

Five-Year Status Review of the Bull Trout

December 2004

EXECUTIVE SUMMARY

The U.S. Fish & Wildlife Service (FWS) announced in April 2004 (69 FR 19449) that it is conducting a Five-Year Status Review of Bull Trout pursuant to Section 4(c)(2)(A) of the Endangered Species Act and also announced a public comment period on this process.

In response to this call for public and professional comment, this report was prepared by Mike Bader Consulting in Missoula, Montana under contract with the Alliance for the Wild Rockies for use by Alliance for the Wild Rockies and Friends of the Wild Swan. Jack Tuholske, attorney at law, and Arlene Montgomery, Friends of the Wild Swan, contributed significantly to this report.

This report summarizes findings from an extensive review of scientific papers, annual population counts, management plans, proposed rules, and other information pertaining to current status and trends of the bull trout in the Northwest United States.

Based upon this review and projected trends, this report concludes there is no scientific or legal basis for removing bull trout from the list of threatened species in the 48 contiguous states. In some systems, reclassification to endangered status may be warranted.

INTRODUCTION

Following several years of litigation, a final rule listing all bull trout in the lower 48 states as a threatened species was published (64 FR 58932).

Subsequent to the listing, proposed and final rules for critical habitat designation have been published (citation) and Draft Recovery Plans have been issued for review and comment.

The Draft Recovery Plan for the Columbia and Klamath Basins summarizes the causes of bull trout decline at pages iv-v.

"Declines in bull trout distribution and abundance are the results of combined effects of the following: habitat degradation and fragmentation, the blockage of migratory corridors, poor water quality, angler harvest and poaching, entrainment (process by which aquatic organisms are pulled through a diversion structure or device) into diversion channels and dams, and introduced nonnative species. Specific land and water management activities that continue to depress bull trout populations and degrade habitat include dams and other diversion structures, forest

management practices, livestock grazing, agriculture, road construction and maintenance, mining, and urban and rural development. Some threats to bull trout are the continuing effects of past land management activities."

The Draft Recovery Plan for the Coastal-Puget Sound area, at page 140, repeats this list of causative factors in bull trout decline. It also states that bull trout in the Coastal-Puget Sound region have been subject to the same factors as those in the Columbia and Klamath Basins.

The Proposed Rule for critical habitat in the Coastal-Puget Sound, at 35771, states:

"The Coastal-Puget Sound region is affected by the same significant factors that contributed to the decline of bull trout in the Columbia River and Klamath River Basins (67 FR 71236)."

CATEGORIES USED FOR THIS STATUS REVIEW

For ease of review and consistency, this review is based on the five listing factors cited in the Threatened listing documents, and consistent with the Draft Recovery Plan for the Coastal-Puget Sound (p. 140). Additionally, we present a section on Population Trends. These six overall factors are listed as sections A-F.

There is significant overlap between categories and as the Draft Recovery Plans indicate, a synergistic effect of several factors affecting the same populations, compounding overall threat level. There are several threats grouped within these general categories and the order in which they are listed does not confer a ranking as to threat level. For each threat the current information regarding trend is assessed and a projection made as to positive, negative, or neutral trends.

A. POPULATION TRENDS

TREND

Based on the best available scientific information, the current trend for this category is stable to declining with a projected negative trend due to the very small size of the majority of sub-populations and the degree of continuing and increasing geographic distance between the remaining sub-populations.

For example, a survey of 102 bull trout populations throughout the Columbia River Basin (Fredenberg 2003) found that the two worst categories account for 36.2% of the total (extirpated, 13.7%; declining, 22.5%). Those identified as Unknown Trend were 23.5%, of which 45.8% were from populations characterized as rare or uncommon. Stable populations accounted for 33.3% but most of these populations are very small (<100 redds/

year) and isolated.

Just 5.9% of the populations were identified as increasing and of these, Petit Lake is characterized as rare, and another, Swan Lake, is actually decreasing, as shown below.

ANNUAL REDD COUNTS

The best available information on population trends comes from annual surveys of bull trout spawning nests, or redds. Analysis of these data shows there have not been significant increases in any population which would warrant de-listing. Moreover, most monitored populations remain at critically low population sizes <100 redds/year, and are often completely isolated from other populations. Over the past five years since 1999, most populations show decline or are holding steady at very low numbers. Only one monitored population, in the Wigwam River within the Upper Kootenai drainage, has shown demonstrably significant growth since 1999, and the majority of this stream is in Canada. The other tributaries in this system remain at low levels and have not increased.

Unfortunately, adequate continuous time series data (>14 years) is available for very few sub-populations so that statistically valid trend analysis isn't really possible. Thus, the redd count data are best used to indicate general trends and status.

In many areas, counts for 2004 were considerably lower than previous years. And even the Swan sub-population in Montana, considered one of the strongest, has suffered a decline of greater than 200 redds per year to 596 in 2004, well below the 1995-1998 average of 804 redds/year.

Counts in both the North and Middle Forks of the Flathead River Basin remain substantially lower than the counts just 5 years ago, coming in with just 89 and 47 redds, respectively, in 2004, compared to 111 and 104 in 1999.

Basin wide counts in the South Fork Flathead held steady at 479 redds compared to 483 in 1999 and 470 in 2001.

In the Upper Clark Fork, annual counts began in 1998 and have averaged about 50 redds/year, with 47 reported for 2004.

In the Blackfoot River Basin there was a count of 126 in 2004, significantly lower than the average of approximately 200 redds/year from 1998-2003.

In the Rock Creek watershed there has been a precipitous decrease in redd counts since 1996, down to 71 in 2004, compared to the average of approximately 230/year from 1996-1998.

Counts only began in the Middle Clark Fork in 1999. The largest sub-population is in

Rattlesnake Creek, with about 22 redds/year. The basin-wide count for 2003 was 83 redds, while in 2004 this total dipped to 38.

Bull trout redd counts in the Bitterroot drainage continue a precipitous decline since 1998, when there were 123, down to just 43 in 2004.

In the Lower Clark Fork River area of Montana, redds from all tributaries combined totaled just 50 in 2004.

Likewise, the Lower Kootenai River below Libby Dam had 152 redds in 2004, down from the high of 229 in 1999. Keeler Creek showed a modest increase to 126 redds compared to 99 in 1999.

The Oldman River held steady with 40 redds reported for 2004.

The Lake Pend Oreille system in North Idaho saw a decrease in the 6 index streams monitored from 691 in 2003 to 462 in 2004, the lowest count since 1997.

The Priest River drainage in north Idaho declined from 41 redds in 2003 to just 23 in 2004.

The Upper St. Joe River system in Idaho increased had 79 redds in 2004, compared to 70 in 1999. Similarly, the Little North Fork River in Idaho held steady at 43 redds, compared to 17 in 1999, considering only 3 stream reaches were surveyed in 1999 compared to 8 streams in 2004.

Annual, systematic counts of redds are not currently undertaken throughout Oregon and Washington on a consistent basis. The available data reported in the Draft Recovery Plans indicate very low numbers for most known populations, and declining trend. The only sub-population believed to be viable is in Lake Billy Chinook. In Washington, within the Columbia River Basin only two sub-populations average > 100 redds/year. These are Swift Creek Reservoir (138/year) and the Wenatchee River Basin (337/year).

TREND DATA METHODOLOGY

There is a lack of comprehensive data upon which to base a statistically valid trend analysis. For example, the 10 year timeline for population trend data for documentation of recovery, identified in the U.S. Fish & Wildlife Service (FWS) Draft Bull Trout Recovery Plan, is insufficient. Conservation biologists generally agree that at least 20-30 years of annual time series data are necessary to correctly identify trends and natural fluctuations. Maxell (1999: 860) summarized:

“A prospective statistical power analysis indicates that with standard significance levels and two-tailed testing procedures the yearly variation in redd numbers typifying many stocks of bull trout in Montana limits the power of detecting less

than 50% of changes in population size per generation to less than 0.8 during the first 15 years of a monitoring program.”

He found there are numerous potential type I and type II errors associated with trend data based upon annual redd counts. Even if all precautions are taken to avoid these potential errors, he concluded (1999:865):

“For example, if all of the above precautions are taken and measurement error were somehow reduced enough to lower CV value to the lowest value considered (CV = 0.178), it would still require 14 years of monitoring before the power of detecting a steady 10% decline in population size per generation would rise to 0.8. Three generations of bull trout would have been produced during this period and the population could have declined to 73% of its original size before a statistically significant decline was detected.”

VERY FEW POPULATIONS ARE INDEPENDENTLY VIABLE

Rieman & Allendorf (2001) have identified approximately 500 redds/year as the minimum required to maintain genetic variation indefinitely in bull trout populations.

The population recovery goals outlined in the Draft Bull Trout Recovery Plan are limited to genetic concerns only. While the Rieman and Allendorf (2001) numbers which FWS cites for prevention of genetic inbreeding effects and genetic drift are appropriate, they fail to account for demographic concerns and environmental stochasticity. For example, Rieman and Allendorf (2001:763) were careful to point out that,

“Maintenance of genetic diversity is essential, but not necessarily sufficient, for effective conservation.”

Moreover, also at page 763, they state that in regards to simple rules of thumb for maintenance of genetic diversity, their population criteria are approximations based upon detailed analyses, and thus:

“...managers should acknowledge this uncertainty and recognize that the guidelines we have provided are conservative minimums and not goals that will assure the viability of any population.”

“Maintenance of genetic variation is only one issue in the challenge that face managers charged with the conservation of species like the bull trout. Mitigation of extinction threats associated with demographic processes may require larger population sizes regardless of the genetic issues (Lande 1988; Rieman and McIntyre 1993).”

Since the 500 redds/year is a minimum estimate based on genetics alone, 600 redds/year is

a better benchmark for measuring the recovery of viable populations.

Based on this benchmark, the only consistently monitored sub-populations wholly within the U.S. which meets these criteria are the Lake Pend Oreille sub-population in northern Idaho, the Swan Lake sub-population in Montana, and the Lake Billy Chinook sub-population in Oregon.

However, even these populations are not necessarily considered secure, as Spruell, et al. (1999) report that most of the Lake Pend Oreille sub-population is dependent on one or two spawning tributaries and most spawning runs are at critically low numbers, with little evidence of interchange with the other runs. They stated:

"It is therefore unlikely that extensive dispersal has linked tributaries in a manner consistent with a meta-population structure. The low number of spawning individuals combined with the degree of isolation indicated by the genetic data suggest that extinction of the tributary populations is probable if temporal variability and small size is prolonged."

It must also be noted that prior to the petition and listing of bull trout, systematic annual counts of redds were limited to a few drainages in the Flathead River system and in the Lake Pend Oreille area. There has been a substantial increase in survey effort following the listing so that any apparent increases must be viewed with caution.

B. THE PRESENT OR THREATENED DESTRUCTION, MODIFICATION, OR CURTAILMENT OF ITS HABITAT OR RANGE

Bull trout habitat continues to be degraded and destroyed throughout the range. Even with habitat improvement projects, the legacy effects of the massive road network associated with logging and mining continue to result in losses in habitat quality and quantity. There is a clear downward trend in this listing factor. For example, as cited below, estimates for bull trout distribution in the Columbia River Basin have declined to just 27% since listed.

Moreover, the low abundance levels documented in Section A. are a leading threat to further the isolation between remaining bull trout populations. As individual populations are extirpated, the geographic distance between populations increases and the overall range is shrinking.

Thus, the current and projected trend is negative for this listing factor.

The original listing rule states:

"The Columbia River population segment is represented by relatively widespread

subpopulations that have declined in overall range and numbers of fish. A majority of Columbia River bull trout occur in isolated, fragmented habitats that support low numbers of fish and are inaccessible to migratory bull trout. The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, and the introduction of non-native species.

Moreover, the Service found that, bull trout in the interior Columbia River Basin presently occur in only about 44 to 45 percent of the historical range and that:

“declining trends and associated habitat loss and fragmentation have been documented rangewide.” Id at 31649. The Service recognized that “fragmentation and barriers have isolated bull trout throughout their entire range.” 63 FR, 31647, 31650.

The Service summarized:

“The best available information indicates that bull trout are in widespread decline across the historic range and restricted to numerous reproductively isolated subpopulations in the Columbia River basin with many recent local extirpations. . . . Many remaining bull trout subpopulations are characterized by declining trends, low relative subpopulation size, loss of migratory fish or the presence of a single life history form, and isolated from other bull trout by large geographical separation(s). Habitat loss, fragmentation and other changes that have isolated and continue to impact bull trout subpopulations also increase their susceptibility to naturally occurring processes (both demographically and environmentally). Many remaining subpopulations in both the Klamath River and Columbia River population segments are at risk of extirpation from the combined effects of habitat loss and fragmentation, loss of migration corridors, and an inability to reestablish extirpated subpopulations through emigration, and recovery actions are required to slow the rate of habitat loss and continued reductions in range. Existing regulations have not arrested the decline of bull trout and newly developed State and local conservation strategies are largely not implemented.” Id at 31654-5.

In the Proposed Rule for Critical Habitat (at page 18) the Service cites an even lower figure for bull trout distribution in the Columbia River Basin, down to approximately 27 percent of the basin, indicating a continuous, serious decline in bull trout distribution and fragmentation and isolation.

FOREST MANAGEMENT PRACTICES

There is a clear downward negative trend in forest management practices.

A host of large timber sales, including salvage logging, have been implemented, with many more being planned. While far from complete, the following examples give an indication as to the scope of this problem.

In a recent speech, Agriculture Undersecretary Mark Rey said the Bush Administration wants to double the amount of forest "thinning" pursuant to the Healthy Forests Restoration Act and to streamline the Endangered Species Act and national forest

management (Associated Press 12/12/04).

Compounding the problem, the FWS is engaged in a pattern and practice of illegally replacing critical habitat designations and recovery planning tasks with state and corporate timberland management guidelines. These are often voluntary "Best Management Practices".

State plans include one adopted by the State of Washington, which has a 25 year implementation schedule, and lax standards.

Timber Sales in Bull Trout Habitat

The following is a very incomplete list of ongoing and proposed timber sales in bull trout watersheds, by state.

Washington

Colville National Forest

Deadman Timber Sale, Deadman Creek watershed, Three Rivers Ranger District. Bull trout were found at the mouth of this tributary of the lower Kettle River.

Olympic National Park

The recent reconstruction of the Graves Creek Road in Olympic National Park is probably one of the more significant and lesser known impacts to bull trout habitat in this region. The project EA concluded that the reconstruction would adversely affect bull trout.

Oregon

A host of projects including salvage sales, thinning projects and logging are ongoing in bull trout watersheds.

Idaho

Idaho Panhandle National Forest

Projects include the large West Gold Timber Sale and the Rising Cougar Project, located on the northeastern shore of Lake Pend Oreille, near Clark Fork and East Hope, Idaho and the Montana border.

Nez Perce National Forest/Cottonwood BLM

The Whiskey South Timber Sale would log 9 mmbf from 908 acres and build 3 1/2 miles of new road (reconstruct some 12 miles of road), and allow logging within fish protection buffer and in landslide prone areas. The project is located near the South Fork Clearwater River.

The Red Pines Timber Sale could log up to 6300 acres, build 30 miles of roads, and would violate Forest Plan standards for water and soil quality.

The American/Crooked River Project would log 3700 acres of the Crooked and American River drainages, two main tributaries to the South Fork Clearwater. Nearly 15 miles of new

roads would be built.

The Meadow Face Timber Sale would log about 3700 acres, weaken forest plan soil protection standards and build 12 miles of road.

Payette National Forest

The Little Weiser Timber Sale, in occupied bull trout habitat, is being logged very soon.

Montana

Helena National Forest

The Snow Talon salvage timber sale proposes 30 million board feet of logging in bull trout habitat in the upper Blackfoot River watershed.

Lolo National Forest /BLM

Thinning of trees has been approved throughout the Rock Creek watershed.

The Seeley Lake Fuels Reduction Project includes logging and burning on 1,663 acres of National Forest lands, reconstructing 10 miles of long-term roads, reconstructing 5.7 miles of short-term roads, construction of 2.2 miles of temporary and snow roads.

Plum Creek HCP

Plum Creek is actively logging, roading and subdividing its lands covered under the Plum Creek HCP.

Flathead National Forest

The Robert Wedge salvage sale will log some 24 million board feet and result in exemptions to the Forest Plan road density standards.

The Westside Reservoir salvage sale will log approximately 38 million board feet, construct over 3 miles of temporary roads and result in exemptions to the Forest Plan road density standards.

The Moose salvage sale logged 14 million board feet and was exempted from the Forest Plan road density standards.

Montana Department of State Lands

The Goat-Squeezer Timber Sale on the Swan River State Forest is taking place in the Goat and Squeezer Creek Core Bull Trout Watersheds.

The Land Board increased the amount of timber to be logged from school trust lands by 26% to 53 million board feet per year.

Bitterroot National Forest

Numerous salvage sales are taking place in occupied bull trout watersheds.

FOREST ROADS & TRANSPORTATION NETWORKS

Arbelbide and Quigley (in Lee, et al. 1997) reported average densities in bull trout strongholds were 0.45 miles/square mile. Lee, et al. (1997) reported that there were essentially zero bull trout at road densities > 1.13 miles/square mile in riparian areas.

The attached map of Roads of the Clark Fork Watershed, Montana (U.S. Census Bureau, U.S. Forest Service Data) shows the extent of the problem. Tens of thousands of miles of

roads within this portion of bull trout range pose enormous threats.

The Draft Bull Trout Recovery Plan states that when these densities are exceeded “transportation management plans should identify and implement strategies to reduce road density.” However, FWS recently approved access amendments to three national forests which will maintain average road densities often four or five times the 0.45 miles/square miles reported for strongholds.

The Flathead National Forest has repeatedly issued site specific amendments to the Forest Plan road density standards, to allow higher densities within bull trout habitat (Missoulian 12/15/04). The attached watershed report (Hammer 2004) found that on the Bitterroot, Flathead and Lolo National Forests, respectively, 32%, 38% and 68% of watersheds are functioning at Unacceptable Risk from road density and road location.

And in most cases, there is a very large backlog of maintenance work needed on national forest system roads. For example, the Analysis of the Management Situation for the Bitterroot, Flathead and Lolo National Forests (Western Montana Planning Zone Team 2004; Table 4) shows a backlog of 11,996 miles on the three forests and the current budget allocation for maintenance is just 16.3% of what is required.

MINING/OIL AND GAS

Mining continues to be a significant threat to bull trout. For example, two of the nation's largest Superfund sites are the Clark Fork River in Montana and the Silver Creek Valley in Idaho. These areas will be plagued by heavy metals pollution for decades to come. Numerous problem areas remain throughout the range, and many are documented in the Draft Bull Trout Recovery Plans.

Throughout Idaho, placer mining is a problem and there is suction dredging taking place within rivers occupied by bull trout.

New proposals include coal mining proposed in British Columbia within the North Fork Flathead River drainage, which threatens this sub-population (see attached newspaper story).

However, FWS continues to ignore this threat. A primary example is the proposed Rock Creek Mine in northwest Montana's Cabinet Mountains.

FWS acknowledged in its Biological Opinion for the Rock Creek Mine that it will have a variety of adverse impacts on Rock Creek bull trout. FWS found that these fish: (1) would be at high risk of extinction from a catastrophic failure of the tailings impoundment; (2) would face impaired migration and limited distribution in the upper portion of the Rock Creek watershed because of chemical barriers created by heavy metals and other pollutants from the Mine's waste water discharge; (3) would experience a disruption in the essential flow of cold groundwater upwellings in Rock Creek; and (4) would experience a loss of spawning habitat as a result of sedimentation from road-building, development, and other use of the area associated with the Mine. FWS concluded that these impacts may result in the extirpation of bull trout in Rock Creek. BiOp at B-49 to

B-50.

The Mine's processing facility would be located near the confluence of the east and west forks of Rock Creek and will include a 320-acre tailings impoundment located within one-third of a mile from both Rock Creek and the Clark Fork River. The scale of the operation and its close proximity to these streams will not only subject Rock Creek's bull trout to significant pollution from discharges of day-to-day mining and processing wastes, but places the fish at risk from a partial or complete tailings impoundment failure. FWS acknowledges that these risks to the Rock Creek bull trout are substantial and increase the risk of extinction for Rock Creek Bull Trout. BiOp at B-32, B-49-B-50.

FWS notes that "[t]he Rock Creek drainage has been identified as one of two spawning and rearing streams for migratory bull trout living in Cabinet Gorge Reservoir." Draft Bull Trout Recovery Plan at 73. While the Rock Creek drainage has been degraded by historic land-use practices, it still supports an estimated 1,900 bull trout. This compares with population estimates of only 255 to 809 fish in the Bull River, the other core area for the Cabinet Gorge sub-population.

Both Rock Creek and the Bull River have been designated as bull trout "core" areas. FWS found that "extirpation of one of only two occupied drainages in the sub-population would likely reduce sub-population resiliency and increase the risk of sub-population extirpation" due to catastrophic natural or man-made events. BiOp at B-50.

Historically, bull trout from these tributaries migrated down the Clark Fork River to Lake Pend Oreille to mature and then swam back to their natal streams to spawn. While some bull trout in Rock Creek still migrate downstream to Lake Pend Oreille, construction of Cabinet Gorge Dam has blocked the historic upstream migration of these fish.

The Cabinet Gorge sub-population is critical to the conservation of bull trout in the Clark Fork River basin. Like most bull trout sub-populations in the Columbia River DPS, the migratory life form of the Cabinet Gorge population has diminished significantly due to blockage of upstream fish passage by the Cabinet Gorge dam. Nonetheless, both Rock Creek and Bull River bull trout have both resident and migratory life forms with the resident life forms predominating. FWS has acknowledged the importance of the Cabinet Gorge sub-population to the recovery of the Columbia River bull trout DPS.

Despite these known detriments, FWS has looked the other way while the mine was approved.

RIVER MANAGEMENT & DAMS

From the Canadian border to Astoria, Oregon, there are 18 major dams on the Columbia River which leave a legacy of habitat fragmentation and degradation.

Several recent decisions threaten the integrity of aquatic ecosystems throughout the Columbia Basin. The Army Corps of Engineers recently announced a decision to begin dredging the Columbia River to make it three feet deeper. The massive disturbance and increased sedimentation and turbidity will impair habitat for migratory bull trout.

The federal government also announced it will not breach the four Snake River dams, cancelling potential benefits to migratory bull trout while maintaining genetic isolation.

There have been several documented cases where fish passage at dams and diversions has been enhanced such as the Atlanta Dam in Idaho and the Rattlesnake Creek dam in western Montana. And dam removal has been approved for the Milltown Dam on the Clark Fork River in Montana. However, it will be many years, or even decades, before the benefits to bull trout will be known.

Moreover, the legacy effects of the current dam and diversion network throughout the range of the bull trout continues to be a major threat. At best, the threat posed by dams and diversions in the broader range of the bull trout remains at a static level (high) and the majority of problem areas remain, with few prospects for short term mitigation.

WATER DIVERSIONS, OVERAPPROPRIATION & DROUGHT

Stream de-watering is a perennial and serious threat to bull trout throughout the Columbia Basin. The attached map of Dewatered Streams Montana (Montana Fish, Wildlife & Parks 2004) shows that much of the bull trout range in western Montana is subject to Chronic Dewatering.

Dewatering is also a very chronic, serious issue throughout central Idaho (Draft Bull Trout Recovery Plan) and is also considered chronic in the Malheur River Basin in east-central Oregon.

GRAZING

The Draft Recovery Plans outline the many serious impacts grazing can have on aquatic systems and bull trout. Specific examples of problem areas include Ahtanum Creek near Cle Elum, Washington where impacts on bull trout redds involves cows trampling redds has been documented.

REAL ESTATE, HOMESITE SUBDIVISION & SKI RESORTS

There are serious impacts associated with private home site and subdivision of bull trout watersheds. Impacts include loss of riparian habitat, removal of shade and overhanging vegetation, increased pollutants from septic systems and wastewater. A growing threat is the number of wells which are drilled in rural areas. As home site density increases, the cumulative impact of these wells may pose serious impacts to groundwater. These include a lowering of water tables, and disruption of groundwater upwelling, a key factor in bull trout spawning habitat. As water tables lower, there may be a net increase of stream water loss to the groundwater, contributing to the threat of late season low water flow in important spawning and rearing habitats.

A primary example of home site development of bull trout watersheds can be found on lands operated by Plum Creek Timber Company. Plum Creek is selling many of its holdings for residential development. Divestment of Plum Creek lands for development threatens water quality and quantity. Some important bull trout streams are subject to sale on the open market (see attached real estate advertisement for stream side homesites in bull trout habitat including Jim Creek and other lands in the Swan sub-population area).

Major expansion at existing ski resorts within bull trout habitat are occurring at the Big Mountain, Lookout Pass, Lost Trail Pass, Discovery Basin and many more. Homesite subdivision associated with resorts is ongoing at Sandpoint, Idaho, in Bend, Oregon as just a couple of examples. A major new resort has been built at Donnelly, Idaho with major real estate subdivisions for sale. Proposals for new ski resorts include a 3,200 room resort at the base of Lolo Peak, in the Lolo Creek and Bitterroot River watershed and at Mount Hood in Oregon. Many resorts propose using water from bull trout stream for their snow-making operations. With no adequate county or state zoning to regulate density, wide-scale degradation of bull trout habitat is proceeding unchecked.

The Montana Department of Natural Resources and Conservation is finalizing a Real Estate Management Plan that will identify state lands for sale for industrial, commercial and residential development. DNRC also exchanged "all lawful purposes reciprocal access" easements with Plum Creek Timber within the Swan River State Forest. The agreement will make it easier for Plum Creek to develop their lands for real estate.

GLOBAL WARMING

Scientists from across the globe agree that the threat of global warming is real and ecological impacts are already being documented. This is an immediate threat to bull trout in that increased temperatures could raise stream temperatures above the tolerances of bull trout, and further contracting the range into high elevation tributaries.

C. OVERUTILIZATION FOR COMMERCIAL, RECREATIONAL, SCIENTIFIC, OR EDUCATIONAL PURPOSES

At this time the overall projected trend is neutral. However, that could change if there is increased documentation of poaching, handling mortality, and excessive take from regulated harvest. There have been positive gains in education programs, signage at fishing access sites and tighter regulations. These are offset by open fishing seasons, poaching, mistaken identification and handling mortality.

FISHERIES MANAGEMENT

The Draft Bull Trout Recovery Plan establishes that poaching is a serious problem in the Kootenai River Basin, and it has been documented in other areas throughout the range.

Periodic field tests show that accurate species identification by permit holders is low, and the likelihood of accidental take of bull trout is high. Handling mortality by those who inadvertently catch bull trout is likely to be significant in many heavily fished rivers and streams.

The State of Montana currently manages an open fishing season for bull trout in the Hungry Horse and allows catch and release fishing on the South Fork Flathead River. This despite that the average annual redds are lower than the 500 minimum for genetic concerns alone, and the data is from just 10 years of collection, compared to minimums described above.

Montana also opened a fishing season for bull trout in lake Koocanusa relying on increased redd counts from the Wigwam River in British Columbia.

In the Lost River, near Mazama, the Washington Department of Wildlife still allows fishing permits for bull trout, even though there have been no studies of the impacts, which include recent large wildfires.

Proposed introductions of exotic, warm water species continue and illegal introductions by "bucket biologists" are a perennial threat.

D. DISEASE & PREDATION

WHIRLING DISEASE

Several laboratory studies have established that bull trout are susceptible to the causative agent of whirling disease (Hedrick, et al. 1999; Bartholomew, et al. 2003; Sollid, et al. 2002; Vincent 2002.). Moreover, whirling disease has been detected in an increasing number of bull trout streams throughout the Northern Rockies.

NON-NATIVE SPECIES

In general, non-native species introductions, both intentional and unintentional, are having numerous negative consequences. To grasp the extent of the problem, a recent study found 81 aquatic, non-native species in the Columbia River (Associated Press 12/8/04). Illegal introductions by "bucket biologists" are a threat throughout bull trout range.

Lake Trout

Lake trout have become a serious concern in the Flathead Lake and Swan Lake systems in Montana. Lake trout have been documented to predate on bull trout, and numerous bull trout have been found in the stomachs of lake trout removed from Flathead Lake. There is also evidence that lake trout are expanding their range.

Glacier National Park is seeking funds to implement netting of lake trout due to their competition with bull trout.

Brook Trout

Both the listing rule and the draft recovery plans address the many threats posed by brook trout. When brook trout and bull trout interbreed, they often produce sterile offspring.

Pike & Bass

The Montana Department of Fish, Wildlife & Parks has documented competition and predation by Pike in the Milltown reservoir. Pike are also prevalent in the Flathead River system which could have an effect on bull trout which migrate from Flathead lake to spawning tributaries. Pike have been documented to be outcompeting bull trout in the Clearwater Chain of Lakes.

Bass are present in the lower Clark Fork reservoirs, and they compete by predateding on the same prey species.

E. THE INADEQUACY OF EXISTING REGULATORY MECHANISMS

Since the listing of the bull trout, there has been an across the board retreat from comprehensive watershed protection and planning and the projected trend for this listing factor is negative.

As noted in comments submitted in May, 2002, the FWS Reply Brief and attached affidavits from FWS personnel note the inadequacy of PACFISH and INFISH and the various state sponsored documents and strategies, but in 2004 FWS is relying upon these same inadequate regulatory mechanisms.

FINAL RULES ON DESIGNATION OF CRITICAL HABITAT

The failure of the FWS to timely establish critical habitat for bull trout is yet another inadequate regulatory mechanism, this one within the control of FWS. Critical habitat should have been established at the time of listing. Had FWS followed the law, then critical habitat would have been in place for several years, speeding the recovery of the species by assuring that adverse modification of critical habitat did not occur. Yet the Service dragged its feet on the designation of critical habitat, just as it did with the listing. The result is that as of the date of these comments, adequate critical habitat has not been designated.

In fact, the Final Rule for designations of critical habitat for bull trout in the Columbia and Klamath basins represent a 90% reduction from those proposed in the draft rule. In fact, no critical habitat whatsoever was designated in the State of Montana. This sweeping elimination of critical habitat protections and the benefits such protections afford, represent a very serious negative trend in regulatory mechanisms for the survival and recovery of bull trout. In synergy with other weakened and eliminated regulatory mechanisms and legacy effects of past management actions, bull trout today enjoy far less protection than they did when they were originally listed as threatened.

On top of these sweeping reductions, critical habitat for several species of Pacific salmon

and steelhead have been reduced by more than 80%, threatening water quality throughout the Basin.

These vast reductions represent a consistent pattern and practice of the Interior Department in discounting the value of critical habitat protections. It is replacing substantive provisions of the Endangered Species Act with voluntary or very weak state and private timber management guidelines, and state plans which have never been implemented or funded, and which have no specific standards for protection of bull trout and their habitat.

For example, there were no critical habitat designations whatsoever in the State of Montana, which FWS justified based on the State of Montana Bull Trout Restoration Plan. As the attached 11/29/04 letter from the Montana Department of Fish, Wildlife & Parks states:

"As described above, MDFWP does not and has not requested funding specifically for implementation of the bull trout restoration plan."

Likewise, the Service has erroneously concluded that the Primary Constituent Elements of critical habitat are protected under these other plans, even though no specific, numeric and measurable standards exist for protection of these elements. For example, the Plum Creek HCP does not contain specific standards that comport with the scientific information presented above. Bull trout population and habitat surveys are far from complete on these lands, and the plan does not last in perpetuity, but has an expiration date.

The Proposed Rule for the Coastal-Puget sound, at 35769, contains 3 subsections of unprecedented language protesting the proposed action. Much of the language in these sections is nearly verbatim from the text of an Interior Department press release issued previously. Moreover, this language ignores the clear intent and mandate that Congress established in creating the critical habitat provisions and protections, as now clearly affirmed by the 5th, 9th and 10th U.S. Courts of Appeal. It is inappropriate to place such opinionating within the text of a Proposed Rule in the Federal Register. Doing so raises questions as to the Interior Department's commitment to wholly implementing and adhering to the provisions of the Endangered Species Act.

FAILURE TO CALCULATE CUMULATIVE TAKE

The FWS has never calculated the total take of bull trout which they have authorized through incidental take statements (ITs) and permits and its No Jeopardy findings. In many cases, the cumulative take may well exceed the total size of the populations.

EXISTING, NEW AND PROPOSED FOREST SERVICE REGULATIONS INFISH/PACFISH

Court decisions concluded that PACFISH was not a valid strategy for the protection of bull trout on national forest lands since bull trout have more stringent habitat needs than salmon. The court also concluded that INFISH is not an adequate long term strategy for the protection of viable populations of bull trout. The court allowed INFISH to remain in place as temporary, interim strategy, ultimately to be improved and replaced by the Interior Columbia Basin Ecosystem Management Project. However, this process was never

completed and is unlikely to resurface as a comprehensive planning effort.

Moreover, the FWS itself has recognized that INFISH does not provide adequate streamside buffers for protection of bull trout (Anne Badgely declaration).

Despite this, National Forest Plans throughout the Columbia Basin are being revised, relying on INFISH to satisfy bull trout protection, and some (Boise, Payette) are weakening the INFISH provisions.

FOREST PLAN ACCESS AMENDMENTS

Excessively high road densities and all their legacy effects are being approved through other administrative actions, including the Access Amendments to the Kootenai, Lolo and Idaho Panhandle National Forests. At the Biological Assessment phase the access amendments were found to "likely adversely affect bull trout" due to high road densities and increased sediment risk due to lack of road maintenance. However, at the Biological Opinion stage, FWS approved the amendments, which will only reduce by a minute fraction the 26,000 mile road network on these national forests.

The Flathead national Forest has been issuing site-specific amendments to the Forest Plan Amendment #19 in the Moose, Robert-Wedge and Westside Reservoir salvage timber sales. The Flathead is apparently abandoning its prior commitments to its road reclamation program.

A comprehensive ecosystem approach is being abandoned by the Forest Service in favor of piecemeal forest by forest aquatic strategies. Through either its approval or failure to object, FWS itself is now a significant part of the problem in terms of relaxed standards and inadequate regulatory mechanisms.

THE NORTHWEST FOREST PLAN

Changes have been made to the Aquatic Conservation Strategy to clarify that the proper scale for federal land managers to evaluate progress toward achievement of the ACS objectives is the fifth-field watershed and larger scales, rather than the project or site level (Federal Register: April 26, 2004 (Volume 69, Number 80). Expanding to the fifth field watershed allows the effects of projects to be diluted. A fifth-field watershed ranges from approximately 30 to 150 square miles (20,000 - 100,000 acres).

NATIONAL FOREST MANAGEMENT ACT

New planning regulations implemented by the Forest Service in December 2004 eliminate the viable populations requirement of the National Forest Management Act. This is a serious blow to efforts to maintain and recover well-distributed and connected populations of bull trout across National Forest system lands, which account for the vast majority of occupied bull trout habitat.

THE BULL TROUT DRAFT RECOVERY PLAN

The Draft Recovery Plan does not contain specific means for protecting the Primary Constituent Elements associated with bull trout critical habitat or other habitat necessary for the recovery of the species. While there are proposed monitoring and evaluation tasks which would ostensibly protect these elements, there is no explicit explanation of how it will do so. The Proposed Rule for designation of critical habitat limits critical habitat designation to the stream beds and lake shores and an extremely limited and totally inadequate streamside area defined by the 1-2 year floodplain. The Proposed Rule for critical habitat also fails to identify specific, quantifiable and measurable numeric standards for protection of the Primary Constituent Elements. The Draft Bull Trout Recovery Plan also fails to identify specific, quantifiable and measurable numeric standards for protection of the Primary Constituent Elements.

For adequate protection of core and nodal bull trout habitats, the Montana Bull Trout Scientific Group (1998:58) identified two approaches:

- (1) the 100 year floodplain as described by FEMAT (1993) plus a zone at least 150 feet from either side of the outer edge of the floodplain;
- (2) a zone comprising the hydrologic boundary of the watershed.

They concluded that an additional 150 feet on either side of the 100 year floodplain is required for the following reasons (1998:58):

“(1) it encompasses one site-potential tree height at most locations; (2) it provides sufficient width to filter most sediment from non-channeled surface runoff from most slope classes; (3) it provides some microclimate and shallow groundwater thermal buffering to protect aquatic habitats inside the channel and channel migration zone; and (4) it provides an appropriate margin error for unanticipated channel movement, hillslope, and soil stability, blowdown, wildfire, operator error, tree disease, and certain other events that may be difficult or impossible to foresee on a site-specific basis.”

THE CLEAN WATER ACT PROCESS

The inadequacy of existing regulations extends to failures of the states under the Clean Water Act to establish water quality standards that will lead to the protection and recovery of bull trout. In *Northwest Environmental Advocates v. EPA*, 2000 U.S. Dist. Lexis 6482 (D. Or. 2003) the federal district court for Oregon found that Oregon’s temperature standards were not protective of bull trout and ordered EPA to do its job:

EPA shall promulgate temperature, IGDO, use designation, and narrative criteria that satisfy the agency's 7(a)(2) obligations [for bull trout] or issue a new determination on the existing criteria based on a no-jeopardy finding that is reasonably supported by the available

evidence. Defendants' obligation to comply with this order shall comport with the time-line provided below.

This failure of the existing regulatory mechanism for insuring clean water through the enactment of water quality standards extends to other states. Montana, for example, does not have a specific temperature standard for bull trout, and is vulnerable to the same criticism as occurred in the Oregon case. The recovery of the species cannot be assured until all states enact water quality standards that protect the fish. These standards include temperature, water quality and heavy metals standards that are protective of bull trout, whose specific habitat requirements are well-documented. The problems associated with thermal and sediment pollution are well documented. Recent research conducted in Montana has demonstrated that bull trout are very sensitive to copper, cadmium and zinc, and that these metals are often concentrated in acid mine drainage. Before delisting can even be considered, FWS must insure that each state has bull trout-specific water quality standards in place for temperature, sediment and heavy metals.

In addition, the lagging pace which states have established TMDLs is well documented. *See e.g. Friends of the Wild Swan v. EPA, 130 F. Supp. 2d 1284 (D. Mont. 2000)*. Montana is now under a consent decree whereby it will not have its TMDLs completed until 2012. Other states where bull trout reside are equally slow in preparing TMDLs. Yet TMDLs are another important regulatory mechanism to insure that clean water exists in places where bull trout now reside, and in places where they will need to reside in the future to insure fully recovered populations. Delisting would be premature until such time as all TMDLs are established in bull trout habitat. Given the fact that water pollution, both point and non-point, is a major factor in listing the species, and given that TMDLs are an essential regulatory mechanism to clean up polluted waters, FWS must consider the role of TMDLs in recovering the species.

The 303(d) List and Recovery Schedules

Virtually every major bull trout watershed in Montana is on the 303(d) list of impaired streams for which TMDLs must be prepared and implemented. In fact, according to the Environmental Protection Agency, a large amount of the streams with bull trout populations are listed as "Water Quality-Impaired Waterbodies," (as shown in Map 4.2 in Quigley, et al. 1997).

However, the cleanup schedules are impossibly long and even if eventually implemented, will not provide benefits for bull trout recovery for many generations. A similar situation exists for bull trout water bodies throughout the range.

Moreover, EPA has set sediment standards within TMDL planning which are based on an inappropriate interpretation of the scientific data. Specifically, for the Big Creek TMDL, a bull trout tributary within the North Fork Flathead River sub-population, EPA adopted a standard of 30% fine sediments <6.4mm, based on the 1991 Flathead Basin Commission Report. However, the actual research by Weaver & Fraley (1991) found that at the 30% threshold, there was just 39% bull trout fry survival. Accordingly, Espinosa (1996) recommends that fine sediments < 6.4 mm in diameter be limited to < 20% in spawning habitats such as Big Creek. However, other TMDLs being developed are adopting the 35% sediment standard, supporting just 34% bull trout fry survival.

Water temperature standards

There has been a real problem in regards to establishing biologically sound water temperature standards for protection and recovery of bull trout. As FWS noted in its Bull Trout Interim Conservation Guidance (1998:7):

“Many areas within the species range have temperature standards that exceed levels identified as necessary to support various life stages of bull trout. For example, in Washington, the current State temperature criteria are inadequate to protect bull trout; in 1996, EPA disapproved Idaho’s standards after concluding they were inconsistent with the Clean Water Act; and in Oregon, as recently as 1995, bull trout and other cold water species were not protected by Oregon’s threshold temperature standards. Oregon is currently in the process of adopting specific temperature standards for bull trout streams. These temperature standards developed for Idaho and Oregon only address spawning and rearing areas of bull trout streams, standards have not yet been developed for migratory corridors, over-wintering, or sub-adult rearing.”

LACK OF MINIMUM IN-STREAM FLOWS.

Many streams throughout the range of the bull trout are over-appropriated, leaving little water in them for fish, especially in drought years such as the west has been experiencing.

The attached map of chronically de-watered streams in Montana shows that a significant portion of bull trout bearing streams are de-watered on a consistent basis. In particular, the Bitterroot basin is extremely fragmented by de-watering, with numerous high-quality potential spawning tributaries disconnected from the Bitterroot River.

In Idaho, vast areas of central Idaho are affected by chronic de-watering. FWS has documented this problem on numerous occasions. De-watering is also acknowledged to be a major problem in the Malheur Basin in Oregon, and is a central element of controversy in the Klamath Basin.

Washington is just beginning to address this issue and has set a schedule to complete in-stream flow rules throughout the state by 2010. The prioritization for completion of in-stream flows for Washington watersheds is based on salmon recovery, not bull trout recovery and many bull trout streams are in the tier 4 or lowest priority for acquiring in-stream flows.

F. OTHER NATURAL OR MANMADE FACTORS AFFECTING ITS CONTINUED EXISTENCE

The current and projected trend for this listing factor is negative. Human population expansion and homesite construction is proliferating throughout bull range, and particularly in the Coastal-Puget Sound area. Projections from the U.S. Census Bureau predict steady

growth. Accompanying this growth are more and wider roads, bridges, powerlines, underground cables and sewage lines.

There are numerous sewage treatment plants throughout the range of the bull trout. Problems inherent to these operations are algae blooms and thermal pollution.

Agricultural activities create run-off polluted with chemical fertilizers, as do golf courses, and other major developments.

Stream channelization and rip-rapping by the U.S. Army Corps of Engineers continues, often without any permitting at the state and county level.

Other transportation infrastructure which affects bull trout habitat include oil and gas pipeline crossings, bridge construction and reconstruction.

SUMMARY

The best available scientific and commercial information indicates that bull trout remain threatened throughout their range in the 48 states and of the 6 factors considered, negative trends are projected for five.

LIST OF ATTACHMENTS

GIS Map, "Roads of the Clark Fork Watershed, Montana
Table 4 from "Analysis of the Management Situation, Bitterroot, Flathead & Lolo National Forests
Letter from Montana Department of Fish, Wildlife & Parks, 11/29/04.
Map of Dewatered Streams, Montana Department of Fish, Wildlife & Parks, 2/04.
Advertisement for Real estate in Bull Trout Habitat in Northwest Montana.
Title Page, Rieman, et al. 1997.
Title Page, Fredenberg, 2003.
Title page, Hauer, et al. 1999.
Title page, Baxter and Hauer, 2000.
Title page, Maxell, 1999.
Title page, Rieman and Allendorf, 2001.
Title page, Spruell, et al. 1999.
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Watersheds at Risk Report. Hammer, 2004.

Draft Bull Trout Recovery Plan, Chapter 1, pages 14-27.
New York Times article on new Forest Service regulations, 12/23/04.
Associated Press article on increased Forest Service logging, 12/12/04.
Daily Interlake article on lake trout in Swan Lake. 12/18/03.
Associated Press article on proposed methane coal mining, 6/21/04.
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