

Effects on Species' Conservation of Reinterpreting the Phrase "Significant Portion of its Range" in the U.S. Endangered Species Act

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Introduction

The U.S. Endangered Species Act (ESA) requires listing of a species as threatened or endangered not only when it is at risk of worldwide extinction, but also when it is at risk in any "significant portion of its range" (SPOIR) (16 U.S.C. Section 1532(6)). Many species have been listed as endangered under the ESA in part because they were threatened in a SPOIR (e.g., FWS 1990, 1995, 2000). On 16 March 2007, the solicitor of the U.S. Department of Interior issued a memorandum substantially redefining the agency's position on SPOIR (U.S. Department of the Interior 2007). The solicitor argued that only a species' *current* range is relevant to the analysis of endangerment, and that once a species is determined to be endangered in a SPOIR, it is entitled to be listed in only the portion identified as significant.

The solicitor does not completely preclude consideration of historic range. Rather, the solicitor acknowledges that "data about the historical range and how the species came to be extinct in that location may be relevant in understanding or predicting whether a species is 'in danger of extinction' in its current range," but adds that "the fact that it has ceased to exist in what may have been portions of its historical range does not necessarily mean that it is 'in danger of extinction' in a significant portion of the range where it currently exists" (U.S. Department of the Interior 2007).

These positions represent a substantial departure from past implementation of the ESA. Under the ESA, listing is limited to species, subspecies, and distinct population segments of vertebrate species (herein referred to as species) (16 U.S.C. § 1532[16]). Before the memorandum, species were listed throughout their historic and current ranges without exception. For example, the U.S.

Fish and Wildlife Service (FWS) listed the "contiguous U.S. population" of the Canada lynx (*Lynx canadensis*) as threatened, despite recognizing that substantial portions of its range, including "the Northeast, Great Lakes, and Southern Rockies," did not constitute a SPOIR and that the species no longer occurs in much of its historic range (FWS 2000). Likewise, FWS (1993) specified that it was listing the Coastal California Gnatcatcher (*Poliop-tila californica*) as "a threatened species throughout its historic range" even though it had been eliminated from large portions of this range.

The solicitor's memorandum did not discuss the conservation implications of this change in policy for endangered species. Two possible implications are that the policy will result in deserving species being denied listing and that it will limit the extent of protection for those species that are listed. By focusing analysis on a species' current range, the memorandum may allow FWS to deny a species protection by focusing on those portions of its range where it is secure, to the exclusion of those portions of its range where it has been lost or is threatened. For species that do gain protection under the ESA, the policy could allow the agency to draw lines around the portions of a species' range where it is most imperiled and only provide protection in these areas.

"Significant portion of its range" has received considerable attention in recent years, with discussion focused on whether identifying a species as endangered entails a "fundamentally normative dimension" (Vucetich et al. 2006), whether a test can be applied that "avoids difficulties inherent in subjective evaluations of importance to humans" (Waples et al. 2007a, 2007b), and finally whether this test comports with the law (D'Elia et al. 2008; Waples et al. 2008). These papers almost exclusively focused on how portions of range should be

determined to be significant. Waples et al. (2008) did discuss the solicitor's position that only current range is relevant to SPOIR considerations and used a hypothetical example to argue that the approach is "logically flawed" because it amounts to a "shifting baseline," whereby species that have lost substantial range are considered not at risk because they occupy "most or all of their current range."

I build on Waples et al. (2008) by providing a first look at how the solicitor's memorandum has been implemented through a review of actual listing decisions issued since the memorandum. This review suggests that the solicitor's interpretation will have important consequences for species conservation by limiting the application of one of the strongest biodiversity protection laws ever enacted.

Use of the Solicitor's Memorandum

In a review of all decisions of whether to list species under the ESA issued between publication of the solicitor's memorandum and 1 April 2009, I identified five findings that substantively relied on the policies in the memorandum, including decisions of whether to list the Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), Gunnison's prairie dog (*Cynomys gunnisoni*), New Zealand/Australia population of the Southern Rockhopper Penguin (*Eudyptes chrysocome*), Preble's meadow jumping mouse (*Zapus hudsonius preblei*), and the northern Rocky Mountain population of the gray wolf (*Canis lupus*) (FWS 2007, 2008a, 2008b, 2008c, 2009).

In accordance with the policies articulated in the solicitor's memorandum, FWS (2007) evaluated the Colorado River cutthroat trout "throughout its current range" to determine whether any portion was a SPOIR and endangered, and determined that the trout does not warrant listing as endangered solely on the basis of abundance and threats in its current range. In making this finding, FWS (2007) acknowledged that the "subspecies now occupies about 13 percent of historic habitat" and "existing populations continue to face adverse impacts in most of the historic range" (FWS 2007).

In a decision on whether to list the Gunnison's prairie dog, FWS (2008a) determined that the species is "not threatened or endangered throughout all of its range," but "the portion of the current range of the species located in central and south-central Colorado and north-central New Mexico represents a significant portion of the range where the Gunnison's prairie dog is warranted for listing under the Act" (FWS 2008a).

Rather than being secure in the remainder of its range, where it was denied protection, the prairie dog has been lost from a majority of historic habitat and faces multiple threats (FWS 2008a). The FWS (2008a) acknowledged that the prairie dog has experienced a "rangewide decline

of greater than 95 percent" and stated that colonies in the portion of its range where protection was denied "are subject to the same threats," including sylvatic plague, habitat destruction, and shooting. Protection will apply to roughly 40% of this much-reduced range (FWS 2008a).

The FWS (2008b) took a similar approach in denying listing of the New Zealand-Australia population of the Southern Rockhopper Penguin throughout its range. Instead, they listed the penguin on the Campbell Plateau, which they considered a significant portion of range. The Campbell Plateau harbors three of four small island groups in the population and roughly 60% of the population, including the Campbell, Auckland, and Antipodes islands. The only clear difference in the status of penguins on these islands compared with penguins on the Macquarie Islands, which were not extended protection, is that they are better studied and declines are well documented. The FWS (2008b) identified severe declines on both Campbell and Antipodes islands, but noted that "[a]t Macquarie Island, which represents 32 to 48 percent of this DPS, southern rockhopper penguin numbers were recently estimated to be lower than previous categorical estimates, but it is not clear whether this reflects a decline versus more precise surveys." Overall numbers of penguins in the population have declined by roughly 90% in this century, and the decline is believed to have been caused by changes in ocean conditions related to increased sea-surface temperatures (FWS 2008b). The FWS (2008b) did not present any information to suggest that changes in ocean conditions are not affecting Macquarie Island to the same degree as the other islands in the population.

In decisions for the Preble's meadow jumping mouse and the northern Rocky Mountain population of the gray wolf, FWS (2008c, 2009) used the solicitor's memorandum to justify removing existing protections for the species in portions of their ranges. The mouse was originally listed in 1998, when FWS concluded that "riparian habitats required to support Preble's have been severely modified or destroyed by human activities in many areas" in the species' range in the U.S. states of Colorado and Wyoming (FWS 1998). In 2008 FWS retained protection in Colorado, arguing the state was a significant portion of the species' range and the mouse faced severe threats from urbanization, but they removed protection for the mouse in Wyoming (FWS 2008c).

The FWS (2008c) argued that additional populations were documented in Wyoming over the two that were known in 1998, that urban development posed a low risk in Wyoming, and that agriculture and livestock grazing posed a lower risk than previously believed. Although there is some merit to these claims, nowhere did FWS present data that populations in Wyoming were stable or widespread, and they acknowledged a number of other threats to the mouse in both Colorado and Wyoming (FWS 2008c).

In a third attempt to delist the gray wolf in the northern Rocky Mountains following previous attempts that were rebuffed by the courts, FWS (2009) relied on the solicitor's memorandum to retain protection for wolves in Wyoming, while removing protection in the remainder of the northern Rocky Mountains, including the states of Idaho, Montana, Oregon, Utah, and Washington.

Protection was retained in Wyoming because state law and a state management plan were found to be inadequate to protect the wolf from hunting, which is the primary threat to the species (FWS 2009). Specifically, Wyoming designated the wolf as a "predatory animal" in 88% of the state, where hunting was unregulated (FWS 2009). The inadequacy of Wyoming's regulations cannot be disputed, and wolves continue to need protection in the state. Although the states of Idaho and Montana do provide greater protections than Wyoming, their management plans, if implemented as predicted, will substantially reduce wolf numbers (FWS 2009). In the other three states, where protection was removed, fledgling wolf populations are only just beginning to form (FWS 2009).

Discussion

These examples clearly demonstrate that the policies proposed in the solicitor's memorandum have to date been used to deny listing of one species, the Colorado River cutthroat trout, and to sharply limit protection for four other species by limiting the extent of protection to the most endangered portions of their ranges despite the fact that they face threats and have declined throughout their ranges.

Shifting baselines in evaluating species' status have long been recognized as an obstacle to species conservation (Dayton et al. 1998; Waples et al. 2008). Although FWS did acknowledge the Colorado River cutthroat trout has been lost from a majority of its historic range, they very clearly state that in determining whether it was endangered in a significant portion of its range, they only considered current range. This is a clear example of a shifting baseline, where a species is considered secure because it "occupies most or all of the current range," even if it has been lost from most of its historic range (Waples et al. 2008). In the case of the Colorado River cutthroat trout, as well as likely other species, this is problematic not just because the species was wrongly denied protection, but also because loss of range itself threatens the survival of the species by disrupting genetic exchange between populations, which are primarily found in small, isolated headwater streams, and by decreasing the species' ability to survive environmental and demographic stochasticity (Pimm et al. 1988; FWS 2007; Young 2008).

Limiting protections to the most endangered portions of species' current ranges appears to limit conservation of both species and ecosystems contrary to the broad purposes of the ESA to provide both "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved," and "a program for the conservation of such endangered species and threatened species" (16 U.S.C. § 1532[b]). For the species included in this review where protection was limited to a SPOIR, protection was limited to fractions of their current and historic ranges. Such limitations on protection may limit species recovery to portions of range where there is little likelihood for survival or recovery and provide little incentive to recover species in additional areas for the benefit of species and ecosystems.

In the case of the gray wolf, for example, FWS removed protection for the species in most of its current range despite the fact that it is absent from large swaths of currently suitable historic habitat both within the bounds of the distinct population segment, which itself was designated to only include current range, and across large areas of the United States (Vucetich et al. 2006; FWS 2009). This is likely to severely limit further recovery of the wolf to additional portions of its range.

Vucetich et al. (2006) argue that "one-third is the largest portion that could, by any stretch of the imagination, be considered an insignificant portion of range." Such an approach appears in line with ESA mandates that species need not be threatened with worldwide extinction to be listed and to protect the ecosystems on which species depend. Accordingly, one court read the meaning of significance in the context of SPOIR to mean "a noticeably or measurably large amount" (*Defenders of Wildlife v. Norton* 2002).

In contrast, Waples et al. (2007a) argue that a portion of range should be considered significant on the basis of whether loss of the species from that area would result in "the entire species" being at risk. D'elia et al. (2008) question whether this approach comports with the law, and indeed the courts have repeatedly rejected a definition of SPOIR that equates significance with risk to the species as a whole (e.g., *Defenders of Wildlife v. Norton* 2001). Certainly, if loss of a species from a portion of range would result in risk to the species as a whole (e.g., loss of important breeding grounds or unique local adaptations), that would provide a strong basis for recognizing that portion as a SPOIR. This, however, cannot be the only basis for determining a portion to be a SPOIR.

Conclusion

Consideration of SPOIR should include historic range and determine whether portions of range are significant on the basis of whether they include a measurably large

area or are biologically significant (Vucetich et al. 2006; Waples et al. 2007a). Once a species is found to be threatened or endangered in a SPOIR, listing should apply to the species as a whole. In some cases, this may mean listing is applied to species that are secure or abundant in portions of their range. The ESA, however, does provide flexibility for species management under various provisions of the ESA, such as those that cover recovery planning, prohibitions on federal agencies jeopardizing the continued existence of species, and persons taking endangered species (16 U.S.C. § 1533[f][1], 1536[a][2], 1538[a][1]). This flexibility could be used to provide differing degrees of protection in portions of a listed species' range depending on degree of imperilment.

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