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June 18, 2007

Attention: Grizzly Bear 5-year Review [Federal Register: April 18, 2007 (Volume 72, Number 74, Page 19549-19551)]

Dear Dr. Servheen,

Please consider these comments for the Fish and Wildlife Service’s grizzly bear five-year review and in all future rule-making and policy development pertaining to grizzly bears, pursuant to the Endangered Species Act, National Environmental Policy Act, Administrative Procedures Act, and other germane statutes.

**Introduction:** Grizzly bears epitomize the Endangered Species Act’s intent to conserve ecosystems upon which threatened species depend. The Fish and Wildlife Service’s approach to grizzly bear recovery is piecemeal, geographically fragmented, inadequate, and informed by a repudiated scientific approach that does not incorporate the lessons of the discipline of conservation biology. Nor does this approach conform with the primary purpose of the Endangered Species Act to conserve “the ecosystems upon which endangered species and threatened species depend.”

Grizzly bears used to live and roam throughout the entirety of western North America, from the Missouri River to the Pacific coast, and from the Sierra Madre Mountains to the tundras and forests of Alaska and northern Canada. They occupied deserts, grasslands, and forests of all types and elevations. They developed recognizable physical and behavioral adaptations to their various ecoregions, despite large home ranges that facilitate crossover genetic exchange between populations. Much of their range was in the United States, where the ambitious vision of the Endangered Species Act should be leading to their restoration throughout all significant portions of their historic range – but is not.

The plight of the grizzly bear was carefully considered by the congressional crafters of the Endangered Species Act. Representative John D. Dingell, who chaired the House Subcommittee on Fisheries and Wildlife Conservation, insisted on inclusion of specific prescriptive language, in the Section 2 statement of policy for the Act and in Section 7(a)(1) of the Act, in response to consideration of the grizzly bear’s past (pre-1972) disappearance from the western landscape as well as what that portended for existing populations. Rep. Dingell specifically noted that one threat to remaining grizzly bears was habitat destruction by the Forest Service (Robinson 2005, p. 323).
The Endangered Species Act requirement to designate critical habitat for listed species, in Section 4(a)2, and to ensure that that critical habitat is not adversely modified, in Section 7(a)2, is one clear nexus between the framers’ intent to conserve ecosystems and their secondly listed intent “to provide a program for the conservation of such endangered species and threatened species.” The Act’s definition of critical habitat, which includes reference to “specific areas outside the geographical area occupied by the species at the time it is listed . . . upon a determination by the Secretary that such areas are essential for the conservation of the species,” and its specification that “Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species” – both indicate that recovered populations may include areas in historic but outside of present range. The Act’s authorization of reintroduction to further conservation, in Section 10(j)2, “outside the current range,” also indicates that recovery may require building up populations outside current range.

Yet the Grizzly Bear Recovery Plan (1982 & 1993), and subsequent supplemental chapters for the Bitterroot ecosystem (1996) and North Cascades ecosystem (1997), only attempt to conserve grizzly bears within areas they existed in at the time of their listing in 1975. The Service’s subsequent actions have written off at least two of those populations – in the San Juan Mountains and Bitterroot Ecosystems – and achieved too little in the North Cascades, Cabinet/Yaak and Selkirk ecosystems. The populations where conservation has made a difference, albeit not one adequate for delisting as yet (including the Yellowstone population), are separated from each other and are not sufficient to prevent inbreeding depression, nor to survive in the long term.

**Revise the Grizzly Bear Recovery Plan.** The Grizzly Bear Recovery Plan, including its supplemental chapters, is also inadequate on its face, independent of failures in enforcement, in its lack of a clearly articulated nexus between the objective, measurable criteria that Section 4 of the Endangered Species Act requires for delisting, and the Act’s five delisting criteria. The recovery plan discusses the factors that led to the decline of grizzlies in general terms. But the criteria for delisting in the plan do not appear to be strongly linked to the reasons for the grizzly’s listing on July 28, 1975. For example the listing notice identifies as the very first reason for listing, under “Present or threatened destruction, modification, or curtailment of habitat or range,” the following: “(a) The range of the grizzly bear, which at one time was much of the western United States, is now confined to isolated regions in Montana, Idaho and Wyoming.” Another reason, under “Other natural and manmade factors affecting its continued survival,” was identified as follows: “In two of the three areas where grizzly bears still occur, the bears are isolated from other populations so that they cannot be reinforced, either genetically or by movement of individual bears.” Yet the recovery plan’s delisting criteria do not address these reasons for endangerment in specific terms. While the grizzly is listed as threatened across its entire historic range in the lower 48 states, the plan identifies seven specific ecosystems where grizzlies were known to be extant at the time of listing – constituting less than five percent of the species’ historic lower 48 range -- and articulates the following piecemeal goal addressing those ecosystems: “The overall goal of the plan is to remove the grizzly bear from threatened status in each of the ecosystems in the 48 conterminous States.” (p. 33) Only one action item among several dozen remotely approximates a nexus to this cause of imperilment: “Develop and test
procedures to relocate bears between areas for demographic or genetic purposes” (p. 37). This is an inadequate, narrow and tangential response to a much broader problem.

Similarly, the listing notice states: “(b) Timbering practices and trail construction in areas where these bears still occur have resulted in the building of numerous access roads and trails into areas which were formerly inaccessible. This has resulted in making the bears more accessible to legal hunters, illegal poachers, human-bear-conflicts, and bear-livestock conflicts.” Yet the recovery plan does not require closing any of these roads or (motorized) trails or mitigating any of these conflicts.

The logical and topical chasm between the causes of imperilment specified in the July 28, 1975 Federal Register listing notice and the criteria for delisting in the Grizzly Bear Recovery Plan (approved September 10, 1993) indicates the latter document fails to meet the Service’s recovery planning obligations under the Act. Thus the recovery plan must be revised to address the drastic reduction in range the grizzly bear has suffered, the isolation of grizzly bear populations from each other, and human and motorized access and how that access exacerbates other causes of grizzly bear mortality. In short the Service must write a recovery plan that will result in recovery of the grizzly bear at the species level throughout all significant portions of its range.

Uplist grizzly bears from threatened to endangered throughout its historic range in the contiguous 48 states, except for portions of the northern Continental Divide ecosystem. The status of the grizzly bear should be uplisted from threatened to endangered throughout most of its range in the lower 48 states as a result of continuing loss of habitat and food sources, the growing risks of inbreeding depression, and the inadequacy of existing regulatory mechanisms.

Throughout the western contiguous United States, including the recently de-listed Yellowstone population, but with the exception of portions of the northern Continental Divide ecosystem, the grizzly bear should be uplisted to endangered. In portions of the northern Continental Divide ecosystem where grizzly distribution and numbers are stable or growing, the grizzly bear should continue to be listed as threatened.

The Yellowstone grizzly population should be re-listed as endangered due to decline in food sources (including pine nuts, moths, cutthroat trout and carrion), global warming, habitat loss, predator control and other persecution, small and isolated population, and inbreeding depression. The synergistic effects of these and other factors render the grizzly’s prospects in the Yellowstone ecosystem so grave as to warrant relisting to endangered. The recent delisting of the DPS will also likely stall and even reverse population growth and thus inhibit migration of grizzlies from the DPS into unoccupied habitats outside the DPS -- thus jeopardizing recovery elsewhere (including in regions that constitute a significant portion of the grizzly bear’s original range but that have not yet been denominated as recovery areas). Even beyond re-listing (and uplisting), the Yellowstone grizzly distinct population segment should be rescinded, as this DPS was not drawn on biological criteria but rather as an improper vehicle for delisting -- at odds with the vertebrate population policy’s intent to ensure that species recover over all but insignificant portions of their range. Eighty-four percent of the Yellowstone DPS has few or no
bears, and thus by definition the grizzly bear is not recovered in those areas. Piecemeal designation of DPS’s and delisting thwarts the intent of both the vertebrate population policy and the Endangered Species Act.

The experimental population area designation for the Bitterroot recovery area should be rescinded (and reintroduction with full protection should be initiated – see below).

Grizzly bears should be uplisted to endangered throughout most of their range because of the growing threats to habitat and food sources which they face, the failure of existing regulatory mechanisms to increase the geographic range of the grizzly bear significantly nor to alleviate the populations’ isolation from each other, and the threats of predator control and poaching, and the low numbers in existing populations.

Decline of habitat productivity leads to lack of security for grizzlies from direct human mortality. Habitat is even more fragmented today through the growing human population and greater accessibility (including more motorized access) than it was in 1975. Grizzly food sources are jeopardized by habitat loss, introduced species and global warming. Habitat loss along with decline of food sources may be inducing grizzlies today and in the future to travel greater distances to find food; some turn to human sources of food. Both behaviors significantly increase mortality. At the same time, lower calorific intake may reduce grizzly bear survival and reproduction rates.

The failure to increase geographic range and begin to address connectivity to populations is exemplified by the Bush Administration’s order shortly after taking office in 2001, to not carry out the reintroduction of grizzly bears to the Bitterroot ecosystem as had been planned and decided upon following a NEPA process.

Low numbers of bears in all but the northern Continental Divide population is also an urgent reason to upgrade the listing to endangered in most of the grizzly bear’s range. Small, isolated populations are subject to periodic high mortality and/or low reproduction that may eliminate them entirely. If grizzly bears were extant in the Bitterroot in 1975, as was believed then, it is noteworthy that the population appears to have been lost even after the listing – possibly due to already low numbers. Similarly, the San Juan population may have been lost since the last confirmed grizzly bear in 1979 – again likely due to stochastic reasons connected to low numbers. The North Cascades, Cabinet-Yaak and Selkirk populations may be similarly at risk of imminent extirpation. Furthermore, it would be logically inconsistent to leave grizzlies listed as threatened in areas where they have been extirpated while uplifting them to endangered where they still hang on. The entire range must be objectively evaluated to identify significant areas of range that should serve as recovery areas and critical habitat; that presently unoccupied range should be included in the region in which grizzlies are listed as endangered in anticipation of a required revised recovery planning process that, through management (including reintroductions), will increase numbers and distribution throughout all significant areas of range.
Because approximately one quarter of bears in grizzly bear populations reproduce, ie. comprise the genetically effective population, low numbers of bears are even more imperiled than the census numbers (which are expressed as probable ranges of numbers) themselves indicate. A genetically effective population of 50 animals can at best, sustain viability for the short term. To maintain long-term evolutionary potential to adapt to change, a genetically effective population should range from, at minimum, 500 to 5,000 animals (Miller & Waits 2003). Only two populations, in Yellowstone and the northern Continental Divide, likely meet the 50-bear (ie. 200 census bears) threshold, and none in the lower 48 meet even the minimum number estimated for the long-term standard of genetic health, ranging from 2,000 to 20,000 total bears.

The Service noted (Federal Register: June 4, 1998 (Volume 63, Number 107)] that “The magnitude of the threat to the continued existence of the North Cascades and Cabinet-Yaak grizzly bear populations remains high” and determined that these populations warranted uplisting to endangered status. But these areas exemplify much more widely distributed problems in a landscape that is largely bear free. Grizzly bears throughout almost all the grizzly’s original range should be designated as endangered.

End predator control targeted at depredating grizzly bears and that which may jeopardize grizzly bears. Rep. Dingell specifically cited his awareness in 1972 and 1973, a cognizance that can be dated at least as far back as February 1966, that one of the prime reasons for the grizzly’s disappearance was federal predator control (Robinson 2005, pp. 310, 323). The Federal Register listing rule is incomplete and inaccurate in its lack of attention on predator control imperilment of grizzly bears. This omission is premised in part on an incomplete description of how grizzlies were extirpated from the majority of their range. Although it is arguably correct, as the 1975 listing notice states, that “there has been no significant reduction in the range of the grizzly bear in the past half century,” it is misleading in the notice to also state that “reduction of range occurred mostly in the 19th Century during the westward advance of civilization.” An enormous amount of the range reduction, possibly more than half, occurred between 1915 and 1925 when the U.S. Bureau of Biological Survey initiated its predator extermination program, often targeting grizzly bears, and killing bears inadvertently through poison. It is noteworthy that it was not just persecution by private individuals that extirpated grizzlies, but a systematic poisoning, trapping and shooting program by the U.S. Bureau of Biological Survey (predecessor to the Fish and Wildlife Service) that eliminated the species from vast areas. (Robinson 2005)

That extermination or “control” program, and in particular its use of poison, accounts for the steep decline of grizzly bears and their dramatic range contraction subsequent to 1915 even after over four decades of very heavy settlement and persecution of grizzlies. Enos A. Mills documented grizzly bears in many areas in the teen years, just prior to when the Biological Survey was beginning use of poison, where they were subsequently extirpated (Mills 1919); and compare the range just three years later grizzlies had disappeared from significant ranges that Mills found them in. (Merriam 1922) In short, the grizzly bear would have been able to survive in many regions despite the killings by private individuals if not for federal control. In the 1930s federal predator control was responsible for killing some of the last grizzlies in Arizona and New Mexico. Even decades later, in the 1950s and 1960s (U.S. government-organized) predator
control resulted in killing some of the last grizzly bears in Colorado and in the Republic of Mexico (Peterson, Robinson 2005).

**San Juan Ecosystem Potential Recovery Area.** This area was to be evaluated for its potential as a recovery area, but no conclusion has been reached, while the fewer than five bears (and possibly none by now) may be trending toward extinction.

**Bitterroot Ecosystem Recovery Area.** This would-be population was authorized to be reintroduced but has not been. The future presence of grizzlies in this recovery area is particularly vital for establishing future connectivity between other populations. Reintroduction should proceed with full endangered protection for the bears to ensure sufficient protection to establish a robust population.

**Cabinet/Yaak and Selkirk ecosystems recovery areas.** The few grizzly bears in these isolated areas require connectivity with other populations as soon as possible.

**North Cascades Ecosystem Recovery Area.** Although the recovery plan calls for augmentation of the small and possibly isolated population, no such augmentation has occurred – an example of the inadequacy of existing regulatory mechanisms. There are probably fewer than 5 grizzly bears in this ecosystem, including its Canadian portion, far too few for genetic health. The last verified observation of a grizzly bear in this recovery area occurred in 1996, on the south side of Glacier Peak in the Glacier Peak Wilderness Area. The fact that eleven years have gone by without a verified grizzly bear in the recovery area may indicate the extreme plight of the bear. Furthermore, the recovery area does not encompass the entirety of this population even in the United States. In May, 2003 a rancher witnessed a grizzly bear making its way across his property near Chesaw, Washington, in Okanogan County east of the North Cascades Ecosystem and around 25 miles east of the North Cascades Grizzly Bear Recovery Zone (Grizzly Bear Outreach Project). Habitat, including that which might eventually provide connectivity to the Bitterroot Ecosystem Grizzly Bear Recovery Area, is also declining with the growth of human settlement in rural and exurban areas east of the Cascades. Given the North Cascades’ grizzly bear population’s low and possibly declining numbers, it is reasonable to assume that inbreeding depression is occurring or likely to occur imminently. The Service noted (Federal Register: June 4, 1998 (Volume 63, Number 107)] that “The magnitude of the threat to the continued existence of the North Cascades and Cabinet-Yaak grizzly bear populations remains high. . . Potential threats to the continued existence of the grizzly bear populations in both recovery zones include low numbers of individuals, alteration of habitat, and human intrusion into grizzly habitat. Cumulative impacts of recreation, timber harvest, mining, and other forest uses with associated road construction can reduce the amount of effective habitat for grizzly bears.”

**Identify new grizzly bear recovery areas.** The grizzly bear recovery plan should be revised to identify new, interconnected recovery areas in the Southwest, southern Rocky Mountains/Colorado Plateau, Pacific Northwest/California, and the Great Plains. All these broad regions contain extensive public lands where recovery is feasible, and represent ecosystems in which grizzly bears adapted behaviorally, ecologically and genetically to local conditions. In the
Southwest, preliminary, as-yet-unpublished research by Troy Merrill and David Mattson indicates the feasibility of re-establishing a grizzly bear population. More detailed analysis is still needed for all these regions.

The Service should be guided at least in part by the delineation of evolutionary differences in grizzly bears originally from the contiguous 48 states. It is unnecessary to take a position on whether E. Raymond Hall’s grizzly bear subspecies (Hall 1984) were actually subspecies or populations; they represent evolutionary divergence that has been roughly mapped already. These evolutionary differences and their link to geographically determined ecological differences should carry at least as much weight as the historical happenstance of where grizzly bears survived in 1975 (or currently) in delineating recovery areas. Modern genetic analysis confirms differentiation in grizzly populations (and behaviors) even as it does not confirm delineation into full subspecies. Specifically, local populations were identifiable from the Pacific Northwest, and the Southwest (including southern Colorado). Notably, the genetic analysis suggests that, given enough time, reintroduced populations might regain defining regional characteristics (perhaps similar to that of their extirpated brethren) that would similarly stem from local adaptations. (Miller et al 2006)

**Manage recovery areas and migration corridors between recovery areas to restore habitat and prey.** Habitat in and between recovery areas should be restored through road closures, livestock allotment and permit reduction and elimination, and eradication of non-native plants. Also within recovery areas, the prey base for grizzly bears should be re-established, in particular salmon runs, burrowing rodents, and bison. Specific to the potential viability of Yellowstone’s population, the Service should strive to establish intermediate populations between Yellowstone and the northern Continental Divide population, and protect and restore intervening habitat (Miller & Waits 2003). The same approach is more urgent for the much smaller populations.

**Designate critical habitat for grizzly bears.** Critical habitat was proposed for grizzly bears on November 5, 1976, comprising approximately 13 million acres in Washington, Montana, Idaho and Wyoming, but was never finalized. Had the designation been finalized, it may have helped protect grizzlies in areas from which they have since been extirpated. Had critical habitat been designated beyond where grizzlies roamed at the time of listing, it may have helped restore grizzlies through ensuring their safety, conserving their habitat and food, and foreclosing other adverse modifications. Critical habitat should be designated in all areas in which it was proposed in 1976, in areas throughout additional (including as-yet-undesignated) recovery areas, and in linkage zones between recovery areas.

**Act to slow global warming.** To prevent further loss of grizzly bear habitat and food sources, action to curtail emissions of greenhouse gases that cause global warming should be initiated. The 1993 *Grizzly Bear Recovery Plan* notes that “if predicted global climate changes eventually occur, already marginal grizzly habitat in areas such as Yellowstone National Park may be rendered unsuitable for grizzly occupancy” (p. 23). Global climate change will decrease grizzly bear food sources such as alpine invertebrates and mammals, ungulate carrion availability, and white pine nuts. Some of these adverse changes are liable to occur relatively suddenly, leaving
lessened opportunity for grizzly bears or managers to adapt or react. Other changes may be
appear more gradually but prove equally inexorable or at least intractable. The sooner the
climate crisis is brought under control, the fewer adverse effects will accrue to grizzly bears and
the more options both bears and bear managers will have to adapt or mitigate.

Global climate change consists of more than just increases in global average temperature. In
2001, the Intergovernmental Panel on Climate Change (IPCC 2001) predicted a 90-99% chance
of higher maximum temperatures and more hot days over nearly all land areas, and of higher
minimum temperatures, fewer cold days and frost days over nearly all land areas; the IPCC also
predicted a 66-90% chance of increased summer continental drying and associated risk of
drought. (IPCC 2001)

But global climate disruption is occurring even faster than predicted in the early 1990s. The
IPCC has concluded that the global average temperature has risen by approximately 0.6° C ± 0.2
C during the 20th century. Mean temperatures during the 20th century were the highest in 1,000
years. The New England Journal of Medicine recently reported: “Since 2001, we’ve learned
substantially more. The pace of atmospheric warming and the accumulation of carbon dioxide
are quickening; polar and alpine ice is melting at rates not thought possible several years ago; the
deep ocean is heating up, and circumpolar winds are accelerating; and warming in the lower
atmosphere is retarding the repair of the protective ‘ozone shield’ in the stratosphere….Given the
current rate of carbon dioxide build-up and the projected degree of global warming, we are
entering uncharted seas” (Epstein 2005).

Global average temperature increases mask significant regional variation. Due to a number of
positive feedback mechanisms, warming in the Arctic has been and will be more rapid than in
the rest of the world, and is a harbinger of what is to come in other areas. In extensive areas of
the Arctic, air temperature over land has increased by as much as 5° C (9° F) over the 20th
century. All climate models predict significant warming in this century, with variation only as to
the rate and magnitude of the projected warming. The IPCC predicts that the global average
temperature will warm between 1.4 and 5.8°C by the end of this century. Winter temperatures
are projected to rise even more significantly, with increases of approximately 4-7° C over land
areas, with particularly devastating effects on the availability for grizzly bears of winter-killed
ungulates.

For a number of reasons, IPCC’s projections (and others commonly cited) may significantly
underestimate the amount and rate of warming. First, the planet is already committed to an
additional 1° F warming from the excess solar energy already in our climate system, due to lag
time in the climate response. Second, actual worldwide greenhouse gas emissions may be on the
high end or above the range of the IPCC scenarios, all of which assume that energy use will shift
away from fossil fuels to a greater percentage of sustainable energy sources and that worldwide
greenhouse gas emissions will thus begin to decline during this century; yet the most recent
energy projections show that if current policies continue, worldwide greenhouse gas emissions
will be 52% higher in 2030 than they are today. Furthermore, warming amplification caused by
the expansion of shrub and tree cover in the Arctic and resulting increase in solar absorption
likely will result in as much as two to seven times the IPCC-predicted temperature change, which does not account for this positive feedback loop. (Chappin et al 2005) Recent data on the unexpectedly fast rate of warming in the Arctic also reinforces the likelihood that the IPCC projections will need to be revised upwards. Yet, the recovery plan does not address the dire cumulative and synergistic impacts of global climate disruption on grizzly bear food sources nor the associated effects on grizzly bear survival rates; much of the information needed to address this threat has been developed since the last (1993) revision of the recovery plan.

(Signed)

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**Literature Cited**


