June 20, 2005

TO: Mr. Dale Hall
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RE: Policy on genetics in endangered species activities

As scientists with expertise in genetics, conservation biology and endangered species, we are deeply concerned about the U.S. Fish and Wildlife Service Southwest Region's January 27, 2005 policy preventing federal recovery teams from establishing recovery goals based on the preservation of genetic lineages and populations. The policy directs that recovery efforts cannot include "special consideration of previously unidentified genetic diversity before a species can be removed from the list…" or the preservation of "genetic differences that were not addressed in the rulemaking [i.e. listing] process." The policy also prohibits U.S. Fish and Wildlife biologists from making jeopardy determinations in biological opinions based on impacts to individual populations or genetic diversity concerns.

It is indisputable that recovery of endangered species will often require the protection and enhancement of multiple genetic lineages or populations. Most recovery plans incorporate such conservation strategies, including such recent ones as the Apache trout, Gila trout, Mexican spotted owl, and Southwestern willow flycatcher. The January policy would render these plans and approaches invalid.

As time passes scientists typically obtain better knowledge of the threats facing endangered species and the conservation actions needed to recover them. Due to technological advances, scientific understanding of genetic makeup and population structure has proceeded rapidly in recent years. Much more is currently known about the genetic makeup of the Gila trout and Apache trout than was known when the species were first listed as endangered in 1967. Some entities currently listed as one species, have after listing been formally recognized by the scientific community as constituting several species. For example, the desert pupfish, which is listed as one species, has now been formally described as three distinct species, although one is extinct. Under the new policy, recovery criteria for desert pupfish can require conservation of only one of the two species within that listed entity. This is certainly not in keeping with the intent of the Endangered Species Act, and a recovery team, and the Service, would be remiss in its scientific duty if it ignored this scientific knowledge simply because it was not known at the time of or discussed in the listing rule.

At a more general level, the preclusion by policy fiat of the large body of scientific information, in genetic or population-based conservation strategies will often prevent recovery teams and the Service from using the best available scientific information. Recovery criteria for any particular species may or may not require the preservation and

enhancement of multiple species subunits. It may or may not require the preservation of all species subunits . These are scientific questions which must be considered by each recovery team based on the particular factual circumstances of each particular species. Predetermination of the answer to these questions via a generic policy statement usurps the legal role of science in Endangered Species Act implementation.

Decades of research demonstrate that loss of genetic variability results in reduced fitness and ability to adapt to a changing environment (e.g. O'Brien et al. 1985, Allendorf and Leary 1986). Genetic variation can be attributed to differences among regional populations, among populations within a region, or within local populations with the distribution of such variation differing by species (Allendorf and Leary 1988). Allendorf and Leary concluded that "when substantial divergence exists among geographic groups of populations, maintaining genetic diversity requires continued existence of populations in each region." In short, maintaining individual populations and thereby genetic diversity is essential to maintaining the viability and survival of threatened and endangered species. This point is underscored by the fact that many, perhaps most, species listed under the Endangered Species Act have experienced substantial population bottlenecks and likely already have reduced genetic variability. In the face of unrecoverable loss of genetic diversity, existing scientific knowledge leads to a conclusion that preservation of the remaining diversity is vital to the species long-term survival. In contrast, the new Service policy concludes that previous genetic diversity losses eliminate the need for preserving remaining diversity because genetics is not "a luxury at our disposal."

The January policy purports to implement a legal decision holding that the National Marine Fisheries Service violated the Endangered Species Act by defining a "distinct population segment" of coastal coho salmon to include both wild and hatchery fish, yet only placing the wild fish on the endangered list (Alsea Valley Alliance v. Evans, U.S. District Court, District of Oregon, Case No. 99-6265-HO). Since a distinct population segment is the smallest, legally listable unit, the Fisheries Service was found to have violated the Endangered Species Act by listing a subset of it. The ruling dealt exclusively with the question of what constitutes a legally listable entity. It did not address or establish any limits on the types of recovery strategies that may be employed for listed species.

The consideration of individual populations and genetic variation by recovery teams and U.S. Fish and Wildlife Service biologists does not require or imply that these populations are or should be individually listed or delisted. Thus we see nothing in the Alsea decision which constrains recovery plans from including concrete benchmarks for some or all of a species's populations as long the plan does not also require that these populations be individually reclassified or delisted. The listing decision must always occur at whatever level the taxon was listed at; setting subgoals does not change that.

Nor do we see anything in Alsea which constrains U.S. Fish and Wildlife Service biologists from finding that the reduction or elimination of a single population or genetic

strain would jeopardize the species as a whole. In fact, there is existing Service policy that provides for such considerations in jeopardy determinations.

The Endangered Species Act is broadly structured to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved," and "to provide a program for the conservation of such endangered species and threatened species." This broad purpose is furthered by focusing on populations in recovery plans and biological opinions. The Act defines conservation as "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." The Act defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range" and a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Loss of genetic variability is clearly one factor that results in species being threatened or endangered in all or significant portion of their range and thus conservation measures designed to reduce such losses may be necessary to meet the primary purpose of the Act—recovery of species so they no longer require protection.

In sum, the Southwest Region's new policy does not reflect the best available science, fails to meet the primary purpose of the Endangered Species Act, and goes against 30 years of Endangered Species Act implementation. We request that you rescind the policy and instead encourage recovery teams and agency biologists to make greater use of conservation genetics and meta-population analysis when analyzing potentially harmful projects and developing recovery plans.

Sincerely,

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