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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
MISSOULA DIVISION

CENTER FOR BIOLOGICAL DIVERSITY, et al., Plaintiffs, WESTERN WATERSHEDS PROJECT, et al., Consolidated Plaintiffs, ANIMAL WELLNESS ACTION, et al., Consolidated Plaintiffs, vs. UNITED STATES FISH AND WILDLIFE SERVICE, et al.,	Lead Case CV-24-86-M-DWM Member Cases CV-24-87-M-DWM CV-24-97-M-DWM BRIEF IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT

Federal-Defendants,
and

SPORTSMEN'S ALLIANCE FOUNDATION, et al.,

Defendant-Intervenors

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[1] These declarations are properly before this Court because they are submitted solely to demonstrate Plaintiffs meet the minimum requirements for Article III standing.

"... wolf management is determined by the political and social perspectives of the present administration creating the rules ... rather than by the best science available."

Dr. Diane K. Boyd, Peer Reviewer (FWS000276)

INTRODUCTION

The Service concedes that wolves in the West are a valid "distinct population segment" under the Endangered Species Act ("ESA") but insists this population does not warrant listing. The best available science, however, reveals otherwise.

There are only 2,797 wolves in the entire West which means the effective population, i.e., the number of breeders able to contribute to the next generation, is well below 500. Not a single scientific paper would suggest this is a viable or recovered population over the long term. This small population is also declining, remains confined to only 10% of its historical range, and is made up of small, relatively isolated packs (outside the Northern Rockies). This population is also being subjected to high levels of human-caused mortality which is further reducing the population and limiting connectivity. In other words, an already bad and vulnerable situation for wolves is getting worse.

In denying Plaintiffs' petition to protect wolves in the West, the Service failed to utilize and apply the best available science on these threats. The Service also failed to analyze these cumulative threats in violation of the ESA.

BACKGROUND

I. Wolves in the West.

Wolves live in packs with strong social bonds. FWS000425. Packs typically include the breeding pair, pups, and maturing or unrelated individuals. *Id.*

FWS005681. Wolves are unique in that reproduction is typically monopolized by the alpha male and female. FWS00425; FWS001153. The loss of a single breeder, therefore, can be disruptive and disproportionally affect population dynamics, destabilize social structure, and reduce population growth. FWS002909; FWS121851.

Wolves are habitat generalists but require large amounts of suitable habitat. FWS000407. These are areas with adequate prey and low risk of human conflict. *Id.* In the West, wolves function as a metapopulation which is comprised of a series of partially isolated but connected smaller subpopulations. FWS000409. To function, this metapopulation needs a sufficient number of breeders and effective dispersal between subpopulations. FWS000434.

Prior to European settlement, wolves roamed throughout the West. FWS000407. There were likely 380,000 wolves in the region. FWS010946. By the 1930s, however, wolves were essentially eliminated due to hunting, trapping, poisoning, and public bounties. FWS000407.

II. The listing of wolves under the ESA.

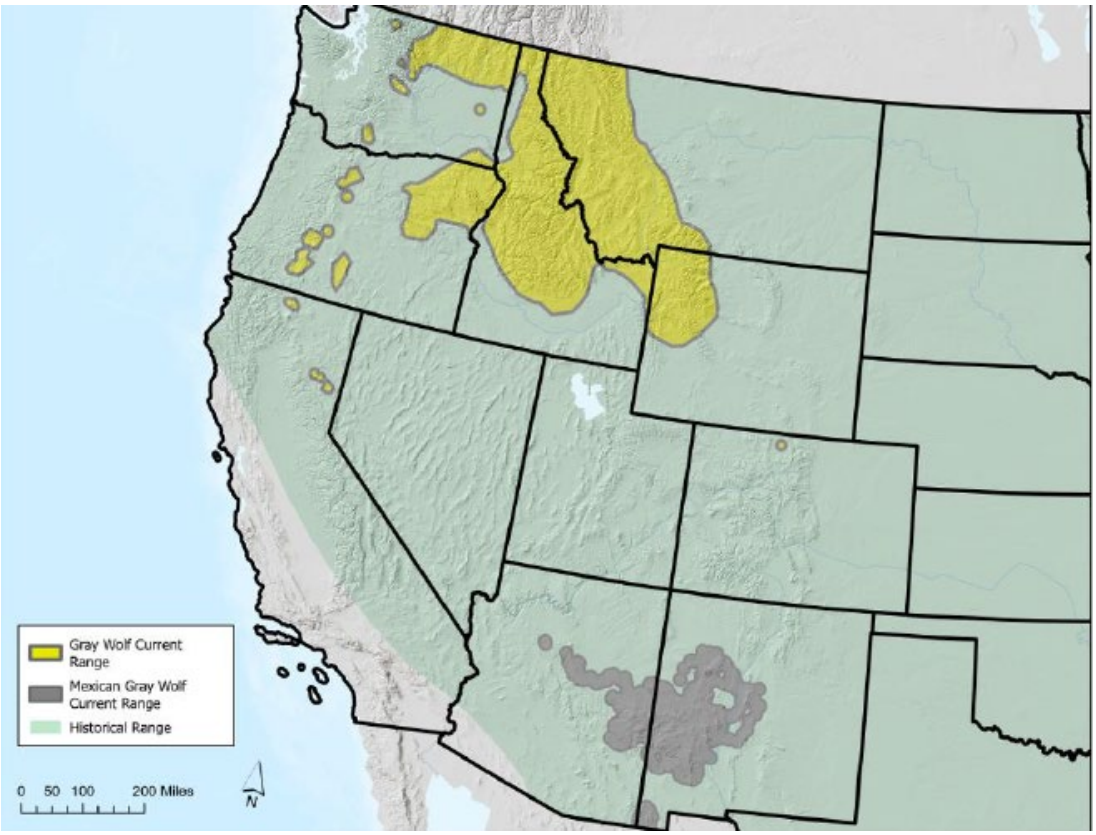
Decisions to list a species under the ESA involves review of five threat factors, 16 U.S.C. §§ 1533(a)(1)(A)–(E), and must be based solely on the best available science. *Alaska Oil and Gas Ass'n v. Pritzker*, 840 F.3d 671, 681 (9th Cir. 2016). This does not require "ironclad and absolute" science, *id.* at 680, but it does prohibit the Service from disregarding scientific evidence that is in some way better than the evidence it relies on. *Kern Cnty. Farm Bureau v. Allen*, 450 F.3d 1072, 1080 (9th Cir. 2006).

In 1978, the Service listed wolves in the lower 48 States as endangered, except in Minnesota, where they were listed as threatened. *Defs. of Wildlife v. U.S. Fish & Wildlife Serv.*, 584 F. Supp. 3d 812, 818 (N.D. Cal. 2022). In subsequent years, the Service attempted to revise and change the wolf's listing status, largely to no avail. *Id.* at 818–20 (discussing history).

In 2009, the Service attempted to delist a Northern Rockies population of wolves which was invalidated by this Court, though this 2009 rule was subsequently reinstated by a Congressional rider. *Id.* at 819.

In 2020, the Service issued a new rule proposing to delist wolves throughout the remaining lower 44 States, including all portions of the West. *Id.* at 820. That rule was also invalidated by the courts, *see id.* at 834, though this case is currently on appeal at the Ninth Circuit. At present, therefore, wolves remain temporarily listed as endangered in the contiguous United States, except in the Northern Rockies (delisted) and Minnesota (threatened).

Currently, the Service estimates there are 2,797 wolves in the West. FWS000410. These wolves are largely concentrated in the Northern Rockies with smaller and more isolated packs in other regions:



FWS000408.

III. Plaintiffs' petition.

In 2021, two coalitions, including Plaintiffs, submitted petitions to the Service to list wolves in the West. FWS129190; FWS004423. The petitions explained why wolves in the West qualify as a population segment and why, according to the best available science, they warrant ESA protections. *See id.*

In September 2021, the Service issued a finding that the two petitions contained substantial information indicating that the requested action "may be warranted." FWS000770. In February 2024, however, the Service denied the petitions. FWS000769. The Service agreed that wolves in the West qualify as a valid

"segment" under the ESA (unlike the Northern Rockies segment designated in 2009) but found this segment was recovered and did not warrant listing. FWS000769. The Service determined that 2,797 wolves in the West is a sufficiently large population and one that is well connected and able to adapt. FWS00773.

STANDARD OF REVIEW

ESA claims are reviewed under the Administrative Procedures Act ("APA") which directs courts to hold unlawful agency action found to be arbitrary and capricious or not in accordance with law. 5 U.S.C. § 706(2)(A). Under the APA, no deference is afforded to the agency on questions of law. *Loper Bright Enterprises v. Raimondo*, 603 U.S. 369, 391–92 (2024). Judicial review of policymaking and factual decisions, however, are deferential, *id.*, though courts must still engage in a "thorough, probing, in depth review," *Citizens of Overton Park v. Volpe*, 401 U.S. 402, 415 (1971), and reject actions that fail to consider an important aspect of the problem or explanations that run counter to evidence in the record. *League of Wilderness Defenders v. Forest Serv.*, 549 F.3d 1211, 1215 (9th Cir. 2008). There must be a "rational connection" between the facts found and the choice made. *Humane Soc'y of the U.S. v. Locke*, 626 F.3d 1040, 1048 (9th Cir. 2010).

ARGUMENT

The Service's determination that wolves in the West do not warrant ESA protections is arbitrary and conflicts with the best available science because this population segment is: (1) too small; (2) declining; (3) concentrated in a small portion of its historical range; (4) comprised of small, relatively isolated packs (outside the Northern Rockies); (5) subject to high levels of human-caused morality; and (6) experiencing cumulative threats.

I. The population is too small.

The best available science reveals a census population of 2,797 wolves in the West, FWS00410, is well below the minimum number needed to protect against genetic threats and ensure the long-term viability of the species.

Population size is "a major determinant" of persistence and extinction risk. FWS016042. Smaller populations (and range-restricted ones) "are highly vulnerable" to extinction. FWS019463. Smaller populations face a variety of threats: random variations in birth and death rates, environmental fluctuation, declines in fertility and survival, inbreeding depression, disease outbreaks, reduced reproductive fitness, and the loss of genetic diversity which reduces wolves' ability to evolve and cope with environmental change. FWS019472. For these reasons, smaller populations "are more likely to go extinct than larger ones." FWS002947; *see also Crow Indian Tribe v.*

United States, 965 F.3d 662, 679–80 (9th Cir. 2020)(discussing threat from small population size and isolation); *Crow Indian Tribe v. United States*, 343 F. Supp. 3d 999, 1018-1020, (D. Mont. 2018)(same); *Defs. of Wildlife v. Jewell*, 176 F. Supp. 3d 975, 1005 (D. Mont. 2016)(requiring analysis of threat posed by small population size).

Defining the "minimum viable population" size that is sufficient and adequate to ensure the long-term viability of a species is thus a top priority for conservation biologists. FWS016042.

One method used to estimate minimum viable population size is to undertake a population viability analysis. *See* FWS016042–43 (discussing method). This analysis estimates the population size a species needs to exist over a certain period and according to a level of acceptable risk. *Id.* Reed (2003), for example, estimated the minimum viable population a species needs to ensure a 99% probability of persistence for 40 generations. FWS016043. The census is that this time frame and this level of risk is generally appropriate for judging the effects of small population size. FWS016042; *see also* FWS016024 (discussing same); FWS006719 (same).

Reed (2003) estimated that roughly 7,000 breeding-age adults are required to ensure the long-term persistence of vertebrate populations in the wild. FWS016049. For wolves, Reed (2003) estimated the number to be roughly 6,332 breeding-age

individuals. FWS016051.

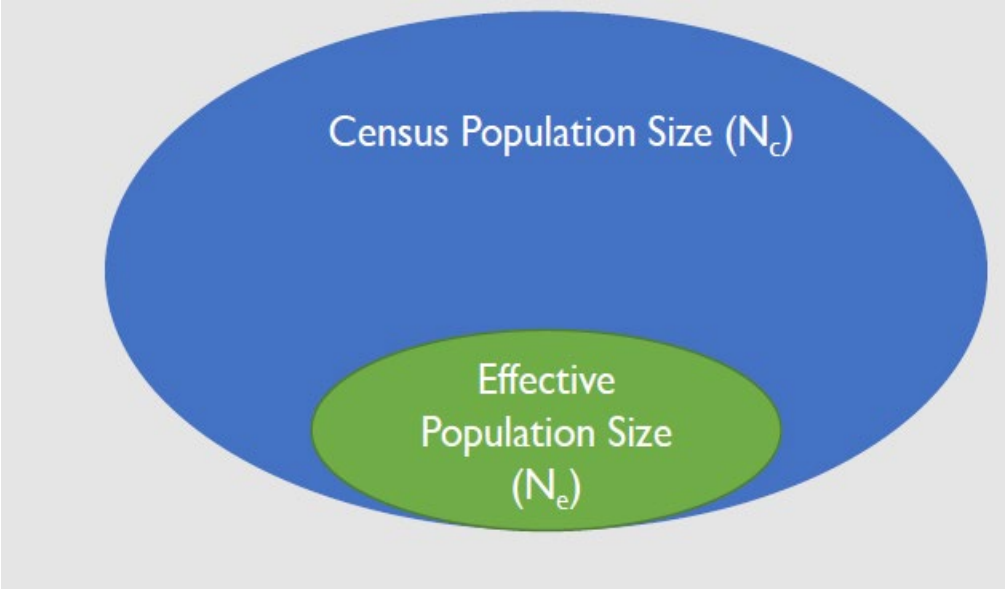
Another method used to estimate minimum viable population size is derived from genetic factors. FWS016025. Genetic diversity is a key component of a species' viability and the key to maintaining sufficient genetic diversity is maintaining a sufficiently large "effective population." FWS000435. This is the number of breeders in a population during a single season, i.e., the number of individuals able to contribute to the next generation. *Id.*; *see also Crow Indian Tribe*, 343 F. Supp. 3d at 1019 (discussing effective population size). Because effective population size is an indicator of genetic health and "determines the rate of loss of genetic variation, inbreeding, and the fixation of deleterious alleles," FWS024482, it is critical for the long-term genetic viability of a species.

Franklin (1980) reported that for short-term (a few generations) maintenance of genetic diversity and avoidance of inbreeding depression, the effective population should not be less than 50. FWS006735. In the long term, the effective population should not be less than 500. *Id.* This is referred to as the "50/500 rule." FWS00435. If a population falls below these values "it is likely that genetic variance for complex traits is lost at a significantly faster rate than it is renewed by mutation." *Id.*

More recently, Frankham (2014) explained the 50/500 rule is outdated and inadequate for preventing inbreeding depression and should be replaced with a

"100/1000 rule." FWS006716. "Evidence accumulated since 1980 shows that a genetically effective population size [of] 50 is inadequate for preventing inbreeding depression over five generations in the wild … [and] even 500 is too low for retaining evolutionary potential for fitness in perpetuity." FWS006714. A better rule of thumb is that an effective population of at least 100 is needed to avoid inbreeding depression in the short-term and 1,000 over the long-term. *Id.*

Properly estimating the effective population size of a given population segment – here, wolves in the West – is thus critical to establishing a minimum viable population and understanding the genetic threats. This is done by extrapolating the effective size from the larger census size. FWS006717.



FWS000345. This ratio varies by species due to demographic differences and differences in life histories and breeding habitats. FWS006718. Notably, the ratio

for wolves is typically smaller than most species due to breeding habits. Wolves are unique in that only the alpha male and female in the pack typically breed so the effective population is generally "much smaller," FWS024482, and only a "small fraction" of the total population size. FWS001153.

Studies on the *ratio* of effective to census size for wolves have varied. *See* FWS000618 (discussing studies). For example, vonHoldt (2008) reported an effective size of 30% for a young population of wolves in Yellowstone. FWS024494. Peterson (1998) reported 16% for wolves inhabiting Isle Royale, FWS024559, and a 2021 Wildlife Genetics International reported 17%. FWS000585. A recent published and peer-reviewed paper – vonHoldt (2023), FWS0024549 – estimated the ratio for wolves to be much smaller, only 5.2% to 9.3% of the census size. FWS024559.

If one applies vonHoldt (2023)'s ratios to the Service's census estimate of 2,797 wolves, the effective population ranges from about 145 wolves (2,797 x 0.052) to 260 wolves (2,797 x 0.093). These numbers are *well below* the numbers needed for long-term viability under the original 50/500 rule and more current 100/1000 rule. This is equally true even if the 17% figure used by the Service, *see* FWS000435, is applied.

For example, using this ratio, the likely effective population in the West is

only 475 (2,797 x 0.17). This too falls below the number needed for long-term viability under both the 50/500 and 100/1000 rules. An effective population of only 475 wolves is thus too small to ensure the long-term viability and genetic health of the population. As explained in vonHoldt (2023), while the wolves in the West may fall above minimum effective population levels needed to "avoid extinction due to inbreeding depression *in the short-term*" the population still faces "*long-term* risk of extinction on their own given their present-day effective population sizes." FWS024559 (emphasis added).

Indeed, to ensure the long-term viability of wolves in the West under the 100/1000 rule, vonHoldt (2023) reveals a census population of roughly 10,752 to 19,230 wolves is required, depending on the ratio used (5.2% or 9.3%). The same is true even if one uses the Service's 17% ratio for census size. A census population of at least 5,900 wolves is required to exceed the 100/1000 rule (5,900 x 0.17 = 1,003), which is more than twice the current census estimate. And, even under the older 50/500 rule, a census of at least 2,950 wolves is required (2,950 x. 0.17 = 501).

In sum, therefore, the relevant scientific literature (and the Service's own figures) reveals a census population of 2,797 wolves in the West is simply too small. Wolves might be above the thresholds needed to avoid extinction and inbreeding depression over the *short-term* but certainly not in the *long-term*, as required by the

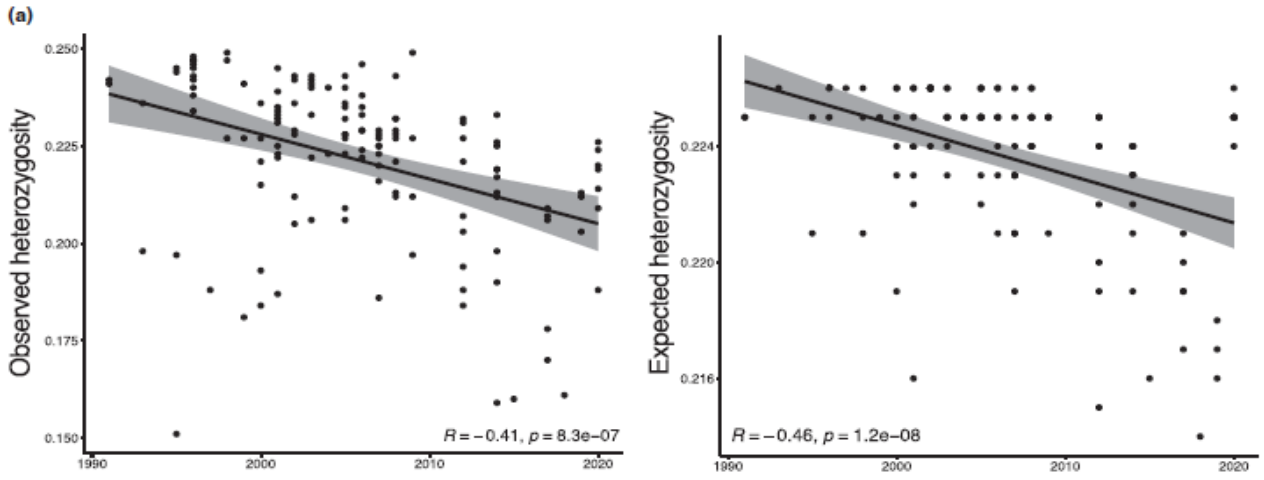
ESA. *See Crow Indian Tribe*, 965 F.3d at 680 (explaining need to ensure long-term genetic health under the ESA); *Ctr. for Biological Diversity v. Jewell*, 2018 WL 1586651, at *4 (D. Ariz. Mar. 31, 2018) (explaining same).

The Service's insistence, therefore, that wolves in the West are recovered and no longer threatened by small population size and genetic threats thus misplaced and unsupported by the best available science. There is a disconnect between the facts found and the decision made which is the hallmark of arbitrary action. *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm*, 463 U.S. 29, 43 (1983).

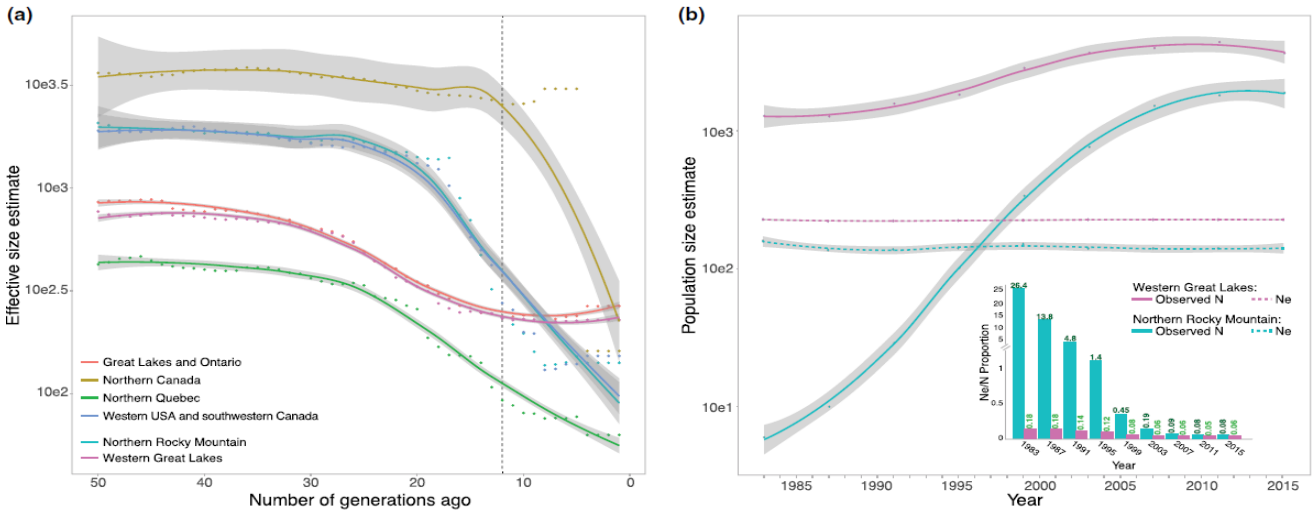
II. The population is declining.

In addition to being too small, the metapopulation of wolves in the West is also declining. For the first time since listing, wolves are experiencing a downward trend, FWS00546, which continues. *See* FWS000263 (peer review noting trend).

Genetic diversity is also declining. As explained in vonHoldt (2023), "we found that all heterozygosity estimates for the northern Rocky Mountains population significantly declined over the 30 years surveyed" from 1990 to 2020. FWS024556.



FWS024556. There is evidence "of both significantly lower levels of genomic diversity in the northern Rocky Mountains paired with eroding diversity and higher inbreeding coefficients since 1990, explained in part by … new effective population size estimates." FWS024559. This declining trend corresponds to a declining effective population which is "strongly influenced by the number of breeding wolves and gene flow." FWS024559. In fact, declines in effective population continued when the census population was purportedly on the rise (according to state counts):



FWS024557.

The Service, however, never squarely addressed or dealt with this alarming trend in both census and effective population size (except to vaguely acknowledge that it exists, FWS000772). Nor did the agency assess how this trend – in an already too small population – may affect metapopulation dynamics now and into the future. This important factor was overlooked. *State Farm*, 463 U.S. at 43.

III. The population only exists in a small portion of its historical range.

The metapopulation is not only too small (and declining) but is also confined to a small fraction of its historical range. FWS000408. Only 10% is occupied. FWS00280. This is problematic and, as the Service concedes, undermines the viability of wolves. *See Humane Soc'y of the U.S. v. Zinke*, 865 F.3d 585, 605 (D.C. Cir. 2017) (citing agency rule).

Historical range loss restricts "distribution and abundance," inhibits gene flow, and reduces population redundancy to such levels that can make a species "vulnerable to extinction or likely to become so within the foreseeable future." *Id.* at 606; *see also Ctr. for Biological Diversity v. Zinke*, 900 F.3d 1053, 1067 (9th Cir. 2018) (explaining same). A species with reduced range is also at greater risk of "being affected by catastrophic events, such as a hurricane or fire." *Id.* This is why one peer reviewer insisted that to be deemed viable, wolves in the West should occupy a

majority of the nine western states, not just a few of them. FWS000279.

It is thus critical for the Service to carefully evaluate how such range losses – in conjunction with small population size – may affect wolves. *Humane Soc'y*, 865 F.3d at 606. The Service must "adequately grapple with the causes and effects of historic range loss," *Defs. of Wildlife*, 584 F. Supp. 3d at 829, and cannot "brush off a substantial loss of historical range as irrelevant" to the species' status. *Humane Soc'y*, 865 F.3d at 605.

Yet here, that is precisely what the agency did. The Service never analyzed how the confinement of wolves to only a small fraction of the species' range may threaten the species, including metapopulation dynamics, especially when combined with an already too small and declining population. The Service insists it implicitly accounted for range loss by focusing on the current status of the species. FWS00060. Any effects from lost range, according to the agency, are thus already baked-in and "reflected in the species' current demographics". FWS00061. But this baked-in defense was already rejected in *Humane Soc'y*, 865 F.3d at 606, and *Defs. of Wildlife*, 584 F. Supp. 3d at 829, and should be rejected here, especially given evidence from vonHoldt (2023) that the effects from lost historical range are already revealing themselves as significant declines in genetic diversity. FWS024556.

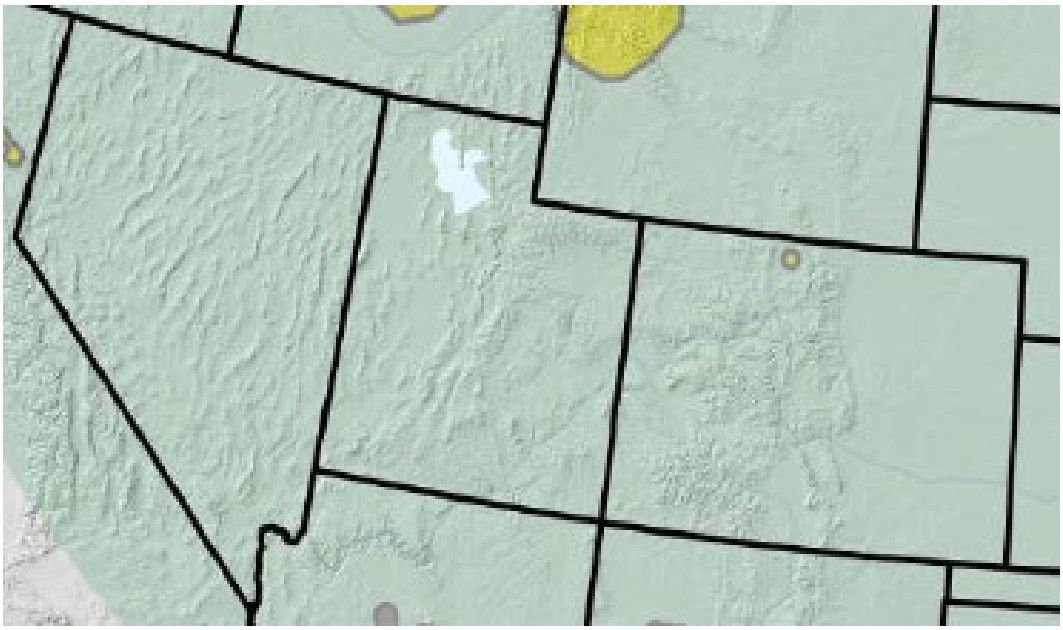
As explained by the D.C. Circuit, an adequate evaluation of threats requires

"looking at more than just the current moment in time;" it must account for the effects that stem from a "material contraction" of range and the species' "sustainability" within that confined range. *Humane Soc'y,* 865 F.3d at 606. An agency's failure to address this factor renders the "decision unreasoned, arbitrary, and capricious." *Id.* at 607.

IV. The population is comprised of small, relatively isolated packs.

In addition to being too small, declining, and confined to a small portion of its range, wolves in the West are also comprised of small, relatively isolated packs (outside the Northern Rockies). Indeed, 2,383 wolves or roughly 85% of the population of wolves in the West reside in the Northern Rockies, FWS000547-550, which means the remainder of the West is sparsely populated by only 414 wolves. Here, wolf populations are smaller and more isolated. *See* FWS000284.

As explained during peer review, in Colorado, Utah, and Nevada there are no multiple, established packs. FWS000280; *see also* FWS000408 (showing area occupied in yellow):



And in California, Oregon and Washington there are only "relatively small, recolonizing populations." *Id*; *see also* FWS000408:

As one biologist noted, these "small, relatively isolated wolf packs and individuals throughout the West are subject to higher rates of local extinction from several processes, such as inbreeding, Allee effects, and stochastic processes." FWS000280. "This is the current situation in Colorado, California, Utah, and the boundaries" of the Northern Rockies which includes parts of Oregon and Washington. *Id.*

This is not a viable, recovered metapopulation of wolves in the West. Far from it. As aptly noted during the peer review, to be deemed viable, there should be "viable populations (with high certainty) in the majority of the nine western states, or [wolves should] occupy suitable habitat distributed across the nine states, instead of in just a few states." FWS000279. And getting to this point will be a difficult task. FWS000280. Significant barriers exist. The mere dispersal of a wolf is not enough: wolves "must disperse, find a mate, establish a territory, reproduce, and avoid human/livestock conflict in order to recolonize a new area." FWS000280. As explained in vonHoldt (2010), wolf 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." FWS024514. This likely why "it took over 80 years for a wolf pack to recolonize and breed in Colorado following their state-wide extirpation."

FWS000284.

Here, however, the Service never addressed this situation. Instead, the agency inaccurately assumed that wolves "have high levels" of connectivity in the West. FWS000772.

V. The population is being subjected to high levels of human-caused mortality.

In addition to being too small, declining, confined to 10% of its range, and relatively isolated, wolves in the West are also being subjected to high levels of mortality which is reducing numbers even further and limiting dispersal.

Idaho recently expanded available methods to kill wolves, FWS00046–69, with the goal of significantly reducing wolf numbers. In fact, Idaho only committed to manage for 150 wolves, though its more immediate goal is to reduce the population to 500. FWS000467. Nearly 400 wolves were killed in Idaho during the 2022-2023 hunting season alone. FWS000476. Montana has also expanded opportunities to kill wolves. FWS00479-486, and committed to manage at least 150 wolves with 450 being a "benchmark" goal. FWS00479. Nearly 260 wolves in Montana were killed during the 2022-2023 season. FWS00488.

In Wyoming, wolves are classified as either "trophies" in the northwest part of the state, where it plans to maintain 100 wolves, FWS000492, or "predatory animals" in the remaining 85% of the state where wolves are subject to killing

without regulation. FWS000491–92. Here, wolves "may be taken by any legal means year-round and without limit." FWS000494.

Wolves are also killed in large numbers in the name of predator control. Since 2011, predator control in Idaho resulted, on average, in 75 wolves being killed each year. FWS000477; *see also* FWS00504. And since 2011, predator control efforts resulted, on average, in the killing of 61 wolves in Montana, 47 in Wyoming, 3 in Oregon, and 4 in Washington. FWS000504. These are just the reported numbers.

Human-caused mortality from state killing and predator control are thus reducing an already small (and declining) population of wolves further, to numbers well below the thresholds needed for long-term viability. *See supra* § I. In 2022, there were *865 reported* wolf deaths in five western states. FWS000504. Such levels of mortality are undermining metapopulation dynamics by: (1) reducing effective population size; and (2) limiting dispersal and effective migration.

Creel (2010) documented declines in wolf populations when human harvest levels reached 23%–24% of the population. FWS0005678. The current level of mortality – which amounted to 865 wolves out of a population of 2,797 in 2022, or roughly 31% – exceeds this threshold. Such mortality is also "additive or super-additive" to total mortality (as opposed to being compensatory). FWS005674. It is thus no surprise that wolves are now experiencing a downward trend. *See supra* § II.

As explained in vonHoldt (2023), practices "that seek to reduce overall populations and permit hunting during the breeding season have the greatest potential to have negative consequences on effective population size." FWS024559; *see also* FWS000273 (explaining how killing affects reproductive rates); FWS001156 (explaining how killing affects genetic diversity). Indeed, as per the states' plans, the population in the Northern Rockies will decrease significantly, from 2,383 (current estimate) to 1,050 wolves (according to management goals) or 400 (according to minimum commitments). Based on vonHoldt (2023), FWS024549, this means the effective population in this three-state region could drop to roughly 54 to 97 if management goals are achieved or as small as 20 to 37 if minimum populations are maintained. Both are well below levels needed to avoid genetic threats. *See supra* § I.

This level of mortality is also limiting much needed dispersal and connectivity. Wolf viability across the West hinges on "ensuring connectivity from source populations to unoccupied, quality habitat." FWS000283. As explained in vonHoldt (2023), disperser success "is an additional critical factor for long-term survival of the species, promoting gene flow that will reduce inbreeding and elevate effective population sizes through increased allelic variation and demographic rescue." FWS024560. "The protection of grey wolf dispersers between wolf populations is thus important to improve their effective population sizes for long-

term persistence." *Id.*

The success of dispersers and their ability to connect and breed with others, however, is undermined by high levels of mortality. As explained by Dr. vonHoldt: the "success of dispersers will decrease as wolf mortality rates by hunting and control for livestock depredations increase.... Consequently, a management challenge for long-term viability of wolves ... will continue to be the maintenance of adequate population size and effective dispersal to maintain long-term genetic health." FWS024516.

Similar concerns were raised during the peer review process where biologists noted that the states' killing "could have significant effects on the recolonization of the species across the West." FWS000281. One could easily "hypothesize that the rate of wolf range expansions slow when Montana, Idaho, or Wyoming allow liberal harvest during the primary dispersal season." *Id.*; *see also* FWS000270 (explaining that if wolves are managed at state levels, it is doubtful there would be dispersers (or at least not as many)).

The situation in Yellowstone illustrates the problem. There, aggressive state killing is affecting movement and dispersal out of and into the Park. FWS000282; *see also* FWS004379 (same). Liberalized hunting is reducing the rate of "successful recolonization," FWS000282, which is resulting in source-sink dynamics as

dispersing wolves "are being harvested at high rates outside" Yellowstone. FWS000282.

Wyoming's predator control area also creates a barrier to wolf dispersal into Colorado and Utah. As noted by one peer reviewer: this area "may reduce chances of wolves to disperse into Colorado and may impact survival of packs along the border." FWS000262. In 2021, 37 of the 39 gray wolves detected in this area of Wyoming "died from human-caused mortality" and in 2020 "41 wolves died." *Id.* Mortalities in this area "may have slowed the spread of wolves into Colorado." *Id.*; *see also* FWS000264 (explaining same); FWS000282 (same).

This is why, during the peer review, biologists requested more modeling and analysis on how human-caused mortality limits effective migration and connectivity. FWS024515. Such "higher rates of annual human-caused mortality" and whether they "play a significant role on effective dispersal and connectivity" should be investigated "with explicit metapopulation models and future genetic analysis." *Id.*; *see also* FWS000281 (requesting model to evaluate how mortality is affecting connectivity). This has yet to occur.

As explained by one peer reviewer: "There is some text about genetics, but it is limited. The influence of reduced population size on genetic connectivity and diversity is not thoroughly addressed or modeled." FWS000268. The "effect of

potentially smaller population sizes on population genetics is not explicitly addressed." *Id.*; *see also* FWS000269 (noting same); FWS000273 (same). The peer reviewer also questioned an agreement between the Service and a few states to monitor cross-boundary movement, noting that it was never implemented. FWS000269–70.

During the peer review, questions were also raised (but never answered) about how connectivity can possibly be maintained if the states are allowed to manage wolves to the levels proposed. *See, e.g.*, FWS000271 (asking how connectivity can be maintained given mortality levels). As noted by Dr. Boyd, instead of simply assuming there will be connectivity, the Service "needs to discuss connectivity and anthropogenic modifications to the landscapes that may negatively impact wolf dispersal and gene flow." FWS000277.

Yet again, the Service never tackled this issue. This is so even though the wolf numbers in the Northern Rockies are expected to drop significantly, from 2,383 to 1,050 (based on management goals) or as low as 400 (based on minimum commitments). Instead, the Service merely concludes that wolf numbers are abundant and with connectivity. FWS00772. The Service also concluded the population would remain that way into the future based on a population viability model. FWS00772. But this future model does not include all nine western states,

assumes a certain number of wolves will always remain, and does not incorporate the effects from small population size or the loss of connectivity. FWS000596. This important aspect of the problem was overlooked. *State Farm*, 463 U.S. at 43.

VI. The population faces cumulative threats.

When making a listing decision, the Service must analyze whether any one or a combination of the five threat factors threatens a species. 50 C.F.R. § 424.11(c). The Service must analyze the collective threats, *WildEarth Guardians v. Salazar*, 741 F. Supp. 2d 89, 102 (D.D.C. 2010), and account for the reality that individually insignificant effects might lead to a more serious, cumulative threat. *Rocky Mountain Wild v. U.S. Fish & Wildlife Serv.*, 2014 WL 7176384, at *7 (D. Mont. 2014).

As outlined above, wolves are subject to multiple threats. The 2,797 wolves in the West are well below the 50/500 and 100/1000 thresholds, in decline, confined to 10% of their historical range, and remain in relatively small and isolated populations (outside the Northern Rockies). This population is also subjected to high levels of mortality that are reducing the population further and limiting dispersal. Sometimes "the total impact from a set of actions may be greater than the sum of the parts." *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 994 (9th Cir. 2004). A "small amount here, a small amount there, and still more at another point could add up to something with a much greater impact, until

there comes a point where even a marginal increase will mean" the species does not survive. *Id.* The same principle applies here.

The Service insists these threats do not individually undermine metapopulation dynamics or long-term viability. But the Service never analyzed the cumulative or combined threats. The Service says it integrated the cumulative effects into its "characterization of current and future conditions," FWS000525, but merely "integrating" a cumulative effects analysis into current conditions and then concluding no such cumulative threats exist does not suffice. *WildEarth Guardians*, 741 F. Supp. 2d at 101–02. The Service, rather, must evaluate cumulative effects and explain "which factors it felt would cumulatively threaten [the species] and discuss[] the potential implications of those combinations in the [listing decision]." *Rocky Mountain Wild*, 2014 WL 7176384, at *8. This never occurred.

CONCLUSION

This Court should grant Plaintiffs' motion, set aside the Service's not warranted finding, and remand this matter for further proceedings.

Respectfully submitted this 22nd day of January, 2025.

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CERTIFICATE OF COMPLIANCE

I, the undersigned counsel of record, certify that this brief is proportionally spaced, has a typeface of 14 points or more, and contains less than 5,000 words in accordance with this Court's July 23,2024 case management order (Doc. 33). I relied on Microsoft Word to obtain the word count.

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