# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region

IN REPLY REFER TO:
FWS/R6
ES

MAILING ADDRESS:
P.O. Box 25486, DFC
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228-1807

March 11, 2005

Memorandum

To: Regional Director, Region 2

From: Regional Director, Region 6

Subject: Policy on Genetics in Endangered Species Activities

Thank you for the opportunity to provide comments on your recently distributed Policy on Genetics in Endangered Species. I applaud your efforts to provide guidance on the use of genetics in endangered species decisions, but I have concerns that the policy could run counter to the purpose of the Endangered Species Act to recover the ecosystems upon which endangered and threatened species depend. It also may contradict our direction to use the best available science in endangered species decisions in some cases.

Your memorandum states genetic discussions during recovery planning "should be limited to reducing or minimizing threats to the species so that the protection of the Act is no longer needed." It also suggests that recognizing genetic divergence in a recovery plan is only appropriate if that divergence was identified at the time of listing. Finally, you provide direction that preserving unique genetic lineages is inappropriate to require for delisting or downlisting. I can think of several situations where it may be necessary to preserve unique genetic combinations throughout the range of a listed entity in order to reduce risk of extinction and ensure that the species continues to exist in the wild. For this reason, I conclude that a broad application of your policy would conflict with the purposes of the ESA. Here are my general observations:

1. The policy discounts the value of preserving different genetic lineages that fall within a listed entity. The published conservation biology literature makes a strong case that ensuring the survival and recovery of a species may require the preservation of a variety of local adaptations throughout the range in order to ensure the continued existence of that species in the future. To this end, information on genetic variation throughout the range can be crucial in designing recovery units and criteria that maximize the ability of the species to survive future changes in the environment or habitat.

As stated in your memorandum, a primary purpose of the ESA is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." I am concerned that the direction in your memorandum would actually contradict this stated purpose by minimizing the importance of local adaptations to different ecosystems throughout the range of a listed entity.

2. Limiting the Fish and Wildlife Service's ability to base recovery criteria on the protection of genetic variation contradicts requirements for the Service to use the best available science in decision-making. We often discover new information about the biology of a species after its listing, as listed species often become higher priorities for research funding, and project proponents conduct studies to assist in understanding the impacts of their activities on the species. Restricting the use of genetic information discovered after the final listing unnecessarily restricts the Service's ability to design a recovery plan that would best conserve the species. In addition, this direction treats genetic information differently than other biological information that the Service may discover after listing. For example, if an additional threat unknown at time of listing is discovered, we should provide information during recovery planning on how to reduce the threat, and develop criteria that would allow us to ensure that the threat was ameliorated before delisting. Genetic information should not be treated differently than other types of biological information.

3. Your memorandum states your opinion that recovery plans cannot require special consideration of previously unidentified genetic diversity in recovery criteria. However, the extensive literature on conservation biology stresses the importance of the conservation of populations throughout the range of the species to ensuring the long-term persistence of that species. For this reason, our recovery plans often require recovery criteria to be met in several different locations (often referred to as recovery or management units) throughout the range. Where genetic information is known, it can be invaluable in informing us of what populations are connected and interbreeding and to what degree exchange is occurring. Knowing if populations are genetically isolated or where gene flow is restricted can assist us in identifying recovery units that will ensure that a species will persist over time. It also can ensure that unique adaptations that may be essential for future survival continue to be maintained in the species. Protecting these unique adaptations can have very real consequences for the survival of a species into the future. By creating a policy that disallows the use of this knowledge in developing recovery criteria, you may be compromising the Service's ability to prevent the extinction of listed species. This outcome runs counter to the purposes of the ESA.

   Often, isolated populations are essential in preventing extinction in cases of disease, wildfire, or other reasonably foreseeable environmental perturbations. For example, the endangered Santa Catalina Island fox was saved from extinction because a narrow isthmus prevented the spread of canine distemper to a small population on the west side of the island. A reasonable approach in a recovery plan would be to ensure that island fox populations exist on both sides of the island, and develop recovery criteria for both populations that would need to be met before delisting. In the case of the fox, we can see the isthmus creates a bottleneck to gene

flow. However, for other species, barriers or bottlenecks to gene flow may not be visible to our human eye. Genetic information can be invaluable in alerting us to the existence of isolated populations that can act as refugia, and if protected, can prevent extinction.

4. Endangered species may face serious threats from loss of genetic diversity by suggesting that it would "be inappropriate to require genetic standards for delisting when so little remains in the gene pool." The genetic effects of small population sizes are of major concern for endangered and threatened species, which by definition have small or declining populations. Small populations suffer from inbreeding and loss of genetic diversity, which has been slow to increase extinction risk. Consequently, a major objective of listed species recovery should be to minimize inbreeding and loss of genetic diversity. Thus, I believe that in some instances it is appropriate to include standards concerning genetic diversity within recovery criteria in order to ensure that the threat of extinction is ameliorated.

If you have any questions about these comments, please contact me.

/s/ Ralph O. Morgenweck