



July 30, 2013

NCDE Grizzly Bear Conservation Strategy Comments

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Dear Dr. Servheen,

Thank you for the opportunity to comment on the April 2013 Draft NCDE Grizzly Bear Conservation Strategy. We are writing on behalf of the Natural Resources Defense Council, the Montana Chapter of the Sierra Club, the Center for Biological Diversity, and Friends of the Wild Swan. Please enter our comments into the formal record and incorporate our recommendations into the Final Strategy. We also ask that you incorporate by reference the comments of Keith Hammer and the Swan View Coalition.

On October 29, 2011, NRDC and five other conservation groups sent your office, the Interagency Grizzly Bear Committee, and the NCDE Grizzly Subcommittee a proactive list of recommendations to include in the upcoming Conservation Strategy based on sound science and grounded in law. Our hope was that by providing such early input, the U.S. Fish and Wildlife Service (FWS) would have ample time to incorporate our solutions before agency policy became set in stone. Our recommendations included:

- * A commitment to a lower 48 metapopulation of 2500-3000 grizzlies as a pre-condition for delisting individual ecosystems.
- * Ecosystem-wide motorized access management standards based on research and the demonstrated needs of grizzlies.
- * Landscape level linkages between the NCDE and the Cabinet-Yaak, Selway Bitterroot, and Greater Yellowstone Ecosystems based on the scientifically documented needs of grizzlies.
- * Habitat-Based Recovery Criteria with a meeting of independent scientists and full public process prior to approval of a Conservation Strategy, or efforts to delist.
- * Ecosystem-wide Forest Plan Amendments incorporating the best available science on grizzlies and habitat prior to approval of a Conservation Strategy.

Unfortunately, when the Draft Conservation Strategy was issued on May 2, 2013, we were disappointed to see that none of the proactive solutions proposed by NRDC and its conservation partners had been incorporated in any functional way. We believe the Conservation Strategy (CS) in its current form departs from established science and law, and will not effectively secure the future of NCDE grizzlies in the long term. The significant shortcomings outlined in this comment letter need to be addressed and corrected before a final CS is released.

Our comments below have been divided into a number of key categories to clearly and adequately convey our concerns, and to assist the Service in addressing them.

HABITAT MANAGEMENT and RESEARCH

1. No Habitat Based Recovery Criteria. As part of his 1995 ruling on Recovery Plan litigation in Greater Yellowstone (*Fund for Animals v. Babbit* 1995), Judge Friedman said the following:

“The FWS has not explained how minimum bear population and grizzly distribution goals consider how much habitat and of what quality is necessary for recovery, or how the answers to these questions can be derived from the ‘females with cubs’ and ‘occupancy’ criteria. Nor does the Recovery Plan’s requirement that a Conservation Strategy (that will include minimum habitat values and additional monitoring methods) be implemented before any delisting process is commenced address this deficiency. The promise of habitat based recovery criteria sometime in the future is simply not good enough. The purpose of the habitat recovery criteria is to measure the effect of habitat quality and quantity on grizzly recovery See FWS Recovery Guidelines, A.R. Tab 78 at I-5. Such monitoring is not possible if there is no scale against which to gauge the status of the habitat. Defendants have not met their burden to develop objective, measurable criteria by which to assess present or threatened destruction, modification, or curtailment of the grizzly bear’s habitat or range.”

Yet the NCDE Conservation Strategy repeats this error by presenting no comprehensive Habitat Based Recovery Criteria (HBRC) capable of measuring or monitoring “the effect of habitat quality and quantity”, or “objective, measurable criteria by which to assess present or threatened destruction, modification, or curtailment” of that habitat. And while the CS commitment to measure/maintain motorized route density, developments, and grazing allotments at 2011 levels could address security issues, they tell us little about the actual quantity, quality, or arrangement of key habitats and foods in the CS areas.

The 1997 settlement of the 1995 Recovery Plan case requires FWS to develop HBRC for all Recovery Areas prior to proposing delisting. So central is the issue of habitat to the integrity of the Conservation Strategy that we recommend the Service move up the completion of HBRC to precede this Strategy, include a substantial public comment period, and convene a Workshop to gather the comments of independent scientists, as

was done in Greater Yellowstone. Anything less will leave the Service with its cart well ahead of its horse.

2. In large part, FWS bases its assertion that grizzlies were recovered in its Baseline Year of 2011 on a claim of nearly 1000 bears, a +3% trend, and connections to Canada. This repeats the Service's mistake of 1995, where Judge Friedman warned that bear numbers and distribution did not tell you "how much habitat and of what quality is necessary for recovery" and therefore, cannot be used to claim an unproven recovery. It is also concerning that recovery is in part based on reliance of a connection to a population of bears residing in another country where the ESA and other United States laws do not apply.

3. When we examine the research history of the NCDE, we find that neither Federal nor State agencies have ever conducted comprehensive habitat mapping of the ecosystem, and there are no long-term, ecosystem-wide studies of grizzly habitat generally or preferred foods specifically (such as berries), as have been common practice in the GYE for decades. Thus the Conservation Strategy's commitment to freeze conditions at the 2011 Baseline level rings hollow, because no agency – federal or state - has any idea of what those habitat levels were. And with no knowledge of habitat in its Baseline Year, there's absolutely no benchmark from which to gauge future habitat improvement or decline and its impact on bears.

This is particularly serious given the findings of Doak (1995) that there was an 8-13 year "lag time" between habitat decline and grizzly population decline – and that was in Yellowstone, with decades of habitat research. In the NCDE with no such research, the agencies will be making decisions without adequate information, thus endangering the long-term recovery of grizzlies in this ecosystem.

We urge the agencies to work cooperatively to set up and prioritize the long overdue mapping of grizzly habitat, as well as a comprehensive, long-term program of habitat and key foods research.

4. In its discussion of grizzly habitat management on P: 18, FWS notes that "Grizzly bears are long-lived, opportunistic omnivores whose food and space requirements vary depending on a multitude of environmental and behavioral factors..."

However, the CS then goes on to state that, "While these factors make the development of threshold habitat criteria difficult, habitat criteria may be established by assessing what habitat factors in the past were compatible with a stable to increasing grizzly population... The question of how many grizzlies can live in any specific area is a function of overall habitat productivity (e.g. food distribution and abundance), the availability of habitat components (e.g. denning areas, cover types) the levels and types of human activities, grizzly bear social dynamics, learned behavior of individual bears, and stochasticity."

The problem is, with virtually no comprehensive habitat research conducted the agencies have no idea what those “habitat factors” were – beyond road density, developments, and grazing allotments – the tip of the habitat iceberg. In addition, the CS assumes it had a “stable to increasing population” in 2011, while one of its own researchers, Dr. Richard Harris notes in Appendix P: 9 that, “...consequently, yearly population size of NCDE grizzly bears remains unknown;” Finally, no one in the conservation community is asking “how many grizzlies can live in any specific area” (carrying capacity). What we are asking for is the Habitat and Key Foods research that should have been going on for years, if not decades, but has not.

5. After making the conclusion that NCDE grizzlies were “stable to increasing” in 2011, FWS makes the leap of logic that whatever habitat conditions and management were in place ecosystem-wide at that point are adequate for grizzlies. This overlooks the fact that many areas in the NCDE continue to be population sinks for grizzlies, while other areas have excessive road densities known to be incompatible with long-term grizzly survival. It also ignores the reality that the future is unlikely to look like the past, as human densities in the ecosystem and their use of public lands increases, and climate change impacts habitat type, distribution, and use by grizzlies. FWS has failed to adequately consider research by Mattson (2001) that grizzly mortality is driven by frequency of human contact, and the lethality of that contact. It is almost certain that the frequency of human contact will increase. Even if the lethality of that contact remains steady, this will result in increased grizzly mortalities.

6. P: 4-5 of the CS note the following for Zone 2:

* “The Objective is to maintain existing resource management and recreational opportunities and allow agencies to respond to demonstrated conflicts...with appropriate management actions.” Since virtually none of Zone 2 has any bear-based habitat standards, these provisions appear likely to result in grizzlies being excluded, moved, and killed rather than accommodated.

* “Public lands in Zone 2 will be managed to provide the opportunity for grizzly bears, particularly males which are more likely to move long distances, to move between the NCDE and adjacent ecosystems (i.e., the Greater Yellowstone ecosystem or the Bitterroot ecosystem) via current direction in USFS and BLM Resource Management Plans.” However, since CS P: 41-42 says of Zones 2 & 3, “...there are no habitat standards specifically related to grizzly bears described because the objectives in these zones do not require them”, and we are unaware of any USFS or BLM Resource Management Plans designating and protecting Linkages Zones (DCA’s), the above claims are disingenuous, misleading, and have little prospect of ever happening.

7. The Montana Dept. of Natural Resources and Conservation (DNRC) manages 500,619 acres in the PCA + Zone 1, and another 217,769 acres in Zone 2. The CS repeatedly gives us assurances that grizzly bear habitat needs are taken care of in the Habitat Conservation Plan between the agency and FWS, however the CS, P: 45-46 indicates almost the opposite:

“On DNRC lands, management direction and policies are largely driven by a legal requirement to generate revenue to support state schools and educational institutions...DNRC’s obligation for management of trust lands is to obtain the greatest returns for beneficiaries.” And elsewhere, the CS states that implementation of grizzly provisions is “at the sole discretion of the DNRC”. Rather than sound, binding protection of grizzlies and their habitat, this sounds to us like a clear case of “Inadequate Regulatory Mechanisms.”

8. On CS P: 49, we see that on Federal lands inside the PCA there would be no net decrease in 2011 levels of Security Core, and no net increase in 2011 levels of Open and Total Motorized Route Density (emphasis added). There are at least two major problems with this.

First, it’s based on the unwarranted and arbitrary assumption by FWS that if the grizzly population ecosystem-wide was doing OK in 2011, then whatever Core, OMRD and TMRD levels were in place on all portions of public land must be OK as well, although these levels in many areas are known to be inconsistent with long-term grizzly survival.

Second, the no Net decrease/increase provisions mean that in reality, decreases in Core and increases in OMRD and TMRD are permitted, so long as mitigation habitat is provided elsewhere. This would only mitigate the effects to the population if one incorrectly assumes that grizzlies, particularly females, can be moved about the landscape by habitat loss in their home ranges with no negative consequences to feeding, breeding, denning, and survival. It also assumes that grizzlies will move to mitigation habitat. However, research by Allen et al. (2011) in the adjacent Cabinet-Yaak Ecosystem, found that female grizzlies continued to use the more heavily roaded habitat of their historic home ranges even when there were large blocks of less roaded habitat nearby.

9. Also on CS P: 49, we read that, “on other public lands within the PCA, the goal is to institutionalize habitat protections (emphasis added) that benefit grizzly bears while maintaining opportunities for resource use and development. The long-term nature of the plans guiding grizzly bear habitat management on DNRC, Blackfeet Nation, and CS&KT lands increases our certainty about how these State and Tribal lands will be managed in the foreseeable.”

Given the lack of interest shown by State and Tribal agencies to protect grizzly bear habitat, the goal to “institutionalize habitat protections” is unrealistic. And the goals of protecting grizzly habitat and maintaining even current levels of resource extraction are in obvious conflict. In addition, the Service’s belief that long term management plans will somehow protect bears when the DNRC’s priority is maximizing profit, and the Blackfeet Tribal Council recently supported excessive amounts of oil and gas development in bear habitat, seems like unwarranted optimism to say the least.

10. On CS P: 49, FWS reassures the public that, “To assess the adequacy of food production and the types of foods grizzlies use across the landscape each year, we would

monitor grizzly bear body condition and food habits using the most appropriate and available technology.”

Having done zero comprehensive, ecosystem-wide habitat mapping, habitat research, or key foods studies in the last 40 years, the Service now proposes to use indirect, surrogate criteria such as Bioelectrical Impedance Analysis (BIA, body fat) and stable isotope analysis to address this shortcoming.

Unfortunately, while stable isotope analysis can be helpful in differentiating between a diet based on plants versus one based on meat, it doesn't tell you specifically what plants or animals are being eaten in most cases, although corn fed animals can have a different “signature.”

And BIA studies only tell you if a bear is maintaining its body fat percentage. Here we agree with FWS that grizzlies are “opportunistic omnivores”, and that bears facing either a gradual or sudden food crisis won't simply die, they'll travel more widely looking for emergency foods and emergency habitat. In all likelihood, this will result in them maintaining – at least in the short term – their BIA numbers, thus temporarily masking the habitat decline. In addition, this wider search for emergency food will almost certainly bring them into contact with more humans and as a result, conflicts and grizzly mortalities will rise.

Unfortunately, if Yellowstone is any guide, Federal and State agencies will take the unsubstantiated position that these expanded ranges and conflicts are signs of an expanding population, and a corresponding recovered bear population. Few will consider, or acknowledge, the possibility that these are signs of habitat decline or bears experiencing a food crisis – and with no studies of actual habitat/foods, the agencies simply won't know.

In an effort to justify this critical research gap, the Conservation Strategy, P: 78 tells us: “Because of the wide variation in diets of NCDE grizzly bears and the spatial breadth of the ecosystem, it is infeasible to maintain on-the-ground monitoring of availability and use of individual foods.” This is simply not the case.

The Greater Yellowstone Ecosystem is considerably larger than the NCDE and its grizzlies also have a diverse diet, yet for decades the Interagency Grizzly Bear Study Committee (IGBST) has done Key Foods research involving ungulates, whitebark pine, army cutworm moths, and Yellowstone cutthroat trout. If the Service is serious about NCDE recovery, they need to invest in similar habitat research for the NCDE. Here are a few places to start:

* Glacier National Park has already completed habitat mapping for the park based on satellite imagery backed up by multi-year “ground-truthing”, yielding an excellent 87% accuracy rate – Contact Richard Mennick at the park's USGS office.

* Kate Kendall of Glacier's USGS office (recently retired) conducted multi-year berry transects during the mid-80's in the Apgar Range studying time and abundance of berry production, time and extent of grizzly use, and initial work on forecasting future crops (Kendall 1986). Now that she's retired, Federal and State agencies could contract with her or other similarly qualified researchers to develop and ecosystem-wide methodology for annual berry plot sampling for huckleberry, serviceberry, chokecherry, and buffaloberry – perhaps in coordination with U of M, MSU, and FVCC. Berry production might be correlated with grizzly demography, conflicts, and mortalities.

* Since 2000, several hundred thousand acres in the ecosystem have burned in wildfires, yet there has been little apparent effort to examine the positive or negative impacts of these fires on plants succession, and berry crops. Such studies could yield valuable habitat information, and in the Apgar Range, which burned twice in the last decade, the results could be compared to Kendall's earlier work.

* In the Greater Yellowstone, army cutworm moths provide one of the key foods for a substantial number of grizzlies and are the subject of annual usage surveys. Several studies were done in the 1980's in the NCDE by White (1999, 1998, 1996), but were not continued, and no effort is apparent to study, map, and research this potentially valuable food source across the ecosystem. Now would be a good time to start.

11. Unfortunately, nowhere in the Conservation Strategy do we see any requirement, or even a suggestion, that Federal and State agencies begin any of this long-overdue habitat research and monitoring. Instead, when we look at CS Appendix 16, "Annual Cost Estimates by Agency for Implementing this Conservation Strategy" we find a total budget of \$1,822,621, with \$9400 available for "Habitat management", and \$15,290 for Habitat condition (isotope ratio & body condition monitoring) for a total of \$24,690 or 1.35% of the budget. Given the overriding importance of habitat quantity, quality, and connectivity to grizzlies, it doesn't seem unreasonable to us to spend 20% of the total budget on habitat and key foods research. We call on the U.S. Fish and Wildlife Service to invest more in researching the habitat condition of the ecosystem.

POPULATION, TREND, SURVIVORSHIP

1. Throughout the Conservation Strategy, FWS repeatedly uses its claims of a large grizzly population (approx. 1000), +3.06% annual trend, female occupancy of Bear Management Units (BMU), and connections to Canadian populations to justify all manner of agency decisions, including:

- * Its unsubstantiated conclusion that NCDE grizzlies were recovered as of 2011.
- * The decision to choose 2011 as its Baseline Year, with no further habitat improvements required of Federal Agencies, regardless of actual grizzly science.
- * The Service's reluctance to require NCDE recovery as part of an overall lower 48 Metapopulation.
- * The failure to designate functional (i.e. protected), landscape level Linkages (DCA's) both internally and to other ecosystems, and based upon accepted grizzly bear science.

* The FWS apparent unwillingness to acknowledge and address “population sinks” in the ecosystem.

* Calculation of Allowable and Discretionary Mortality levels.

In light of these shortcomings, it’s important that the Service recall the 1995 admonition of Judge Friedman that grizzly numbers and distribution do not take the place of knowing “...how much habitat and of what quality is necessary for recovery...”

In addition, the CS itself, Appendix 2, P: 9 reports the following by Dr. Richard B. Harris:

(1) “Although a precise estimate of population size has been published, there is, at present, no protocol in place for updating this estimate; consequently, yearly population size of NCDE grizzly bears remains unknown; and (2) Considerable uncertainty surrounds both estimates of the number of bears dying, and the vital rates of the population. Analyses conducted by Mace et al. (2012) suggest that the single best estimate of population growth (λ) during 2004-2009 was 1.0306 (i.e. roughly 3% increase yearly). However, largely because sample sizes were limited and the time period of this investigation spanned only 6 years, the 95% confidence interval limits around this estimate was 0.928-1.102. Thus, although the authors deem it highly likely that the population was increasing, available data do not allow this to be asserted with the conventional level of statistical certainty.”

Although this clear warning from one of the Conservation Strategy’s own authors calls for FWS to proceed carefully with the Precautionary Principle in mind, the warnings issued by Harris are nowhere reflected in this Strategy.

2. For the Primary Conservation Area (PCA), the CS says, “...the objective is continual occupancy by grizzly bears and maintenance of habitat conditions that are compatible with a stable to increasing grizzly bear population (emphasis added).

However, if that is true, and FWS is correct that there are currently about 1000 grizzlies in the NCDE, why does the CS have the goal to, “maintain a minimum of 800 grizzly bears in the PCA and Zone 1...” a sanctioned 20% drop, with no consequences? With the current survival rate of Independent Females at 0.952 (95.2%), CS P: 7, why is the Strategy’s Demographic Standard 2 to “Manage for survival of independent females generally > 0.90 (90%) in the PCA and Zone 1?” And why, with the current mean annual mortality rate for independent males at 13.8% – 15.6% does Demographic Standard 4 set male mortality at 20%, with FWS stating – without scientific justification – “an additional 5% man-caused mortality, above the 14-15% currently observed, will not additionally influence population trend”?

CS Appendix 2, Table 8, P: 9 indicates that an independent female survival of .90 (90%) results in a λ of 1.009 (0.9%) just a whisker above stable. However, this depends on the FWS population, trend, and vital rates being correct, and as reported above by Dr. Harris, that is seriously in doubt. Rather than managing for a stable to increasing

population the CS appears to be set up to manage for a marginally stable to decreasing population.

3. CS P: 36 states, “While this Conservation Strategy aims to demonstrate a clear commitment to establish the NCDE as a source population to the Greater Yellowstone, Bitterroot, and Cabinet-Yaak grizzly bear recovery ecosystems, such connectivity is not required for the health or recovery of the NCDE population because of its large size and connectivity with Canadian populations.”(emphasis added)

The Service needs to explain how, if no connectivity is required, the NCDE is supposed to function as a “source” for anything, let alone for recovery areas 50-150 miles away. In addition, a fundamental principle of Conservation Biology recognizes that long-term viability for any species requires a minimum Effective Population (breeders) of 500 individuals (Soule 1980, Forman and Godron 1986). Using FWS figures of 1000 bears representing 28.9% breeding females and one third breeding each year would result in an Effective NCDE Population of only 192 males and females – not 500. That means connectivity to a larger “Metapopulation” is a biological necessity, not a luxury, as FWS claims. And, since scientists in general and the agencies specifically have long- realized that grizzlies are one of the slowest reproducing mammals in North America, their effective population arguably needs to be even higher than 500.

4. CS P: 38, Standard 3 says: “Independent female mortality will not exceed 10% of the estimated number of independent females in either of the following two areas, whichever is reached first: (1) all independent females inside the PCA or Zone 1; and (2) all independent females excluding those whose annual home range is entirely within Glacier National Park...”

Unfortunately, this 10% limit is based on the total and independent population estimates being correct – something we, and FWS, now know isn’t necessarily true. In addition, while it’s vital to have such “mortality triggers”, the CS contains absolutely no immediate consequences for violating the limit. In fact, just the opposite is true, as detailed by CS Table 3, P: 38:

“As an example of the application of the management review triggers, if independent female survival was between .89 and .90 for 12 consecutive 6-year intervals such as 2014-2025, a management review would be triggered. If, for another example, independent female survival was less than .87 for 6 consecutive 6-year intervals such as 2016-2021, then a management review would be triggered” (emphasis added).

While it’s bad enough that independent female survival must decline or violate “standards” for 6-12 consecutive years to warrant a management review, we must remember the cautionary note of Doak (1995) that habitat could decline for 8-13 years before it showed up as a population decline, and was noticed by managers. When this “lag effect” is combined with the Conservation Strategy’s 6-12 year delay, we see a Best Case Scenario in which a management review is delayed by 14-20 years (6-12 years plus 8), while the Worst Case Scenario is 19-25 years (6-12 years plus 13). Moreover, these

population declines would only trigger a review and would not require any mandatory agency action.

A management review standard this law is not designed to protect grizzly bears, and does not follow the Precautionary Principle. The Service must immediately change this provision to one closer to Yellowstone's, where violation of female mortality levels for 2 consecutive years, or male levels for 3 consecutive years triggers an immediate review and corrective action.

5. In addition, CS Appendix, P: 15 contains several flaws in the calculation of allowable female mortalities that could result in excessive kills, as follows:

“Each year, a total mortality limit of 10% of independent females will be calculated for both: (a) the entire population in the PCA and Zone 1 and separately for: (b) all females except those living entirely within Glacier National Park... Second, the number of known and probable non-hunting independent female mortalities outside GNP will be averaged over the most recent 6-year period. This average non-hunting mortality number will then be subtracted from the total limit of 10% to ascertain the number of discretionary mortalities available per year” (emphasis added).

Problems:

* Once again, these allowable mortality limits are based on agency calculations of Population and Trend, which Harris (Appendix 2, P: 9) says are statistically suspect.

* Elsewhere in the CS we were assured that all mortalities from all causes, and all PCA/Zone 1 locations would count toward the 10%. However, here we see that independent female mortalities inside GNP (3.1% of total) don't get counted.

* Only the deaths of independent females get counted. Mortalities of females under 2 years old don't get counted, despite the critical breeding role they would have played in the future.

* Hunting related mortalities don't get counted, although they can be significant in some years (17% of human-caused deaths, 1998-2011), giving hunters too much leeway, and allowing Montana FWP a greater number of “discretionary mortalities” - mostly related to management control, which is already the leading cause of grizzly deaths in the NCDE (31%).

* Independent female mortalities are averaged over the most recent 6-year period, allowing FWS and Montana FWP to average excessive mortality years such that they do not trigger any review. For example, a 6-year period with the following mortalities averages 10% and would therefore be permissible - 12%, 12%, 12%, 8%, 8%, 8% - even though deaths are excessive 50% of the years.

All of the above are excessive mortalities waiting to happen, with FWS/FWP approval. These management practices do not protect grizzlies or safeguard recovery of the NCDE population. To get a comprehensive view of how mortalities are affecting population trends, the Conservation Strategy would need to mandate the counting of all female mortalities from all causes in the PCA and Zone 1. We would further argue, that if FWS is serious about grizzlies moving through Zone 2 to break Yellowstone's genetic and demographic isolation, both male and female mortalities there should count as well. Grizzlies south of Canada were listed under the ESA as a group and they can only be recovered as an interconnected group.

MOTORIZED ACCESS MANAGEMENT

1. The 1993 Grizzly Bear Recovery Plan (USFWS 1993) says:

“Roads probably pose the most imminent threat to grizzly habitat today... The management of roads is one of the most powerful tools available to balance the needs of people with the needs of bears. It is strongly recommended that road management be given the highest priority within all recovery zones.

The impacts of logging, mining, livestock grazing, and many forms of recreation in grizzly habitat can be mitigated through well-designed management programs. But the presence of open roads in grizzly habitat often leads to increased bear-human contact and conflict, and can ultimately end in grizzly mortality. Accidental shooting, poaching, and habituation through direct human contact and/or food reward all increase with the use of even secondary, unpaved roads by humans”

And the Conservation Strategy, P: 20-21 echoes this basic scientific principle – “Open motorized route density is a predictor of grizzly bear survival on the landscape (Schwartz et al. 2010, emphasis added) and is useful in evaluating habitat potential for, and mortality risk to, grizzly bears (Mace et al. 1996).

In addition, given the Endangered Species Act's absolute requirement that, “The Secretary shall make determinations required by subsection (a)(1) solely on the basis of the best scientific and commercial data available...” (USFWS 1988), we expect FWS to include scientifically rigorous motorized access management standards in this Conservation Strategy. However, the Service has done the exact opposite, in violation of law, science, and common sense.

The only motorized access standards based on a decade of grizzly research in the NCDE (Mace and Waller 1997) are those of Amendment 19 (A19) to the Flathead Forest Plan (USFS 1995) which have been examined and approved in FWS Biological Opinions (USFWS 1995). These bear-based standards are:

* Open Motorized Route Density (OMRD): 19% or less of each BMU Subunit exceeding 1 mi/sq.mi. open route density.

* Total Motorized Route Density (TMRD): 19% or less of each BMU Subunit exceeding 2 mi./sq.mi. total route density.

* Security Core: At least 68% of each BMU Subunit to be in Core areas more than 500m from an open or gated road; of at least 2500 acres; in place for at least 10 years.

These standards were so compelling, that FWS noted in a Biological Opinion (USFWS 2007), that they had been adopted or accepted by the Lolo, Helena, and Lewis & Clark National Forests, as well as the Flathead.

But under the Draft Conservation Strategy, these science-based standards and biological opinions are arbitrarily replaced by a 2011 Baseline Year, under which any motorized access route densities and security core in place at that time will be unilaterally declared acceptable to the Service. However, this is not “best available science”. We remind FWS of its statement in the recent 5-Year Grizzly Bear Status Review (USFWS 2011, P: 39) that until all subunits are in full compliance with “scientific access management standards”, threats to grizzlies will not have been substantially eliminated (emphasis added).

We strongly recommend that it rescind its motorized access “standards” under the 2011 Baseline and restore Amendment 19 ecosystem-wide as the Conservation Strategy standard.

2. If FWS persists in replacing A19’s science-based standards with its 2011 Baseline, the impact to grizzlies and habitat security, and mortalities would be significant, as follows:

- * 31 of 54 BMU Subunits (57%) would violate A19 standards on Flathead NF
- * 1 of 3 BMU Subunits (33.3%) would violate A19 on Helena NF
- * 2 of 2 BMU Subunits (100%) would violate A19 on the Kootenai NF
- * 8 of 8 BMU Subunits (100%) would violate A19 on DNRC lands – despite its long-term HCP with the Service.
- * Only the Lewis and Clark NF would meet all A19 requirements.

3. On CS P: 21-23 the Service ignores sound science by proposing to abandon the long-accepted IGBC policy of considering “High-Intensity, Non-motorized Trails (>20 parties per week) as subtractions from Security Core because:

“The approach is not clearly supported by the existing scientific literature. Multiple studies document displacement of individual grizzly bears from non-motorized trails to varying degrees (Schallenberger and Jonkel 1980; Jope 1985; McLellan and Shackleton 1989; Kasworm and Manley 1990; Mace and Waller 1996; White et al. 1999). However, none of these studies documented increased mortality risk from foot or horse trails or population level impacts to grizzly bears from displacement.”

* This ignores the reality long recognized by Federal & State agencies that bears with high-intensity trails in their home ranges may become habituated, food conditioned, and

displaced from key habitats and food sources with impacts to feeding, breeding, denning, and conflicts with humans – all increasing potential and actual mortalities. We encourage the Service to revisit its Yellowstone Conservation Strategy as well as numerous Biological Opinions from the Northern Rockies that make exactly these points.

* The above impacts of high-intensity trails are exactly the same as for open roads, which every Federal and State agency acknowledges cause direct and indirect mortalities to grizzlies. The Service must protect grizzly bear habitat by considering, at the very least, high-intensity, non-motorized trails as subtractions from the security core as recommended by the current IGBC policy rather than waiting for “documented increased mortality risk” to take any action.

4. To see where FWS is headed with this new High-Intensity Trails policy, we only need to look at CS Appendix 6, P: 49-52: “Comparison Between NCDE Conservation Strategy Secure Levels and Current IGBC Core Levels in Each Bear Management Subunit.”

At first glance, there appear to be significant improvements to Secure Core in scores of Subunits under the CS. However, this instantly disappears when we realize the improvement is due to the CS no longer buffering high-intensity use trails by 500m and subtracting them from Core. This is another confusing and misleading contradiction of the CS. This proposed Strategy ignores ecological reality and does not increase actual grizzly security.

In addition, Appendix 6 counts the sale/transfer of 310,000 acres of Plum Creek Timber lands to Federal & State agencies under the Montana Legacy Project as an improvement to the Core of the ecosystem even though this will depend entirely on how the agencies manage them in the future.

5. Page 46 of the CS says: “For example, between 1998 and 2011, nearly 74% (157/213) of all known grizzly bear mortalities in the NCDE recovery Zone occurred within 500m of a developed site or motorized route.”

While this clearly points the way to areas where improvement is possible, it leads us to ask again why FWS would even consider freezing roads at 2011 levels when so many BMU Subunits continue to have excessive OMRD/TMRD, and large areas in Zone 1 (the Salish Mountains for example) have road densities 3-5 times what science tells us are consistent with grizzly survival in the long-term.

P: 85 of the Strategy reports that, “From radio-collar data, we know that current levels of relatively high open road miles and low levels of secure habitat in the Salish DCA...are adequate to support females with offspring. There have been at least eight different females with offspring documented here between 2001 and 2010 (Manley 2011, personal communication).”

While we have the greatest respect for the professionalism and dedication of FWP's Tim Manley, we are concerned that without further details, his information is subject to misinterpretation or misuse, as follows:

- * What does the Service mean by "documented?" How many were one-time sightings/locations, and how many were observed multiple times?
- * How many of these females were transient, and how many were resident?
- * How many of the females lived in the Salish DCA for an entire non-denning season, or multiple seasons?
- * What was the survival rate for these females? What was the survival rate for their offspring?
- * How many of the females produced cubs in the DCA, as opposed to arriving with them?
- * How many of these 8 females are alive today and remain in the Salish DCA?

If the Service has new, peer-reviewed, published research from the Northern U.S. Rockies, contradicting all previous research, and showing that female grizzlies seek out and survive home ranges with Open Road Densities of 3-5 mi./sq.mi., then it should share that with the rest of the scientific community. If not, we urge FWS to stop making unsupported claims..

6. Conservation Strategy P: 50, "Motorized Access Management On Federal Lands" details Habitat Standards 1 & 2 theoretically crafted to protect grizzlies and their habitat while agency "projects" are underway. However, it quickly becomes clear that these contain more loopholes than they do bear-based standards, as follows:

- * Habitat Standard 1 – "...there will be no net decrease in the amount of Secure Core within each BMU subunit from levels that existed in 2011...unless temporarily decreased to allow projects according to Application Rules."
- * Habitat Standard 2 – "...there will be no net increase in levels of open motorized route densities (OMRD) or total motorized route densities (TMRD) within each BMU subunit above 2011 baseline values...unless increased temporarily to allow projects according to the Application Rules."
- * Application Rules on P: 51 say that they are based on six Federal land projects, 5 on the Flathead NF, and 1 on the Lolo NF. We're then told that:

"They occurred between 2003 and 2010, a period during which the NCDE grizzly bear population is known to have been increasing (Kendall et al. 2009; Mace et al. 2012). Therefore, the duration of these projects and the associated increases in OMRD and TMRD are known to be compatible with an increasing grizzly bear population in the NCDE. Types of projects included salvage work, timber harvest, and road management. During the life of these six Federal projects, the OMRD temporarily increased an average of 5.4%, TMRD temporarily increased an average of 2.9%, and security core fluctuated by 2%." (emphasis added)

And based upon this suspect logic, FWS says that “temporary changes” of 5% (OMRD), 3% (TMRD), and 2% (Core) will be sufficient for grizzly bear viability. There are clearly a few problems here:

- * The “unless increased/decreased temporarily” additions to Habitat Standards 1 & 2 allows the management agency far too much freedom to functionally and indefinitely relax motorized use requirements to the detriment of the grizzly bear population.
- * The Application Rule’s assertion that these six unidentified projects occurred while the NCDE population was “Known” to have been increasing, has already been called into question by Dr. Richard Harris, one of the Strategy’s authors.
- * And the Service’s assertion that these retreats on motorized standards must be acceptable because the NCDE population didn’t suffer a steep decline in response to just 6 projects on 2 of the 5 forests is simply not credible.

Furthermore, these “temporary projects” will have impacts on the grizzly bear population that are certainly not temporary:

- * “Projects will be planned so that they do not exceed five years (with the exception of gravel pits.” Displacing a female grizzly from her home range for 5 years (potentially two breeding cycles) with the loss of that habitat knowledge to her cubs can have long-term impacts to the population.
- * “Secure Core and road density values must be restored within one year after completion of the project.” This is tacked on to a potentially 5-year project and is clearly not “Temporary” in grizzly terms.
- * If a project can occur completely within administrative use levels (6 trip/week OR a 30 day window) it will not count as a project, and will not have to meet temporary increase terms even as it adversely affects occupied bear habitat

CS P: 53, Table 5 gives a hypothetical example of how these “temporary” changes might be implemented in a Subunit where the pre-project OMRD = 19%, TMRD = 19%, and Core = 69%. When the temporary changes noted above take place (5%, 3%, 2%) these numbers become an allowable 24% OMRD, 22% TMRD, and 67% Core.

Again, these numbers are misleading. This may not seem too bad to the average person unless they notice that FWS spreads project impacts over 10 year running averages which masks the true project impacts. When we look at the actual four years of the project, we see that OMRD rises to 31% (+74%), TMRD to 22% (+15%), and Core drops to 63% (-8.7%) – potentially devastating to grizzlies, particularly females with young.

7. When we read Zone 1 Access Management standards on P: 82-83, we find that OMRD standards on most forests aren’t in line with known grizzly requirements; are based on big game criteria; or in the case of BLM are “guidelines to minimize new road

construction...but there are not uniform limits on OMRD across Zone 1” (emphasis added). And, since these “standards” were presumably in place during the Baseline Year of 2011, nothing in this Strategy would require future improvements based upon actual grizzly bear science.

CONNECTIVITY AND METAPOPOPULATIONS

1. The grizzly bear in the lower 48 states was listed as a Threatened species as a single population and most independent scientists believe that true recovery must be accomplished in the same manner, with a linked “metapopulation” of 2500-3000 grizzlies. Because of the slow reproductive rate of grizzlies, some assert that at least 5000 would be required for recovery (Allendorf and Ryman 2002; Bader 1996; Reed et al. 2002; Traill et al. 2010; Shaffer 1992).

As has been reported at IGBC meetings, there are no known grizzlies in the Selway-Bitterroot, less than 20 in the North Cascades, and recovery in these two areas, if it began tomorrow, would likely take 50 – and perhaps 100 – years. Delisting cannot be done one isolated area at a time with no connection to a larger recovery strategy including all Recovery Zones. The Service must stop making the scientifically unsupportable claim that the NCDE, or any single population, is demographically and genetically secure and recovered on its own.

For example, the NCDE population can never reach the 2500-3000 level on its own. To address this, the U.S. Fish and Wildlife Service must make a clear, written, binding commitment in a revised Grizzly Bear Recovery Plan, and all Conservation Strategies, to recovery based on a metapopulation structure, connecting all Recovery Zones with landscape-level Linkages based on grizzly bear science.

2. The first requirement of the proposed DCA’s (Demographic Connection Areas – Linkages) is that they actually connect the various Recovery Ecosystems. Yet when we look at the Zone 1 Salish DCA, it doesn’t appear that it actually reaches all the way from the NCDE to the Cabinet-Yaak Ecosystem (CYE), but rather maintains a gap of 5-30 miles - much of it with compromised habitat.

And while the Ninemile DCA connects to the Selway-Bitterroot Ecosystem (SBE), it does so only from Missoula west to St. Regis, despite excellent opportunities and known grizzly movements in the Ovando, Helmville, and Avon areas. This potentially critical Linkage is instead relegated to Zone 2, where it will get lesser protection and population and mortality won’t even be counted. FWS must move quickly and forcefully to address this shortcoming.

3. A second critical element of functional DCA’s is that they be based on known grizzly bear habitat requirements, not only in terms of habitat quality, but in relation to motorized access route density as well. However, the only science-based road density standards in the NCDE are in Amendment 19 to the Flathead Forest Plan, and the Conservation

Strategy does away with these ecosystem-wide by “grandfathering in” whatever road densities were in place in the 2011 Baseline Year – with no basis in science.

Unless FWS intends to ignore the “best available science”, as well as decades of its own Biological Opinions, to argue that Open Road Densities of 2, 3, and even 5+ mi./sq.mi. are acceptable for grizzlies, it must immediately rescind the unscientific 2011 Baseline and replace it with standards outlined in Amendment 19.

4. To be functional, DCA’s must include movement linkages and residential linkages. Movement linkages are required to allow grizzlies to move quickly and safely under/over barriers like I-90, or highways 83, 93, and 200, and the public land approaches to these linkages must be permeable to grizzlies as well. Residential linkages are connections on a broader, landscape scale that allow grizzlies – particularly females – to reside safely within them, and move successive generations of bears through them. Both are vital to grizzly recovery on a metapopulation scale and the Conservation Strategy must include a clear commitment to them.

In the case of Zone 2, which spans a great distance between the NCDE and GYE, movement linkages designed for short, quick movements are not sufficient, and residential linkages are required if they are to truly allow grizzlies to move between the ecosystems and break Yellowstone’s century-long isolation – demographically (females) as well as genetically. This will not be achieved, as the CS proposes on P: 4 if “...the objective is to maintain existing resource management and recreational opportunities and allow agencies to respond to demonstrated conflicts...” – This could easily pave the way for a greater number of management removals in the future.

The CS on P: 36 says that it has a “clear commitment” to the NCDE as a “source population” for the GYE, SBE, and CYE, but that will only be true if it provides the science-based DCA’s and habitat protection we outline above.

5. The Service’s claims of recovery based on population size, and +3% growth rate have both been called into question statistically.

On CS P: 13, the Service says:

“Small isolated populations are vulnerable to extinction through genetic drift, demographic processes (e.g., human-caused mortality, decreased birth rates, etc.) and environmental processes (e.g., poor food years, climate change, habitat loss, etc.).”

Having identified a wide range of factors that could result in a population downturn, FWS then focuses almost exclusively on genetic issues for the next two pages – perhaps because they present the least danger to the population, and this focus makes it easier for the Service to minimize the importance of significant threats to grizzly viability:

“Both male and female grizzlies moved freely across the US/Canadian border on the northern edge of the NCDE (Note: 1979-2007). Proctor et al. (2012) documented 11

movements (10 males and 1 female) between the NCDE and grizzly bear populations north of Hwy. 3 in Canada, indicating the NCDE appears to be well connected to Canadian populations and its population size means there is currently little risk of significant reduction in the present high levels of genetic diversity.”

While that may prove true for genetic exchange, it says nothing about the demographic and environmental issues mentioned above – both of which have the potential for being far more serious. It seems to us, that the movement of only 11 grizzlies across Hwy. 3 in 29 years – including only 1 a female – suggests the very real prospect that this highway and its heavy traffic is well on its way to creating an isolated habitat island of grizzlies to its south. And just one documented female movement in nearly three decades does not even approach adequate dispersal that could shore up the NCDE population if demographic factors and habitat begin to decline.

In addition, it’s important to remember that the entire province of Alberta has already reduced its grizzly population to the size of Greater Yellowstone’s, and a recent report found that British Columbia has frequently overharvested its southeastern grizzly bear management areas – the ones closest to the NCDE (Gailus 2010, 2010a).

6. P: 13-14 of the Strategy notes the concerns of Kate Kendall that a fracture zone may be developing on the western end of the U.S. Hwy. 2 corridor, between Glacier National Park and the Bob Marshall Wilderness Complex to the south. In this Middle Fork of the Flathead River corridor, where human-caused mortality is already high, traffic volumes and human densities are three times those of the eastern end and genetic differentiation indicates reduced gene flow.

With substantial visitation increases in GNP since 2010, continued high use by the Burlington Northern & Santa Fe (BNSF), and a Flathead County Commission that has a history of promoting development and resisting regulation, all of these situations are likely to deteriorate further. Should this result in the same minimal movement of females currently seen across Hwy. 3, the potential exists in future decades for the NCDE to be cut in half.

All of this makes it absolutely vital that FWS designate and protect real, functional DCA’s to other ecosystems and Canada, and based upon the best science – not agency or political preferences, or unsubstantiated “Baseline Years.”

7. On P: 33 the CS notes, “...the DCA’s will support lower densities of grizzly bears, and many reproductive females have already been documented in these areas (emphasis added). Because both DCA’s contain human population centers and rural private lands, it is not expected, nor is it necessary, for grizzly bears to occupy these areas in high densities. As such, less rigorous habitat protections are appropriate.”

First, as we did earlier, we ask the Service to provide specifics on the “Many” females, and what it means by “Documented.” How many females; in what areas; documented

how many times; with how many cubs; at what adult and cub survival rate; at what average length of occupancy; and with how many surviving today.

Second, we agree with FWS that due to human population centers in the DCA's, grizzly density will be less. However, precisely because of this higher human presence, more rigorous habitat protections will be needed, not less, on associated federal lands, as grizzlies (and humans) will be at greater risk due to their proximity.

GLOBAL WARMING IMPACTS

In discussing the potential impacts of Climate Change on grizzlies, the Conservation Strategy cites a workshop report by Servheen and Cross (2010). Since this appears to underpin the Strategy's unfortunate decision to downplay the role of climate change on grizzlies, it's important to address some shortcomings of this report, and the conclusions drawn by FWS.

1. Page 4 of the report says, "The general feeling of the group was that grizzly bears are opportunistic omnivores, and highly adaptable, and that climate change will not threaten their populations due to ecological threats or constraints, however climate change may play a significant role in driving grizzly bear/human interactions and conflicts."

First, the above represents an exact statement of "talking points" used repeatedly by the Fish and Wildlife Service and the Interagency Grizzly Bear Study Committee (IGBST) to downplay documented threats to key grizzly food sources in the GYE, and it's troubling to see them now repeated in the NCDE.

Second, an assertion that the significant warming already well underway in the NCDE won't have dramatic influences on the full range of vegetation and landscapes used by NCDE grizzlies seems out of touch with biological reality.

Although the Service claimed that the status of WBP was not serious, we now know from reports to the IGBC that the fires of 1988 (warming driven) killed 20% of the ecosystem's WBP; that warming climate has allowed an explosion of the Mountain Pine Beetle population; and that these beetles are making serious inroads into high elevation WBP stands – all with disastrous impacts to grizzlies.

Third, the fact that climate may have significant impacts on bear/human conflicts is serious, since these conflicts, and the management removals they trigger, are already the leading cause of grizzly deaths in the NCDE, where humans are responsible for more than 85% of all grizzly deaths.

2. Dr. Dan Fagre of Glacier National Parks USGS office is widely regarded as one of the world's foremost experts on global warming impacts in mountain ecosystems generally, and the NCDE specifically. Yet he was not on the workshop panel, apparently wasn't one of those invited, and is seldom quoted in the report. We'd strongly recommend that FWS

correct this oversight and include the extensive computer modeling of Dr. Fagre in the final CS.

3. We are particularly concerned that workshop participants only considered one “plausible” climate scenario presented by Pederson, which then shaped all of their conclusions. That scenario for 2040-2050 was:

- * +3 degrees C (+4 degrees F).
- * No change in annual precipitation
- * -10% to -15% summer precipitation
- * +10% spring precipitation
- * An increase in the Rain:Snow ratio.

Nowhere are we told how Pederson arrived at this as the only plausible future scenario or why participants didn’t consider other likely outcomes. However, we are told that, “Using graphical conceptual models depicting the physical, ecological, human activity, and climate drivers that influence grizzly bears and wolverines in the Greater Yellowstone region as a template, workshop participants modified and vetted these models to more accurately reflect the conservation challenges in the northern U.S. and Transboundary Rockies. These models ...illustrate participant’s expert opinion as to how the climate scenario being considered may effect key drivers for each species.”(emphasis added).

To us, this sounds like an entirely subjective process, focusing on one alternative, and then modifying that model based on opinion rather than science. The ESA requires the use of “Objective, Measureable Criteria”, not best professional guess. Furthermore, Greater Yellowstone, from an ecological standpoint, is significantly different than the NCDE and cannot be used as an accurate predictor of processes there.

4. In March of 2010, Dr. Fagre gave a talk in the Flathead Valley regarding predicted changes in the Crown of the Continent Ecosystem due to global warming. Findings were based both on direct measurements, research, and his climate model, which had been tested for accuracy by seeing how well it would have predicted past impacts. Some of his results/conclusions:

- * By August, 60% of the water in Flathead River tributaries comes from glacial melt.
- * Temperature increase in mountain ecosystems are 2-3 times higher than the global average.
- * Actual melting rate of GNP glaciers is running 10 years ahead of earlier predictions, and all are expected to be gone by 2020-2022.
- * Since the 1900’s, GNP has already seen a 10-14% increase in precipitation, mostly as rain, mostly in spring, but the increase has been swamped by the rise in temperatures.
- * One of the “most likely” climate scenarios includes a 30% increase in annual precipitation (mostly as rain) and a further 0.5C annual temperature increase by 2050 (Prato and Fagre 2007).
- * The western fire season is now 78 days longer than a century ago, with a six-fold increase in acres burned. Under all future climate scenarios, the FIREBGC model

indicates that more productive forest landscapes will generate more frequent and severe fires.

* As winter snowpack decreases, avalanches will travel shorter and shorter distances down mountainsides; meadows and shrubfields created by avalanches will decrease; forests will encroach upward with significant impacts to many species. (Note: Mace and Waller 1997 reported that avalanche chutes and shrubfields were some of the most important habitat types for grizzlies, and were used year-round).

* Fagre's team was conducting an Avalanche Path Analysis along Going to the Sun Road, but results are neither mentioned, nor reported in the Conservation Strategy.

Given the above research - and combined with a complete lack of ecosystem-wide habitat mapping, research, food habitat monitoring, and research on large fire impacts since 2000 – one would expect to see the Precautionary Principle invoked. Given the absolutely pivotal role of climate in determining the plants, animals, and landscapes available to grizzlies in the NCDE, the Service must revisit this issue in the Final CS.

5. On P: 4, the report wisely recommends that, “ Understanding how and where food sources will change (and how quickly declines could occur) was identified as important to knowing where and how to focus bear-human conflict management efforts and reduce human-related mortality. It will also inform whether bears will need additional or different secure habitat areas to acquire sufficient resources in the future.”

Unfortunately, the Conservation Strategy doesn't require, suggest, or fund any of the above, and by establishing 2011 as its Baseline Year for all habitat conditions, effectively – and arbitrarily – says none of these studies is needed anymore.

CONCLUSIONS AND RECOMMENDATIONS

From our analysis, it's clear that the Conservation Strategy requires major revisions to the plan in its current form based on what is biologically and legally necessary for grizzlies. Fortunately, solutions are readily at hand if the Service will take the leadership role and grasp the opportunity to secure long-term viability for grizzly bears in the lower 48. Promising and necessary solutions include, but are not limited to, the following:

* The 1993 Grizzly Bear Recovery Plan is now 20 years old, and large portions are out of date scientifically. It's imperative that FWS update this document to form the overarching, science-based blueprint for recovery of the lower 48 grizzly population.

* Fundamental to that lower 48 recovery is a clear, binding commitment by FWS to a linked metapopulation of all Recovery Areas, and including a viable population of 2500-3000 bears. This commitment must be in a revised Recovery Plan, and all Conservation Strategies.

* The Recovery Plan and all Conservation Strategies must include the designation and protection of functional, landscape linkages within and between all Recovery Areas.

Habitat protection within these linkages must be based upon the scientifically determined requirements of grizzlies.

* The Habitat Based Recovery Criteria required by the courts are so essential to achieving, documenting, and maintaining recovery, that they must precede the approval of a final Conservation Strategy; include a meeting to hear the input of independent scientists; as well as a process to gather full public input.

* The Conservation Strategy must ensure that there are ecosystem-wide motorized access standards based upon the best available science and research relating to grizzly bear usage of roaded habitats. Until such time as Federal and State agencies fund and complete new, peer-reviewed and published research in this area, that Standard must be Amendment 19 to the Flathead Forest Plan. In addition, these standards should apply to both the PCA and Zone I if these areas are to provide functional DCA's to other ecosystems.

* Building on Judge Friedman's admonition that recovery was not a numbers game, but one of habitat quantity and quality, the Conservation Strategy, as well as Federal and State agencies, must begin the program of comprehensive, long-term habitat and key foods research that has not occurred to date in the NCDE.

Phase I should be ecosystem-wide habitat mapping to match that done by Glacier National Park. If the agencies don't know actual habitat extent and condition now, there will be no way to measure changes in the future.

* Given the warnings of Doak (1995) that habitat decline can occur for 8-13 years before it shows up as population decline, the Conservation Strategy must develop a system of early warning, and early Management Review, to quickly respond. Female mortalities breaching allowable levels for 2 consecutive years, or males for 3 consecutive years should trigger such a review.

In addition, there must be a Rapid Relisting Process that really is actually rapid. That means criteria cannot include a 50% drop in population or a 7-8 year delay before serious declines are acknowledged. If the Service is correct, and Independent Female survival of 90% equals population "stability", then a drop below that level for 2 consecutive years should trigger a Review, 3 consecutive years should be sending up red flags, and any additional breaches should result in immediate relisting.

* We look forward to working with the Service to craft a Conservation Strategy that truly advances recovery.

Sincerely,

Brian Peck and Christine Wilcox
Natural Resources Defense Council

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