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POLICY PERSPECTIVE

Removing Protections for Wolves and the Future of the U.S. Endangered Species Act (1973)

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Abstract

In June of 2013, the U.S. Fish and Wildlife Service proposed removing gray wolves (*Canis lupus, Linnaeus*) from Endangered Species Act (ESA) protections throughout the conterminous United States. The proposed rule depends on a definition of endangerment that is inconsistent with the legislative history and historical implementation of the ESA, as well as numerous court rulings. The proposed rule also asserts that areas where wolves once existed but no longer exist are "unsuitable habitat" because people in these areas lack tolerance for wolves. That claim entirely ignores a significant body of scientific knowledge that suggests otherwise. By effectively narrowing the definition of endangered species and ignoring the best available science on tolerance for wolves, the proposed rule would set an unfortunate precedent with far-reaching consequences, including dramatically limiting recovery efforts for other species protected by the ESA.

Introduction

On June 13, 2013, the U.S. Fish and Wildlife Service (FWS) published a proposed rule that would remove federal Endangered Species Act (ESA) protection for gray wolves (*Canis lupus, Linnaeus*) throughout the lower 48 U.S. states, except for the Mexican wolf subspecies (*C. l. baileyi*; 78 Fed. Reg. 35,664). After decades of listing *C. lupus* throughout its historic range within the conterminous United States, the FWS now asserts that wolves' listing status should be considered at the subspecies level. The FWS concludes their obligations to conserve gray wolves under the ESA have been met because the subspecies *C.l. occidentalis,* which occupies portions of Northern Rocky Mountains, and *C.l. nubilus,* which occupies portions of the Great Lakes region, no longer fit the legal definition of a threatened or endangered species.

According to the ESA, an endangered species is one that is "in danger of extinction throughout all or a significant portion of its range." The meaning and importance of the phrase "significant portion of its range" (SPR) is well documented (Vucetich *et al.* 2006; Tadano 2007; Enzler & Bruskotter 2009; Geenwald 2009; Kamel 2010; Carroll *et al.* 2010) and its interpretation plays a critical role in the proposal to delist wolves. The proposed rule depends on an untenably narrow interpretation of the SPR phrase. Specifically, it asserts that the unoccupied portions of wolves' range are not significant portions of their range because range refers only to "the range in which a species currently exists" (78 Fed. Reg. 35,673), and the unoccupied portions of wolves' historic range are unsuitable habitat because of human intolerance for wolves. We explain how the rationale provided by the FWS is flawed and how the proposed rule would have far-reaching

implications for the listing and recovery of many threatened and endangered species under the ESA.

What does "significant portion of its range" mean?

In drafting the ESA, Congress rejected narrower definitions of "endangered species" that had characterized the Endangered Species Conservation Act (1969) and the Endangered Species Preservation Act (1966), the laws that preceded the ESA. U.S. Senator Tumney explained that a species might be considered endangered or threatened and require protection in most states even though it may securely inhabit others (*Defenders of Wildlife v. Norton,* 258 F.3d 1136, 1144–45 (9th Cir. 2001)). Accordingly, the FWS had, until recently, interpreted the SPR phrase to include both a species' current and historic range for listing purposes, and had objected to attempts to narrow the definition (Enzler & Bruskotter 2009). However, in recent years the FWS has asserted that "range" in the SPR phrase refers only to the *range in which the species currently exists*. This interpretation has been criticized in the scholarly literature (Enzler & Bruskotter 2009; Bruskotter & Enzler 2009; Carroll *et al.* 2010) and generally rejected by federal courts for its failure to adequately protect threatened and endangered species (Enzler & Bruskotter 2009).

Interpreting range to mean "current range" is functionally identical to striking the SPR phrase from the ESA's definition of endangerment and narrowing the definition to being "in danger of extinction" *(Defenders of Wildlife v. Norton,* 258 F.3d 1136, 1141 (9th Cir. 2001)). This is equivalent to the narrower definition of endangerment that was explicitly rejected by Congress when the ESA was enacted (*Id.* at 1142–43). In most cases, species are listed as endangered because current range has been reduced by human actions. The ESA is intended to mitigate such reductions in range, not merely describe them. As such, a sensible interpretation of range in the SPR phrase is historic range that is currently suitable or can be made suitable by removing or sufficiently mitigating threats to the species (Vucetich *et al.* 2006; Carroll *et al.* 2010).

At the time of their listing, wolves' *current* range within the conterminous United States was a remote segment of northern Minnesota (primarily the Boundary Waters Canoe Area Wilderness and the Superior National Forest) and Isle Royale National Park. At that time the FWS asserted that, within this range

> . . . the [wolf] population, while small compared to the original numbers and range of the gray wolf in the lower 48, has not itself undergone a significant decline since about 1900. Indeed . . . there appears to have been a numerical increase in some areas, and in overall range . . . There appear to be no serious problems that could result in the immediate extirpation of the species in this area (43 Fed. Reg. 9,610–11).

As late as 1978, the FWS observed that if it limited its analysis to current range it would seem that wolves were not endangered. Fortunately for wolf recovery, the agency rejected this argument when it chose to list the wolf, noting the Minnesota wolf population "represents the last significant element of a species that once occupied a vastly larger range in the lower 48" (Id.).

The meaning of the SPR phrase depends not only on interpreting the meaning of "range," but also the meaning of "significant portion." Although prescribing a precise value to the SPR phrase is challenging, acknowledging egregious violations is not. Today, wolves occupy approximately 15% of their historic range within the conterminous United States (see below, *Taxonomic Uncertainty*). To conclude that this condition satisfies the requirement represented by the SPR phrase sets an extremely low bar for species recovery. Setting such a precedent would likely limit future recovery efforts under the ESA. Moreover, this same approach was explicitly rejected by a federal court in the case of the Canada lynx (*Lynx canadensis*), where the court found that the FWS's disregard for three-fourths of the Lynx's historic range within the United States was "antithetical to the ESA's broad purpose to protect endangered and threatened species" *(Defenders of Wildlife v. Norton,* 239 F.2d 9, 14 [D.D.C. 2002]).

In enacting the ESA Congress expressly found that species have ecological value to the Nation (16 U.S.C. § 1531(a)(3)). The ecological value of a species is determined in part by the ecological function it serves. Detailing the direct and indirect effects of particular wolf populations on the ecosystems they inhabit is at times both difficult and controversial (Mech 2012). Nevertheless, there is widespread agreement that top predators, including wolves, have a substantial influence on the species with which they interact, including plants, scavengers, prey, smaller predators, etc. (Beschta & Ripple 2009; Estes *et al.* 2011). These influences, however, are likely to manifest only when large carnivores are present in sufficient abundance and distribution (Mech 2012). The value placed on ecological function in the ESA together with wolves' ecological influence provide another route to understanding why it is important to view the

phrase "significant portion of range" in a geographic context.

Human tolerance and suitable habitat for wolves

Throughout much of their current and historic range, the primary threat to wolf populations is high rates of human-caused mortality (Wydeven *et al.* 2001; Smith *et al.* 2010). The tendency for a few humans to kill wolves is motivated by what has been labeled "intolerance" for wolves, which the FWS correctly identifies as a potential threat to wolf populations in the United States. Rather than leave in place protections for wolves that have effectively mitigated such threats, the FWS now asserts that areas currently unoccupied by wolves are unsuitable because of human intolerance:

> The areas that wolves currently occupy correspond to 'suitable' wolf habitat . . . wolves persist where ungulate populations are adequate to support them and conflict with humans and their livestock is low . . . [t]he areas considered 'unsuitable' . . . are not occupied by wolves due to human and livestock presence and the associated lack of tolerance of wolves . . . (78 Fed. Reg. 35,680).

They conclude that the regions of wolves' historic range that the species does not currently occupy "have not repopulated because of continued lack of human tolerance to their presence" (78 Fed. Reg. 35,685). The FWS also supposes that the threat to wolves in such areas cannot be mitigated (i.e., that these areas are made irrevocably "unsuitable" by lack of tolerance). These conclusions and suppositions are patently inconsistent with the best-available science and the ESA's mandate to use "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" (16 USC § 1532).

The science of intolerance

A central tenet of the proposed delisting rule is: "the primary determinant of the long-term conservation of gray wolves will likely be human attitudes toward this predator." Although bound by the ESA to base its listing and delisting decisions on the best available science, the FWS does not refer to *any* of the scientific literature on human attitudes toward wolves to justify its determination. This failure is egregious because much is known about this topic. For example, a meta-analysis, conducted more than a decade ago, synthesized the results of 37 empirical studies on human attitudes toward wolves conducted through the year 2000 (Williams *et al.* 2002) and a simple search of the scholarly literature uncovered an additional 63 relevant articles published after this meta-analysis (see supplemental), none of which are cited in the review. The FWS' oversight of this literature is not merely a procedural shortcoming. In failing to account for or even acknowledge the relevant science the proposed rule grossly mishandles the concept of intolerance.

Intolerance is a broad term that refers to a wide range of phenomena, including having negative feelings about wolves, illegally killing wolves, or taking other actions that may negatively impact wolf populations (Bruskotter & Fulton 2012). Wolves are not immediately threatened by people saying they dislike wolves—or even that they might kill wolves. Wolves are threatened by high rates of human-caused mortality perpetrated by a very small portion of people who dislike wolves. And while illegal killing has likely influenced population expansion (Smith *et al.* 2010; Liberg *et al.* 2012), it has not generally prevented range expansion. By contrast, legal killing, implemented by state governments and sanctioned by the FWS, combined with their limited view of recovery is likely to prevent range expansion and, therefore, recovery.

The proposed rule also asserts that delisting wolves at this time is critical for maintaining wolf recovery because "keep[ing wolf] populations within the limits of human tolerance" requires that humans be allowed to hunt and trap wolves (78 Fed. Reg. 35,685). The best-available science does not support this contention. Indeed, a recent review found no evidence for the claim that the rates of poaching changed with higher quotas of legal harvest (Andren *et al.* 2006; Treves 2009), and a recent longitudinal analysis found attitudes toward wolves were more negative during a period of legal lethal control than when wolves were listed under the ESA (Treves *et al.* 2013). Moreover, preliminary results from a study commissioned by the FWS failed to support the idea that lethal control or public wolf hunting and trapping would raise tolerance for wolves (C. Browne-Nuñez *et al.* unpublished data; Hogberg *et al.* unpublished data[1]). Ultimately, there is no empirical support for the notion that continued listing would result in a backlash against wolves.

Finally, the proposed rule concludes that regions without wolf populations "have not repopulated because of continued lack of human tolerance to their presence . . ." (78 Fed. Reg. 35,685). That conclusion is at odds with empirical evidence indicating that people who live in wolf-occupied regions tend to have more negative attitudes than those who do not (Williams *et al.* 2002; Karlsson & Sjöström 2007; Treves & Martin 2011). Moreover, empirical evidence indicates that several western states that currently do not have wolves generally support wolf

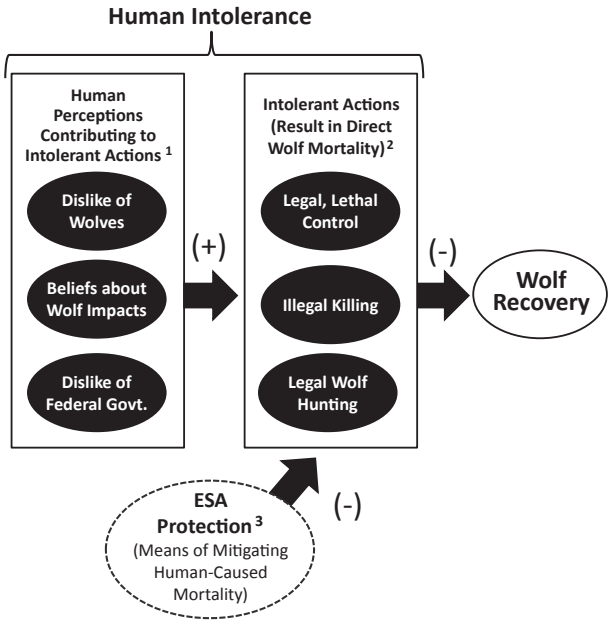

Figure 1 The impact of human intolerance of wolf recovery. A variety of emotions and cognitions could precipitate intolerant actions (1); the list we have provided is not meant to be exhaustive, merely illustrative. Human-caused wolf mortality takes many forms (e.g., illegal poaching, legal hunting, lethal control, wolf–vehicle collisions). Intolerant behaviors (2) are those undertaken with the intent of removing individual wolves or reducing wolf populations. The FWS has shown the ability to mitigate (or reduce) human-caused wolf mortality primarily via federal protections (3) for wolf populations. Likewise, research generally suggests that large carnivores can persist despite high human densities so long as policy remains favorable (Linnell *et al.* 2001).

recovery (e.g., Bright & Manfredo 1996; Meadow *et al.* 2005; Bruskotter *et al.* 2007) and have adequate habitat to support self-sustaining wolf populations (Switalski *et al.* 2002; Carroll *et al.* 2006). Thus, it is simply factually inaccurate to claim that lack of human tolerance makes these unoccupied areas unsuitable for wolves.

Mitigating threats to wolves

Lack of tolerance (or dislike of wolves) is an element in the causal chain leading to high rates of human-caused mortality, which is the actual threat to wolves (Figure 1). Although that causal chain entails some complexity, the FWS has demonstrated its ability to effectively mitigate the threat of human-caused mortality. That threat has been mitigated for decades by regulations that prevent state governments from adopting policies that encourage high rates of human-caused mortality and prevent wolf recolonization, and by re-introducing wolves to former portions of their historic range. These actions were successfully executed by the FWS and resulted in remarkable improvements in the condition of wolves in the northern Rocky Mountains and Great Lakes' regions (Wydeven *et al.* 2009; Smith *et al.* 2010). More generally, research indicates that a variety of large carnivores—wolves included—are able to persist so long as policies toward carnivores remain favorable (Linnell *et al.* 2001). Thus, under protective policies wolf populations have persisted and even thrived in parts of Europe with relatively high human population densities (Kaczensky *et al.* 2013).

The primary consequence of the FWS's proposed rule would be the cessation of these mitigation measures, allowing states to adopt policies that work against recovery. Several states have already enacted policies explicitly designed to reduce wolf populations or prevent wolf range expansion (Bergstrom *et al.* 2009; Bruskotter *et al.* 2011). Thus, while human-caused mortality, motivated by the intolerance of a few people, is an ongoing threat to wolf populations, today the far greater threat is the FWS's reluctance to exercise its statutory obligations in the face of political pressure.

The FWS defends the proposed rule by arguing that the ESA does not obligate the agency to restore wolves to all the places where they had once lived. That defense obscures the concern. Indeed, wolves are not likely to occupy portions of their former range where human densities are very high. Few would suggest that wolves should live in such places as Denver, Colorado or even downtown Wausau, Wisconsin—locations once part of the wolves' historic range. However, places with such high human densities make up a relatively small portion of wolves' historic range (Figure 2). The concern is, rather, that wolves could and would occupy many portions of their former range *if* the FWS chose to mitigate high rates of human-caused mortality in ways they have demonstrated are feasible.

That threats to some species cannot be mitigated is a general and growing concern in conservation epitomized by polar bears and other species impacted by climate change. This concern leads to the conclusion that some species are essentially unrecoverable (Scott *et al.* 2010). However, though in some cases threats to species may not be feasibly mitigated, this is not the case for wolves. The FWS has successfully demonstrated its ability to curb human-caused mortality over the last decades, and mitigation remains feasible throughout large portions of wolves' historic range.

Finally, perhaps most concerning is an analysis of documents recently acquired through a Freedom of Information Act request which suggests that scientific information included in the proposed rule was misrepresented for reasons of political expediency—especially, minimizing political conflict between state and federal governments (PEER 2013a, b). Political expediency is

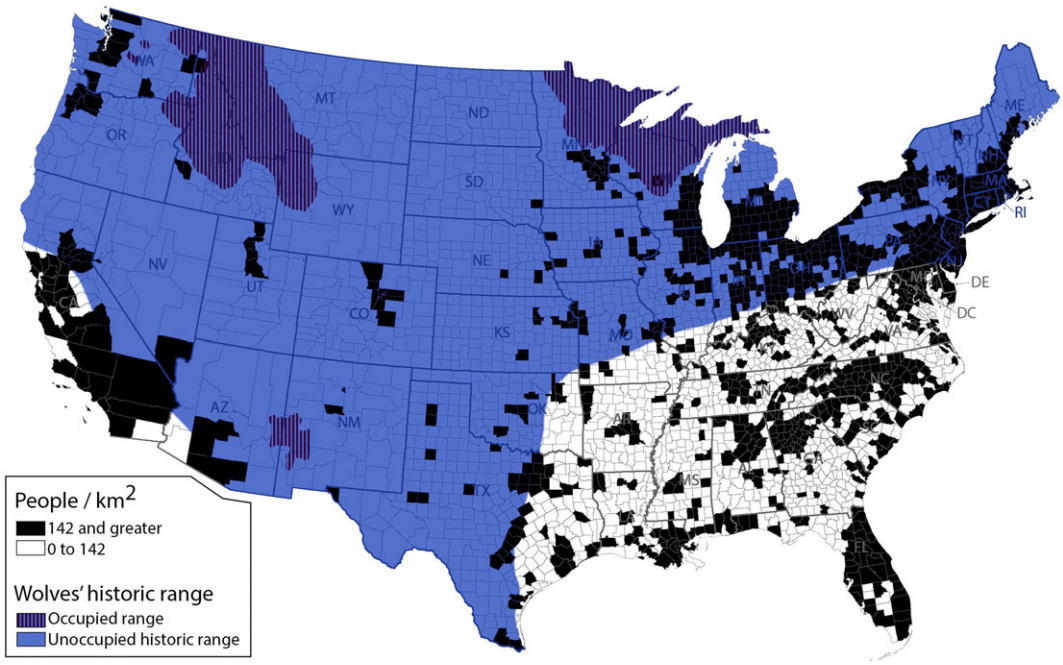

Figure 2 Current (as of 2013) and historic (before European settlement) range of gray wolves and current human population densities within the conterminous United States. Human density is one of several important factors that determine where wolves could exist. Growing wolf populations can be found in several regions of Europe where human population densities average 142 people/km^2 (Linnell *et al.* 2001, Kaczensky *et al.* 2013). This map is not intended to determine the limits of what should or could be wolf range. This map is also not intended to dismiss other important insights about wolf habitat requirements (Carroll *et al.* 2006; Mladenoff *et al.* 1999; Oakleaf *et al.* 2006), nor do such insights obviate the insight represented by this map. This map highlights shortcomings of the U.S. Fish and Wildlife Service's proposal to delist wolves (see main text). Note: this figure compiles data on the current distribution of gray wolves (78 Fed. Reg. 35,664), the distribution of gray wolves before European settlement of North America (Young & Goldman 1944, Hall 1981, Nowak 2002, see also Shelton and Weckerly 2007), and current human population densities (www.census.gov) in the conterminous United States.

not the "best-available science" and has no role in listing status determinations. Even if political considerations are ignored, the FWS's failure to properly handle the concept of intolerance led the FWS to conflate negative attitudes toward wolves (i.e., dislike of wolves) with human-caused mortality.

Taxonomical ambiguity

An advocate for delisting *C. lupus* might object to a basic premise of our analysis, i.e., *C. lupus* occupies a small portion (~15%) of their historic range within the conterminous United States. That objection would be predicated on a controversial supposition of the proposed rule, that *Canis lycaon* is a legitimate taxonomic entity that is separate from *C. lupus*. Specifically, the FWS claims that the northeastern parts of the United States were inhabited by *C. lycaon,* not *C. lupus.* Thus, they argue that the northeastern United States need not be considered when determining the listing status of *C. lupus*. However, the taxonomic identity of *C. lycaon* is controversial and uncertain (Koblmüller *et al.* 2009; Randi 2010; vonHoldt *et al.* 2011). If *C. lupus* and *C. lycaon* are not taxonomically distinct, then FWS will have removed ESA protections for wolves across an entire region where they should be protected. Even if *C. lupus* and *C. lycaon* are taxonomically distinct, *C. lupus* would still fail to satisfy the SPR requirement. Because there is considerable risk of making an error that would cause significant harm, this taxonomic uncertainty calls for application of the precautionary principle. In the context of species recovery, the precautionary principle can be characterized as follows: when an activity potentially threatens the health or viability of a species or population, precautionary measures should be taken so as to reduce or avoid the threat—even when there is uncertainty about the extent of the threat (Kriebel *et al.* 2001). The most modest application of the precautionary principle calls for developing criteria that are sensible whether *C. lycaon* is or is not separate from *C. lupus*.

Conclusion

The FWS's rationale for delisting wolves across the lower 48 states undermines the overarching purpose of the ESA, which is to mitigate threats to the recovery of

species. One element of this rationale represents an ongoing, decade-long attempt of the FWS to interpret the SPR phrase in a manner that is inconsistent with a plain reading of the law, congressional intent, federal court decision and relevant scholarship (see Vucetich *et al.* 2006; Bruskotter & Enzler 2009; Enzler & Bruskotter 2009; Carroll *et al.* 2010). A second element of the rationale is new and no less disturbing; that is, the proposed rule implies that delisting is acceptable even if a species fits the definition of threatened or endangered, so long as the FWS concludes that the threats to recovery are not able to be mitigated. In this case, arriving at that conclusion required ignoring a substantial body of scientific knowledge.

Concluding that wolves cannot be recovered because some people dislike wolves is unsupported by evidence; and concluding that wolves cannot be recovered because of human-caused mortality is to merely *describe* the potential threat to wolves. Congress enacted the ESA not to describe such threats, but to mitigate them. Although human intolerance (in the form of legal and illegal killing) continues to threaten wolves in some geographic areas, the greater threat to wolf recovery is the lack of will on the part of the federal government to stay the course and endure political pressure from state governments and special interest groups who want wolf populations minimized or eliminated.

From this point in history forward, an increasing number of detrimental environmental changes will be irrevocable. In some instances judging what is irrevocable and what is not will require considerable wisdom. Wolves do not represent one of these difficult cases. The actions required to recover wolves (i.e., to make them no longer fit the definition of threatened or endangered) are readily feasible and proven effective. Accepting the proposed rule would set an unfortunate precedent that could be applied to many species that are currently protected by the ESA. The FWS's proposed rule would mean, from this day forward, that a species could be declared recovered even though it still meets the definition of a threatened or endangered species if mitigating the threats to recovery is more challenging than the FWS is willing to confront. If allowed to stand, the proposed rule could also have far reaching consequences for the use of science in listing status determinations—specifically, it would suggest that the FWS need not follow nor even acknowledge the best available science when determining whether a species should be listed. Finally, restricting the term "range" in the SPR phrase of the ESA to mean "current range" would almost certainly constrain imperiled species to their last remaining refugia, and dramatically limit future recovery efforts under the ESA.

Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Table S1. Articles published on tolerance for (or attitudes toward) wolves since the year 2000

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Note

1. Preliminary analyses of both studies are available at http://faculty.nelson.wisc.edu/treves/wolves/wolfhuman.php

