

Oregon Department of Fish and Wildlife November 9, 2015

Staff Determination Summary for Removing the Gray Wolf from the Oregon List of Endangered Species

*Note: This document contains data and scientific information either previously presented to the Oregon Fish and Wildlife Commission or within the document titled "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" which is included as Attachment 3.*

Wolves have become established in Oregon and have increased in both distribution and abundance from 2008 to present. A minimum of 81 wolves occurred in Oregon at the end of 2014, and as of July 2015 there were 16 known packs or groups of wolves in Oregon with reproduction having occurred in 13 of them. Though successful breeding pairs are not designated until the end of each calendar year, these numbers do indicate a likely increase in breeding pairs and overall population for the current year – consistent with past and predicted trends.

Wolves do not yet occupy all of their potential range in Oregon, and particularly, they occupy only a portion of estimated potential range in western Oregon. However, wolves occur throughout most of the state. Wolf collar data shows that wolves move freely between the eastern and western management zones and that they traverse the entirety of the Cascades within the Western WMZ. Wolves have proved capable of crossing all types of barriers in Oregon (e.g. rivers, highways) and there are no known conditions which prevent wolves from inhabiting currently unoccupied areas of range. This situation was accurately predicted by the Commission when the 2005 Oregon Wolf Plan was adopted and the decision to divide the state into two management zones was a tacit effort to provide the flexibility needed to manage increasing numbers of wolves in eastern Oregon while maintaining conservation measures for colonizing sub-populations in western Oregon.

Oregon wolf population objectives were established using a three-phased population approach when the Wolf Plan was adopted in 2005. In its 2010 review and update of the Wolf Plan, the Commission reconfirmed this approach for wolf management. Phase I is considered the "conservation phase" and includes a population objective of four breeding pairs of wolves in eastern Oregon for three consecutive years. In January of this year the conservation objective was reached and ODFW entered Phase II of the Wolf Plan in eastern Oregon.

Upon entry into Phase II, the Wolf Plan directs ODFW to initiate proceedings to consider removing the gray wolf from the list of Oregon Endangered Species. Delisting a species from Oregon ESA (ORS 496.176) requires a public rulemaking decision by the Commission. This decision must be made upon a review of the best available scientific and other data, which means that the scientific information is documented and verifiable information related to the species' biological status, and upon the Commission making the following determinations:

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

2. The species' natural reproductive potential is not in danger of failure due to limited population numbers, disease, predation, or other natural or human-related factors affecting its continued existence; and
3. Most populations are not undergoing imminent or active deterioration of range or primary habitat; and
4. Over-utilization of the species or its habitat for commercial, recreational, scientific, or educational purposes is not occurring or likely to occur; and
5. Existing state or federal programs or regulations are adequate to protect the species and its habitat.

To evaluate these criteria, we reviewed the best available science and other data and prepared three separate reports (all contained within Attachment 3) as follows:

1. 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.
 - Documented biological information regarding the current status of wolves with specific emphasis on reproduction and survival, distribution, dispersal, habitat, prey, and diseases.
 - Evaluation of the five OESA delisting criteria using documented and verifiable information.
2. Mapping Potential Gray Wolf Range in Oregon (Appendix A)
 - Primarily used to address Criterion 1 of the OESA delisting criteria
 - Provides insight into where wolves could occur in Oregon based on predictors of wolf habitat from previous research.
 - Calculates that portion of Oregon's potential range which is currently occupied by wolves.
 - Validated with documented Oregon data. 90.3% of wolf location data points which make up all of Oregon's areas of known wolf activity occur within mapped potential range.
3. Updated assessment of population viability of wolves in Oregon using data collected through July 2015 (Appendix B).
 - Primarily used to assess Criteria 1&2 of the OESA delisting criteria.
 - Uses an existing and published Individual Based Model (IBM) to assess population dynamics and viability of Oregon's wolves. We chose this as a base starting model because it provided a peer-reviewed and published framework.
 - Uses concepts widely used in other models (e.g., dispersal, carrying capacity, etc.), but also explicitly incorporates human-caused mortality. Based on literature reviews, human-caused mortality is a major consideration when evaluating wolf populations.
 - This model met our preference for code-based models (instead of pre-programmed models) which allowed a better understanding of mathematical processes as they occur in the model.
 - Model is parameterized using a combination of documented Oregon wolf data and other published (peer-reviewed) research information.
 - Uses vital rates which are conservative compared to those observed in Oregon from 2009-2014. This allows us to err on the side of caution (i.e., the precautionary principle).

Summary of Evaluation of OESA Criteria

Criterion 1: The species is not now (and is not likely in the foreseeable future to be) in danger of extinction throughout any significant portion of its range in Oregon or is not at risk of becoming endangered throughout any significant portion of its range in Oregon.

- Approximately 23% of Oregon is considered permanently unsuitable for wolves due to high human density, road density, and cultivated agriculture
- Approximately 42% of Oregon is considered potential wolf range and wolves currently occupy 12.4% of this area.
- Active expansion (statewide) is occurring at a mean annual rate of 2,228km²/year
- Approximately 3% of the western Wolf Management Zone is currently occupied by wolves, and they are expanding in this area also.
- We identified conditions (e.g., habitat capability, connectivity, and prey availability) to support wolves in both the eastern and western Zones.
- Low risk of extinction (<1%) within the next 50years

Criterion 2: The species' natural reproductive potential is not in danger of failure due to limited population numbers, disease, predation, or other natural or human-related factors affecting its continued existence.

- Using vital rates required to match annual population growth rates of wolves in Oregon from 2009-2014 resulted in no simulations reaching the conservation-failure threshold or biological extinction over the next 50 years.
- The current annual population growth rate for Oregon wolves is 1.43 (\pm 0.15 SD), and this growth is projected to continue in the near term.
- Using conservative input parameters resulted in a predicted mean population growth rate of 1.07 with a 1% probability of biological extinction (< 5 wolves) over the next 50 years.
- Our model used a starting population of 85 wolves. Increasing the starting population to 100 reduced the risk of conservation-failure to 1% with nominal reduction of risk of biological extinction.
- The probability of conservation-failure was low (0.05) when applying human-caused mortality rates of 0.1 or less. These findings are based on the current starting population of 85 wolves, and larger populations will likely be able to sustain higher human-caused mortality rates.
- Oregon's wolves are healthy and observed occurrence of disease and predation has been low.
- Oregon's wolf population is part of a larger population of Northern Rocky Mountain (NRM) wolves and the genetic health of these wolves is high.
- Dispersal and connectivity data shows that Oregon's wolf population is biologically connected within this state and to other subpopulations of wolves within the NRM area.

Criterion 3: Most populations are not undergoing imminent or active deterioration of range or primary habitat.

- Wolves were extirpated from Oregon as a result of direct eradication effort, but have undergone active expansion of range within Oregon since the natural re-establishment of wolves in 2008.

- Wolves are expanding their range in Oregon at a rate of 2,228km²/year and therefore cannot be undergoing active deterioration of range.
- With the availability of widespread and publicly owned forested areas, and policies/laws in place to prevent depletion of both private and public forest, we cannot foresee imminent deterioration of important wolf habitats.
- Though Oregon's human population will increase, most growth will occur in already developed or unsuitable habitats for wolves.
- In Oregon, wolf prey populations (i.e., deer and elk) are widely distributed across the state and most populations are robust.

Criterion 4: Over-utilization of the species or its habitat for commercial, recreational, scientific, or educational purposes is not occurring or likely to occur.

- Delisting gray wolves from protection from the OESA would not result in or allow any additional commercial, recreational, scientific, or educational activities except as provided by the Commission by permit.
- Wolves are increasing and expanding under Oregon's current forest management policies and we have no information which indicates that current utilization of forests is negatively affecting the wolf population.
- Other statutes (e.g., Oregon Wildlife Policy ORS 496.012) provide a regulatory framework to protect against overutilization.

Criterion 5. Existing state or federal programs or regulations are adequate to protect the species and its habitat.

- The combination of programs and regulations currently in place have proved adequate as conservation measures by allowing wolves which entered Oregon to become established and ultimately increase to their present levels.
- The Wolf Plan and associated rules currently in place will continue to be followed regardless of OESA listing status.
- Protections and provisions currently associated with Phase II of the Wolf Plan will be in place before and after a delisting decision.
- The Wolf Plan's phases are based on population objectives. While Phase III of the Wolf Plan allows take under certain circumstances, the higher wolf population associated with phase III assures population protection.

Other Options Considered

Delisting of the Eastern Wolf Management Zone only: We evaluated the potential option of delisting the eastern WMZ only, and conclude that there are few differences (compared to statewide delisting) for wolves under this option. This is because; 1) most of Oregon's wolves already occur within the Eastern WMZ, and 2) wolves in the Western WMZ would continue to be managed under Phase I of the Wolf Plan and this includes ESA-like protections.

Primary differences between the statewide and the Eastern WMZ options include:

- Wolves occupy a higher proportion (31.6%) of the potential wolf range within the eastern WMZ (11,313 km² out of 35,842 km² of potential range).
- Risk of conservation-failure in the Eastern WMZ was slightly higher, but not significantly different, than risk at a statewide level (0.06 vs. 0.05).

Our results suggested that risk of conservation-failure declined with increasing starting population size, so it was not surprising that the slightly smaller starting population in the Eastern WMZ ($N = 76$) had a slightly higher risk of conservation-failure compared to the statewide population ($N = 85$).

No action by the Commission: Wolves remaining listed as a result of a no action decision by the Commission will have nominal biological effects on Oregon's wolf population. This is because our analysis shows that wolves will continue to increase in Oregon under a listed or a delisted OESA status, and the probability of wolves dropping to currently defined conservation levels is very low.

Conclusion and Determination

Per OAR 635-100-0112, staff examined the best available scientific and other documented information which is related to the biological status of wolves in Oregon and has determined that wolves currently meet the criteria for delisting from the Oregon List of Endangered Species. As predicted when the Wolf Plan was developed, wolves have become established in Oregon and have increased in both distribution and abundance from 2008 through 2014. Our analysis of future population growth using conservative parameter inputs indicates a very high probability that Oregon's wolf population will grow and remain extant in future years. There is a low probability of decline below conservation levels and factors related to wolf health, habitat, dispersal, habitat connectivity, and wolf survival all indicate a healthy and growing population that is unlikely to decline in the near-term.

Wolves are rapidly expanding their range in Oregon. Wolf packs have been documented in NE Oregon and in the southern Oregon Cascades, and wolves move freely between the eastern and western WMZs and traverse the entirety of the Cascades within the Western WMZ. Wolves have proven capable of crossing all types of potential barriers in Oregon (e.g. rivers, highways) and there are no known conditions which prevent wolves from colonizing the currently unoccupied areas of their potential range. This situation was accurately predicted by the Commission when the 2005 Oregon Wolf Plan was adopted and the decision to divide the state into two management zones was a tacit effort to provide the flexibility needed to manage increasing numbers of wolves in eastern Oregon while maintaining conservation measures for colonizing sub-populations in western Oregon.

Our evaluation of the threat of extinction in Oregon's potential and current wolf range determined that: 1) wolves were once extirpated as a result of historical efforts to eradicate them, and now in absence of those efforts and under current management frameworks, are increasing in abundance and distribution; 2) there are no known conditions which prevent wolves from inhabiting currently unoccupied portions of range in Oregon; 3) observed movement and dispersal patterns indicate connectivity with source populations; and 4) the probability of population failure in Oregon is very low.