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Superintendent, North Cascade National Park Service Complex
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and submitted at:

<https://parkplanning.nps.gov/document.cfm?parkID=327&projectID=44144&documentID=77025>

RE: IBA comment on Draft Grizzly Bear Restoration Plan/EIS Impact Statement, dated January 2017

Dear Superintendent:

The International Association for Bear Research and Management (<https://www.bearbiology.org>) is the professional organization of bear researchers and managers involved with the world's 8 bear species. We have more than 500 members from all continents with bears, publish the peer-reviewed journal "*Ursus*" and the newsletter "International Bear News", fund research and conservation projects, and hold scientific conferences worldwide. Two components of our mission statement are to "Support sound stewardship of the world's bears through scientifically-based population and habitat management" and "Provide professional counsel and advice on issues of natural resource policy related to bear management and conservation." We appreciate the opportunity to comment on the draft plan to restore grizzly bears to the North Cascades Ecosystem (NCE) in Washington State.

The grizzly bear existed as the apex predator in NCE until recent times, but the population was decimated by over-killing during the last century. Similarly, the North Cascades National Park, within the NCE, lacks grizzlies and it is consistent with the mission of the National Park Service to correct the imbalance that exists without the presence of this apex predator. The ecological importance of apex predators has been demonstrated in many studies including Jacoby et al. 1999; Terborgh and Estes 2010; Estes et al. 2011; Ripple et al. 2013, 2014. Grizzly bears south of Canada are currently listed as "threatened" under the US Endangered Species Act (ESA). The NCE has been identified as one of 6 areas south of Canada that retain all the elements necessary to support recovery of a healthy grizzly bear population in North America, including bear foods, remoteness, large landscape extent, and large areas of public land ownership, including National Parks.

The ESA requires that plans be developed for recovering grizzly bear populations in all six of these areas. In the NCE, grizzly bears are classified as "warranted but precluded" for uplisting from "threatened" to "endangered" status. There is no evidence that a permanent population of grizzly bears has existed in the NCE since the species was listed in 1975, although, as noted in the draft EIS, individuals have been sighted there on rare occasions. In Canada, immediately north of the US-Canadian border and adjacent to the NCE,

there is also no confirmed grizzly bear population; Apps et al. (2014) suggest the population is extinct there as well and is highly threatened in disjunct areas a bit further north.

There is no evidence that any natural recovery of a grizzly bear population has occurred in the NCE on either side of the US/Canada border since grizzly bears were listed in the US. Based on this experience and the NCE's isolation from other grizzly bear populations, there is no reason to believe that restoration of bears to the NCE can be accomplished with the "no action" alternative "A" proposed in this EIS. Intentional specific actions, as proposed in alternatives B – D, are essential for restoring a viable grizzly bear population to the NCE. In the portion of Canada adjacent to the NCE, road densities may be high enough north of Highway 3 to hinder restoration of grizzlies there, but south of Highway 3, environmental conditions remain good for sustaining a population (T. Hamilton, BC Government [ret.] personal communication).

We commend the US National Park Service and the US Fish and Wildlife Service for the draft EIS which is comprehensive in scope and presents 3 reasonable action alternatives. We recommend adoption of action Alternative "C" (incremental restoration) as being the most likely to result in acquisition of the information on limiting factors that is required to ultimately restore a successful population with the minimal number of bears lost to avoidable mortalities. Additionally, we believe it is possible that a successful breeding population likely can be established with the translocation of 25 bears using the protocols described in the EIS for Alternative "C". If experience indicates that problems are arising, such as low encounter frequency between males and females, this can be addressed by introducing more males or by switching to Alternative "D" as outlined as a fallback in the draft EIS.

It is our opinion that Alternative "B" (Ecosystem Evaluation Restoration) would involve translocating too few bears initially (10) to permit adequate evaluation of factors limiting success. Alternative "B" therefore would likely result, in time, in the decision to subsequently implement Alternative "C" or to repeat "B" with an additional small sample of 10 bears. Experience with black bear restorations as well as brown bear restorations in Europe indicate that the 4-year evaluation period proposed for Alternative "B" is too short to meaningfully assess population recovery, particularly with such a small number of bears. Alternative "C", because of the larger number of translocated bears, would better enable identification of key problems and allow more accurate inferences about limiting factors and how best to overcome them during further translocations. Further, some costs, such as capture, reintroduction, monitoring, and information-education could be reduced on a "per bear" basis by amortizing these costs over more bears.

Alternative "D" (Expedited Restoration) would also be acceptable. However, this alternative would reduce the ability to adequately, expeditiously, and economically adjust to mortalities that occur and to prevent unnecessary avoidable losses of bears (responsive management). Avoidable mortalities could reduce popular support for population restoration, including among people generally supportive of restoration efforts, and we suggest that the more gradual approach of Alternative "C" would prove more effective at avoiding unnecessary mortalities. Moreover, we believe that a more gradual approach, as long as some reproduction is documented within 5 years after initiation of translocations, is also likely to reduce public concerns and opposition to restoration efforts.

It is our opinion that all the alternatives, especially "C" and "D", would benefit from the management flexibility provided by designating the population as a 10(j) (experimental) population. It is probably inevitable that some "take" will be necessary under a 4(d) exemption. The rule for section 4(d) take should make it clear that killing of bears involved in repeated instances of livestock depredation **will be** allowed. This is the case in other recovery areas, even without 10(j) designation, and procedures have been developed in these areas to address the concerns of and the consequences to livestock owners. The same stipulations in the 10(j) rule should be clear, including the allowable take of individual bears deemed to be threatening to human safety. These assurances must be made clear from the start in the 10(j) ruling, despite the possibility that it could prompt opposition to grizzly restoration among some people who are opposed to allowing any lethal control of bears.

Though we support a 10(j) ruling, we are concerned that implementing 10(j) and the associated rule-making process will delay the beginning of the restoration, which has already experienced delays since the current EIS was published in January 2017. For this reason, we recommend proceeding with the 10(j) rule-making on an expedited timetable to assure that the current momentum is not lost.

We have several comments and suggestions on the draft EIS that we believe would be useful for you to consider in the process of preparing the final EIS. These are:

1. Be more explicit in the introductory materials (Purpose and Needs statement) for the final EIS that the North Cascades Ecosystem is one of 6 official recovery zones identified in the recovery plan for grizzlies under the U.S. Endangered Species Act (ESA). In these designated recovery areas, the U.S. Fish and Wildlife Service is required by the ESA to develop a recovery plan like the current (draft) EIS. The NCE, therefore, is not an optional area for recovery under the ESA.
2. Give additional emphasis to the importance and need of close cooperation with the government of British Columbia and First Nations peoples and tribal entities on both sides of the border. Cooperative efforts should include comprehensive, long-term, post-reintroduction transborder studies focused initially on movements and habitat use, recruitment, mortality, and human/bear conflicts and cooperatively conducted and funded between US and Canadian scientists. On the Canadian side these studies should focus on the area south of Highway 3 where habitat conditions and road densities are most conducive to reestablishment of a viable population connected to a restored NCE population on the US side. Discussions on restoration strategies should include Canadian representative(s) from the *Ad Hoc* group of BC government officials, First Nations representatives, and environmental NGOs, currently chaired by Dr. Garth Mowat (Provincial Large Carnivore Specialist, Wildlife & Habitat Branch, Ministry of Forests, Lands, Natural Resource Operations & Rural Development [garth.mowat@gov.bc.ca]). We suggest that you consider giving this representative(s) a voting seat on the NCE subcommittee of the Interagency Grizzly Bears Committee (IGBC).
3. Consider translocating female bears from a more diverse age class than is currently identified in Alternatives “B” and “C” and more like that in “D”. Information from augmentation efforts in the Cabinet-Yaak recovery effort in northwestern Montana suggests that subadult females may be the least likely to exhibit homing movements. The practical logistics of capturing bears, however, include the fact that a bear’s age cannot be estimated until it is in hand in most cases. This means that some young adult females without offspring will be captured and rather than releasing them we suggest that such bears might be reasonable candidates to translocate to the NCE. Females without cubs in the fall might be pregnant, based on experiences with black bear (Joseph Clark, personal communication) and European brown bear (Andreas Zedrosser, personal communication) restorations; translocating females immediately prior to the denning period increases chances that they will den in the release area. If they emerge in the spring with newborn cubs and consequently low mobility, it could contribute to the likelihood they will remain in the NCE. In any case, information gained from the movements and behavior of young adult females released in the NCE site will inform future captures and releases. Similarly, age of males targeted for translocation need not be limited to males of 2-4 years of age as indicated for Alternatives “B” and “C”. Young males are less likely to exhibit homing behavior than older males (Miller and Ballard 1982) and might be more likely to remain where released. However, for the same practical and logistic reasons as mentioned above, some males up to 10 years, as indicated for Alternative “D”, could also be considered for fall translocation.
4. Emphasize translocating bears in the fall to encourage denning in the recovery area. This recommendation is based on the assumption that bears denning in the area will be less likely to attempt to “home” following translocation. Restorations of black bears into the southeastern states were most successful during winter when bears were removed from dens to be translocated to new

habitats (Eastridge and Clark 2001; Murphy et al. 2015, 2018, 2019). Although this winter-release technique is not feasible or advisable for grizzly bears, it is likely that much the same effect can be obtained with captures and releases timed for the immediate pre-denning period. Numerous studies have shown that pregnant females are the first to enter dens in the fall (e.g. Servheen and Klaver 1983, Miller 1990, Van Daele et al. 1990, Clark et al. 2002, Haroldson et al. 2002, Schwartz et al. 2003, Pigeon et al. 2016). For males, fall release is also most recommended. However, once there are estrous females established in an area, male bears that have reached breeding age may be more likely to stay near their release site if translocated during the breeding season. In all cases, we strongly recommend taking a scientific approach to designing and documenting the results of translocation protocols. This will allow those implementing the restoration to compare methods and then adapt. Little will be learned if the protocols are done haphazardly.

5. The information gained from the reestablishment of black bear populations cited above should be better exploited to inform the final EIS. Similarly, experiences gained from restoration of brown bear populations in Europe, such as in northern Italy, may be informative. There, 7 females and 3 males, taken from a source population in Slovenia, were released during 1999 – 2001 to augment a critically low population, and the lower threshold of a minimum viable population (goal of 40 – 60 individuals) was reached in 2012 (Mustoni et al. 2003, Tosi et al. 2015).
6. The draft EIS is perhaps too specific and limited with regards to source populations. Now that trophy hunting is no longer allowed in British Columbia (since 2017), there will likely be less competition for bears to translocate from hunters and guide outfitters. Regardless, it seems sensible to not limit potential source stocks in the final EIS by specifically identifying them. Obviously, it would be less expensive to get bears from areas closer to the release site and such nearby bears may be preferable from some standpoints (such as possible genetic adaptations to local conditions). On the other hand, bears from more distant areas may provide additional genetic diversity and corresponding resilience. Brown bears were restored successfully to southern France (Quenette et al. 2001) and northern Italy (Tosi et al. 2015) from Slovenia—distances of >1600 and >400 km, respectively. It is necessary, of course, to translocate bears from source populations that have similar food economies to what they will experience in the NCE (plants, berries, ungulate neonates).
7. The above comments on sources notwithstanding, new evidence of potential problems to the health of bears translocated to the area has come to light since the draft EIS was written. This concern needs to be taken into consideration in the final EIS. Robbins et al. (2018) identified an encysted fluke (*Nanophyetus salmincola*) containing an endosymbiont in Chinook salmon (*Oncorhynchus tshawytscha* and possibly other species of Pacific salmon) from US Pacific Northwest states that may cause salmon poisoning disease (SPD) in bears exposed by eating infected salmon. This means that the potential for grizzlies introduced into the NCE to feed on infected salmon must be analyzed in the Final EIS. As suggested by Robbins et al. (2018), this new complication might also mandate studies to see if black bears endemic to the NCE have been exposed to this pathogen. Further studies on the development of resistance to SPD may also be warranted as suggested by Robbins et al. (2018).
8. Translocations of large numbers of grizzly bears are rare. The draft EIS considers the personal safety of biologists involved and mortality risks to bears. The final EIS would benefit from mention of the 1979 experience in Alaska, when 49 grizzly bears were translocated from a study area during spring, by helicopter, fixed wing aircraft, and truck, as part of a moose calf survivorship experiment (Miller and Ballard 1982). During this effort, one bear died during capture and no biologists were injured (S. Miller, Alaska Department of Fish and Game [retired] personal communication). In 1979, immobilization drugs available were less safe for bears than those currently available that are used widely on all bear species (Cattet et al. 1997, 2003).

9. When translocations occur, it may be helpful to encourage bears to remain in the immediate release area by perhaps pre-positioning road kill ungulate carcasses at release sites especially in remote high elevation sites unlikely to be inhabited by black bears. Such efforts have yielded mixed results (Gordon Stenhouse, personal communication), however, they might help to keep newly translocated bears close their release sites.
10. We believe the cost estimates for action alternatives listed in Appendix Table D-3 are reasonable. We note, however, the absence of estimates for documenting changes in population abundance. Assuming bears successfully reproduce following translocation, we suggest this type of monitoring needs a well thought out design, and would be based on creating a genetic database, initially from biological samples taken from every individual translocated to the NCE or handled thereafter; the database would be updated with opportunistic collection of hair and scat samples (DeBarba et al. 2010). In time, this could form the basis for periodic and systematic sampling for population monitoring (Bellemain et al. 2005, McLellan et al. 2019). The EIS should also indicate if and how radio-collars will be used to monitor bears translocated into the NCE (Preatoni et al. 2005).
11. If translocation of bears to the NCE is successful, the hope is that the population will grow. It will be necessary to monitor population growth and, in the long term, achievement of the desired target of 200 individuals; this will require considerable long-term funds in addition to the estimated costs itemized in Table D-3. We suspect that the most cost-effective means of monitoring population growth with minimal disturbance will be based on DNA hair-snaring and rub tree studies (e.g. Kendall et al. 2009, 2016, McLellan et al. 2019). Additionally, we recommend that the final EIS be specific about what age cohorts will be included in the targeted population of 200 bears (i.e. with cubs and yearlings be included or just independent bears?). We suggest that the target be 200 “independent” bears (bears \geq 2.0 years old).

Thank you for your consideration of these comments.



Andreas Zedrosser
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