabin Creek (Little Trappers) 2 miles (+30 acre lake)
Slater Creek (Upper)
Muddy Creek 16 miles
Haggerty Creek (Little and Upper) 1 miles
Little Snake (N Fk)
East Douglass Creek 2 miles
Cathedral Complex 4.5 miles
Roaring Fork 12 miles

Estimated 5-year Funding Need

2.5 million dollars to complete the restoration projects identified above. This does not account for any genetics work or habitat restoration or any other needs so it is a very low estimate.

Estimated 10-year Funding Need

[no idea]

Likely Future CRCT Joint Ventures:

Western native Trout Status report

References:

1. CRCT Coordination Team. 2006. Conservation strategy for Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 24p
2. Hirsch, C. L., T. P. Nesler, and S. Q. Albeke. 2005. Range-wide status of Colorado River cutthroat trout. (*Oncorhynchus clarkii pleuriticus*) Colorado River cutthroat trout Conservation Coordination Team Report. Craig, Colorado.
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This publication was funded (or partially funded) by Federal Aid to Sportfish Restoration Funds through the Multistate Conservation Grant Program (Grant WY M-8-P), a program supported with funds from the Wildlife and Sport Fish Restoration Program of the U.S. Fish and Wildlife Service and jointly managed with the Association of Fish and Wildlife Agencies, 2006-9.