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To the Oregon Fish and Wildlife Commission:

The following comments relate to the proposal to delist gray wolves in Oregon, entitled “Updated biological status review for the Gray Wolf (*Canis lupus*) in Oregon and evaluation of criteria to remove the Gray Wolf from the List of Endangered Species under the Oregon Endangered Species Act (Oregon Department of Fish and Wildlife (ODFW), October 9, 2015)” hereafter “ODFW Review 2015”.

I have been studying wolf-human interactions for 16 years and ecology generally for >25 years. I’ve published >50 scientific articles on ecology, conservation and human dimensions. **My lab group is the only one in the world to have measured changes in individual humans’ tolerance for wolves over time and attitudes under changing policies on lethal management and delisting.** We have also studied poaching (illegal take) in several peer-reviewed scientific publications. More information about my lab and our work on wolves can be found on our webpage: <http://faculty.nelson.wisc.edu/treves/>.

My comments address human tolerance for wolves, illegal take, and the public trust. I restrict my comment to two points:

- (1) Oregon’s delisting criteria have not been met,**
and
- (2) The main threat to wolf population viability is not adequately understood by any state or federal agency yet, therefore the expected benefits of delisting are unlikely to manifest and the likely costs are not well addressed by current regulatory mechanisms.**

By Oregon law ORS 496.17, state delisting can occur if all of five conditions are met. I address the first and fifth here.

1. The species is not now (and is not likely in the foreseeable future to be) in danger of extinction in any significant portion of its range in Oregon or in danger of becoming endangered; and
5. Existing state or federal programs or regulations are adequate to protect the species and its habitat.

Comment 1. **The criteria for state delisting have not been met.**

The phrase “**The species is not now... in danger of extinction in any significant portion of its range in Oregon**” has two implications. The first relates to historic range and the second to not being endangered.

The historic range of the wolf in Oregon was the entire state (1) as the ODFW Report 2015 correctly noted and visible in Appendix A for map of historic range in the U.S. Habitat suitability analyses for wolves confirm that prey availability and human-caused mortality are the major factors limiting wolves from recolonizing a region, e.g., (2). If one limits the geographic extent considered to be wolf range to those areas where people want wolves to live, one opens the door to illegal and otherwise unacceptable human-caused mortality determining where wolves can live. The legal and biological flaws in this line of

thinking have been described and rejected for federal delisting of the gray wolf (3). In simple terms, the ODFW **should not define wolf range based on interest group anger or some unquantified social acceptance, because that opens the door to a form of extortion by intolerant communities**, “We’ll kill wolves that move here.” Threats posed by people are something to combat.

Instead available range should be defined by the biological capacity of wolves to find what they need to reproduce in an area and the acceptable recolonization might be determined by legal standards (see below).

With this biological logic in mind, the gray wolf is currently present in less than 6% of the state’s land area now (ODFW Review 2015), approximately equivalent to Douglas County, OR. Now imagine if the 3% of Oregon’s human population in Douglas County were the only ones to benefit from the presence of an endangered species (e.g., Washington Ground Squirrel or Lower Columbia River Coho Salmon). Wouldn’t other counties’ residents demand access without extreme efforts? Currently, too few citizens have access to the benefits generated by wolves in Oregon, which include aesthetic, ecological, and uses that deplete the asset (if that depletion leaves the asset unimpaired). Furthermore, future generations of Oregonians have a right to those benefits also. That point is emphasized by the case law upholding the public trust doctrine in Oregon. Wildlife belongs to all state citizens by Oregon law as a trust asset¹. That trust obligation limits the allocation of assets such as wildlife to private interests, e.g., livestock producers demanding lethal control of wolves (1). That trust obligation also curbs the eagerness of administrative agencies to allocate assets,

“In *Morse v. Department of State Lands*,² the 1979 Oregon Supreme Court remanded the director’s decision to issue a permit authorizing a fill for an airport runway extension because he failed to determine whether the public need for the project outweighed damage to public use of trust resources...” (p. 686, section 6.2) in (4)

Therefore I recommend the Commission consider all current citizens and the rights of future generations for whom the trust is held.

I recommend that ‘a significant portion of range’ be interpreted so as to defend against litigation. I **recommend ‘a significant portion of range’ be defined as one of the following geographic extents: at least one breeding pair in every county or breeding pairs in a majority of counties.**

Furthermore, the current population size of wolves in Oregon “As of July 2015, there were 16 known groups or packs of wolves containing a male-female pair (Table 2), and the mid-year minimum population (non-pup) was 85 wolves.” (ODFW Review 2015). A recent illegal shooting has probably lowered that number while emphasizing the role of negligent hunters in illegal take (<http://www.statesmanjournal.com/story/news/2015/10/19/man-shot-and-killed-wolf-could-face-charges/74223524/>). At a population size <85, the addition of a few extra wolf deaths in a year can stop

¹ State v. McGuire, 33 P. 666 (Or. 1883)

² *Morse*, 590 P.2d at 715; After *Morse*, the Oregon legislature amended the Submerged and Submersible Lands Act to require the director to find that the “public need” for the project outweighs harm to public rights of navigation, fishery, and recreation. OR. REV. STAT § 196.825(3) (“The director may issue a permit for a project that results in a substantial fill in an estuary for a nonwater dependent use only if the project is for a public use and would satisfy a public need that outweighs harm to navigation, fishery and recreation and if the proposed fill meets all other criteria ... [in the Act].”).

or reverse population growth. As the ODFW Review 2015 noted, wolves are highly susceptible to human causes of mortality and many of these mortalities go undetected and unreported (cryptic poaching). The ODFW Review 2015 reported illegal take was the leading cause of death among wolves in a small sample of recovered mortalities. For a quantitative example from another state, we estimated an average of 44% (SD 4%) of Wisconsin wolves aged >7.5 months died each year after delisting procedures began and the state regained intermittent authority for lethal control (6). **The majority of those wolf deaths went undetected and nearly half of all deaths were poached wolves. If that pattern applies after delisting in Oregon, one should expect 34–41 yearlings and adult wolves to die in the year that follows. Most will go undetected.** Overcoming such high mortality rates would require higher than average population growth seen in the Oregon population (Table 2, ODFW Review 2015). Chronic, undetected, human-caused mortality challenges the success of Oregon’s wolf recovery.

Moreover hopes that delisting or state authority for lethal control will reduce poaching have been fostered by a flawed analysis (7), see (1) and (6) for why it is flawed. The actual conclusion should be just the opposite, namely delisting and legal culling authority increased poaching in Wisconsin³.

In sum, the Oregon wolf population has not met the first criterion for delisting, whether measured by geographic distribution or population size.

The next comment speaks directly to the fifth requirement that, **“Existing state or federal programs or regulations are adequate to protect the species”**

Comment 2. **The main threat to wolf population viability is not adequately understood by any state or federal agency yet, therefore the expected benefits of delisting are unlikely to manifest and the likely costs are not well addressed by current regulatory mechanisms.**

The ODFW correctly identifies the major threat to wolf population viability is human tolerance manifested through illegal take (poaching) mainly, “Since human tolerance has been and remains the primary limiting factor for wolf survival, building tolerance for this species will require acceptance of the Plan’s approach to addressing wolf conservation and human conflicts.” (p. 3, ODFW Wolf Conservation and Management Plan, December 2005 and Updated 2010)” hereafter “ODFW Plan 2010”) and same sentence on p. 34 of the ODFW Review 2015. One should expect the major threat to a listed species to be well understood and abated if delisting will succeed. Unfortunately the threat is neither **well understood nor abated currently**. Our evidence that **illegal take has not been abated** comes from the section above and data on illegal take in the past as well as the likely prospect that **illegal take is likely to increase** as we explain below. The evidence that **human tolerance is not well understood by the ODFW** comes from the ODFW Review 2015 and the ODF Plan 2010.

The ODFW Plan 2010 and ODFW Review 2015 are not up-to-date on research relating to human tolerance for wolves despite 36 instances in which those documents mentioned “tolerance” or “attitude”. There are over 100 scientific, peer-reviewed articles on human attitudes to wolves (3), and >10 recent studies from the USA address what to expect in human tolerance for wolves after intervention or after policies change (3, 8-16). The ODFW Review 2015 does not cite a single one of those studies or anything by the leaders in the field, which suggests that **the ODFW has not considered the scientific evidence for the major threat to Oregon wolves.**

³ Please contact the author for evidence to support this assertion in a report under review.

Instead, the ODFW Review 2015 cites wolf biologists who have never collected human dimensions data when making a claim about human tolerance, “There are many references which relate human tolerance to successful wolf management (Mech 1995, Bangs et al. 2004, Smith 2013).” Had the ODFW reviewed the expert scientific literature rather than biologists’ opinions, they would have learned the following:

Public acceptance for lethal control has declined significantly since the 1970s and the public prefers non-lethal methods for managing wildlife. Tolerance for carnivores and inclinations to poach them are not well predicted by wealth or economic losses but rather by peer networks and social norms that foster resistance to authority and anti-establishment actions. Those inclined to poach tend to justify their actions by over-estimating how many of their neighbors and associates do so. Tolerance for bears declined when messaging was purely negative or concerns hazards posed by wildlife. Tolerance for wolves declined after delisting and legalization of lethal management, probably because people perceived the government was sending a signal that wolves have less value or illegal take will not be enforced. The implementation of lethal control did not raise tolerance for wolves after 8 years and the inauguration of public wolf-hunting did not raise tolerance for wolves after one year. Messaging that includes a sizeable component of information on benefits is more likely to raise tolerance for carnivores than messaging that focuses on costs and risks.

The available evidence suggests delisting and legalizing or liberalizing lethal control is more likely to **increase poaching which is the major threat to wolves in the USA** than decrease it.

Despite the latest results described above, the scientific community still does not know enough to abate poaching, which we believe is generated by intolerance. Perpetrators of poaching are poorly studied. That creates uncertainty about who would poach a wolf, under what conditions, and where. It is widely believed that the average human’s tolerance in areas inhabited by wolves will predict behaviors that harm or help wolf conservation. If that hypothesis is false, concerns with social tolerance are misplaced and attention should focus on a few perpetrators and their social networks that promote law-breaking, rather than on the general public

I conclude that state delisting might have costs that the ODFW has not anticipated and is currently ill-equipped to understand let alone abate.

Furthermore the ODP Plan 2010 is liable to lead to an increase in poorly understood take in the wake of delisting. “A delisting decision by the Commission is not expected to significantly affect the management of wolves. This is because the Wolf Plan and associated OAR’s guide the management of wolves regardless of OESA listing status, and a delisting decision would not inherently alter the management aspects of the Wolf Plan.” (ODFW Review 2015). That is unfortunate because **delisting should lead to a change in management to reduce legal AND illegal killing and increase messages about the benefits of wolves to Oregon ecosystems and citizens.**

Of particular concern is whether the ODFW has correctly described the future costs and benefits of its management efforts that affect wolf survival and reproduction. Lethal management raises such concerns because there has never been a rigorous scientific experiment to test if killing wolves actually prevents future wolf predation on livestock (17-19).

Also Oregon’s state delisting would presumably activate the hunting and trapping of wolves as a “special status game mammal” under ORS 496.004 (9). (While the state wolf Plan indicates that controlled take of wolves could not occur until wolves enter into Phase III, ODFW has publically indicated that the


population goals established in the Plan for moving into Phase III could be met as early as 2017. The Plan also advises that it is expected that wolves will have been delisted by the time Phase III management regimes and the availability of controlled take of wolves begins. With these guidelines and the timeline ODFW has indicated, controlled take of wolves will follow delisting in short order but without scientific basis.) The expectation that “controlled take of wolves would be permitted as a management response tool to assist ODFW in its wildlife management efforts” presumes public hunting is a useful management response. **Setting aside private hunters desires to hunt or revenue generation from hunting, what conservation purpose does hunting play in a population recovering from extirpation?**

Reviews of this question find little or no benefit of public hunting and trapping for conserving large carnivores (20-24). Furthermore, studies of cougars suggest public hunting can exacerbate problems with domestic animal owners (25). It may seem obvious that killing a wolf in the act of chasing, biting or otherwise attacking livestock will save that animal but the vast majority of lethal management is done far from the livestock and long after an attack has occurred. Under such indirect circumstances, lethal management is not clearly effective. Consider the unsettled dispute about lethal management of Northern Rocky Mountain wolves despite twenty years of lethal management (26, 27). Another concern is that the ODFW over-states the problem of livestock depredation in the following quote, “The challenges of wolves in areas with livestock are well documented, and wolves prey on domestic animals in all parts of the world where the two coexist”. This over-states the challenge posed by livestock predation because it ignores years of evidence that a minority of wolf packs are involved in domestic animal depredations and the geographic locations of such attacks are predictable (14, 28, 29). Moreover it ignores the many non-lethal methods that are more effective than lethal control and have not had detectable side-effects and counter-productive results such as higher livestock predation.

I recommend the ODFW pay close attention to research by independent scientists with academic freedom (not USDA-WS which has a financial conflict of interest and not hunter interest groups for the same reason) who have reviewed the evidence on whether killing wolves – either through public hunting or by USDA-WS contract – will prevent livestock predation. Otherwise, and until the scientific community finds consensus on this evaluation, any such killing authorized and condoned by ODFW is not based on best science. Indeed it is being conducted in the absence of scientific justification and may be in violation of the public trust duties of the state, as mentioned previously.

In conclusion, I find **(1) Oregon’s delisting criteria have not been met, and (2) The main threat to wolf population viability is not adequately understood by any state or federal agency yet, therefore the expected benefits of delisting are unlikely to manifest and the likely costs are not well addressed by current regulatory mechanisms.**

Thank you for reading my comments.

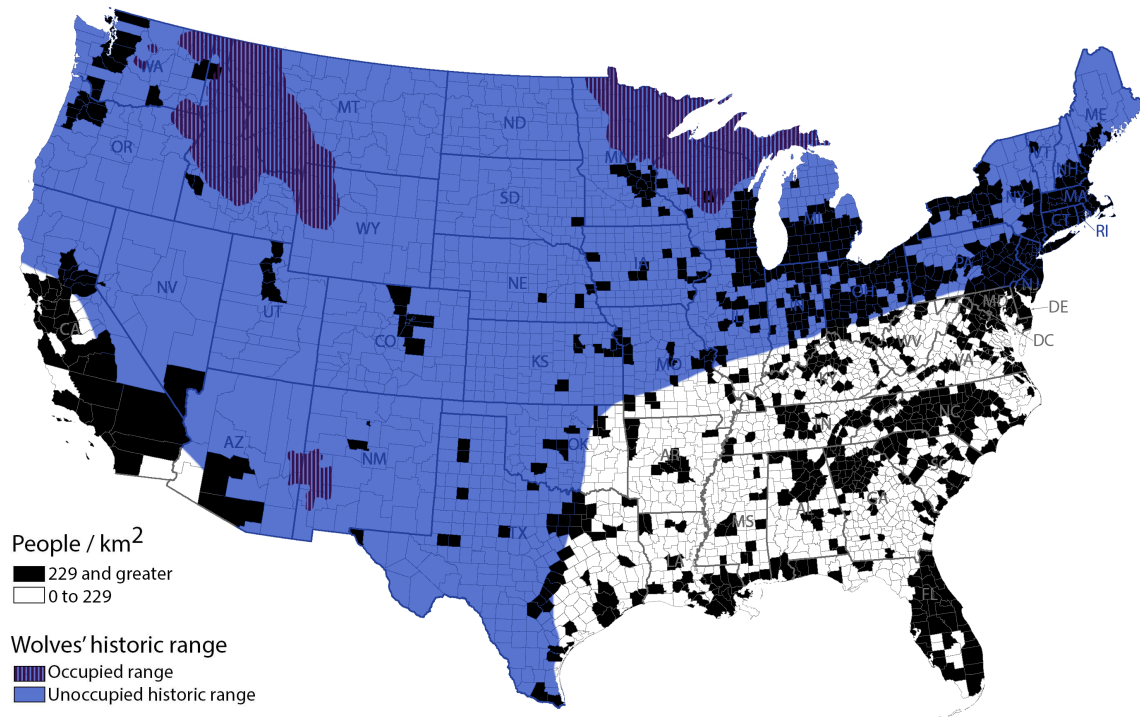


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Appendix A.

Blue area is the historic range of the gray wolf in the conterminous United States. Hatched gray areas are the current range of breeding pairs of wolves as of 2013. The dark polygons show relative human population density (1).



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