(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: December 22, 2005.

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Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition To List the Yellowstone Cutthroat Trout as Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of a 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (USFWS), announce our 12-month finding for a petition to list the Yellowstone cutthroat trout (YCT) (*Oncorhynchus clarkii bouvieri*) as a threatened species throughout its range in the United States, pursuant to the Endangered Species Act of 1973, as amended. After a thorough review of all available scientific and commercial information, we find that listing the YCT as either threatened or endangered is not warranted at this time. We ask the public to continue to submit to us any new information that becomes available concerning the status of or threats to the subspecies. This information will help us to monitor and encourage the ongoing conservation of this subspecies.

DATES: The finding in this document was made on February 14, 2006.

ADDRESSES: Data, information, comments, or questions regarding this notice should be sent to U.S. Fish and Wildlife Service, 780 Creston Hatchery Road, Kalispell, Montana 59901. The complete administrative file for this finding is available for inspection, by appointment and during normal business hours, at the above address. The petition finding, the status review for YCT, related **Federal Register** notices, the Court Order, and other pertinent information, may be obtained on line at *http://mountain-prairie.fws.gov/endspp/fish/YCT/.*

FOR FURTHER INFORMATION CONTACT: The Montana Ecological Services Field Office (see **ADDRESSES**), by telephone at (406) 758–6872, by facsimile at (406) 758–6877, or by electronic mail at *fw6_yellowstonecut@fws.gov.*

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(B) of the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. 1531 *et seq.*), requires that, for any petition to revise the List of Endangered and Threatened Species that contains substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of receipt of the petition on whether the petitioned action is (a) not warranted, (b) warranted, or (c) warranted but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether any species is threatened or endangered, and expeditious progress is being made to add or remove qualified species from the List of Endangered and Threatened Species. Section 4(b)(3)(C) of the ESA requires that a petition for which the requested action is found to be warranted but precluded be treated as though resubmitted on the date of such finding, i.e., requiring a subsequent finding to be made within 12 months. Such 12-month findings must be published in the **Federal Register.**

On August 18, 1998, we received a petition dated August 14, 1998, to list the YCT as threatened, under the ESA, where it presently occurs throughout its historic range. Petitioners were Biodiversity Legal Foundation, the Alliance for the Wild Rockies, the Montana Ecosystems Defense Council, and George Wuerthner.

Biology and Distribution

The YCT is 1 of about 13 named subspecies of cutthroat trout native to interior regions of western North America (Behnke 1992, 2002). Cutthroat trout owe their common name to the distinctive red or orange slash mark that occurs just below both sides of the lower jaw. Aside from distribution, morphological differences, particularly external spotting patterns, may distinguish the various subspecies of cutthroat trout (Behnke 1992). Adult YCT typically exhibit bright yellow, orange, and red colors on their flanks and opercles, especially among males during the spawning season. Characteristics of YCT that may be useful in distinguishing this fish from the other subspecies of cutthroat trout include a pattern of irregularly shaped spots on the body, with few spots below the lateral line except near the tail; a unique number of chromosomes; and other genetic and morphological traits that appear to reflect a distinct evolutionary lineage (Behnke 1992).

Also among those 13 cutthroat trout subspecies is the fine-spotted Snake River cutthroat trout (which Behnke [1992] referred to as *Oncorhynchus clarkii* spp., but more recently referred to as *Oncorhynchus clarkii behnkei* [Behnke 2002]). The natural range of the fine-spotted Snake River cutthroat trout is principally in the western portion of Wyoming and southeastern Idaho, almost entirely surrounded by that of *O. c. bouvieri* (Behnke 1992). In their petition, the petitioners considered the fine-spotted Snake River cutthroat trout a morphological form (or morphotype) of YCT. Biochemical-genetic studies have revealed very little genetic difference between the large-spotted form of YCT and the fine-spotted cutthroat trout of the Snake River basin (most recently, Mitton *et al.* 2006 in review, Novak *et al.* 2005). As the common names indicate, the large-spotted YCT and fine-spotted cutthroat trout are typically separable based primarily on the basis of the sizes and patterns of spots on the sides of the body. The large-spotted YCT has pronounced, medium to large spots that are round in outline and moderate in number, whereas the spots of the fine-spotted cutthroat trout are the smallest of any native trout in western North America and so profuse they resemble ''a heavy sprinkling of ground pepper'' (Behnke 1992). However, in areas of natural geographic overlap, intergrades of the two forms with intermediate spotting patterns are common (Novak *et al.* 2005).

For purposes of this review, we use the name YCT to represent both of the closely related putative subspecies (*Oncorhynchus clarkii bouvieri* and *Oncorhynchus clarkii behnkei*) and they are considered a single entity (as petitioned) in our status review (USFWS 2006). We refer to them collectively as YCT throughout this document.

Although not specifically documented with historical data, the recent historic range of YCT is thought to have included waters of the Snake River drainage (Columbia River basin) upstream from Shoshone Falls, Idaho (River Mile 614.7), and those of the Yellowstone River drainage (Missouri River basin) upstream from and including the Tongue River, in eastern Montana (Behnke 1992). Historic range of YCT in the Yellowstone River drainage thus includes large regions of northwest Wyoming and southcentral Montana. Historic range in the Snake River drainage includes large regions of the western portion of Wyoming, southeast Idaho, and small parts of the northwest corner of Utah and northeast corner of Nevada (Behnke 1992, Novak *et al.* 2005). The transcontinental divide range of YCT in Montana and Wyoming likely resulted from headwater connection. The range of YCT may have once extended further downstream, but probably became isolated in the headwaters of the Snake River following creation of Shoshone Falls (between 30,000 and 60,000 years ago). Today, various YCT stocks remain in the headwaters of the Snake and Yellowstone River drainages in Montana, Wyoming, Idaho, Utah, and Nevada.

The distribution of YCT occurs in 40 watersheds that can be delineated by 4th code Hydrologic Unit Code (HUC) boundaries. Those HUCs generally equate to named watersheds. In this 12-month finding, the term HUC and the word watershed are used more or less interchangeably. Twenty-two of those HUCs are in the headwaters of the Yellowstone River basin and 18 are in the Snake River basin headwaters. Because the status of native fish species can often vary substantially from drainage to drainage, based on the presence and degree of threats and other factors, we believe it is appropriate to treat these 40 watersheds as separate but related entities in order to evaluate the array of threats and status of the species. We will follow that approach to describe many of the threats for YCT.

May et al. (2003) defined a conservation population, per the State position paper on Genetic Considerations Associated with Cutthroat Trout Management (Utah Division of Wildlife Resources 2000), as one that is either genetically unaltered (i.e., core population) or one that may be slightly introgressed due to past hybridization (typically less than 10 percent) and having attributes worthy of conservation. Hybridization is an important concern for YCT populations. For hybridization to result in an introgressed population, it requires that the nonnative species be introduced into or invade the YCT habitat, that the two species then interbreed (i.e., ''hybridize''), and that the resulting hybrids themselves survive and reproduce. If the F1 hybrids backcross with one or both of the parental species, genetic introgression occurs. Continual introgression can eventually lead to the loss of genetic identity of one or both parent species, thus resulting in a ''hybrid swarm'' consisting entirely of individual fish that often contain variable proportions of genetic material from both of the parental species.

We have adopted the States' standards and consider all core and conservation populations, as defined under these standards and as described by May et al. (2003) to be YCT for purposes of this 12-month finding. Because the categories are nested, the term conservation population includes the core populations, and we refer to the collective as conservation populations in the remainder of this document. Those conservation populations collectively occupied about 84 percent of the total habitat occupied by YCT (the rest are sport fish populations that are not considered YCT conservation populations).

The YCT status assessment report (May et al. 2003), identified 10,220 kilometers (km) (6,352 miles [mi]) of stream habitat occupied by 195 separate YCT conservation populations. May et al. (2003) indicated, based on professional judgment which was used to produce an estimate of potentially suitable habitat, that YCT historically occupied about 28,014 km (17,407 mi) of habitat (mostly stream, but including some lakes) in five States. More details of the estimated current and historic distribution are found in the status review accompanying this finding (USFWS 2006).

Previous Federal Actions

On February 23, 2001, we published a 90-day finding (66 FR 11244) which found that the petition to list the YCT failed to present substantial information indicating that listing the YCT may be warranted. A complaint was filed in the U.S. District Court for the District of Colorado on January 20, 2004, on the conclusion of this 90-day finding. On December 17, 2004, the District Court of Colorado (Judge Figa) ruled in favor of the plaintiffs and ordered the USFWS to produce a 12-month finding for YCT. On February 14, 2005, the Court clarified the order and attached a February 14, 2006, due date for the USFWS to complete the 12-month finding. We published a notice reopening the comment period for 60 days on August 31, 2005 (September 1, 2005; 70 FR 52059). The comment period closed on October 31, 2005.

Summary of Factors Affecting the Species

Section 4 of the ESA (16 U.S.C. 1533), and implementing regulations at 50 CFR part 424, set forth procedures for adding species to the Federal List of Endangered and Threatened Species. In making this finding, information regarding the status and threats to this species in relation to the five factors provided in section 4(a)(1) of the ESA is summarized below.

We examined each of these factors as they relate to the current distribution of YCT. In response to our 2000 and 2005 **Federal Register** notices, we received comments and information on YCT from several State fish and wildlife agencies, the U.S. Forest Service (USFS), private citizens and organizations, the Shoshone-Bannock Tribes, and other entities. Among the materials that we received, the most important was a status assessment report for YCT (May *et al.* 2003). The May *et al.* (2003) status assessment was a comprehensive document covering the entire range of the YCT, coauthored by the USFS in conjunction with fish and wildlife agencies of the States of Idaho, Montana, Wyoming, Utah, and Nevada.

The YCT status assessment report (May *et al.* 2003) and the comprehensive database that is the report's basis, along with other supplemental submissions from the agencies and commentors, presented to us the best scientific and commercial information available that describes the present-day rangewide status of YCT in the United States. To compile the information in the status report (May *et al.* 2003), 43 professional fishery biologists from 10 State, Federal, and Tribal agencies and private firms met at 5 State workshops held across the range of YCT, in 2000. At the workshops, the biologists submitted essential information on the YCT in their particular geographic areas of professional responsibility, according to standardized protocols.

In conducting our 12-month finding for YCT we considered all scientific and commercial information on the status of YCT that we received or acquired between the time of the initial petition (August 1998) and the time of the final preparation of this finding. However, we relied mainly on the published and peer-reviewed documentation for our conclusions. Our evaluations of the five factors to the YCT are presented below.

We used the database of May *et al.* (2003) to examine certain aspects of threats and distribution on a watershed by watershed (*i.e.*, HUC by HUC) basis. In order to do so, we used the GIS layers provided with the database (Hagener 2005). We overlaid the HUC boundaries on the conservation population stream layer and recalculated the stream lengths that fell within each HUC. Because there are slight irregularities in some of the HUC boundaries relative to the stream reaches, summarized results are close to, but may not exactly replicate, totals given by May *et al.* (2003). However, the conclusions we have drawn remain appropriate.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

May *et al.* (2003) revealed that 59 percent of the habitat for extant YCT populations (including both conservation populations and sport fish populations) lies on lands administered by Federal agencies, particularly the USFS; specifically the Shoshone, Bridger-Teton, Caribou-Targhee, Bighorn, Custer, and Gallatin National Forests. Moreover, many of the strongholds for YCT conservation populations occur within roadless or wilderness areas or national parks, all of which afford considerable protection to YCT habitat.

We are not aware of any comprehensive assessment of habitat status or trend that has been conducted across the range of the YCT. An extensive body of published literature exists on effects of man-caused perturbations to coldwater salmonid habitat (see for example Beschta *et al.* 1987; Chamberlin *et al.* 1991; Furniss *et al.* 1991; Meehan 1991; Sedell and Everest 1991; Frissell 1993; Henjum *et al.* 1994; McIntosh *et al.* 1994; Wissmar *et al.* 1994; U.S. Department of Agriculture and U.S. Department of the Interior 1996; Gresswell 1999; Trombulak and Frissell 2000). This literature provides a record of the types of activities that are most detrimental to fish habitat. It further documents the physical processes that result from these activities to cause negative impacts to coldwater salmonids such as the YCT. Declines in populations of native salmonids may result from the combined effects of habitat degradation and fragmentation, the blockage of migratory corridors, declining water quality or quantity, angler harvest and poaching, entrainment (process by which aquatic organisms are pulled through a diversion or other device) into diversion channels and dams, introduced nonnative species, or other impacts (USFWS 2002). Examples of specific land and water management activities that depress salmonid populations and degrade habitat include dams and other diversion structures, forest management practices, livestock grazing, agriculture, agricultural diversions, road construction and maintenance, mining, and urban and rural development.

An important aspect of population demographics, which contributes to changes in the range of the YCT as a whole, is the abundance within individual populations. Since each population exists under a unique set of habitat variables and threats, it is important to consider the trend in individual populations as a potential indicator of the status of the subspecies as a whole. Unfortunately, few if any populations have been adequately monitored to provide quantitative indicators of the population trend over the past several generations, due mostly to logistical and financial considerations.

May *et al.* (2003) conducted a qualitative assessment of the viability of each of the 195 conservation populations, based on a ranking system where each isolet (a population isolated by physical barriers or habitat limitations, typically in a headwater drainage) or metapopulation (a set of local populations, among which there may be gene flow and extinction and colonization) was ranked from low to high for each of 4 population variables. The status assessment (May *et al.* 2003) concluded populations at high or moderately high risk occupied only 11.2 percent of the range of YCT conservation populations and the remaining 88.8 percent were estimated to be at low or moderately low risk.

The analysis of risk by watershed, conducted by May *et al.* (2003), is largely congruent with our analysis of occupancy and distribution (USFWS 2006). In general, HUCs or watersheds with populations occupied by few or scattered isolets are considered at greater risk, due primarily to the high degree of isolation. The HUCs with large, interconnected metapopulations are generally rated as being at lower risk. May *et al.* (2003) asked the 43 scientists who conducted the rankings to determine, for each stream segment, which of 4 categories best described their existing knowledge of the demographic status (primarily trend) of the population. The YCT conservation population in each stream segment was classified as either: (1) Much reduced and declining over the long term and/or at a fast rate; (2) reduced and declining; (3) reduced from potential, but now fluctuating around equilibrium; and, (4) increasing, or fluctuating around equilibrium and near potential. Results of this analysis indicated that for the Yellowstone River basin only about 17 percent of stream miles classified as isolets and 4 percent of miles considered part of metapopulations were classified in the two reduced and declining categories. For the Snake River basin only about 20 percent of stream miles classified as isolets and 24 percent of miles considered part of metapopulations were classified in the two reduced and declining categories.

While the above analysis is primarily a qualitative indicator of population health, it does provide some insight into the overall status of the habitat. If habitat was rapidly declining or failing, it stands to reason that population status would follow a similar trend. We were only partially able to quantitatively assess the threat that destruction, modification, or curtailment of habitat may present to YCT for this finding. In the YCT review developed by May *et al.* (2003), the biologists who participated were able to identify potential risks to habitat in several categories, and they indicated on a stream reach basis whether certain land use impacts were present (known) or may be present (possible). May *et al.* (2003) cautioned that the information was too qualitative to link land use impacts to specific conservation populations and that much of the input was speculative. However, they concluded that even with those uncertainties, the information could serve to heighten awareness of the possible influences of land uses on YCT.

The YCT review (May *et al.* 2003) considered and evaluated land and water use impacts to YCT in seven broad categories: (1) Dewatering (presumably including other irrigation-related impacts such as impediments to fish passage, entrainment, stream channel destabilization, etc.); (2) mining (presumably including impacts such as effects to water quality, including dispersal of toxic substances and sedimentation); (3) range, *i.e.*, livestock grazing (presumably including riparian impacts, sedimentation, trampling, and other effects); (4) non-angling recreation (primarily identified as impacts from four-wheelers, ATVs, nondispersed campsites, recreational developments such as ski hills and golf courses, etc.); (5) roads (presumably related to a multitude of activities, such as logging, transportation corridors, recreational access and including not only roads, but also railroads and other utility networks); (6) timber harvest (presumably commercial private and public logging activities as well as other associated actions of forestry management); and, (7) other (including significant impacts not captured in the above, each identified in spatially-linked comments in the database to the location where they occur).

In the process of identifying the land use impacts described above, and linking them to specific stream segments associated with YCT conservation populations, fishery professionals were asked to judge whether each activity resulted in ''known,'' ''possible,'' or ''no'' impacts (May *et al.* 2003; see USFWS 2006 for more detail). For the 195 designated conservation populations of YCT, the most commonly identified land use impact believed to affect the status and conservation of YCT was livestock grazing. Grazing was identified as a known impact on 45 populations (23 percent of the total number of conservation populations) and a possible impact on 97 others (50 percent). Thus, May *et al.* (2003) concluded that livestock grazing likely adversely affects nearly ¾ of the conservation populations of YCT. Grazing was followed, in order of frequency of occurrence identified as an impact, by roads (known impact on 33 populations and suspected on 66 more); non-angling recreation such as camping, trail riding, ATVs, etc. (known impact on 34 populations and suspected on 42 others); timber harvest (known impact on 31 populations and suspected on 35 others); stream dewatering (known impact on 21 populations and suspected on 40 others); and mining (known impact on 17 populations and suspected on 8 others). This information assessed only the relative frequency of these land use factors in affecting YCT populations; it did not assess the severity of impacts on a population by population basis (May *et al.* 2003). For example, while impacts from dispersed recreation may be pervasive, recreational impacts are not likely to severely affect YCT habitat to the extent that more intrusive uses such as major water withdrawals or extensive mining activities might in a given drainage.

An evaluation of the land and water use information by stream segment (May *et al.* 2003) reveals watersheds (HUCs) that are likely to experience higher magnitude of such impacts, based simply on the known presence of such activities (USFWS 2006). Watersheds in the Yellowstone River basin where grazing, roads, and timber harvest were considered to affect large areas of habitat occupied by conservation populations of YCT were in the Upper Yellowstone, Shields, and Upper Wind (May *et al.* 2003). Conversely, several HUCs were identified as having large areas of conservation habitat with no known impacts. These typically include wilderness, national park, or other highly protected areas. Watersheds in the Yellowstone River basin that were identified as containing over 161 km (100 mi) of habitat occupied by conservation populations with no known impacts were the Yellowstone Headwaters, Upper Yellowstone and Shields. The Upper Yellowstone and Shields HUCs both contain substantial habitat that is heavily impacted as well as major portions that are relatively unimpacted by land and water management activities.

In the Snake River basin, areas where grazing, roads, dewatering and timber harvest were considered to have known impacts on large areas of habitat occupied by conservation populations of YCT were located in nearly all HUCs, but were especially pervasive in the Greys-Hobock, Palisades, Salt, Teton, and Blackfoot watersheds. The only HUC in the Snake River basin identified as having over 161 km (100 mi) of conservation habitat with no known impacts was the Snake River Headwaters. This information is based on a very coarse analysis and should be viewed as preliminary. In a planned 2006 update of the database, the information linking habitat impacts to specific watersheds is expected to be improved (Brad Shepard, Montana Fish, Wildlife and Parks [MFWP], pers. comm. 2005).

As reported, mining impacts are not pervasive across the range of the YCT, but in some instances where they occur they have been noted to have particularly severe consequences to aquatic habitat (USFWS 2002). The status assessment of May *et al.* (2003) indicated that known impacts of mining on YCT were most widespread in the Yellowstone Headwaters and Upper Yellowstone HUCs, as well as in the Gros Ventre, Palisades, Salt and Blackfoot watersheds of the Snake River basin, where 24–113 km (15–70 mi) of YCT conservation populations in each watershed are known to have been impacted. Lemly (1999) described a particularly threatening scenario in the Blackfoot River drainage of Idaho where very high selenium concentrations were first discovered. A preliminary hazard assessment indicated that waterborne selenium concentrations in the Blackfoot River and 14 of its tributaries met or exceeded toxic thresholds for fish. The selenium problem centers on surface disposal of mine spoils. Compounding this problem is the presence of historic tailings dumps, many of which are large (>10 million cubic meters [353 million cubic feet]) and contain a tremendous reservoir of selenium that has the potential to be mobilized and introduced into aquatic habitats (Lemly 1999). Continued expansion of phosphate mining is anticipated in these watersheds, and large mineral leases are awaiting development both on and off National Forest lands (Lemly 1999, Christensen 2005). This may be a serious and evolving situation. However, while selenium poisoning should not be minimized as a threat to conservation populations of YCT in the Blackfoot and Salt River watersheds, it remains a localized threat and would not be expected to cause rangewide losses of YCT conservation populations.

Another localized threat occurs in the Teton River watershed, where Koenig (2005) and Benjamin (2005) reported that YCT populations have experienced precipitous declines in recent years. These declines are hypothesized to be linked to poor recruitment. Koenig (2005) investigated whether specific habitat attributes could be limiting cutthroat fry recruitment and at which life stage a recruitment bottleneck may be operating. His conclusions were that the number of cutthroat fry is more likely limited by low seeding than by spawning habitat availability. Koenig (2005) further concluded that low survival of age-1 cutthroat trout may be attributable to competition with introduced rainbow and brook trout for overwinter habitat. Benjamin (2005) speculated that water shortages and stream dewatering have played a major role in the decline of YCT in the Teton River basin.

In Idaho, the State manages approximately 292,000 hectares (722,000 acres) of Endowment lands. These lands include approximately 200 km (124 mi) of perennial streams that Idaho Department of Fish and Game (IDFG) has identified as providing habitat for the YCT (Caswell and Huffaker 2005). The predominant use of these lands is livestock grazing, though some timber harvest also occurs. Where timber harvest occurs on those lands, the State of Idaho reports that the Department strictly adheres to the rules and guidelines provided by Idaho's Forest Practices Act (Caswell and Huffaker 2005).

There are substantial portions of the range where habitat threats appear to be limited. Wichers (2005) reported that the upper Yellowstone River above Yellowstone Lake appears not to be subject to genetic or habitat threats, due largely to the remote wilderness setting (see USFWS 2006 for additional discussion).

In Yellowstone National Park (YNP), of the approximately 3,132 km (1,946 mi) of stream originally supporting resident or fluvial YCT (mostly outside of the Yellowstone Lake and River drainage above the Lower and Upper Falls), 65 percent (2,025 km [1,258 mi]) continue to support nonintrogressed fish, and 35 percent (1,107 km [688 mi]) now are home to fish hybridized to varying degrees with nonnative rainbow trout (Lewis 2005).

In Utah and Nevada, the range of YCT is restricted to a few headwater streams in the lower Snake River portion of the range, specifically in the Goose and Raft HUCs. Utah and Nevada are part of the Interstate Yellowstone Cutthroat Trout Working Group. They participated in the YCT status assessment (May *et al.* 2003), but they have not provided specific comments for this status review (USFWS 2006) regarding updates to status or distribution. The States of Idaho, Montana, and Wyoming comprise approximately 98 percent of the range of YCT conservation populations.

The Center for Biological Diversity (Greenwald 2005) submitted an alternative analysis of the data presented in May *et al.* (2003). According to Greenwald (2005), these results clearly indicate that ongoing habitat degradation is threatening remaining YCT populations. We refer the reader to our previous discussion of the limitations of the data on known habitat impacts presented in May *et al.* (2003). In contrast with the Center for Biological Diversity (Greenwald 2005), the USFWS finds that the mere presence of an activity within a stream segment that hosts a conservation population is not sufficient evidence to conclude that the population is threatened. Additional parameters, such as distribution and abundance, as well as recent trends must be factored into an overall status determination. Otherwise, logic would dictate that every species that comes in contact with managed landscapes is threatened by those human influences. Such a conclusion is not reasonable.

Summary of Factor A

In summary, populations of YCT that meet the State management agency standards as conservation populations (*i.e.*, those populations we are considering YCT for purposes of this finding), are well-distributed and relatively secure in at least nine HUCs (*i.e.*, watersheds) in the central headwaters of their native range. In the Yellowstone River basin, we find that populations in the HUCs of the Yellowstone Headwaters (1,308 km [813 mi] of occupied habitat), Upper Yellowstone (822 km [511 mi]), and Shields (653 km [406 mi]) form the central core of the YCT range and these populations are well-distributed (collectively providing 64 percent of the habitat occupied by conservation populations in the Yellowstone River drainage). In the Snake River basin, the central core of the range for the YCT conservation populations also is located in the headwaters, along the Continental Divide. The six strongest remaining conservation populations of YCT in the Snake River basin are in Greys-Hobock (1,051 km [653 mi] of occupied habitat), Snake Headwaters (716 km [445 mi]), Salt (694 km [431 mi]), Teton (644 km [400 mi]), Palisades (501 km [311 mi]), and Gros Ventre (414 km [257 mi]) watersheds. Conservation populations in these HUCS are generally well-distributed (collectively providing 68 percent of the habitat occupied by conservation populations in the Snake River drainage).

As a result of the present information, and as discussed more thoroughly in the status review (USFWS 2006), we conclude the best scientific and commercial information available to us indicates that present or threatened destruction, modification, or curtailment of habitat or range has not affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted at this time. Although YCT distribution has declined, perhaps by more than 50 percent over the past 200 years (May *et al.* 2003), our analysis indicates that YCT strongholds remain in at least three major watersheds of the upper Yellowstone River basin and six major watersheds of the upper Snake River basin. These nine HUCs collectively form a solid basis for persistence of conservation populations of YCT.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

In the YCT status assessment (May *et al.* 2003) consideration was given to the effects of angling on population status. Angling was considered to have a known impact on 54 of 195 conservation populations (28 percent) and a possible impact on 22 other populations. In total, then, recreational angling was considered by May *et al.* (2003) to impact up to about 40 percent of the 195 designated conservation populations of YCT.

Our status review (USFWS 2006) revealed that each of the States and the National Park Service have greatly restricted the angler harvest of YCT. May *et al.* (2003) noted that restrictive angling regulations have been implemented for YCT on waters comprising nearly half of the 195 designated conservation populations of YCT. In many regions, catch-and-release is the only type of angling that is allowed (Caswell and Huffaker 2005; Hagener 2005; Koel *et al.* 2005; Osborne 2005; Wyoming Game and Fish Department [WGFD] 2005). However, catch-and-release angling regulations are not essential to protecting YCT from excessive harvest by anglers in all waters.

Although overfishing contributed to the decline of YCT in specific locations in the past, overfishing or overcollection is not currently perceived as a threat to YCT in Montana (Hagener 2005), Idaho (Caswell and Huffaker 2005), or Wyoming (WGFD 2005). These activities are tightly regulated and have become increasingly restrictive. Enforcement of regulations pertaining to native fish is a priority. Extensive education and signing efforts have been undertaken to help anglers identify YCT and to encourage their support for YCT conservation efforts (*e.g.*, Hagener 2005). Collection of YCT for scientific and educational purposes is regulated by State agencies and is allowed only for valid, scientific purposes. Collection methods, locations, and timing are stipulated as part of the conditions of the permits.

In YNP, in order to ensure that the native YCT populations within the Park continue to persist into the foreseeable future even with a high degree of angling pressure, the Park instituted a mandatory catch-and-release regulation for cutthroat trout and other native park fish species in 2001 (Lewis 2005). Recently, they have proposed liberalizing harvest limits for nonnative species that exist in waters that also are inhabited by native cutthroat trout (Lewis 2005).

Threats from legal recreational angling are easier to control through regulatory actions than are threats from most land and water management activities. Where legal angling is considered a risk, restrictive regulations continue to be implemented, sometimes with dramatic results. For instance, directed harvest on rainbow trout was rapidly initiated in the South Fork Snake River, upon discovery that the rainbow trout population was expanding and threatening the YCT population (J. Fredericks in litt., IDFG, 2005).

Summary of Factor B

Although overfishing contributed to the decline of YCT in specific locations in the past, overfishing or overcollection is not currently perceived as a threat to YCT. Therefore, we conclude the best scientific and commercial information available to us indicates that overutilization for commercial, recreational, scientific, or educational purposes has not affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted.

Factor C. Disease or Predation

Disease

The risk of transmitting disease while relocating wild or hatchery fish into new waters is addressed via policies and State statutes (Caswell and Huffaker 2005; Hagener 2005; WGFD 2005). For example, in Montana, policy requires that an environmental assessment be completed for all introductions of a species into waters where the species is not found. The environmental assessment process provides for evaluation of impacts to resident native species and public review. Before fish are relocated, fish from the donor source are inspected for the presence of any pathogen that might preclude the transfer. Approval of all fish transfers requires the approval of the Fisheries Division Administrator after consultation with the Fish Health Committee. Reducing the risk of amplifying or spreading disease by hatchery operations is considered important (Hagener 2005).

All fish hatcheries (Federal, State, and private) typically undergo annual fish health inspections as authorized by State statute. In Montana, for example, all hatcheries are required to report the presence of fish pathogens, and damages resulting from spread of diseases can be collected from the violator. The Montana Fish Wildlife and Parks (MFWP) has spent several million dollars during the past 10 years to upgrade and protect State hatchery water sources so that whirling disease and other pathogenic organisms cannot get into hatchery water supplies (Hagener 2005). Before any fish lot is stocked from a State facility, it is inspected for the presence of disease. Diseased fish cannot be stocked from State hatcheries. Because of the possible introduction of fish pathogens, MFWP does not bring wild fish into any of its salmonid hatcheries. Additionally, movement of fish between salmonid hatcheries is prohibited except in extreme emergencies and must be approved by the Fisheries Division Administrator and the Fish Health Committee (Hagener 2005).

As part of this 12-month finding, we consider the threat that diseases may pose to YCT. Except for whirling disease, the fish pathogens that occur in the natural habitats of YCT are mainly benign in wild populations and typically cause death only when the fish are stressed by severe environmental conditions. Whirling disease is caused by the exotic myxozoan parasite *Myxobolus cerebralis.* That microscopic parasite was introduced to the eastern United States from Europe in the 1950s, and has since been found in many western States. Two separate host organisms are necessary for completion of the parasite's life cycle, a salmonid (i.e., salmon, trout, and their close relatives) fish and a specific aquatic oligochaete worm (*Tubifex tubifex*).

Whirling disease has been identified in fish populations in 148 watersheds in Montana, including sites on upper Yellowstone River, in the Shields River, and in the Clarks Fork of the Yellowstone where YCT occur (Hagener 2005). To date, whirling disease has not been detected in any wild YCT populations in Montana and has not been documented as causing any impacts to Montana YCT populations. In Montana, actions continue to be taken to prevent the spread of whirling disease and to minimize the impact of this disease on native fish (Hagener 2005).

Whirling disease has been reported in wild YCT from Henrys Lake, Teton River, South Fork Snake River, and Blackfoot River in Idaho (Caswell and Huffaker 2005). It also has been documented in rainbow trout populations in several of the watersheds occupied by YCT in close proximity.

In Wyoming, the whirling disease parasite was first detected in 1996 on the South Fork Shoshone River with the infection suspected to have originated from privately stocked fish ponds adjacent to the river (WGFD 2005). Since that time, the organism has spread elsewhere throughout portions of Wyoming (USFWS 2006). To date, WGFD has not observed a population impact on YCT from whirling disease in State-managed waters.

Whirling disease has been implicated in the decline of YCT in Yellowstone Lake (Koel *et al.* 2005). The parasite *Myxobolus cerebralis* was discovered in Yellowstone Lake in 1998, among juvenile and adult cutthroat trout (Koel *et al.* in press 2006). Examination of specimens obtained as gillnetting mortalities has since confirmed the presence of the parasite throughout Yellowstone Lake, with highest prevalence existing in the northern region of the lake, near known infected streams. Although widespread presence of this harmful parasite in the lake has been documented, it is encouraging that the prevalence of parasitic spores in adult fish suggests some cutthroat trout are surviving initial infection (Koel *et al.* 2005).

The impacts of whirling disease in YNP have been most severe in Pelican Creek (Koel *et al.* 2005), where few wild-reared fry have been observed in recent years (2001–2004). Cutthroat trout sentinel fry exposures (i.e., experiments with caged fish) in this tributary have indicated that over 90 percent of the fry were infected with the parasite, with an average severity (by histological examination) of greater than ''4'' on a scale of ''0'' (no infection) to ''5'' (most severe infection; Koel *et al.* 2004). The spawning cutthroat trout population of Pelican Creek, which in 1981 totaled nearly 30,000 fish (Jones *et al.* 1982), has been essentially lost (Koel *et al.* 2005). Angling in the Pelican Creek drainage was completely closed in 2004, in an attempt to slow the dispersal of the whirling disease parasite to other Park waters.

Although the whirling disease parasite continues to spread in many waters of the western United States (Bartholomew and Reno 2002) and is now widespread in portions of the habitat occupied by YCT, few outbreaks of whirling disease in resident fishes have occurred (Caswell and Huffaker 2005; Hagener 2005; WGFD 2005). Studies summarized by Downing *et al.* (2002) indicated that presence of the whirling disease parasite does not portend outbreaks of the disease in resident fishes. For example, although 46 of 230 sites tested in Montana were positive for the parasite, disease outbreaks were known to have occurred at only 6 of those sites. Downing *et al.* (2002) provided evidence that the frequent absence of manifest symptoms of whirling disease in resident trout, despite presence of the parasite, is due to complex interactions among the timing and spatial locations of important host-fish life-history events (*e.g.*, spawning, fry emergence from stream gravels, and early-life growth) and spatial and temporal variation in the occurrence of the parasite itself. Only under specific conditions, which evidently occur only in a small proportion of the locations where the parasite has been found, are those interactions such that disease outbreaks occur in resident fishes.

Studies conducted on various salmonids by Vincent (2002) confirmed that YCT were moderately susceptible to whirling disease. All of the cutthroat trout he tested (including YCT of both the large-spotted and fine-spotted forms as well as westslope cutthroat trout [WCT]) were found under captive experiments to show significantly lower average infection intensity than all of six different rainbow trout strains. The WCT were found in those tests to have significantly lower infection rates than either of the YCT. We are unaware of any studies of the susceptibility of the hybrids of rainbow trout and YCT to whirling disease.

The YCT status assessment report (May *et al.* 2003) concluded that the threats to extant YCT populations from diseases in general were greater for the extensive YCT metapopulations than for the smaller YCT populations that occur as isolets. The key assumption made in reaching that conclusion was that because the ranges of individual metapopulations were naturally much larger and encompassed habitats more diverse than those of isolets, the probability that diseases may be introduced and become established in YCT populations and spread through migratory behavior was greater for metapopulations than isolets (May *et al.* 2003).

Extensive research is continuing to determine the distribution of whirling disease, the susceptibility of YCT and other fishes to whirling disease, infection rates, and possible control measures (Bartholomew and Wilson 2002). Although no means have been found to eliminate the whirling disease parasite from streams and lakes, the States have established statutes, policies, and protocols that help to prevent the human-caused spread of extant pathogens and the introduction of new pathogens. The available scientific information specific to whirling disease thus indicates considerable variation in the probable disease threat among individual YCT populations and provides evidence that the disease is not a significant threat to the majority of populations constituting YCT (see USFWS 2006 for more detail).

Predation

The instances when predation by other fishes may negatively affect extant YCT populations are thought to be fairly well distributed across the range, but are not well documented. Some authors have identified nonnative species as one of the greatest threats to cutthroat trout of the intermountain West (see for example—Gresswell 1995; Kruse *et al.* 2000; Dunham *et al.* 2004). Predation, or other forms of interaction with nonnative fish, threatens native YCT in both managed landscapes and in some relatively secure unaltered habitats, including roadless areas, wilderness areas, and national parks. Based on observations to date, YCT that have the adfluvial or fluvial life history may be most susceptible to the effects of predation by nonnative fishes.

Introduced brown trout are well established in much of the range of YCT, occurring primarily in rivers and their larger tributaries, where they likely compete for food and space and prey on cutthroat trout. Elevated water temperatures may often favor brown trout, which are adaptable to such conditions over native species like YCT. Introductions of nonnative game fish such as brown trout also can be detrimental due to the increased angling pressure they may attract, which can result in the subsequent incidental catch and harvest of YCT.

The illegal introduction and subsequent establishment of a reproducing lake trout population in Yellowstone Lake has had far-reaching consequences and serves as a well-documented example of such impacts in the range of YCT. With the recent invasions by lake trout (and whirling disease), YNP is placing a high priority on preservation and recovery of YCT, particularly in Yellowstone Lake. Introduced lake trout have already resulted in the decline of cutthroat trout (Koel *et al.* 2005) and the problem also may have consequences to the food web, including impacts on grizzly bears and other consumers (Koel *et al.* 2005; Lewis 2005). Nonnative lake trout are not viewed as a suitable ecological substitute for cutthroat trout in the Yellowstone Lake system because they are inaccessible to most consumer species (Koel *et al.* 2005). Lake trout tend to occupy greater depths within the lake than do cutthroat trout. Lake trout remain within Yellowstone Lake at all life stages and they do not typically enter tributary streams, as do cutthroat trout.

Bioenergetics modeling suggests that an average-sized mature lake trout in Yellowstone Lake will consume 41 cutthroat trout per year (Ruzycki *et al.* 2003). Following the guidance of a lake trout expert advisory panel (McIntyre 1995), the National Park Service initiated gillnetting to determine the spatial and temporal distribution of lake trout within Yellowstone Lake (Koel *et al.* 2005). The efforts have led to a long-term lake trout removal program for the protection of the cutthroat trout in this system (Mahony and Ruzycki 1997; Bigelow *et al.* 2003).

Lake trout densities in the West Thumb of Yellowstone Lake remain high and pose an ongoing threat to the cutthroat trout (Koel *et al.* 2005). The goals of controlling lake trout and rehabilitating historical cutthroat trout abundance in Yellowstone Lake are yet to be achieved. Relatively low lake trout catch per unit effort and an annual decrease in the size of sexually mature lake trout are indicators that the removal program is exerting pressure on the lake trout population (Koel *et al.* 2005).

The lake trout threat in Yellowstone Lake is relatively new, occurs in a unique ecological setting, and involves a predaceous nonnative fish species (lake trout) that has a limited history of sympatry with YCT (due partly to the relative scarcity of natural adfluvial populations of YCT). A similar set of circumstances occurs in nearly a dozen large headwater lakes of the Columbia River basin, located mostly in and around Glacier National Park. Introduced populations of lake trout have become established there and have dramatically expanded in sympatry with native bull trout (*Salvelinus confluentus*) and WCT in recent years. The initial lake trout introduction in Flathead Lake occurred about 100 years ago and to date cutthroat trout have not been extirpated from the lakes in the Flathead River system, but major food web perturbations have occurred (Spencer *et al.* 1991). Some populations of native fish persist only at very low levels (Fredenberg 2002). We believe there is a level of uncertainty over the eventual outcome of the competitive interaction between lake trout and YCT in Yellowstone Lake. The USFWS finds reason for concern over the future of the Yellowstone Lake population of YCT, and we will monitor this situation closely. However, given the large scope of the Yellowstone Lake ecosystem and ongoing conservation actions, we believe that conservation populations of YCT will persist in this ecosystem, at least for the foreseeable future.

We concur with Greenwald (2005), who submitted comments that asserted: ''Where YCT are able to persist in sympatry with nonnative trout, their overall numbers and biomass may be greatly reduced. This is very likely a major factor, along with habitat degradation, in the restriction of the YCT to isolated, high-elevation, headwater streams.'' Greenwald (2005) noted that May *et al.* (2003) did not compile data on the presence of non-hybridizing trout in YCT streams (*e.g.*, brown trout, brook trout), but concluded it is safe to say that many of their conservation populations and the nonintrogressed populations are in fact sympatric with nonnative trout. Greenwald (2005) advocated that YCT populations existing in sympatry with predaceous nonnative fish were not secure and are in fact, threatened with extirpation. Nonnative trout that do not hybridize with cutthroat have undoubtedly caused historical reductions in the size and distribution of conservation populations of YCT across substantial portions of the range. However, most of these introduced trout populations have been in place for many decades, if not a century or more, and they have not caused widespread extirpation of YCT. Nonetheless, active programs to suppress or remove nonnative trout from waters where YCT populations exist are encouraged and in some areas are being initiated (USFWS 2006).

Summary of Factor C

As a result of this analysis, we conclude the best scientific and commercial information available to us indicates that neither whirling disease nor other nonnative disease organisms have affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted at this time. Additionally, we conclude the best scientific and commercial information available to us indicates that predation from brown trout, lake trout, or other predaceous, nonnative fishes has not affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted. However, where such predation does occur, often on YCT that have either the fluvial or adfluvial life history, it can have serious consequences to conservation populations. The impacts of some remaining, nonnative fishes overlapping with YCT (*e.g.*, brook trout) will be discussed in subsequent sections (see Factor E) of this document.

We believe that intensive monitoring and evaluation of the status of conservation populations of YCT and their overlapping competitors over time is necessary and may ultimately indicate whether nonnative species control actions have been adequately implemented and effective. If the current trend of nonnative species expansion cannot be halted, some conservation populations of YCT will likely exhibit a downward trend over time, and at some point the species may become threatened, largely as a result of those nonnative species interactions. However, at this time the best scientific and commercial evidence available to us does not suggest that the YCT is impacted across its range to the extent that listing under the ESA as a threatened or endangered species is warranted.

Factor D. Inadequacy of Existing Regulatory Mechanisms

The ESA requires us to examine the adequacy of existing regulatory mechanisms with respect to those extant threats that place the species in danger of becoming either threatened or endangered. In the United States, YCT are generally managed as a sought-after game fish species by State fish and wildlife managers in most of the watersheds where they occur. Each management jurisdiction bases its fishing regulations on local fish population information, consistent with its overall regulatory framework and public review process, as well as broader general management plans and objectives (Caswell and Huffaker 2005; Hagener 2005; Lewis 2005; Wichers 2005). However, the management authorities that develop and set the angling regulations typically do not own or manage the habitat in the watersheds inhabited by conservation populations of the YCT. Most of that habitat is managed by Federal land management agencies. Notable major exceptions occur in YNP and on all or portions of Native American Indian Reservations, where ownership and management are consolidated. Coordination in implementation of regulatory mechanisms that are designed to protect the habitat, with angling regulations allowing public enjoyment of the species, is vitally important. Numerous examples were submitted to the USFWS where such coordinated efforts were highlighted (Caswell and Huffaker 2005; Hagener 2005; Lewis 2005; McAllister 2005; Wichers 2005).

Regulatory Mechanisms Involving Land Management

The status assessment report (May *et al.* 2003) revealed that approximately 59 percent (7,125 of the 12,115 km [4,427 of the 7,528 mi]) of habitat presently occupied by all YCT populations (including both conservation and sport fish populations) lies on lands managed by Federal agencies. Included within that total are lands with special management, including those designated as national parks (10 percent of all occupied habitat on Federal lands), USFS-administered wilderness areas (14 percent), or other USFS-administered roadless areas (19 percent). Additional lands managed as roadless by the Bureau of Land Management (BLM) were not quantified, but would add to this total. In summary, about half of the federally managed land occupied by YCT occurs in some form of protected habitat.

Numerous State and Federal laws and regulations exist that help to prevent adverse effects of land management activities on YCT. Federal laws that protect YCT and their habitats include the Clean Water Act, Federal Land Management Protection Act, National Forest Management Act, Wild and Scenic Rivers legislation, Wilderness Act, and the National Environmental Policy Act (NEPA). The USFS and BLM have adopted the Inland Native Fish Strategy or similar standards in waters of the Snake River Basin west of the Continental Divide, that includes standards and guidelines that help protect the biological integrity of watersheds. The USFS classifies YCT as a ''sensitive'' species. As a result, Biological Evaluations include appropriate mitigation for any Forest project that has the potential to affect YCT.

Greenwald (2005), in comments submitted for the status review (USFWS 2006), asserts that the National Forest Management Act and other laws are inadequate and their implementation is insufficient to provide necessary protections to YCT on USFS lands. However, we have based our analysis of listing Factor D (Inadequacy of Existing Regulatory Mechanisms) primarily on the best available scientific and commercial information regarding the status and trend of the species. We found the record did not indicate that status and trend of YCT is declining in a broad pattern, or to such an extent that would indicate a failure of existing laws and regulatory mechanisms to provide for sufficient protection of the species habitat on National Forest lands. Greenwald (2005) cites numerous examples of purportedly inadequate environmental assessments for timber sales, inadequate resource management plans, *etc.,* but evidence of ostensibly resultant impacts to the YCT populations was not provided.

Few other aquatic species listed under the ESA overlap the distribution of YCT, so YCT currently receive minimal protection from the ESA's section 7 consultation provisions. Salmon, steelhead, and bull trout in the Snake River system are all found downstream of Shoshone Falls (River Mile 614.7), outside the recent historical range of YCT. Two ESA-listed snail species, the endangered Utah valvata (*Valvata utahensis*) documented to occur in the lower Henry's Fork and in the mainstem Snake River from the mouth of the Henry's Fork downstream to Grandview (River Mile 487), and the endangered Snake River physa (*Haitia natricina*) known to occur in the mainstem Snake River from Grandview (River Mile 487) as far upstream as Minidoka Dam (River Mile 674.5), are within the range of YCT. The threatened wetland plant, *Spiranthes diluvialis* (Ute ladies'-tresses), occurs in wetlands along the mainstem Snake River downstream from the Palisades Dam to American Falls Reservoir and along the Henry's Fork.

Temperature regime also is identified as one of the most important water quality attributes affecting distribution of some native salmonids (Rieman and McIntyre 1995; Adams and Bjornn 1997). The U.S. Environmental

Protection Agency (EPA) works with USFWS, State environmental quality agencies, and other entities to develop regional temperature guidance (USFWS 2002). The goals are to develop EPA regional temperature criteria guidance that—(1) meet the biological requirements of native salmonid species for survival and recovery pursuant to the ESA, provide for the restoration and maintenance of surface water temperature to support and protect native salmonids pursuant to the Clean Water Act, and meet the Federal trust responsibilities with treaty tribes for rebuilding salmon stocks, (2) recognize the natural temperature potential and limitations of water bodies, and (3) can be effectively incorporated by States and Tribes in programs concerned with water quality standards. States and Tribes will use the new criteria guidance to revise their temperature standards, and if necessary, the EPA and other agencies will use the new criteria guidance to evaluate State and Tribal standard revisions.

In Idaho, State regulatory mechanisms that provide some protection for YCT habitat include the Stream Channel Protection Act, the Lake Protection Act, and the Forest Practices Act (Caswell and Huffaker 2005). Wyoming has similar regulatory oversight (WDFG 2005). Montana laws that benefit YCT include the Montana Stream Protection Act, the Streamside Management Zone Law, the Montana Natural Streambed and Land Preservation Act, and the Montana Pollutant Discharge Elimination System (Hagener 2005). The Montana Stream Protection Act requires a permit be obtained for any project that may affect the natural and existing shape and form of any stream or its banks or tributaries.

Other State laws, rules, and regulatory mechanisms that help ensure the conservation of YCT and their habitat in Utah and Nevada are not discussed, but they are similar to those in the three States (Idaho, Montana, and Wyoming) where 98 percent of the extant range of the YCT occurs.

Regulatory Mechanisms That Address Threats From Hybridizing, Nonnative Fishes

Stocking has been part of Idaho's fisheries management for many years; indeed, fish stocking is recognized as an integral part of Idaho's fisheries policy (IDFG 2005). In Idaho, regulatory mechanisms that will minimize the potential for additional threats to extant YCT populations from hybridization are now in place (Caswell and Huffaker 2005). The IDFG management efforts to reduce hybridization have expanded greatly in the past few years. Since 1999, it has been the policy of IDFG to stock YCT waters with only rainbow trout from eggs that were heat-shocked to produce triploidy and sterility (Caswell and Huffaker 2005), thus reducing fish stocking as a source of hybridizing rainbow trout. The IDFG management direction, as described in its Fisheries Management Plan (a publicly reviewed, Commission-adopted document), gives priority in management decisions to wild, native populations of fish. In addition, the transport of live fish to, within, and from Idaho is regulated by the IDFG and the Idaho Department of Agriculture. The IDFG regulates private ponds in the State and applies the same criteria to private-pond stocking that it does to the stocking of public waters (*i.e.,* stocking of potentially hybridizing fishes that may pose a hybridization threat to native cutthroat trout is prohibited).

Partially in recognition of past problems caused by indiscriminant fish stocking, Montana has adopted a number of laws and regulatory mechanisms that address threats posed by the unlawful stocking of potentially hybridizing, nonnative fishes (Hagener 2005). These include State statutes, rules, and policies that restrict the capture, possession, transportation, and stocking of live fish, including fishes that may hybridize with YCT, as well as rigorous fish-health policies that restrict the transport or stocking of live fish. The stocking of private ponds also is closely regulated (Hagener 2005). Furthermore, although the stocking of rivers and streams with a variety of nonnative fishes was routine early in the 20th Century, it no longer occurs in Montana. In 1976, Montana adopted a policy that prohibits the stocking of hatchery fish in rivers and streams. Consequently, unless done for government-sponsored conservation purposes, no other trout or nonnative fish may be stocked in rivers and streams inhabited by YCT in Montana.

Regulatory Mechanisms That Address Threats From Pathogens

The MFWP has established a Fish Health Committee to review all projects and policies that involve fish health issues and is in the process of finalizing its Fish Health Policy. This policy establishes monitoring protocols for State, Federal, and private fish hatcheries; identifies four classifications of fish pathogens; outlines the policies and, where appropriate, the permitting processes for importation or transfer of fish, fish eggs and fish parts; establishes disinfection procedures of hatchery equipment, hatchery facilities, and fish eggs; delineates the hatchery quarantine process and procedures; and establishes policies regarding the importation of aquatic animals.

Montana limits the threat of importation of fish pathogens by restricting the importation of fish, leeches, and crayfish (Hagener 2005). Importations of fish and fish gametes require an import permit. Sources of imported fish, fish gametes, and leeches must pass a rigorous fish health certification process. Nonnative aquatic nuisance species (ANS) include nonindigenous animal and plant species and pathogens that can potentially impact native species or their environments. The ANS may pose a threat to YCT and other Montana native species through competition, predation, or disruption of the ecology of their environment (Hagener 2005). In order to proactively respond to this threat, MFWP formed the Montana Aquatic Nuisance Species Technical Committee that has completed an Aquatic Nuisance Species Management Plan that addresses the illegal importation of exotic aquatic animals, plants, and pathogens. Led by the MFWP ANS Program Coordinator, Montana coordinates State efforts and funding to prevent accidental introductions of ANS, limit the spread of established ANS, and eradicate ANS where feasible.

In Wyoming, similar State regulatory practices are in place. In Utah and Nevada, the range of YCT is restricted to a few headwater streams in the lower Snake River portion of the range, specifically in the Goose and Raft HUCs. For the most part, applicable State laws and regulations in Utah and Nevada are similar to those detailed in the other three States (Idaho, Montana, and Wyoming) which comprise approximately 98 percent of the YCT range.

Greenwald (2005) submitted comments for this status review (USFWS 2006) indicating that the Interstate Yellowstone Cutthroat Trout Working Group Memorandum of Agreement and a similar Conservation Agreement for YCT within Montana are voluntary agreements that do not qualify as regulatory mechanisms. The USFWS agrees with that assessment and based its finding of the listing status of YCT on the best available scientific and commercial information regarding the status and threats to YCT, not on the promised or anticipated results of conservation actions.

Summary of Factor D

Our status review (USFWS 2006) has not revealed information to indicate that regulatory mechanisms related to land management or fisheries management are not working, or will not work to protect YCT in the future. As a result of this status review (USFWS 2006) we conclude that the best scientific and commercial information available to us indicates that any identified inadequacies of existing regulatory mechanisms have not affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted.

Factor E. Other Natural or Manmade Factors Affecting the Species' Continued Existence

Fragmentation and Isolation of Small YCT Populations in Headwater Areas

Extant YCT populations are not necessarily small or limited to headwater streams. Instead, May *et al.* (2003) indicated that many river drainages had numerous, interconnected miles of stream habitat occupied by YCT. Those areas include the nine watersheds previously described as forming the central core of YCT conservation efforts (Yellowstone Headwaters, Upper Yellowstone, and Shields in the Yellowstone River Basin [see Table 1 and Figure 2 in USFWS 2006]; Snake Headwaters, Gros Ventre, Greys-Hobock, Palisades, Salt, and Teton in the Snake River basin [see Table 2 and figure 2 in USFWS 2006]).

Although YCT remain widely distributed in two headwater basins, the effects of human activities combined with natural factors have reduced the overall distribution and abundance of YCT to an undetermined extent over the past two centuries (May *et al.* 2003). Multiple local populations distributed throughout a watershed provide a mechanism for spreading risk because the simultaneous loss of all local populations is unlikely. Migratory corridors allow individuals access to unoccupied but suitable habitats, foraging areas, and refuges from disturbances. Where migratory life history forms of salmonid species are not present, isolated populations cannot be replenished naturally when a disturbance makes local habitats unsuitable.

Our status review (USFWS 2006) found little direct evidence that the geographic isolation of YCT populations had resulted in stochastic extirpations of such populations (due, for example, to natural events such as floods, landslides, or wildfires). Given the lack of such evidence it logically follows that such threats are unlikely to occur to such a degree as to threaten the YCT subspecies or substantial portions thereof (USFWS 2001). However, the historical record indicates the distribution of YCT has been substantially reduced over the past 200 years and it is likely that catastrophic natural events contributed at some level to that loss, even if only affecting isolated populations. Conservation populations of YCT were determined by May *et al.* (2003) to be currently absent from five watersheds where they historically existed (Pompeys Pillar, Lake Basin, Popo Agie, Lower Wind River, Lake Walcott), and distribution was extremely limited in single isolet populations extending through less than 16 km (10 mi) of stream in five other HUCs (Pryor, Little Bighorn, Upper Tongue, Shoshone, and North Fork Shoshone). For the most part, these watersheds are in the downstream margins of the range of YCT, where populations are noticeably fragmented, and may have been so, historically. We were not able to determine how much of the currently restricted range of those populations is due primarily to habitat suitability vs. other threats such as hybridization with rainbow trout.

Information provided in the YCT status assessment (May *et al.* 2003) ranked each of four measures of population viability that could make YCT vulnerable to catastrophic natural events or adverse human effects on the aquatic environment—(1) population productivity (*i.e.*, demographics), (2) temporal variability, (3) isolation, and (4) population size. That analysis suggested isolets were at greater risk of extirpation due to stochastic natural events than were metapopulations, but the analysis was not rigorously quantitative. We have also indicated that climatic variables play a role and that YCT subpopulations on the margins of the range are naturally at greater risk due to those factors.

Kruse *et al.* (2001) assessed the possible demographic and genetic consequences of purposely isolating the populations of YCT in headwater streams in the Absaroka Mountains, Wyoming. Such isolation may result, for example, from intentional placement of a movement barrier to prevent nonnative fishes downstream from invading upstream reaches. Kruse *et al.* (2001) speculated that isolated YCT populations are vulnerable to chance extinction, although they also pointed out that ''there has been little opportunity to observe the real effects of small population size and isolation on native, extant Yellowstone cutthroat trout populations.''

The widespread geographic distribution of YCT across the subspecies' range in portions of five States further mitigates potential negative effects resulting from local population extinctions following future catastrophic natural events, as no single event is likely to impact a significant percent of the overall number of isolated populations. Moreover, given the widespread efforts for the conservation of these fish, any such local extirpation that occurs in habitat where YCT are precluded from naturally recolonizing is likely to be followed by reintroduction efforts by responsible management agencies. There is widespread evidence of successful establishment of reproducing populations of YCT in suitable vacant habitat, often from a single introduction, as witnessed by the many self-sustaining populations of YCT found in lakes upstream from geological barriers that precluded their natural colonization.

Information provided in the YCT status assessment report (May *et al.* 2003) indicated that, although 143 (73 percent) of the 195 YCT conservation populations were isolets that were often restricted to 10 stream miles or less habitat in isolated headwater areas, those isolets represented only 27 percent of the total stream miles occupied by YCT. Thus, the small YCT populations in headwater areas are numerous, but they collectively occupy only about ¼ of the total habitat occupied by YCT conservation populations. Most of the occupied stream miles (73 percent) were habitat for YCT in metapopulations. As a result of this analysis (USFWS 2006), we conclude that the fragmentation and isolation of small YCT populations in headwater areas has not resulted in the subspecies being eliminated from major portions of its historical range.

Threats to Any of the Three Yellowstone Cutthroat Trout Life-History Forms

Three life-history forms occur across the range of YCT. We found that YCT naturally occur in an unquantified but small number of lakes (probably fewer than 20) across the range. All of the natural YCT populations dependent on lakes are considered adfluvial (*i.e.,* live in lakes and migrate into rivers to spawn) and most of them are in areas where they receive a high level of habitat protection afforded by national parks or wilderness. However, YCT with the adfluvial life history constitute a small proportion of the range of YCT and did so historically.

The State of Wyoming, in comments submitted for this status review (Wichers 2005), indicated that YNP is an important part of Wyoming and plays a significant role in YCT conservation but expressed concern that the importance of YNP to overall YCT conservation should not be overstated. Wichers (2005) reported that of the entire historic stream habitat in Wyoming, 88 percent is outside YNP and 80 percent of the currently occupied stream miles are outside YNP. Based on May *et al.* (2003), YNP accounts for about 4.7 percent of the historic and 8.5 percent of the presently occupied miles of habitat across the entire range of YCT. However, we note that Yellowstone Lake constitutes the majority of existing habitat for the adfluvial life history form. The significance of this is discussed in greater detail in the status review (USFWS 2006).

We also found that stream-dwelling resident (*i.e.,* showing little movement) and fluvial (*i.e.,* migratory within streams and larger rivers) YCT populations constitute the most common YCT life-history forms and occur in well over 90 percent of the estimated 12,115 km (7,528 mi) of occupied habitat distributed among two major stream drainages (Snake and Yellowstone) and 40 component watersheds. The distinction between resident and fluvial migratory forms is often difficult to discern in practice and there is considerable overlap, so it is not possible to definitively quantify the occupied distribution of each of these two life history forms. Over the long term, preservation of all existing life history forms is important to persistence of YCT. The inherent life form plasticity of the subspecies and its proven ability to colonize new habitats (*i.e.,* history of fish culture success) would appear to provide some measure of security for perpetuation of the adfluvial life history form, which is the most vulnerable form, into the future.

Fisheries Management

Historic introductions of nonnative species by the Federal Government, State fish and game departments, and private parties, across the West have contributed to declines in abundance, local extirpations, and hybridization of YCT (Gresswell 1995; Kruse *et al.* 2000; Dunham *et al.* 2004). In addition, legal and illegal activities associated with recreational angling are known to be a major vector for movement and dispersal of nonnative fishes and other organisms (Hagener 2005). The unauthorized or unintentional movement of nonnative organisms poses a significant but unquantifiable risk associated with recreational angling.

The States have policies in place to combat these concerns. For example, the Private Pond Stocking Policy of MFWP restricts what species of fish may be stocked in private ponds that are in YCT-occupied drainages of Montana (Hagener 2005). In Wyoming, State Game and Fish Commission policy precludes the stocking of fish into waters that are capable of sustaining satisfactory, self-sustaining fisheries (WGFD 2005). Other States have similar policies (see details in USFWS 2006).

Competition From Introduced Brook Trout

Brook trout, a char species native to eastern North America but liberally introduced throughout the West, beginning as early as 1900, can adversely compete with YCT (*e.g.*, Griffith 1988). Brook trout apparently adapt better to degraded habitats than native trout and brook trout also tend to occur in streams with higher water temperatures (Adams and Bjornn 1997). Because elevated water temperatures and sediments are often indicative of degraded habitat conditions, native trout may be subject to compounded stresses from both competitive interactions with brook trout and degraded habitat (Rieman *et al.* 2006).

The database of May *et al.* (2003) did not assess the extent that brook trout co-occur (*i.e.,* are sympatric) with extant YCT. However, in future iterations of the database that information will be incorporated (Brad Shepard, MFWP, pers. comm. 2005). Nonetheless, it is evident from the longstanding coexistence of brook trout with YCT in some streams that complete competitive exclusion of YCT by brook trout is not necessarily inevitable where the two fishes co-occur.

Systematic sampling of the Snake River headwaters in Wyoming (McAllister 2005) found brook trout were present in approximately 13 percent of the length of all perennial streams occupied by any trout species or subspecies (but 27 percent of the streams themselves). Brook trout have displaced cutthroat trout from 14 streams that comprise 1.3 percent of the total trout stream in that watershed. Ten of the 14 streams sampled are tributaries to the Snake River.

In the Teton River, Wyoming, YCT have experienced broad declines (Koenig 2005) and are seemingly being replaced by brook trout. Benjamin (2005) reported that only four drainages in the upper Teton River watershed remain inhabited solely by YCT. Benjamin (2005) hypothesized that these populations have probably been spared from invasion because culverts, diversion structures, and dewatered sections prevent fish from moving from the main Teton River into these tributaries. The nine largest tributaries in the upper Teton watershed that are occupied by YCT have been colonized by brook trout.

Although a correlation exists between the spread of brook trout populations (or other nonnative salmonids) and the decline of YCT in some watersheds, the causes of YCT population decline often include multiple currently operating factors (*e.g.*, habitat loss, dewatering, whirling disease, etc.). As a result, it is difficult to determine whether brook trout are the cause of YCT decline in such cases or merely a symptom of broader ecosystem perturbations (Rieman *et al.* 2006). We conclude that the competition from introduced brook trout is serious, where it occurs, but it has not affected the status of YCT conservation populations on a widespread scale. Comprehensive analysis of the degree of rangewide overlap between YCT and brook trout distribution is currently not available, but is expected to be a component of the next iteration of the State status assessment.

Hybridization With Nonnative Fishes

Hybridization with introduced, nonnative fishes, particularly rainbow trout and their hybrid descendants that have established self-sustaining populations, is recognized as an appreciable threat to YCT conservation. The YCT is known to interbreed primarily with rainbow trout and to a lesser extent with other subspecies of cutthroat trout. Rainbow trout were first stocked into many regions of the historic range of YCT more than 100 years ago. May *et al.* (2003) estimated that 133 of the 195 designated conservation populations (68 percent) would meet the standard as ‘‘core conservation population,’’ essentially containing nonintrogressed YCT. These 133 potential ‘‘core conservation populations’’ occupy 3,009 km (1,870 mi) of habitat, encompassing about 29 percent of the approximately 10,223 km (6,352 mi) of habitat that May *et al.* (2003) considered to be occupied by conservation populations.

As pointed out by May *et al.* (2003), the vulnerability to hybridization of YCT in metapopulations stems from the key characteristic of the metapopulation itself, *i.e.,* the ability of its member fish to move (and interbreed) among the various YCT populations that constitute the metapopulation. It is assumed that potentially hybridizing fishes are similarly unencumbered in their movements throughout the geographic area occupied by the metapopulation and, accordingly, YCT metapopulations can inevitably become completely introgressed as a hybrid swarm. However, as the following discussion shows, the process of hybridization and the results of introgression are not always predictable.

In Idaho, YCT in many populations are sympatric with potentially hybridizing rainbow trout but remain nonintrogressed (Meyer *et al.* 2006 in review). Thus, the occurrence of potentially hybridizing fishes does not portend their imminent hybridization with YCT. A multitude of factors, both physical and biological, determine whether or not introgression may occur, and those factors may not be stable over time. For example, in some circumstances drought cycles may serve to isolate spawning populations of YCT, possibly limiting access to potentially introgressing fish in YCT habitat. However, in other cases drought could have the opposite effect by limiting YCT access to traditional spawning streams where spatial or temporal isolation historically occurred; thereby forcing fish to spawn together in greater proximity and contributing to increased introgression.

In the Yellowstone River in Montana, De Rito (2004) assessed whether spatial or temporal reproductive isolation, or both, occurs between YCT and nonnative rainbow trout. Time and place of spawning were determined by radiotelemetry of 164 trout (98 cutthroat, 37 rainbow, and 29 cutthroat x rainbow hybrids) over 3 spawning seasons, from 2001 to 2003. Spawning area and spawning-reach overlap were high among all taxa. In contrast, mean migration and spawning dates of rainbow trout and hybrids were 5 to 9 weeks earlier than for cutthroat trout. Rainbow trout and hybrids began migrating and spawning in April and May when Yellowstone River discharges were lower and water temperatures were colder. In contrast, cutthroat trout migration and spawning occurred in June and July, when discharges and temperatures were higher. De Rito (2004) concluded that difference in time of spawning is likely the predominant mechanism eliciting reproductive isolation. He further concluded that conservation actions that focused on protecting and enhancing later spawning cutthroat trout in tributaries may enhance temporal reproductive isolation from rainbow trout and their hybrids.

There are scattered populations of WCT or other nonnative cutthroat trout subspecies found within the range of YCT, as a result of past introductions. However, due to the widespread popularity of fish culture activities using YCT, the opposite pattern (*e.g.,* YCT stocked in the native range of WCT) is a much more common occurrence. The present hybridization risk to YCT is almost entirely from rainbow trout.

In most cases today, it is not technologically possible to eliminate the self-sustaining populations of potentially hybridizing, nonnative fishes from entire drainages or even individual streams. Consequently, perceived threats to extant YCT posed by nonnative fishes in streams are sometimes met by installing barriers to the upstream movement of the nonnative fishes into stream reaches occupied by core populations of nonintrogressed YCT. In a few cases, usually involving small streams that provide the greatest opportunity for success, fish toxins may be used to completely remove all fishes upstream from such barriers, after which YCT may be stocked (Caswell and Huffaker 2005; Hagener 2005; Lewis 2005; WGFD 2005). Because of technological, budgetary, and other limitations, actions to eliminate or isolate sources of introgression are now being taken for only a small proportion of YCT populations across the subspecies' range.

Self-sustaining populations of nonnative rainbow trout pose the greatest hybridization threat to YCT and few of those populations can be eliminated or appreciably reduced. A key concern becomes the extent that introgressive hybridization may eventually pervade existing nonintrogressed or suspected nonintrogressed YCT populations, particularly those that inhabit headwater streams in high-elevation areas.

Meyer *et al.* (2003) found that YCT hybridization with rainbow trout in the Upper Snake River basin is far from ubiquitous, with only 19 percent of the sites containing YCT also containing rainbow trout or hybrids (see additional discussion in USFWS 2006). The finding that hybridization is not widespread across the Upper Snake River basin comports with range-wide findings of May *et al.* (2003) for YCT.

In addition, many extant YCT populations occur upstream from natural barriers that prevent the existing upstream movement of nonnative fishes, including those that may potentially hybridize with YCT. We examined the database of May *et al.* (2003) to determine the extent that nonintrogressed or suspected nonintrogressed YCT populations occur upstream from such ''complete'' barriers. Results indicated that a little over 3,219 km (2,000 mi) of stream habitat occupied by YCT conservation populations, including about 748 km (465 mi) inhabited by YCT in the 143 isolated populations and about 2,585 km (1,606 mi) inhabited by YCT in metapopulations are upstream from barriers. Of these, a high proportion is populated by nonintrogressed YCT with no hybridizing rainbow trout or other species in proximity.

The observation that numerous nonintrogressed YCT populations persist today despite the longstanding sympatric occurrence (*i.e.*, more than 100 years) of potentially hybridizing fishes, or their presence in downstream reaches where the absence of barriers to the upstream movement of those fish occurs, corroborates the physical evidence that not all nonintrogressed YCT populations have been and are equally vulnerable to introgression. The threat of hybridization with nonnative rainbow trout and the potential for introgression to occur to such an extent as to compromise the integrity of conservation populations of YCT is a complex and still evolving dynamic process. While we do not discount this threat and believe it may present one of the single biggest challenges to the continued conservation of YCT, we are encouraged that the most recent scientific studies (*e.g.,* Meyer *et al.* 2003, De Rito 2004, Novak *et al.* 2005, Meyer *et al.* 2006 in review) indicate that substantial genetic isolation of YCT may persist, even in sympatry with populations of rainbow trout. These data would appear to indicate that the level of genetic isolation has not been increasing.

New Zealand Mud Snails

New Zealand mud snails (NZMS), an invasive nonnative mollusk, can coat benthic/food producing areas, has not been found in any areas currently occupied by wild populations of YCT in Wyoming (WGFD 2005). In 2002, NZMS were discovered in the Big Horn River (Upper Big Horn HUC) near Thermopolis, Wyoming. High densities of NZMS exist in Polecat Creek, a tributary to the Snake River near the YNP boundary. Polecat Creek is a geothermally heated stream, which likely contributes to the high densities of NZMS observed. NZMS can be found in the Snake River above Jackson Lake, but in lower densities than in Polecat Creek. No additional information on the range or spread of NZMS within the conservation habitat of YCT was reviewed. While it is likely this organism is increasingly becoming more widespread and will continue to spread, to date there is no evidence that implicates NZMS in the collapse of any conservation populations of YCT.

Summary of Factor E

As a result of our status review (see USFWS 2006), we conclude the best scientific and commercial information available indicates that risk associated with fragmentation and isolation of small YCT conservation populations, including stochastic risk from catastrophic natural events, has not affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted.

The available data also do not suggest the future loss of any of the three life-history forms represented by YCT, although the adfluvial form is clearly the most vulnerable. We conclude the best scientific and commercial information available to us indicates that threats to any of the three YCT life-history forms have not affected the status of the YCT to such an extent that listing under the ESA as a threatened or endangered species is warranted.

In our 90-day finding (66 FR 11244) we concluded that ongoing fisheries management programs were not a sufficient threat to the status of YCT to cause us to consider listing. Likewise, the presence of introduced, nonnative fishes such as brook trout did not necessarily portend the imminent decline or elimination of YCT. This status review (see USFWS 2006) supports that conclusion.

As a result of this analysis, we also conclude the best scientific and commercial information available to us indicates that introgressive hybridization with rainbow trout or other cutthroat subspecies has not affected the status of YCT to the extent that listing under the ESA as a threatened or endangered species is warranted. However, we will continue to evaluate new information that may be made available regarding these and other threats, and we urge the public to submit to us any new information that becomes available concerning the status of or threats to YCT. That is particularly true of new threats such as the recent spread of invasive New Zealand mud snails.

Petition Finding

In the context of the ESA, the term ''threatened species'' means any species (or subspecies or, for vertebrates, DPS) that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The term ''endangered species'' means any species that is in danger of extinction throughout all or a significant portion of its range. The ESA does not indicate threshold levels of historic population size at which, as the population of a species declines, listing as either ''threatened'' or ''endangered'' becomes warranted. Instead, the principal considerations in the determination of whether or not a species warrants listing as a threatened or an endangered species under the ESA are the threats that now confront the species and the probability that the species will persist in ''the foreseeable future.'' The ESA does not define the term ''foreseeable future.'' However, the YCT Interstate Workgroup that produced the YCT status assessment report (May *et al.* 2003) which formed much of the scientific basis for our status review (USFWS 2006) considered the ''foreseeable future'' to be 20 to 30 years (which equates to approximately 4 to 10 YCT generations, depending on the productivity of the environment). That is a measure that the USFWS supports as both reasonable and appropriate for our status review (USFWS 2006) because it is long enough to take into account multi-generational dynamics of life-history and ecological adaptation, yet short enough to incorporate social and political change that affects species management.

In our status review (USFWS 2006), we provided evidence that indicates a decline in YCT occurred over the past 200 years, but much of that loss is believed to have occurred in the late 19th and early 20th century. Recent trends appear to be stable or upward, with a few notable exceptions (i.e., Yellowstone Lake, Teton River). Although YCT remain widely distributed in two headwater basins, the overall abundance of YCT have declined to an undetermined extent over the past two centuries (May *et al.* 2003). We attribute the distributional decline of YCT in large measure to competition, hybridization, and predation caused by one or more nonnative fish species. These impacts have been observed since the initial introductions of brown trout, rainbow trout, and brook trout began in the late 1800s. These introduced salmonid species have subsequently expanded to colonize new habitat and form many naturally reproducing populations occupying the range of YCT. More recently, lake trout introduction has been a major factor in causing decline of the adfluvial YCT population of Yellowstone Lake.

Coinciding with, and largely inseparable in its effect on YCT from the impacts of nonnative species introduction, has been a gradual and in some instances substantial decline in overall quality of in-stream fish habitat and riparian status. This has occurred largely as a result of human-caused land and water management practices. Increased sediment and reduced or altered streamflow patterns are considered the primary causes of reduced habitat quality for native salmonid populations throughout the west. These impacts have probably been exacerbated by natural or man-caused climate changes that have led to generally warmer and drier conditions. Such conditions generally do not favor cutthroat trout, especially in watersheds occupying the margins of suitable habitat within their historical range.

Our analysis for this review (USFWS 2006) found there is little evidence of major changes in overall distribution or abundance of YCT over approximately the past decade. There are indications that increased focus is being placed by management agencies on the protection and restoration of conservation populations of YCT in many watersheds. Corresponding emphasis is occurring on habitat restoration activities and fisheries management actions such as restrictive angling regulation changes that are designed to benefit YCT. For many of these actions, it is too early to judge their success. Some of these actions appear to have resulted in improved population levels in some areas. Examples are found in the Snake River Headwaters of Wyoming (Novak *et al.* 2005), portions of Idaho (Meyer *et al.* 2003; Meyer *et al.* 2006 in review), the Shields River watershed in Montana (Hagener 2005), and other locations. At the same time, this success is countered by evidence of recent dramatic declines in a formerly robust population of YCT within the relatively secure habitat of Yellowstone Lake in YNP (Koel *et al.* 2005), documented declines and recruitment failure in the Teton River watershed in Wyoming and Idaho (Benjamin 2005; Koenig 2005), and concerns over the status and threats due to selenium toxicity in the Blackfoot River and possibly other watersheds in Idaho (Lemly 1999; Christensen 2005). In balance, the monitoring record is insufficient to document either an overall upward or downward trend in the status of YCT populations across the subspecies' historic range over the recent past.

It is important that the status and distribution of YCT continue to be monitored. The USFWS finds that the management agencies are contributing substantial resources in that regard, and we believe the planned upgrade of the YCT status assessment to be initiated by the Yellowstone Cutthroat Trout Interstate Workgroup in 2006 (WGFD 2005; Brad Shepard, MFWP, pers. comm. 2005) will become an important document for establishing an accurate current baseline to be used to evaluate future population status changes.

Conclusions

On December 17, 2004, Judge Figa (U.S. District Court of Colorado) ordered the USFWS to complete a 12-month status review for YCT. As a result, we have done so and present our conclusions in this notice, and in more detail in the accompanying status review (USFWS 2006). The information we have summarized includes substantial amounts of new information not analyzed or reported in our previous 90-day finding (66 FR 11244), particularly that obtained from the status report of May *et al.* (2003). That information indicates at least 195 extant YCT conservation populations, qualifying as YCT under the standards we have adopted, collectively occupy 10,220 km (6,352 mi) of stream and lake habitat in Idaho, Montana, Wyoming, Utah, and Nevada. Those 195 YCT populations are distributed among 35 component watersheds in the Snake and Yellowstone River basins, within the international boundaries of the United States.

Of those 195 conservation populations, about 133 were considered likely to qualify as potential ''core conservation populations'' comprised of nonintrogressed YCT (99 percent genetic purity standard; see Discussion of Hybrid YCT in Listing Determinations at the beginning of the status review [USFWS 2006]). If, after further genetic testing the existence of approximately 133 core conservation populations is verified, then those populations would include about 3,009 km (1,870 mi) of habitat encompassing about 29 percent of the existing range of conservation populations of YCT.

Although the distribution of YCT has been reduced from historic levels and existing populations face threats in several areas of the historic range, we find that the magnitude and imminence of those threats do not compromise the continued existence of the subspecies within the foreseeable future (which we define as 20–30 years). Many former threats to YCT, such as those posed by excessive harvest by anglers or the ongoing stocking of nonnative fishes, are no longer factors that threaten the continued existence of YCT. That is not to downplay the active legacy of past fish stocking activities, but current programs have been revised to avoid further impacts. The effects of other extant threats, especially those to habitat, may be effectively countered, at least in part, by the ongoing management actions of State and Federal agencies. These actions occur in conjunction with application of existing regulatory mechanisms. It is largely too soon to judge the overall long-term effectiveness of those actions, though some positive signs are present. At the least, we conclude that active loss of habitat has been minimized.

Nonetheless, hybridization with nonnative rainbow trout or their hybrid progeny and descendants, both of which have established self-sustaining populations in many areas in the range of YCT, remains an active threat in the form of introgression to YCT conservation populations. The eventual extent that hybridization occurs in YCT habitat may be stream-specific and impossible to predict. Nonetheless, the criteria that we adopted for inclusion of individual fish or populations as YCT, following the lead of past actions (see WCT finding in USFWS 2003; 66 FR 46989) and consistent with the genetic standards adopted by the State fishery managers (Utah Division of Wildlife Resources 2000), allow for the limited presence in YCT conservation populations of genetic material from other fish species. We view this as consistent with the intent and purpose of the ESA.

The YCT remain widely distributed and there are numerous robust YCT populations and metapopulations throughout the subspecies' historic range. Moreover, numerous nonintrogressed YCT populations are distributed in secure habitats throughout the subspecies' historic range. In addition, despite the frequent occurrence of introgressive hybridization, we find that some YCT populations that are sympatric with rainbow trout are nonintrogressed or nearly so, and thus retain substantial portions of their genetic ancestry, apparently due to temporal, behavioral, or spatial reproductive isolation. We consider slightly introgressed YCT populations, with low amounts of genetic introgression detectable only by molecular genetic methods, to be a potentially important and valued component of the overall YCT (*i.e.*, ''conservation populations'').

Finally, the numerous ongoing YCT conservation efforts clearly demonstrate the broad interest in protecting YCT held by State, Federal, Tribal, local, and nongovernmental organizations and other entities. However, those ongoing conservation efforts, while important, are not pivotal to our decision whether or not to propose to list the YCT as either a threatened or an endangered species under the ESA. That decision is based mainly on the present-day status and trend of YCT, the mitigation of many of the existing threats, and the occurrence of the numerous extant laws and regulations that work to prevent the adverse effects of land-management and other activities on YCT, particularly on those lands administered by Federal agencies.

On the basis of the best available scientific and commercial information, which has been broadly discussed in this notice and detailed in the documents contained in the Administrative Record for this decision, we conclude that the YCT is not endangered (threatened with extinction within the foreseeable future), nor is it threatened with becoming endangered within the foreseeable future. Therefore, listing of the YCT as a threatened or an endangered species under the ESA is not warranted at this time.

References Cited

A complete list of all references cited herein is available upon request from the Field Supervisor at the Montana Ecological Services Office (see **ADDRESSES**).

Author

The primary author of this document is the Montana Ecological Services Office (see **ADDRESSES**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: February 14, 2006.

H. Dale Hall,

Director, Fish and Wildlife Service.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[I.D. 021306C]

RIN 0648–AS70

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic; Reef Fish Fishery of the Gulf of Mexico; Limited Access Program for Gulf Charter Vessels and Headboats

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.