

## Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)

**Data: Status of Westslope Cutthroat trout in the United States: 2002;**

**Partners: ID, MT, WY, FWS, FS, BLM, NPS, Tribes**

---

**Status of the Westslope Cutthroat trout:** On June 6, 1997, the U.S. Fish and Wildlife Service (FWS) received a petition to list the WCT (*Oncorhynchus clarkii lewisi*) as threatened throughout its range. pursuant to the Endangered Species Act. On April 14, 2000, the Service published a finding (65 FR 20120) that listing the WCT as either a threatened or an endangered species under the Act was not warranted at that time. On September 3, 2002, (67 FR 56257) the FWS announced initiation of a new status review for the WCT and solicited comments from all interested parties. On August 7, 2003, (68 FR 68152) the Service again determined that the listing of the WCT as a threatened or endangered species under the Act was not warranted at the time. Subsequently, the scientific findings were appealed, and the Service is awaiting further determination from the courts. Each of the states where WCT are found list the fish as a native species of concern and/or as a sportfish. Montana has also developed a Conservation Agreement signed by nine government agencies and conservation groups (Montana Department of Fish, Wildlife and Parks 1999).

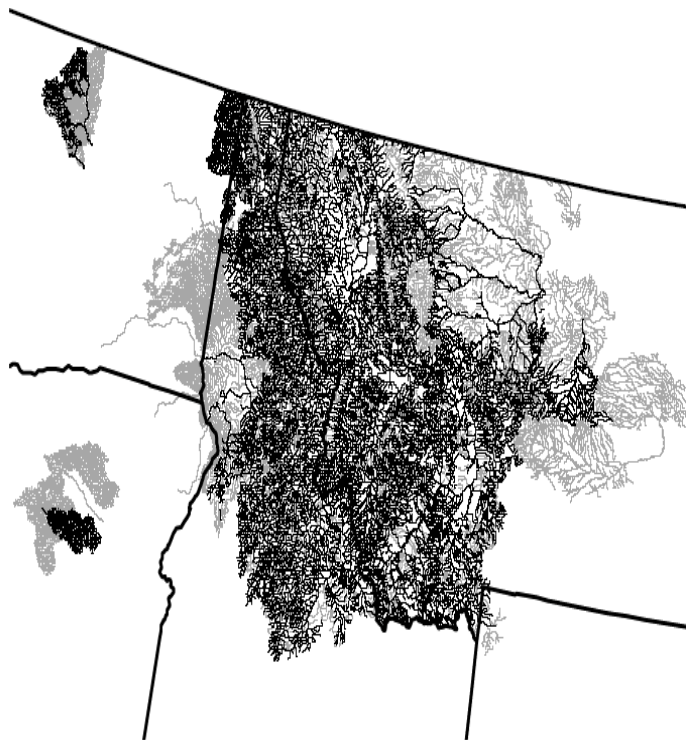
**Sportfishing Status of the Westslope Cutthroat Trout:** WCT are managed as a sportfish in Idaho, Montana, Oregon, and Washington. WCT are considered to be easily captured by anglers, and most populations are managed by the states with the use of special regulations that protect the integrity of the various populations. Due to these protective regulations, over-fishing is not considered a problem to WCT at this time. Special regulations closing fishing or requiring catch-and-release, limited harvest, and terminal tackle restrictions have demonstrated effectiveness in maintaining trout populations of WCT and their popularity with trout anglers. Angler support for Westslope Cutthroat conservation management programs is strong in all four

states and is considered an important asset to conservation and management actions.

**Distribution of the Westslope Cutthroat Trout:** According to Behnke (2002), Westslope cutthroat trout had the greatest area of distribution of all the subspecies of cutthroat trout. They were native to streams and lakes in the upper Columbia River basin of western Montana, northern and central Idaho, and southern British Columbia and Alberta; the upper Missouri River basin of Montana and northwest Wyoming; the upper South Saskatchewan River basin of Montana and Alberta; the Methow River, Pend O'aille River, and Lake Chelan drainages in Washington; and the John Day River drainage in Oregon. WCT currently occupy about 33,500 miles (59%) of the nearly 56,500 miles of historical habitat.

### Historical Range of the Westslope Cutthroat:

---



## Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)

WCT currently occupy an estimated 33,500 miles of historically occupied habitats (59%). A total of 563 separate WCT “conservation populations” occupy 24,450 miles of habitat, occurring in 67 of the 70 hydrologic units historically occupied by WCT. Much of the habitat currently occupied by WCT is located in designated parks (2%), wilderness areas (19%), and roadless areas (40%), and almost 70% of habitats currently occupied lie within federally managed lands. In addition, WCT distribution has been expanded to non-historical areas through the trans-location and stocking of genetically pure populations into waters in the greater Columbia River basin.

### **Westslope Cutthroat Trout Habitat**

**Requirements:** Westslope cutthroat trout have three possible life forms, adfluvial (migrates to lakes), fluvial (migrates to rivers) or resident (stays in streams). All three life forms spawn in tributary streams in the springtime months when water temperature is about 10 degrees Celsius and flows are high. While resident fish spend their entire life in tributary streams, migratory life forms can travel several hundred kilometers as they move between adult and spawning habitat. Spawning and rearing streams tend to be cold and nutrient poor. Westslope cutthroat trout seek out gravel substrate in riffles and pool crests for spawning habitat. Cutthroat trout have long been regarded as sensitive to fine sediment (generally defined as 6.3 mm or less). Although studies have documented negative survival as fine sediment increases, it is difficult to predict their response in the wild. This is due to the complexity of stream environments and the ability of fish to adapt somewhat to changes in microhabitat.

Westslope cutthroat trout also require cold high-quality water, and suitable winter habitat that provides deep pools in order to survive the harsh winter climate. Likewise, WCT tend to thrive in streams with more pool habitat and cover than uniform, simple habitat. Juvenile cutthroat trout over-winter in the interstitial spaces of large stream

substrate. Adult cutthroat trout need deep, slow moving pools that do not fill with anchor ice in order to survive the winter.

### **Issues and concerns or limiting factors related to the Conservation and Improvement of the status of WCT:**

As with other cutthroat subspecies, the distribution and numbers of WCT have declined due to human-induced influences. As a result of livestock grazing and other agricultural practices, logging, road-building, mining, and dam construction, WCT habitat has been degraded and fragmented over time. Loss of riparian habitat, erosion, sedimentation and placement of barriers to fish migration and resultant decreased water quality from these activities have been identified as threats to most life stages of WCT. Competition from and predation by introduced salmonids and cool-water species of sportfish are also considered to be a key issue in the diminishment of WCT. Genetic introgression with rainbow trout and other cutthroats; competition from nonnative species through stocking of sportfish; the potential for over-exploitation from angling, and the incidence of fish diseases are potential concerns. Non-point pollution, sediment and runoff associated with urban development, reduced water flows from drought and habitat damage forest fires are growing concerns.

### **Introduced Species Concerns**

The introduction and subsequent spread of non-native trout with their resultant adverse effects is considered by many fisheries scientists to be the major threat to WCT. Many of the historic habitats of WCT have been extensively colonized by introduced (stocked), nonnative fishes. Among these nonnative species are brook trout, rainbow trout, brown trout, and lake trout. Brook trout are considered to be the most significant competitor with all subspecies of cutthroat trout in streams, leading to the

## **Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisii*)**

elimination of WCT in some areas. Nonnative fish species and subspecies can also pose threats to the genetic integrity of WCT. In certain drainages, stocking or natural overlap with other native species can lead to diminished abundance, as well as providing the potential for genetic introgression (interbreeding), particularly with rainbow trout or Yellowstone cutthroat trout. Competition and predation in lakes from introduced kokanee, lake trout and yellow perch, along with degradation of spawning habitat has reduced WCT population in large lakes in Idaho and Montana.

### **Genetic Considerations and Concerns**

Given the nature and location of most remaining WCT populations, maintenance of “isolate” and meta-populations is of importance. Most of the existing conservation populations are believed to be “isolets” (457 or 81%); however, meta-populations occupied much more of the WCT range. For the 539 conservation populations for which risks to the population were assessed, more isolet populations were at higher risks due to temporal variability, population size, and isolation than meta-populations, but these isolets were generally at less risk from genetic and disease factors than meta-populations.

Hybridization with introduced rainbow trout, and stocked Yellowstone cutthroat trout over the years has led to a dilution of genetic purity of some WCT populations. The 2003 Status Review states that genetic testing has been completed across about 6,100 miles of habitat (18% of occupied habitat), but sample sizes were variable and sample sizes of 25 fish or more only made up 30% of the samples. WCT with no evidence of genetic introgression currently occupy about 3,400 miles (10%) of currently occupied habitats. Another 1,000 miles of currently occupied habitats (3%) contained WCT that were probably part of a mixed stock where the WCT were not introgressed.

*Note: The use of slightly introgressed fish (<20% introgression) is under review by the courts as a result of the WCT-related judicial actions and petitions. The results of future judicial rulings may influence the courses of action open to managers where the purity of populations used for restoration activities is taken into account. In the meantime, States have been using the 10% or less introgression guideline from the Multi-state genetic agreement as the maximum allowable non-WCT introgression for a conservation population.*

### **Habitat Concerns and Obstacles**

The inability to stop or reverse habitat degradation is one of the major obstacles to the continued improvement of the WCT status. Although, this concern is ameliorated somewhat by the fact that over 50 % of current occupied WCT habitat is in roadless and wilderness areas. The WCT status report and state conservation strategies identify water development, water withdrawal, livestock grazing, oil and gas energy development, mining, adverse forest management, and associated road building as significant continued habitat threats to WCT.

Numerous management programs and other actions are being implemented to eliminate or counteract the adverse effects on WCT of past, present, and proposed land-management activities on state and federal lands in the states of Idaho, Montana, Oregon and Washington. Forestry and grazing “Best Management Practices” are being implemented to maintain and improve water quality and reduce sediment input in WCT habitats. There are hundreds of planned and on-going projects and multiple local partnerships that should be funded and nurtured to improve the status of WCT and reverse decades of habitat abuse.

### **Disease and Invasive Species Concerns**

## Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)

Westslope cutthroat trout are susceptible to common salmonid diseases, including whirling disease, *Myxobolus cerebralis* (Mc). Diseases of concern are not limited to whirling disease, and include furunculosis and infectious pancreatic necrosis virus. Transmission of diseases to wild cutthroat trout populations through hatchery-based fish stocking is recognized as a significant potential threat. The three states have statewide policies and regulations address fish health status, disease certification of stocked and imported fish, and stocking protocols, which are designed to reduce disease threats. There is growing concern that new invasive organisms in WCT habitat such as the New Zealand mud snail will eventually cause problems for the species.

### Regulatory Issues

There are numerous federal and state regulatory mechanisms in place, that if appropriately administered and implemented, provide a high degree of protection to WCT and their habitats throughout the range of the subspecies. Federal land management agencies such as the Forest Service and Bureau of Land Management must adhere to federal laws (e.g., National Environmental Policy Act, Clean Water Act) and regulations and policies contained with Forest Plans and Land and Resource Management Plans. As a part of implementing or permitting management actions on public lands, federal agencies must routinely interact with state fish and wildlife agencies regarding potential effects on fish and fish habitat. Western states have laws dealing with forest practices, stream channel and wetlands protection, water quality, water rights and instream flows, fishing regulations, and the control of scientific fish collection permits. State fish and wildlife agencies also generally have fish management plans either on a statewide or species basis, or both. These plans tend to be comprehensive in nature and outline how an agency intends to protect and conserve native species and manage recreational or sport-fisheries.

Angling regulations are in place to protect WCT populations from impacts due to fishing by recreational anglers, lessening concerns that fishing is a problem. In addition, controls governing scientific collection permitting and collection for genetic testing have helped to reduce the risk that monitoring programs could have on the reduction of WCT populations.

### **Opportunities for Improvement of the Status of WCT:**

The goal of Westslope cutthroat trout conservation is ensure the persistence of the Westslope cutthroat trout subspecies within its historic range in the face of the challenges listed above. Two different conservation management strategies are needed and being implemented to conserve WCT. This twin-barreled approach recognizes the differences in conditions between the major WCT Geographical management basins, i.e. the Columbia versus the Missouri. One strategy concentrates on preventing introgression, disease and competition risks through isolation of WCT (stopping the losses), while the other concentrates on connecting or re-connecting occupied habitats and populations to preserve meta-population function and multiple life history stages of the WCT.

The conservation, recovery and enhancement of WCT will depend on an approach that actively addresses the obstacles described above. The specific approaches are described in numerous state and federal agency plans. Actions will need to be prioritized and implemented within the five major river basins.

Typically the actions fall within these categories:

- genetic analysis
- fish population manipulation (non-native trout removal, re-introductions, supplemental stocking, and spawn-taking)
- aquatic habitat manipulation (barrier placement or removal, in-stream structure, flows, increasing connectivity, isolation of fragments, etc.)

**Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)**

- regulatory actions ( fishing regulations, water use, land management)

**WCT Restoration potential:**

In order to objectively evaluate the restoration or expansion potential within this unoccupied area it was deemed important to determine how much of the historical habitat was currently incapable of supporting WCT. In the 2003 Status Assessment, approximately 9,300 miles of habitat, 28% of WCT occupied habitat, supported populations significantly below the potential population levels.

**Primary Actions to be addressed:**

The basic premise of the management goal for WCT presented below is to protect existing populations, and ensure the long-term persistence of WCT within their historic range. In order to protect existing populations and help them persist over time, it will be necessary to increase numbers in some, and expand others.

**Population Surveys, genetic analyses, and fish population manipulation**

At present, there are multiple State, Federal, Tribal, and private programs and conservation efforts that are working to improve the status of bull trout in the northwestern United States and Canada. Project implementation has generally followed a site-specific and opportunity-based approach, rather than a watershed-based approach, with varied results and accomplish-ments.

**Key actions include:**

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

Expand WCT populations through restoration, reintroductions, and non-native fish control in priority watersheds
Implement actions to protect core and conservation WCT populations
Manage hatchery brood-stocks and use of stocked fish to maintain genetic diversity and appropriate fish stocking protocols
Develop interconnected populations that have open connectivity up and down stream segments and sub-basins where appropriate.

**WCT Habitat Manipulations:**

Habitat loss and fragmentation of current habitat, as well as isolation of existing populations, are the principal habitat issues facing Westslope cutthroat trout. Restoration of Westslope cutthroat trout habitat will have to address both habitat quality and spatial limitations. Current efforts to WCT 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, and developing BMPs for use on land management areas.

**Key actions include:**

Restore and improve altered channel and riparian zone habitats
Restore and enhance water flow , quality and sediment regimes and physical integrity of channels where feasible
Protection includes expansion of small, isolated populations where possible and maintaining or developing high quality habitats to prevent extirpation due to small population size or stochastic events
Monitor and evaluate natural catastrophe impacts like fire and drought
Implement BMPs on FS, BLM, and private lands to benefit WCT habitats

# Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)

## Regulatory and Administrative Actions to enhance WCT status:

State agencies must maintain the sport fish/game fish status of WCT. Managing sport fisheries for WCT across its range keeps anglers engaged in the management of the subspecies and maintains interest in conservation. State and federal agencies and their constituents must continue fostering close working relationships in order to effectively ensure that regulatory and administrative mechanisms are understood, maintained, and implemented to protect and restore WCT.

### **Key Actions include:**

State fish and wildlife agencies shall enforce existing fishing regulations and promulgate new regulations if necessary to protect WCT populations.
Maintain and protect WCT habitat from degradation through compliance with existing laws, regulations, guidelines, and policies.
Agencies should provide technical assistance, cost-share on funding, and expertise to private landowners, water users, and industry to protect WCT habitat on private lands.
State and federal agencies must become more vigilant regarding fish diseases and aquatic nuisance species, and promulgate or enhance existing regulatory mechanisms.
State and federal agencies should devote more resources as is feasible, both financial and personnel, to habitat restoration activities to benefit WCT.
Continue to review the effectiveness of existing regulatory mechanisms that provide benefits to WCT.

## Recommended Actions to improve the status of the Westslope Cutthroat Trout:

### **Highest Priority Actions for the Westslope Cutthroat Trout include the following actions:**

1. Interagency Management Teams should be formed for the 5 Geographical river basin distinctions listed below:
  - A. Saskatchewan River basin GMU -
  - B. Lower Snake River basin GMU -
  - C. Upper Snake Riverbasin GMU -
  - D. Missouri River basin GMU -
  - E. Columbia River basin GMU -
2. A Memorandum of Agreement for the Conservation of Westslope cutthroat trout between the States, Federal Agencies and appropriate partners should be developed with a objective of prioritizing the key actions that need to be accomplished to improve the status of Westslope cutthroat trout and seek funding through the various Partnerships being developed.
3. The States, with key Partners, need to describe and prioritize the key components of the Conservation Plan that need to be addressed over the next 5 Years.

### **Potential or existing Partners or Joint-ventures:**

1. **Yellowstone Park Foundation**
2. **National Fish and Wildlife Foundation – Jackson Hole One Fly Foundation Project**

### **Literature Cited:**

1. Behnke, R. 2002. Trout and Salmon of North America..

## **Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*)**

---

2. Shephard et. al., 2003. Status of the Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*) in the United States: 2002



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.