



U.S. Fish and Wildlife Service  
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Docket number FWS-R6-ES-2011-0039

January 13, 2012

Re: RIN 1018-AX94, Proposed rule to remove the Gray Wolf in Wyoming from the Federal List of Endangered and Threatened Wildlife and Remove the Wyoming Wolf Population's Status as an Experimental Population, 76 Fed. Reg. 61782-61823 (October 5, 2011).

To Whom it May Concern,

The Center for Biological Diversity ("Center") is a non-profit conservation organization supported by over 320,000 members and on-line activists, dedicated to protecting and restoring imperiled species and their ecosystems. Since our founding in 1989, the Center has actively promoted recovery of gray wolves throughout the United States, including through submitting comments over the past decade detailing the scientific and legal flaws in the U.S. Fish and Wildlife Service's multiple, misguided proposed rules to downlist, delist and even remove significant protections from still-listed wolves in the northern Rocky Mountains. We have followed up, when necessary, by litigating final rules that would undercut recovery of gray wolves – as the present proposed rule would do if finalized.

We hope that the Fish and Wildlife Service ("Service") will consider our comments below, and the comments submitted for us by Earthjustice, in good faith as an antidote to the politically-conceived and ill-considered rush to dispense with wolf conservation in the northern Rocky Mountains and indeed throughout almost the entirety of the United States. Wolves have re-established but a tenuous paw-hold on less than five percent of their original range in the 48 contiguous states, and the proposed delisting is misguided and premature.

Please consider these comments in addition to those submitted by Earthjustice on our behalf and that of the Sierra Club and Natural Resources Defense Council.

Wolf recovery in the northern Rocky Mountains, including in Wyoming, has until recently been a tremendous, ongoing but as-yet-incomplete success. The delisting by congressional rider of wolves in Idaho, Montana, Utah, Oregon and Washington is already undermining that success, and delisting wolves in Wyoming now will further jeopardize the long-term persistence of wolves in Yellowstone National Park and even throughout the northern Rockies, threaten the recovery of wolves in other states such as Colorado, potentially jeopardize the recovery of the unique Mexican gray wolf subspecies, and cut short the nascent recovery of the gray wolf's degraded ecosystems.

### **Introduction. The proposed rule is fatally flawed in concept and inception.**

The early delineation of a northern Rocky Mountains (NRM) distinct population segment (DPS) of gray wolves for the purpose of delisting (71 Fed. Reg. 6634-6660, Feb. 8, 2006) was based on political rather than biological factors, as was the Fish and Wildlife Service's judgments, repeatedly struck down in federal court, that the wolf population within those DPS

boundaries was recovered and ready for delisting. The Service's decidedly non-Solomonic solution of splitting the northern Rockies wolf DPS into recovered and non-recovered (Wyoming) segments (74 Fed. Reg. 15123-15188, April 2, 2009), which though struck down was resurrected via a congressional rider on a must-pass budget bill in 2011, leaves this proposal to delist Wyoming's wolves particularly untenable. That is because the DPS includes vast lower elevation grassland and shrubland habitats that are an important ecosystem for gray wolves in dispersal as well as for the species' long-term adaptability and resilience, that have few wolves surviving on them, and the proposed rule would ensure these wolves' destruction and undermine conservation of these ecosystems.

The 1978 switch from listing wolf subspecies to the entire gray wolf species was intended to maintain protection of subspecies but ended up undercutting consideration of their adaptations to specific habitats. The proposed rule summarizes previous federal actions in a manner that, unfortunately, obscures how arbitrary was the delineation of DPS boundaries in relation to the number and geographic extent of wolves planned to be recovered within the DPS:

Due to questions about the validity of subspecies classification at the time and issues associated with the narrow geographic scope of each subspecies, we published a rule reclassifying the gray wolf as endangered at the species level (*C. lupus*) throughout the coterminous 48 States and Mexico (43 FR 9607, March 9, 1978). The exception was Minnesota, where the gray wolf was reclassified to threatened. This rule also provided assurance that this reclassification would not alter our intention to focus recovery on each population as separate entities. Accordingly, recovery plans were developed for: The Great Lakes in 1978 (revised in 1992) (Service 1978, entire; Service 1992, entire); the NRM region in 1980 (revised in 1987) (Service 1980, entire; Service 1987, entire); and the Southwest in 1982 (Service 1982, entire). A revision to the southwest recovery plan is now under way. [76 FR 61783]

To add clarity, we note that the 1978 rule did not question the validity of gray wolf subspecies, but instead committed to recovery of valid subspecies. In response to comments by the U.S. Forest Service, which had "requested assurance that biological subspecies would continue to be maintained and dealt with as separate entities" (43 Fed. Reg. 9609, March 9, 1978), and by the North American Wolf Society which also questioned the elimination of subspecific differentiation in listings, the 1978 rule stated: "The Service, however, can offer the firmest assurance that it will continue to recognize valid biological subspecies for purposes of its research and conservation programs" (43 Fed. Reg. 9610).

Neither did the 1978 rule commit to recovery of populations as separate entities, as stated in the present proposed rule. Rather, the Service's focus on conservation of populations arose a decade later at the expense of range-wide planning for the listed gray wolf species, and also at the expense of recovery planning for valid subspecies, despite the Service's "firmest assurance" offered in 1978.

The actual reason the Service advanced for its 1978 rule-making was as follows:

This listing arrangement [i.e. according to subspecies] has not been satisfactory because the taxonomy of wolves is out of date, wolves may wander outside of recognized

subspecific boundaries, and some wolves from unlisted subspecies may occur in certain parts of the lower 48 States. In any case, the Service wishes to recognize that the entire species *Canis lupus* is Endangered or Threatened to the south of Canada, and considers that this matter can be handled most conveniently by listing only the species name.” [43 Fed. Reg. 9607]<sup>1</sup>

The reference to “recognized subspecific boundaries” acknowledged that subspecies were originally tied to historic ranges. The extermination of wolves over vast areas had led to surviving, lone wolves traveling outside their subspecies’ historic ranges in searches for mates. However, the switch from planning to recover subspecies to instead working to recover populations enabled the Service to defer, and eventually announce as irrelevant, consideration of a subspecies’ historic range in determining recovery goals.

The definition of “range” for wolves in the northern Rockies region has expanded or been rendered meaningless, though demographic recovery targets remain the same. The Endangered Species Act’s definition of an endangered species, subspecies or population as one “in danger of extinction throughout all or a significant portion of its range” begs the question of what is *range* and how to judge its significance. The 1987 Northern Rocky Mountain Wolf Recovery Plan sought to recover the subspecies *C.l. irremotus*, the Northern Rocky Mountain wolf, and defined its range according to Hall and Kelson (1959), shown in the following map:

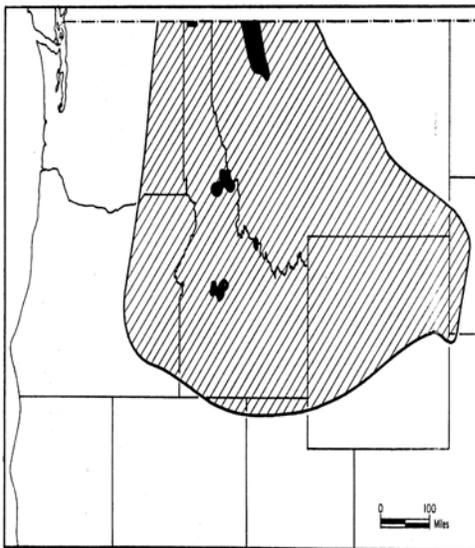


Figure 1. Historical distribution of the northern Rocky Mountain wolf (*Canis lupus irremotus*) in the United States according to Hall and Kelson (1959). The black areas represent the current approximate distribution of wolves in the northern Rocky Mountains of the contiguous 48 states.

<sup>1</sup> The 1987 Northern Rocky Mountain Wolf Recovery Plan further clarifies that gray wolves were re-listed at the species level in 1978 “based on the probability of enforcement problems and because the trend among taxonomists was to recognize fewer subspecies of wolves” (p. 1).

Within that range, according to the 1987 recovery plan, a minimum of ten breeding pairs of wolves were to be secured and maintained within each of three recovery areas over a minimum of three successive years, as criteria for recovery. (U.S. Fish and Wildlife Service 1987, p. v)

In 1995, the same year that reintroduction of wolves was authorized into Yellowstone National Park and central Idaho, Nowak revised the classification of North American gray wolves from the 24 subspecies recognized by Goldman (Young and Goldman 1944) and Hall (1959, 1981), into five subspecies, as shown below:

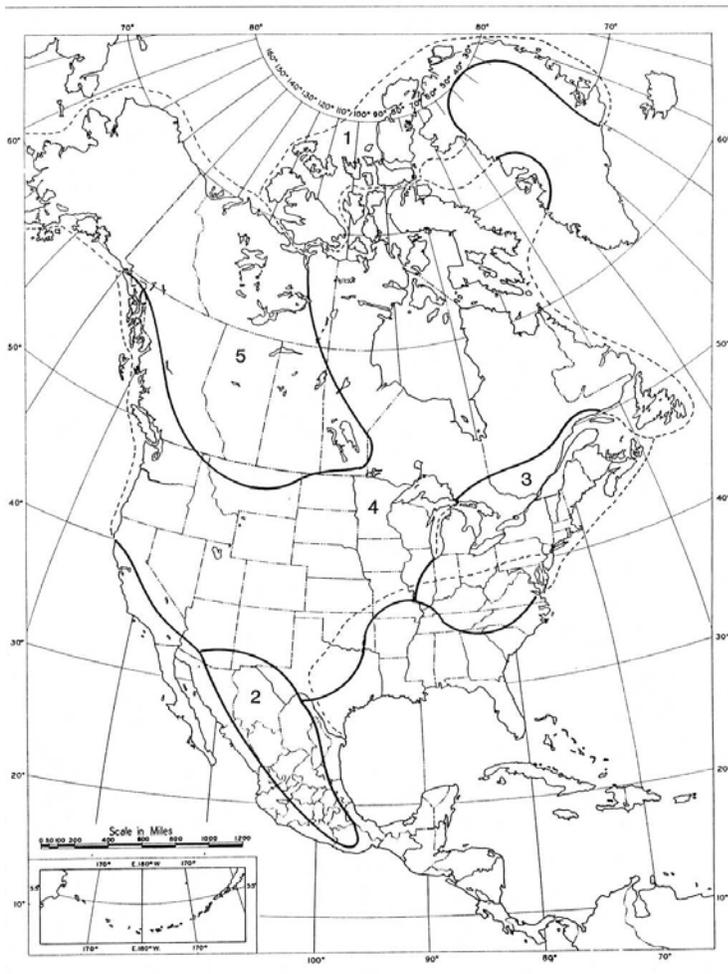


Fig. 20. Original geographical distribution of wolves in North America, showing the five subspecies of *Canis lupus* recognized by this study: 1) *arctos*, 2) *baileyi*, 3) *lycaon*, 4) *nubilus*, 5) *occidentalis*. The red wolf (*Canis rufus*) occupied the southeastern quarter of the continent, the approximate northern and western limits of its range being marked by the dashed line on the mainland.

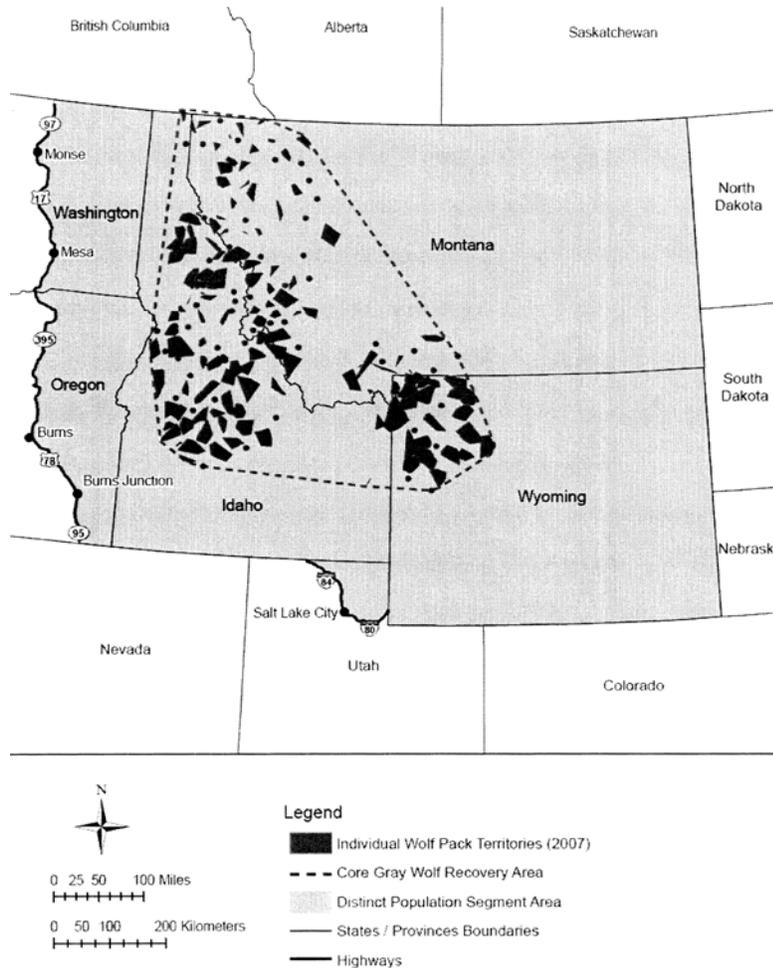
Nowak synonymized *C.l. irremotus* with *C.l. nubilus*, for which he claimed a much broader range encompassing almost the entire western United States except for the southwestern borderlands range of the Mexican gray wolf, *C.l. baileyi* (Nowak, 1995). Nevertheless, recovery goals for wolves in the northern Rocky Mountains were kept essentially unchanged.

In 2007, the Solicitor of the Department of the Interior issued a memorandum opinion entitled “The Meaning of ‘In Danger of Extinction Throughout All or a Significant Portion of Its Range’” (March 16, 2007), which defined the word “range” in the phrase “significant portion of

its range,” to refer to “the range in which a species currently exists, not to the historical range of the species where it once existed.” As such, range could only be considered “significant” insofar as it was necessary to sustain extant members of threatened or endangered species.

Twice invalidated in court orders, the opinion was rescinded in 2011. Nevertheless, its illogic informs the NRM DPS boundaries, shown below, and the present proposed rule’s ahistorical whittling down of “suitable habitat” described within those boundaries, to justify the post-delisting annihilation of wolves over 83% of Wyoming.

Figure 1: Northern Rocky Mountain Gray Wolf Distinct Population Segment Area Including Individual Wolf Pack Territories.



The 25-year carry-over (1987 – 2012) of demographic recovery criteria amounting to a minimum of 30 breeding pairs was accompanied by a tremendous increase in the region over which that minimal number of breeding pairs was to certify recovery. The added area is important to wolves, but in Wyoming is relegated to the predator zone where no wolves will be permitted to survive.

Instead, gray wolves in those areas deserve continued protection to help ensure the survival of their species and conservation of their ecosystems. The 1978 switch from listing the various gray wolf subspecies to the entire species *Canis lupus*, and subsequent delisting according to population, should not facilitate the threats that brought wolves to the brink of extinction, namely unlimited persecution, to imperil wolves once again.

## **The Wyoming Gray Wolf Management Plan's delineation of 83% of the state as a zone of unregulated wolf killing conflicts with the Endangered Species Act and irrationally reverses Fish and Wildlife Service's previous position.**

The Wyoming Gray Wolf Management Plan divides the state into three zones for the purpose of wolf management: (1) A Wolf Trophy Game Management Area (WTGMA) throughout most of which wolves will be subject to public hunting and to agency killing, but also including Yellowstone National Park (and smaller National Park Service units) in which human-caused take is generally prohibited; (2) a predator area in which take of wolves is not regulated and in which wolves may be killed by any means; and (3) a flex-zone in which management and wolves' status varies seasonally between trophy big game management and predator designation.

The flex zone comprises 1.3% of Wyoming, the trophy game area 15.7%, and the predator zone 83%. The Fish and Wildlife Service projects that no wolves will persist in the predator zone (76 Fed. Reg. 61807). Within the WTGMA area, as few as 10 breeding pairs may be left alive outside of Yellowstone National Park. The flex zone is intended to facilitate dispersal and genetic connectivity to wolves in Idaho and Montana. As explained further on, it is unlikely to do so.

The vast predator zone conflicts with the intention of the Endangered Species Act. The designation of 83% of Wyoming as an area where wolves will not be allowed to persist conflicts on its face with the first stated purpose of the Endangered Species Act, "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."

Wolves profoundly influence and in fact conserve their ecosystems in a variety of ways (Miller et al. 2001, Ray et al. 2005). Wolves create stronger ungulate herds by preying on vulnerable ungulates, which allows greater numbers of healthier, more robust, and more alert animals to survive and pass on genes. Wolves may also prevent the spread of epizootic diseases among prey species by culling sick animals before they infect others. Prey animals also modify their behavior, distribution and movements in response to wolves (Ripple and Beschta 2004, White and Garrott 2005). For example, in Yellowstone National Park, reintroduced wolves have led elk (*Cervus elaphus*) to spend less time in low-visibility areas where they are more vulnerable to surprise attack, such as in valleys with steep embankments, and this has resulted in recruitment and growth of riparian trees that previously were eaten as saplings; such localized reduction in elk herbivory has provided trees for food and dams for beavers (*Castor canadensis*), and those dams have, in turn, increased riparian extent (Ripple and Beschta 2003, 2004). Bird numbers have also increased as a result of the re-growth of trees along stream banks, and fish have benefited from beavers' transformation of hydrology of creeks and streams and from the trees' shading of streams (Berger et al. 2001, Hebblewhite et al. 2005). Wolves have also created a decline in coyote densities, which led to increases in foxes and increased survival of

pronghorn fawns due to reduced predation by coyotes (Berger and Gese, 2007; Smith et al., 2003, Berger et al. 2008).

The 83%-swath of Wyoming in which wolves will not be allowed to persist, as well as much of the remaining 17% of the state in which wolf numbers and distribution will be greatly reduced, should not be deprived of the myriad ecological benefits that wolves bring and that the Endangered Species Act intended to conserve through conserving the wolf.

The predator zone includes areas that Fish and Wildlife Service previously flagged as potentially important for dispersal, and likely to require regulation. The Fish and Wildlife Service suggests that the predator area consists of unsuitable habitat, a premise which we deconstruct below. However, even if that were true, in rule-making in 2009, the Service admitted that such habitat could help support the crucial biological function of dispersal, which is integral to natural genetic connectivity:

To the extent that the ability to traverse these areas may play a role in the conservation of the species, all wolves in these areas will be regulated by the States as a game species. Violation of game rules will be subject to prosecution. We believe this is an appropriate level of protection for these largely unsuitable habitats and the same level of protection recommended for southern and eastern Wyoming. We have determined that these areas are insignificant to maintaining the NRM wolf population's viability as they make only minor contributions to the species' representation, resiliency, or redundancy. These contributions are not at a level that meaningfully impacts the ability to conserve the species. To the extent that the ability to traverse these areas may play a role in the conservation of the species, they will be appropriately regulated. (74 FR 15184, April 2, 2009)

Yet the proposed rule, with no evidence, now dismisses these areas' importance for wolf dispersal and genetic connectivity.

"Suitable habitat" as used in the proposed rule is not based on biological standards, but rather on economic, social, regulatory and political exigencies. The proposed rule's assessment of destruction, modification, or curtailment of habitat or range includes a flawed analysis of "suitable habitat" (76 Fed. Reg. 61796-61800), and that analysis also rationalizes the vast predator zone as well as management within the WTGMA that will reduce wolf range drastically within that 15.7% of Wyoming. (The same analysis underlies an exclusionary definition of significant portion of range in the April 2, 2009 wolf delisting rule.) The analysis is based primarily on a study, Oakleaf et al (2006), that incorporates human land-use and policy decisions into criteria for habitat suitability. Since supposed habitat unsuitability now informs a proposal that would annihilate wolves in 83% of Wyoming, it is vital that the judgment on habitat suitability conform to the intent of the Endangered Species Act and applicable regulations. But the non-biological considerations in Oakleaf et al do not conform to the scientific standards of the law.

In Oakleaf *et al*, the term "suitable habitat" makes a brief appearance in the Abstract and then reappears without definition near the end of the paper, used in the same context as the paper's terms "available wolf habitat," "high quality wolf habitat," and "preferred habitat." All four phrases mean

the areas where wolves are predicted to be able to survive based on their similarities with places in which wolves do in fact survive (and overwhelmingly constituting the very same places). Although the Oakleaf *et al* paper's objectives include determining "the patterns of habitat selection of wolves in the northern Rockies," *selection* in this case represents the same misnomer as *preferred habitat*, since neither the wolves' selection of habitat nor their preferences play the predominant role in determining their persistence in any area. Rather, factors that in large part properly fall under the category of regulatory mechanisms (or the lack thereof) determined wolf survival, and among the most influential was density of domestic livestock.

Oakleaf et al assessed 12 factors for their potential contribution to wolf persistence: ecoregions, road density, human density, protection status, land ownership, slope, elevation, land cover, ungulate density, cattle density, sheep density and wolf home ranges. They found that forest cover and elk density were positively correlated to wolf presence, and human and livestock densities were negatively correlated. (Of course, the presence and numbers of livestock would have significantly influenced elk distribution and density through competition for forage and through state game department hunting and depredation rules intended to minimize competition with livestock.) Thus, much of the determinant of wolf persistence boils down to the presence of livestock.

Oakleaf et al attribute the negative correlation with livestock to "lethal control of individual wolves following depredation events . . . thus preventing pack formation in these areas." Indeed, the presence of livestock in large part has determined the likelihood that the Fish and Wildlife Service would authorize the killing of wolves. And it is that agency killing that most directly causes any given area not to be occupied by wolves.

Thus, regulatory, sociological, economic and political factors largely determine wolf persistence, not biological factors. Most of Wyoming and the NRM DPS as a whole constitute public lands, upon which regulations determine whether and in what numbers livestock will be placed. Many of the private lands that are grazed are part of a ranch unit whose economic viability depends on grazing on the associated public land. Thus, the decision on whether cattle and sheep will be found (and in what numbers) on private lands is also significantly affected by the federal government's regulations and decisions.

Furthermore, the decision to kill wolves that do come into conflict with livestock is also by its nature regulatory and governmental. Only 7% of wolf control is carried out by private individuals (and even they have been permitted to do so by government). The other 93% is carried out by the USDA Wildlife Services agency and the U.S. Fish and Wildlife Service. Thus, the presence of domestic animals and the decision to kill depredating wolves is not an essential attribute of the landscape but rather the result of agency decisions.

Colloquially, *suitable habitat* suggests the places where an animal finds the natural features that support its existence and persistence. Oakleaf *et al* found that "Core use areas [within home ranges] differed significantly from [other portions of] home ranges for slope and elevation variables, with core use areas being characterized by lower elevation and slope." Under such colloquial usage, such lower elevation and lower slope areas would be considered suitable habitat. However, since these are precisely the regions most heavily stocked with cattle and sheep, they are considered unsuitable.

Similarly, Forbes and Boyd (1997) found that "The mountainous character of the study area [i.e. the northern Rocky Mountains] fragments the landscape into patches of suitable wolf habitat, usually centered around lower elevation valleys, in a matrix of unsuitable habitat" (p. 1230).

Though wolves may preferentially utilize lower elevation and more gentle terrain in the northern Rocky Mountains, in large part these habitats are considered unsuitable and relegated to the predator zone, and thus made unavailable to wolves.

Preventing wolf recovery in prairie, grassland, shrubland and desert ecosystems conflicts with the Fish and Wildlife Service's joint policy with the National Marine Fisheries Service on recognition of distinct vertebrate population segments under the Endangered Species Act, defining significance of a population in part on "an ecological setting [that is] unusual or unique for the taxon" (61 Fed. Reg. 4722, Feb. 7, 1996).

The proposed rule states:

While human caused mortality, including both illegal killing and agency control, has not prevented population recovery, it has affected NRM wolf distribution (Bangs *et al.* 2004, p. 93) preventing successful pack establishment and persistence in open prairie or high desert habitats (Bangs *et al.* 1998, p. 788; Bangs *et al.* 2009, p. 107; Service *et al.* 1989–2011, Figure 1). [76 Fed. Reg. 61806; see also 71 Fed. Reg. 43419, Aug. 1, 2006]

The distinctiveness of open and lower elevation habitat led to differentiation of the wolves that originally lived there and in the southern Rocky Mountains of Colorado, from those in the mountains, as delineated in the supposed subspecies described by Goldman (Goldman & Young 1944) and affirmed by Hall (1959, 1981). For example, our analysis shows that the historic range of *C.l. irremotus* identified in the 1987 recovery plan based on Hall and Kelson (1959) contains approximately 102 million acres of grasslands, shrublands and savannas; the area encompassed within the NRM DPS includes almost a third more such habitats: 33 million acres. That is almost twice as big a gain in acreage, by percent, as that experienced by forest habitat in a comparison of the purview of the 1987 plan to the eventual DPS boundaries. Mountainous and forested areas typified *C.l. irremotus* range much more than they did *C.l. nubilus* range.

Nowak (1995) applied multivariate analysis to lump the original wolves in the northern Rocky Mountains and Great Plains together as the subspecies *Canis lupus nubilus*. Leonard et al's (2004) genetic analysis suggests the broad relatedness of the original wolves in the West: "[H]aplotypes lu50 and lu51 are found in historic samples of grey wolves from Utah to Nebraska and are intermixed with haplotypes common in northern grey wolves."

Even not considered as subspecies, the genetic differences underlying the long-observed morphological differences between wolves result from a combination of isolation of populations and adaptive divergence in response to different ecological features. In the case of wolves, which through dispersal can surmount significant barriers and overcome isolation, originally derived genetic differences largely reflect ecological differences (Geffen & Wayne 2004; Wayne et al, 1992).

Such questionable gray wolf subspecies may still be considered as populations that represented significant evolutionary divergence. The morphological differences that defined and identified *C.l. nubilus*, *fuscus*, *youngi* and *irremotus* correlate with significant differences in their respective habitats. *C.l. irremotus* did not extend to the southern third of Wyoming nor to the northeastern third of Montana. These areas were habitat for *C.l. youngi*, the southern Rocky Mountain wolf, and *C.l. nubilus*, the Great Plains wolf, instead, and in Wyoming, these areas would be part of the predator zone. Denying wolves' these areas would further reduce the species' genetic

diversity. Leonard et al found that “the high diversity of historic wolf sequences suggests that the mtDNA diversity of the eradicated western cUS grey wolf population was more than twice that of the extant population. Modern wolves are a depauperate subset of the historic population.” Further loss of genetic diversity that developed in disparate ecosystems would likely undermine the wolf’s adaptation to future threats such as disease or changes in prey density and distribution in response to global warming.

Rule-making to delist wolves in Wyoming based on a DPS configuration that is at odds with the 1996 policy’s standards for identifying significant portions of the wolf’s range, must ensure that wolves can persist in those ranges. The proposed rule would ensure the opposite – wolves’ permanent exclusion from unique habitats and ecosystems that helped shape the gray wolf and that are necessary for the wolf’s continued adaptability and resilience.

The predator zone will slow or halt the dispersal of wolves to other states, such as Colorado, in which wolves are still endangered but are not covered by recovery plans.

The Endangered Species Act requires development and implementation of recovery plans for all listed species, but there is no national wolf recovery plan and regional plans do not cover all significant wolf habitats, including those in Colorado and other states directly abutting Wyoming.

Particularly in the absence of the protections that a recovery plan would precipitate, the proposed rule’s allowance of the destruction of all wolves in the 83% of the state excepting the northwestern corner, thereby diminishing or curtailing dispersal, would greatly affect if not destroy the prospects for wolf recovery in states in which the species is still listed as endangered.

That effect may extend to the Mexican gray wolf, whose reintroduced U.S. population in Arizona and New Mexico is at risk of failure, in part due to inbreeding depression (U.S. Fish and Wildlife Service 2010, pp. 58-62). Ongoing recovery planning for the Mexican wolf is likely to rely on establishing some level of genetic connectivity to northern Rocky Mountain wolves. But any such potential connectivity would likely be severed by post-delisting Wyoming wolf mortality, particularly in the predator zone.

**Despite assurances, wolves in the Greater Yellowstone Ecosystem are unlikely to maintain natural genetic connectivity with wolves elsewhere after delisting, and relying upon translocation to ensure vital genetic connectivity attests to the wolves’ continued endangered status.**

The Fish and Wildlife Service arbitrarily proposes to reverse its judgment from April 2009 that “all of Wyoming should be managed as a trophy game area” (74 FR 15183, April 2, 2009). The agency explained its position then:

The record demonstrates that wolves are unlikely to survive where they are classified as predatory animals. Thus, the current regulatory framework is problematic for the reasons outlined below. First, the current regulatory framework limits natural genetic connectivity. The GYA is the most isolated core recovery area within the NRM DPS (Oakleaf *et al.* 2005, p. 554; vonHoldt *et al.* 2007, p. 19). Wolf dispersal patterns indicate that dispersing wolves moving into the GYA from Idaho or Montana are

likely to move through the predatory area (Boyd *et al.* 1995). Physical barriers (such as high-elevation mountain ranges that are difficult to traverse in winter) appear to discourage dispersal through the National Parks' northern and western boundaries. Limited social openings in the National Parks' wolf packs also direct dispersing wolves from Idaho and Montana toward the predatory area portions of Wyoming. Finally, Wyoming's winter elk feeding grounds attract and could potentially hold dispersing wolves in the predatory area. Thus, we believe dispersal is more likely to lead to genetic exchange if dispersers have safe passage through the predatory area. While natural connectivity is not and has never been required to achieve our recovery goal, we believe it should be encouraged so as to minimize the need for agency-managed genetic exchange. Because exact migratory corridors are not known, WGFD should be given regulatory authority over the entire State to adaptively manage this issue as new information comes to light over time. A statewide trophy game area is also advisable given the dispersal capabilities of wolves. Wolves have large home ranges (518 to 1,295 km<sup>2</sup> (200 to 500 mi<sup>2</sup>)) with average long-distance dispersal events of 97 km (60 mi) (Boyd and Pletscher 1997, p. 1094; Boyd *et al.* 2007; Thiessen 2007, p. 33), unusually long-distance dispersal events of 290 km (180 mi) (Jimenez *et al.* 2008d, Figures 2 and 3), and dispersal potential of over 1,092 km (680 mi). Some of these wolves may disperse and return to the core of suitable habitat. A statewide trophy game status will allow for routine and unusual dispersal events without near certain mortality (although pack establishment in areas of unsuitable habitat is extremely unlikely). Furthermore, statewide trophy game status will allow more flexibility to devise a management strategy, including regulated harvest that provides for self-sustaining populations above recovery goals. For example, having management authority over the entire State could allow for strategic use of all suitable habitat if necessary during years of disease outbreak. Such an approach could also allow managers to strategically shift wolf distribution and densities in response to localized impacts to native ungulate herds and livestock. Additionally, we believe statewide trophy game status prevents a patchwork of different management statuses; will be easier for the public to understand and, thus, will be easier to regulate; is similar to State management of other resources like mountain lions and black bears; and is consistent with the current regulatory scheme in that the entire State is currently nonessential, experimental. Finally, maintenance of the Act's protections Statewide will assist Service Law Enforcement efforts that might otherwise be difficult if predatory animal status was allowed in portions of Wyoming. We believe the entire State of Wyoming should be managed as a trophy game area. Continuation of the current regulatory framework in Wyoming would meaningfully affect the DPS's resiliency, redundancy, and representation, and decrease the ability to conserve the species. For the purposes of this rule, the entire State shall be considered a significant portion of the range with the understanding that different portions of the range contribute different biological benefits. This boundary: Encompasses the area where threats are sufficient to result in a determination that a portion of a DPS' range is significant, and is endangered or threatened; clearly defines the portion of the range that is specified as threatened or endangered; and does not circumscribe the current distribution of the species so tightly that opportunities to maintain recovery are

foreclosed. Retaining the Act's protections Statewide also is inclusive of the area where a lack of threat management results in biological differences in status (i.e., it covers the State's entire predatory animal area). By identifying the entire State as a significant portion of the range we are not suggesting wolves could or should reoccupy or establish packs in unsuitable habitat. (74 FR 15183, 4/2/2009)

The proposed rule does not substantially address these deficiencies. It does not explain why, for example, different portions of the range are no longer seen to contribute different biological benefits; nor why law enforcement could no longer be handicapped in addressing illegal aerial gunning or poisoning within the WTGMA if such means were to become commonplace for killing wolves in the predator area. (Wolves could be killed by poisons authorized for other species, whereas such authorization is presently not permitted where it may affect listed wolves.) The predator area as proposed now is only slightly smaller than it was in 2009 – a drop of from 89% to 83% of the state's territory, and with an additional 1.3% representing the seasonal flex-zone.

Dispersal and genetic connectivity occurring at present does not indicate such connectivity will persist under state management.

The proposed rule notes that vonHoldt et al (2010) found past and likely current migration between subpopulations. Even so, vonHoldt found connectivity may be tenuous:

We found that wolves in the NRM do not represent a panmictic population, and instead corroborated previous findings of genetic subdivision among wolf populations on a regional scale (Roy et al. 1994; Musiani et al 2007; Carmichael et al. 2008; Aspi et al. 2009). If populations experienced substantial gene flow, then divergence and genetic partitioning were expected to decrease (Hartl & Clark 1997; Pritchard et al 2000). Despite close proximity of regional subpopulation cores (~200 km apart) within established dispersal capabilities of wolves (Mech 1987; Gese & Mech 1991; Mech & Boitani 2003), population divergence appeared to have increased towards the end of the study period (Fig. 2).

In addition to the biological and environmental effects on population structure common to North American wolf populations (Roy et al. 1994; Geffen et al. 2004; Musiani et al. 2007; Carmichael et al. 2008; Munoz-Fuentes et al. 2009), genetic differentiation in NRM wolves may be influenced by anthropogenic factors and studies done over the first decade of re-introduction have documented similar effects (Oakleaf et al. 2006; Murray et al. 2010; Smith et al. 2010). For example, while high-quality core habitat exists for wolves throughout much of the NRM study area, high human and livestock densities, as well as greater human access, characterize the areas surrounding and connecting each recovery area (Oakleaf et al. 2006). In an analysis of the habitat linkage and colonization probabilities between the three recovery areas, Oakleaf et al. (2006) found that Idaho and Montana have higher connectivity than either of these areas has to the GYA. This finding was corroborated by dispersal patterns of radio-collared wolves as greater dispersal occurred between Idaho and Montana than between either of these areas and GYA (Oakleaf et al. 2006). Further, regional-scale patterns of survival and mortality (Murray et

al. 2010; Smith et al. 2010) for NRM wolves during the first decade of recovery showed increased mortality risk and lower survival for yearlings, dispersers, and wolves living in areas of overlap with private land and livestock. These demographic and spatial dynamics, which are largely driven by anthropogenic factors, may be critical to metapopulation dynamics of NRM wolves as they influence the rates of natural dispersal and genetic connectivity between recovery areas. Applying a landscape genetic approach that integrates spatially explicit genetic data with information on natural (e.g. topography, habitat type) and anthropogenic landscape features (e.g. livestock, private land, road density) is one method that could be used to evaluate the factors influencing gene flow in this region (Manel et al. 2003). [vonHoldt et al 2010, p. 4421]

VonHoldt et al also flagged additional reasons for caution: “High wolf densities and territory saturation in Yellowstone during the height of this study probably limited the ability of individuals to effectively disperse into this core area.” (p. 4422). And: “Importantly, dispersal and genetically effective migration are two different entities; the former generally being higher than the latter if migrants are incapable of reproducing because of social strife, lack of breeding positions, or decreased survival” (p. 4422). Finally, the study warns that “our results through 2004 are not necessary [sic] reliable predictors of future conditions” (p. 4423).

In reviewing vonHoldt et al, Hebblewhite et al 2010 wrote: “In conclusion, concerns that this highly vagile and fecund species might suffer negative affects of genetic isolation between the 3 established wolf subpopulation have been effectively laid to rest by vonHoldt et al.’s (2010) exhaustive work. Such connectivity may or may not be maintained in years to come, as more liberal management is expected for wolves living outside protected core areas.”

The proposed rule notes:

[W]olves dispersed in all directions (19 percent of dispersers traveled east as would be necessary to get from central Idaho to the GYA); dispersal occurred year round, but peaked in winter (more than half of all dispersal occurred in the 4 months of November through February); dispersal was a long, meandering process (dispersal events averaged 5.5 months); disperser survival rates were lower than for resident wolves (70 versus 80 percent); [76 Fed. Reg. 61814]

This suggests that few dispersers will survive and reproduce if 83% of the state is made inimical to them. The fact that dispersals lasted so long and occurred year round also suggests the limited utility of the seasonal flex-zone. The proposed rule also admits that if all three states reduce wolf numbers to their permitted minimums, dispersal would “noticeably decrease”:

Overall, we believe State management of population levels alone is unlikely to reduce the overall rate of natural dispersal enough to threaten adequate levels of effective migration. However, if the population is maintained near the minimum recovery target of 150 wolves per State, a scenario we view as extremely unlikely, we would expect dispersal to noticeably decrease. As discussed below, if genetic exchange drops below one effective migrant per generation, the States will implement a human-assisted migration program (*i.e.*, translocating wolves). [76 Fed. Reg. 61815]

Of course, a noticeable decrease or even entire curtailment of natural dispersal could occur even with wolf numbers somewhat higher than these minimums.

Reliance on translocation of wolves to ensure genetic connectivity turns the definition of an endangered species on its head. After multiple assurances of Wyoming wildlife authorities' good intentions to maintain natural connectivity (though many years they will likely manage for just 10 breeding pairs), the proposed rule and the Wyoming management plan propose as a last resort translocation of wolves to ensure genetic connectivity and thereby persistence of the Wyoming subpopulation. However, because the other assurances of natural connectivity are unlikely to be fulfilled, this last resort would likely end up as standard procedure.

The proposed reliance on translocation illustrates in part why wolves must still be considered endangered in Wyoming. The Endangered Species Act defines recovery as "the point at which the measures provided pursuant to this Act are no longer necessary" -- and one of those measures is translocation. Unless wolves can be shown to be genetically viable under state management with no resort to future translocation, Wyoming's wolves cannot be delisted.

For these reasons, the gray wolf in Wyoming must stay on the endangered species list at this time.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Robinson". The signature is fluid and cursive, with a large, prominent initial "M" and "R".

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