Yellowstone Cutthroat Trout - Oncorhynchus clarkii

Abundance: Rare

Status: NSS2 (Ba) NatureServe: G4T2 S2

Population Status: Restricted in numbers and distribution, but extirpation is not imminent.

Limiting Factor: Other: hybridization with introduced non-native species has caused significant declines in genetic purity. Other limiting factors include competition with non-native salmonids, habitat loss and degradation. Habitat availability is limited by land management activities such as grazing, irrigation diversions, roads, energy development, and municipal water diversions.

Comment:

Introduction

Yellowstone cutthroat are game fish native to coldwater habitats in the Snake, Yellowstone, Bighorn-Wind and Tongue River drainages of Wyoming. Yellowstone cutthroat distribution throughout their range and in Wyoming have declined substantially (May et al. 2007). Yellowstone cutthroat trout are distinguished from other cutthroat trout by large black spots concentrated towards the caudal peduncle. The fish feed on zooplankton, freshwater shrimp, a wide variety of insects, mollusks and other fish. Some populations occupy lakes and are adfluvial, while most populations are strictly fluvial. Yellowstone cutthroat spawn in early summer (May to July), often migrating upstream to spawn in tributaries with clean gravel substrates. In late summer or early fall, eggs hatch and fry emerge.

A range wide strategy for Yellowstone cutthroat conservation has been developed and recently updated (YCT Range-wide Conservation Team 2009). The objectives identified and incorporated into management in Wyoming are 1) identify and characterize all populations, 2) secure and enhance populations and 3) restore populations where possible. Extensive surveys of fish and habitat have been completed in most of the species' range in Wyoming. Most populations are believed to be well documented. Efforts to enhance Yellowstone cutthroat populations by expanding their distribution in occupied streams have been completed or are underway in the Bighorn, Clarks Fork and Tongue River drainages.

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

Habitat

Yellowstone cutthroat are native to the coldwater habitats in the Yellowstone River drainage downstream to the Tongue River. Yellowstone cutthroat (large spotted form) are also found in Pacific Creek and other upper Snake River tributaries. They have been widely stocked outside of their native range. Yellowstone cutthroat inhabit coldwater lakes, rivers and streams but require flowing water enviroments for spawning.

Problems

- Previous introduction of nonnative salmonids has diminshed the genetic integrity of many Wyoming populations. In some cases there continues to be hybridization.
- Lack of connectivity resulting from low flows or other physical barriers (natural and man made) may significantly limit access to upstream habitats.
- Available habitat that is not affected by anthropogenic influences are located in headwater streams with limited connectivity and some are located within wilderness areas. Restoration or introductions can be problematic in these areas. Construction of exclusionary barriers to limit non-native salmonid introgression or competition can also be a problem given the soil types and erosive nature of the Absaroka volcanics that dominate the range of Yellowstone Cutthroat trout.
- Nonnative salmonids introduced into waters with Yellowstone cutthroat almost always eliminate cutthroat populations over time through hybridization, predation and/or competition.

Conservation Actions

- Continue efforts to remove competing and hybridizing nonnative species to secure, enhance and restore populations.
- Continue to remove anthropogenic barriers limiting gene flow and the expression of fluvial life history strategies.
- File for instream flow water rights to protect habitat of conservation populations.
- Continue regulations to restrict harvest of vulnerable populations.
- Prevent stocking of public or private waters with non-native species that may impact conservation populations.
- Protect and manage riparian areas for native riparian vegetation, that will filter runoff, maintain a higher water table, provide late season stream recharge, and stabilize stream banks. Use riparian fencing, grazing management, fire management, and invasive species control to promote native vegetation.
- Identify and characterize all populations within their native range in Wyoming.
- Develop refugia for pure populations in lakes or streams to act as backup for hatchery brood sources.

Monitoring/Research

Monitoring is ongoing. Populations are periodically sampled to determine change in status, population size and assess identified and new risk factors to formulate or revise management strategies.

Recent Developments

In 1998, YSC were petitioned for listing as a threatened species under the Endangered Species Act. The petition was rejected in February 2001, but in December 2004, U.S. District Court for the District of Colorado ruled that the U.S. Fish and Wildlife Service (FWS) illegally rejected the petition. The FWS conducted a 12-month status review of the species and found listing unwarranted. After the FWS decision was announced, proponents for listing filed an Intent to Appeal Brief within 60 days of the decision but have completed no further actions since.

A second iteration of the range-wide status assessment was completed in 2006 (May et al. 2007), delineating distribution, abundance, barrier locations, genetic purity, and natural and anthropogenic factors potentially impacting Yellowstone cutthroat trout populations and distribution.

Nonnative trout were removed from 3.5 miles of lower Dry Medicine Lodge Creek to enhance the upstream Yellowstone cutthroat population in 2006-07. Nonnative trout were removed from 8 miles of Buckskin Ed Creek for enhancement of the downstream Yellowstone cutthroat populations in 2008-09. Nonnative trout were removed from 1.5 miles of Elkhorn Creek and 1.2 miles of Red Gulch Creek in 2008. Nonnative trout were removed from about 15 miles of the Little Tongue River and 3 main tributaries in 2009. Preparations were made for the 2010 removal of nonnative trout from the South Little Tongue River.

Projects are underway to restore Yellowstone cutthroat to 10 miles of Dead Indian Creek, 13 miles of Soldier Creek, 17.5 miles of the Little Tongue River, and 5.0 miles of the South Little Tongue River.

New rangewide Conservation Agreement and Conservation Strategy were completed (YCT Range-wide Conservation Team 2009).

A report on the status of the species in the Little Bighorn River, Tongue River and Goose Creek drainages in Wyoming was completed (Bradshaw et al. 2008). A new rangewide status assessment was also completed (May et al. 2007).

References

May, Bruce E., Shannon E. Albeke, Travis Horton. 2007. Range-Wide Status Assessment for Yellowstone Cutthroat Trout (Oncorhynchus clarkii bouvieri): 2006. United States Forest Service.

Kruse, Carter G. 1995. Genetic Purity, Habitat, and Population Characteristics of Yellowstone Cutthroat Trout in the Greybull River Drainage, Wyoming. MS thesis, University of Wyoming, Laramie, August 1995 145 pg.

Kruse, Carter G. 1998. Influence of Non-native trout and Geomorphology on Distributions of Indigenous Trout in the Yellowstone River Drainage of Wyoming. Doctorate of Philosophy, University of Wyoming, December 1998 190 pg.

Bradshaw, William H., David J. Zafft, and Kevin R. Gelwicks. 2008. Yellowstone Cutthroat Trout Status and Management in the Little Bighorn River, Tongue River and Little Goose Creek Drainages, Bighorn Mountains, Wyoming.. Wyoming Game and Fish Administrative Report Cheyenne, WY 113 pg.

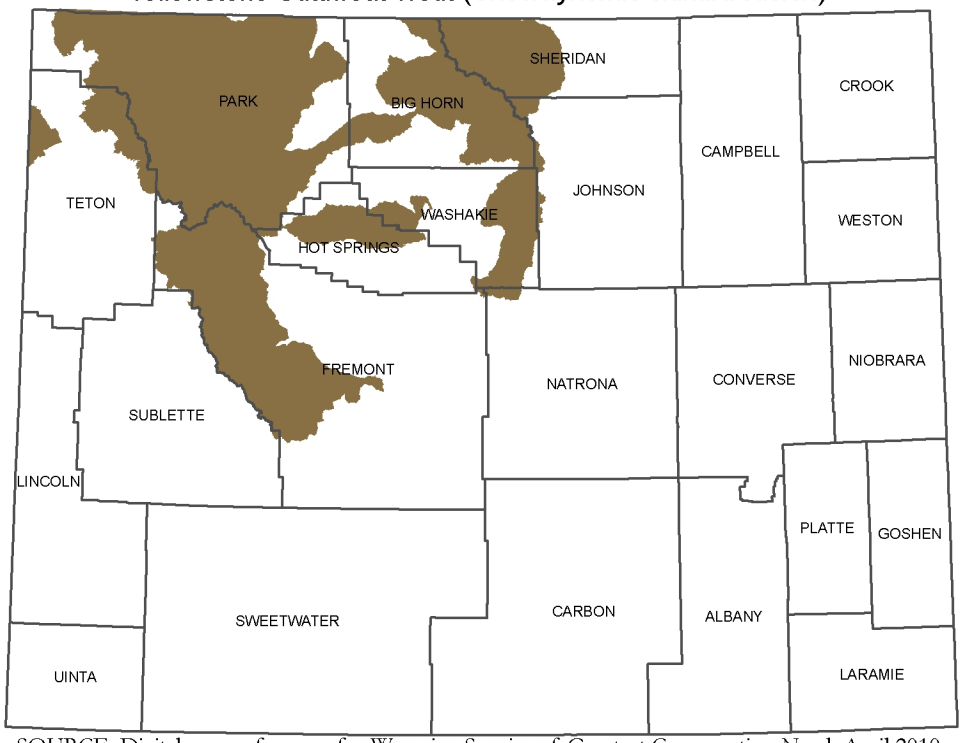
Ball, O.P., and O.B. Cope. 1961. Mortality studies on cutthroat trout in Yellowstone Lake. U.S. Fish and Wildl. Ser. Res. Rept. 55. 62pp.

Baxter, G.T., and M.D. Stone. 1995. Fishes of Wyoming. Wyoming Game and Fish Department, Cheyenne.

Benson, N.G. 1961. Limnology of Yellowstone Lake in relation to the cutthroat trout. U.S. Fish and Wildl. Ser. Res. Rept. 56. 31pp.

Bulkley, R.V. 1961. Fluctuations in age composition and growth rate of cutthroat trout in Yellowstone Lake. U.S. Fish and Wildl. Ser. Res. Rpt. 54. 31pp.

Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*)



SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: April 2010. Wyoming Game and Fish Department. Note that brown indicates the current known range of the species.