E. Literature Cited


II. WOLF CONSERVATION

There cannot be a single recipe for wolf conservation that can be applied in all ecological and social contexts. Rather, there are several diverse solutions depending on the needs of both humans and wolves at the local level.

Mech and Boitani, 2003

This chapter focuses on methods and procedures that lead to conservation of wolves in Oregon. The Oregon ESA, under which the gray wolf is listed as endangered, requires the “conservation” of listed species, and defines “conservation” as:

“…the use of methods and procedures necessary to bring a species to the point at which the measures provided under ORS 496.171 to 496.182 are no longer necessary. Such methods and procedures include, but are not limited to, activities associated with scientific resource
management such as research, census taking, law enforcement, habitat acquisition and maintenance, habitat protection and restoration, propagation and transplantation.”  

Before the wolf can be delisted under the Oregon ESA, conservation must be achieved. This definition, and the Commission’s long-term goal for listed species, requires sufficient actions be taken to ensure that future protections under the Oregon ESA would not be required. In other words, successful conservation should lead to delisting and strive to ensure that future “relisting” is unnecessary.

The criteria for delisting come from the Oregon ESA and the Commission’s rules. In essence, they require the Commission to make the following determinations for delisting to occur:

- 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
- 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
- Most populations are not undergoing imminent or active deterioration of range or primary habitat; and
- Over-utilization of the species or its habitat for commercial, recreational, scientific, or educational purposes is not occurring or likely to occur; and
- Existing state or federal programs or regulations are adequate to protect the species and its habitat.

These determinations must be based upon verifiable scientific information.  

Conservation Approach

A conservation approach for wolves was designed to satisfy delisting criteria while encouraging human tolerance for wolves and ensuring distribution of wolves across the Oregon landscape. Conservation of the gray wolf will be achieved through an approach that establishes objectives for wolf distribution, population management, and monitoring. The objectives are as follows:

- Permit establishment of a naturally reproducing wolf population in suitable habitat within Oregon, connected to a larger source population of wolves, which allows for expansion into other areas of the state.
- Promote social tolerance for wolves by effectively and responsibly addressing conflict with competing human values through the use of management measures consistent with long-term wolf conservation in all phases of wolf management status under this Plan.

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14 ORS 496.171(1).
15 ORS 496.176; OAR 635-100-0112 Removing Species from State List.

16 Suitable habitat (e.g., high, medium, low suitability) is defined by factors including availability of natural prey, level of human occupation, level of livestock activity, and density of open roads. As habitat generalists, wolves are able to survive in many places. Therefore, unsuitable habitat likely will be defined by human tolerance. Without specific data or experience with wolves on the Oregon landscape, defining the range of habitat suitability must be necessarily vague at this point in time.
• Set separate population objectives for two regions of the state: east and west of a line defined by U.S. Highway 97, U.S. Highway 20, and U.S. Highway 395 (see Figure 1: Divide Between East and West Wolf Management Areas).
• Set a conservation population objective for eastern Oregon of four breeding pairs of wolves present for three consecutive years (a breeding pair is a pack of wolves with an adult male and an adult female with at least two pups surviving to the end of December (see page 26).
• Set a management population objective for eastern Oregon of seven breeding pairs of wolves present for three consecutive years.
• Protect wolves entering western Oregon, following delisting, under a management regime that replicates Oregon ESA protections.
• Set a conservation population objective for western Oregon of four breeding pairs of wolves present for three consecutive years.
• Set a management population objective for western Oregon of seven breeding pairs of wolves present for three consecutive years.
• Determine the status of the wolf population in Oregon through a comprehensive monitoring program.
• Develop and implement agreements with other agencies and/or organizations to help achieve wolf conservation.
Figure 1. The boundary between east and west wolf management zones is defined by U.S. Highway 97 from the Columbia River to the junction of U.S. Highway 20, SE on U.S. Highway 20 to the junction with U.S. Highway 395, south on U.S. Highway 395 to the California border.
A. Wolf Distribution

Objectives
- Permit establishment of a naturally reproducing wolf population within Oregon connected to a larger source population of wolves, which allows for expansion into other areas of the state.
- Promote social tolerance for wolves by effectively and responsibly addressing conflict with competing human values through the use of management measures consistent with long-term wolf conservation in all phases of wolf management status under this Plan.

Strategies
- Expect wolf populations to become established in eastern Oregon before wolves reach western Oregon.
- Allow wolves to establish packs in Oregon through dispersal from adjacent states and not through active reintroductions involving transport of wolves from outside the state.
- Establish two wolf conservation regions in Oregon to provide maximum flexibility in achieving wolf conservation goals for the state.
- Wolf distribution will not be restricted by management zones, property ownership boundaries, or other administrative designations, unless adaptive processes deem them necessary.
- Management actions will support wolf packs that occupy large, contiguous blocks of public land with minimal human activity and adequate prey base.
- Translocation of wolves within the state may be used where needed to achieve conservation objectives.

Historically, wolf distribution in Oregon was thought to include much of the state (see Chapter I). During the nearly 60 years that wolves have been absent from Oregon, humans have significantly altered the landscape throughout the state. Habitat once occupied by wolves has been significantly reduced by development and land conversion, and now exists in fragments rather than contiguous blocks. Road densities have increased dramatically and the human population has grown to more than three million people.

Wisdom et al. (2000) suggested four major challenges to wolf conservation within the Interior Columbia Basin: excessive mortality from humans, mortality related to roads, displacement from habitat by human activities, and population isolation. Humans have indeed changed the Oregon landscape to great extent during the past 150 years. Wolves are habitat generalists, and thus a wide range of Oregon ecosystems are theoretically capable of supporting wolves. In some areas, wolves are capable of occupying habitats that might be considered marginal based on human population densities and land management practices, and with few conflicts. Nevertheless, it will be difficult to predict the specific areas in the state wolves will occupy first, and also difficult to predict where it will be possible for the species to persist. The ability to persist will be determined largely by the degree of human tolerance for the species across the state’s vast rural landscapes.

Continued wolf movement into Oregon from adjacent states is likely given the current population of wolves in the state of Idaho (an estimated 835 wolves in 65 reproductive packs at the end of 2009 USFWS. 2009 Annual Report). The wolf population in Oregon will grow as wolves from other
states enter Oregon through natural dispersal. The natural dispersal method, adopted by the Commission as a guiding principle, differs from wolf restoration efforts in the Rocky Mountain Recovery Area where wolves were captured elsewhere and released into secure and remote areas with abundant prey, no livestock and few humans (USFWS 1994).

The natural dispersal method provides an ongoing connection to a larger source population in Idaho. The Idaho population is expected to continue to supply new dispersing wolves to Oregon, which will diversify the gene pool and fill in home ranges that become vacant due to lethal control, natural mortality, unintended mortalities or westward dispersal. The natural dispersal method also is free of some of the costs and risks (financial, political and biological) that accompany active reintroduction. For example, wolves may not stay in the areas identified as suitable wolf habitat or could be subject to transplant- or capture-related injuries. In addition, natural dispersal eliminates the need to choose, in a public process, which areas of the state initially are occupied by wolves. This Plan, rather than choosing specifically where wolves will go, merely intends that the wolf population in Oregon eventually occupy both the east and west side of the state.

Wolves have established breeding pairs and/or packs in the eastern portion of Oregon through dispersal from the Idaho population. There is some evidence of wolf activity as far west as the Cascade Mountains, but resident wolves or packs have not yet been confirmed. Establishing two wolf conservation regions in the state acknowledges this situation and provides opportunities for active management of wolves in the eastern portion of the state following delisting while maintaining needed protections for wolves that enter western Oregon. To ensure connectivity to the Idaho population of wolves, delisting cannot occur in Oregon until four breeding pairs of wolves are present for three consecutive years in the eastern region.

Establishing conservation population objectives for both regions provides the needed protections to ensure establishment of wolves in both areas regardless of their status under the state ESA. It likely will take a number of years for wolves to disperse into western Oregon and establish breeding pairs through natural dispersal processes. Establishing separate wolf conservation regions in Oregon allows state delisting goals to be achieved in eastern Oregon while ensuring continued protections for wolves in western Oregon.

Due to the proximity of Idaho wolf packs to the Oregon border, the northeastern portion of the state has been the area initially occupied by wolves. There is some evidence (i.e. sign) that wolves may occur at low numbers in the Cascade Mountains, although there is no evidence that they have become established. It could take one to two decades for eastern and western Oregon to reach management population objectives. Wolves could possibly occupy portions of the high desert region of southeastern Oregon if human tolerance is sufficient and prey is adequate. However, the rate of wolf dispersal into and throughout Oregon cannot be predicted. The ability of wolves to reach areas of habitat outside northeast Oregon is assumed but unproven, with the large expanse of private land in the center of the state being a potential obstacle. To help achieve conservation of wolves in Oregon, the state will be divided into two distinct regions defined by U.S. Highway 97, U.S. Highway 20, and U.S. Highway 395 (see Figure 1).

The habitat requirements of any wildlife species determine the species’ potential or likely distribution on the landscape. Some species have very specific habitat requirements whereas others, like the gray

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wolf, are considered habitat generalists. Wolves can occupy a variety of habitats provided adequate prey is available and they are tolerated by humans. Absent conflicts with humans, much of Oregon could support wolves. Wolves in Idaho currently are found predominantly in landscapes that are relatively remote, lightly roaded, and contain substantial forest cover and abundant prey. It is expected that wolves should be able to persist in similar habitats in Oregon. As habitat generalists, gray wolves will be able to establish packs where prey is sufficient and human tolerance is high. The specific habitat chosen will be determined by prey availability and human tolerance and probably will include forests and rangeland habitats. (See Figure 2: Primary Vegetation and Land Cover in Oregon)

Habitat such as wilderness areas or other areas away from livestock use offers the best chance for success provided prey is sufficient. Habitats in northeastern Oregon with few potential human conflicts include Eagle Cap, Wenaha-Tucannon, North Fork John Day and Strawberry Mountain wilderness areas, Hells Canyon National Recreation Area, designated roadless areas on public lands, and areas characterized by low density of open roads (See Figure 3: Forested, Roadless and Wilderness Areas in Oregon). Such areas would be characterized as highly suitable because human densities and activity levels are low and ungulate numbers are considered adequate to support wolves. Wolf presence in these areas will be supported through management actions.

Because wolves have been absent for so many years in Oregon, it is difficult to predict where wolves will eventually become established in the landscape. Figures 3 (Forested, Roadless and Wilderness Areas in Oregon) and 4 (Wilderness and Roadless Land in Eastern Oregon and Central Idaho) display forested public wilderness and roadless areas in Oregon and in eastern Idaho, areas that offer highly suitable habitat. A comparison of the two figures shows that Oregon lacks the vast acres of highly suitable habitat that are present in Idaho. As wolf activity is documented through discovery of individual wolves or wolf pack activity, efforts to radio-collar individual wolves will be initiated. By monitoring and observing wolves regularly, determinations regarding the habitats they select and occupy will be possible. Management decisions will be evaluated for reducing conflicts per available prey, competition with other carnivores and human activities.

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18 Curt Mack, Nez Perce Tribe wolf biologist, February 2004 presentation to the Oregon Wolf Advisory Committee.
Figure 2. Primary vegetation and land cover in Oregon (Source: National Land Cover Data 1992).
Figure 3. Forested land in Oregon, National Forest boundaries, and the location of wilderness, roadless, and wilderness study areas.
Figure 4. Wilderness and roadless areas in eastern Oregon are smaller and more disjunct than they are in Central Idaho.
Wolves will frequent areas in Oregon that contain abundant deer and elk, rather than specific habitat types. For example, the Rocky Mountain elk population in eastern Oregon is estimated at greater than 61,000 while mule deer numbers are estimated to be 216,000. Some areas of northeastern Oregon have experienced declines in deer and elk populations in recent years. The causes have been attributed to drought, increased predation by cougars and black bears, and to dynamics in carrying capacity that are linked to successional processes in forests and rangelands (Cook et al. 2004). Other locations in the state have higher densities of ungulates, such as southwestern Oregon, and eventually could provide additional area in which wolves could persist. However, these areas are far removed from the Idaho source population, thus extended time periods may be required before wolves can occupy them.

A significant portion of potential wolf habitats in Oregon are occupied seasonally by livestock as well as natural prey. The presence of livestock in wolf habitat has and will continue to result in conflict, with wolves choosing livestock as prey. Such conflict will result in non-lethal or lethal control actions to protect livestock (see Chapter III). The locations of livestock on the landscape will influence both distribution and public acceptance of wolves.

It is not the intent of this Plan to physically zone the state. However, de-facto zones will exist because management responses will consider habitat suitability factors as defined in footnote 16 (page 16) Management responses to situations of wolf/human conflict are expected to result in some areas that are not suitable for persistent wolf occupation and others where wolf occupation merits encouragement (e.g., den sites, abundant prey, low human activity). While wolves will not be distributed throughout all of their historic range in Oregon, wolf distribution will not be restricted by management actions to only the most secure habitats. Management must recognize that suitable habitat may well exist outside of these areas and provide opportunity for colonization. Allowing wolves access to habitat throughout the state is intended to provide for their long-term survival in the modern Oregon landscape if in so doing social tolerance is not reduced as a result of conflict. Unless wolves are causing conflict with humans or livestock, they will be allowed to persist in areas of their selection. However, it is expected that some depredation on livestock will occur in places where wolves and livestock are closely associated with one another. This virtual certainty ensures that management of depredating wolves will be a recurrent theme in managing and conserving the species in order to promote social tolerance. Some areas likely will be more prone to livestock depredations than others, and in some circumstances persistent conflict will preclude survival of some wolf packs. Both non-lethal and lethal control actions will have to be employed to protect livestock (see Chapter III).

**Translocation and Relocation**

Natural dispersal is the intended means for wolf dispersal across the state. Translocation’s primary intent is to help meet conservation objectives in both halves of the state. It may be used only in areas where dispersing wolves is determined to be essential to achieve conservation objectives. Translocation may be used only following a public process, involving public meetings, public testimony and approval by the Commission. Translocation employs a “soft” release and will not consider wolves known or suspected of having depredated livestock. State wildlife biologists will coordinate and implement the action.

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19 Personal communication with Edward Bangs, USFWS.
20 “Soft” release means captured wolves will be held at their release site in a holding facility prior to the release.
Relocation differs from translocation in that relocation does not require a public process and is not used to facilitate dispersal. Relocation is available to wolf managers on a day-to-day basis to immediately solve a localized situation or problem. However, relocation will not be considered for wolves known or suspected of having depredated livestock or pets. For purposes of relocation only, wolves would be transported and released into suitable habitat. ODFW is authorized to capture and hold wolves where for the purpose of relocation, translocation, or to aid in recovery of an injured wolf.

Prior to conducting any active relocation of wolves within the state by ODFW, the governing body of each county may choose to hold a public hearing regarding such action. The existence of such a hearing shall not be a precondition to ODFW acting to relocate wolves as needed, nor does it in any way limit ODFW’s legal authority over wildlife management. The purpose of the hearing is to assist in identification of suitable habitat located within the county for purposes of wolf relocation. If the governing body holds such hearings, ODFW shall assist in preparation of the record of the hearing by giving and receiving information relating to identifying suitable habitat located within the county for the purpose of wolf relocation. The record of the hearing shall itself be a part of the criteria for identifying suitable habitat in that county for the purpose of wolf relocation.

B. Management Phases and Population Objectives

Objectives
- Set separate population objectives for two regions of the state: east and west of a line defined by U.S. Highway 97, U.S. Highway 20, and U.S. Highway 395 (see Figure 1: Divide Between East and West Wolf Management Areas).
- Set a conservation population objective for eastern Oregon of four breeding pairs of wolves present for three consecutive years.
- Set a management population objective for eastern Oregon of seven breeding pairs of wolves present for three consecutive years.
- Protect wolves entering western Oregon, following delisting, under a management regime that replicates Oregon ESA protections.
- Set a conservation population objective for western Oregon of four breeding pairs of wolves present for three consecutive years.
- Set a management population objective for western Oregon of seven breeding pairs of wolves present for three consecutive years.

Strategies
- The rulemaking process to consider delisting will be initiated when the conservation population objective for eastern Oregon is met.
- Three management phases (Phase I, Phase II and Phase III) will be delineated to enable the population objectives to be met.
- Wolf population status will be expressed as the number of breeding pairs during Phases I and II until the management population objective is achieved in either region. The federal recovery definition for breeding pairs will be used. A breeding pair is an adult male and adult female with at least two pups surviving to the end of December.\(^{21}\)

\(^{21}\) USFWS 1994.
When the management population objective is achieved in a region (Phase III), wolf population monitoring in that region will transition to counting the number of wolf packs present in the state. A pack is defined as four or more wolves traveling together in winter.

Management Phases

Phase I management activities will be directed toward achieving the conservation population objective of four breeding pairs of wolves present in eastern Oregon for three consecutive years. During this phase, wolves will continue to be listed under the Oregon ESA. Once the conservation population objective is achieved, the process to consider delisting will be initiated.

A breeding pair of wolves is defined as an adult male and an adult female with at least two pups surviving to the end of December. The number of wolves associated with a breeding pair can vary from six-14 wolves (USFWS 2002, 2003). In Idaho, the number of wolf packs represented by a breeding pair varied between 1.5 - 1.63 packs per breeding pair during the period 2002-2004. The average pack size was reported to be 6.4 - 7.8 wolves per pack. Idaho data applied to Oregon wolf population objectives suggests the following: four breeding pairs equates to 6 - 6.5 packs. This number of packs would be equivalent to 38.4 - 50.7 wolves. Seven breeding pairs equates to 10.5 - 11.4 packs. This number of packs would be equivalent to 67.2 - 89 wolves.

Under the Oregon ESA, either the state may on its own initiate the process to consider delisting, or any entity or person may petition the Commission to consider it. Considering delisting requires a public rulemaking process before the Commission, complete with full public notice, public hearing, and opportunity to submit comments. The law requires the Commission to base any delisting decision on scientific criteria related to the species’ biological status in Oregon and to use documented and verifiable scientific information.

If at the end of the process the Commission decides that delisting is justified, the Commission will specify where the conservation population objectives have and have not been met. After delisting and removal of Oregon ESA protections, if western Oregon has not met the conservation population objective, the Commission will continue to manage wolves in that area under a management regime that replicates Oregon ESA protections for individual wolves. Specifically, such a management regime generally will prohibit take of wolves, except as authorized by the Commission for damage and human safety. That management regime will continue until the Commission determines that western Oregon has achieved the conservation population objective, or until this Plan is amended through a public rulemaking process. The management regime for western Oregon is based upon the Commission’s statutory authority to regulate the take of wildlife. Even when a species is reclassified as a game mammal, the Commission retains the authority to regulate (and, where appropriate, prohibit) take of that species as necessary.

Phase II management activities will be directed toward achieving the management population objective of seven breeding pairs of wolves present in eastern Oregon for three consecutive years. During this phase, the wolf no longer will be listed. This phase provides a buffer whereby management actions would be initiated to prevent an unexpected decline in the wolf population that could necessitate relisting under the Oregon ESA.
Phase III management activities will be directed toward ensuring the wolf population does not decline below Phase II levels and that wolves do not climb to unmanageable levels that cause conflicts with other land uses. This phase provides for maintenance of wolf numbers. Setting a maximum population level for wolves in Oregon during this initial wolf planning effort may be premature. The Phase III management level is not intended as a population cap. As wolves become established in the state, wolf managers will be collecting data on wolf movements, pack home ranges, and other population parameters. This information, coupled with data regarding wolf conflicts, could be used to set maximum population levels in the future, depending on the circumstances at the time. A new planning effort based on wolf information specific to Oregon could be undertaken at that time.

Conservation Population Objective

The conservation population objective for Oregon is defined as four breeding pairs of wolves present for three consecutive years in eastern Oregon. This population objective represents a sufficient number of wolves to ensure the natural reproductive potential of the wolf population is not in danger of failure. This number also represents the point at which the Plan recommends initiating the process to consider delisting. In order to ensure four breeding pairs for three consecutive years, additional wolves would need to be present to replace natural losses of breeding adults. ODFW will use the federal definition of a wolf breeding pair because it provides a higher level of certainty in assessing the population status and documenting successful reproduction.

This conservation population objective is based on the prediction that, if the protections of the Oregon ESA are withdrawn when four breeding pairs have been present for three consecutive years in eastern Oregon, a naturally self-sustaining population of wolves would continue to exist in Oregon. This will support the necessary findings on the delisting criteria, justifying a Commission decision to delist the species.

Management Population Objective

Once the conservation population objective is met, management will be directed toward achieving the management population objective of seven breeding pairs present for three consecutive years. The management population objective is intended to ensure maintenance of the wolf population. Achieving this objective will provide a high level of assurance that the wolf population will not decline. Once this population objective has been achieved, further population goals (higher or lower) will be defined through ODFW’s normal rule-making process based on available data and public input.

The status of wolves in Oregon will be expressed as the number of breeding pairs until the management population objective is met. After the management population objective is met, monitoring methods will transition to enumerating wolf packs rather than breeding pairs to reduce monitoring costs.

General Discussion of Wolf Population Objectives

One of the main challenges for wolf planners in Oregon has been estimating the number and distribution of wolves sufficient to achieve conservation of wolves in Oregon and satisfy state delisting criteria, while protecting the social and economic interests of all Oregonians. Setting
population goals too high could foster unrealistic expectations and result in social and biological conflict, and uncertainty regarding the capacity of Oregon to support wolves. Drafters of this Plan relied on information from other state Plans and the scientific literature to develop wolf population objectives.

Uncertainties surrounding the eventual location of dispersing wolves were considered during development of the Plan. One concern was that considerable time could pass before wolves would naturally disperse to western Oregon. In the meantime, wolves would be located primarily in eastern Oregon where human tolerance could be affected as the wolf population increased.

The decision to divide the state into two regions (eastern and western Oregon) with separate but equal population objectives provides the flexibility needed to manage increasing wolf numbers in eastern Oregon while encouraging conservation in western Oregon. The statewide process to consider delisting could be initiated when four breeding pairs of wolves are present for three consecutive years in eastern Oregon. This approach ensures connectivity to the large meta-population of wolves in Idaho, an important factor in achieving conservation of wolves in Oregon.

Because secure habitat is limited in Oregon, biologists predict that fewer wolves will occupy Oregon than are found in similar but much more abundant habitat in Idaho. The federal recovery goal for the Idaho wolf population was 10 breeding pairs in what has been described as the best remaining wolf habitat in the lower 48 states. Oregon, on the other hand, was not selected as a recovery state primarily due to lack of large blocks of contiguous public land habitat.22

Research published in 2003 suggested that the smallest viable wolf populations might be two to three adjacent packs with four wolves each, located 40-60 kilometers apart (Fuller et al. 2003). Each pack might cover 117 square kilometers if the ungulate density averaged eight deer per square kilometer. The authors also wrote that such small populations could persist anywhere if the prey density was at average population levels and productivity, and where wolf production exceeded mortality.

Several notable examples of small wolf populations can be found in the scientific literature. The Isle Royale wolf population began from a single pair of wolves in about 1949. The population has fluctuated between 12-90 individuals.23 This population has persisted for more than 50 years despite being isolated on an island and apparently losing 50 percent of their original genetic diversity. Remnant wolf populations in Europe (i.e., Italy, Spain and Portugal) numbering fewer than 100-200 wolves persisted for decades and have since expanded their numbers and range, and avoided extinction (USFWS 1994).

Because of the proximity of northeastern Oregon to Idaho packs, dispersing wolves initially occupied areas in northeastern Oregon (see Figure 4: Wilderness and Roadless Land in Eastern Oregon and Central Idaho). Wolf breeding pairs in these areas could be considered more secure and stable because of their proximity and connectivity to the Idaho population of wolves. However, other competing factors such as declining ungulate populations, competing carnivore populations and livestock production in those areas will need to be considered. Wolf movement and dispersal between the two populations would allow gene flow between the populations. The large source

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22 Personal communication with Edward Bangs, USFWS.
23 Personal communication with David Mech.
population of wolves in Idaho will provide a continuing source of dispersing wolves in Oregon. Eventually, the two populations could function as one large population, with the Oregon segment representing a wolf range expansion in North America. Oregon’s close proximity to a population that numbers more than 840 wolves provides certainty that dispersing wolves will continue to enter Oregon at an unknown rate. Over time, a better knowledge of the dispersal and immigration rates may emerge. Fluctuations in the wolf population in Oregon may be minimized to some extent by the presence of dispersing Idaho wolves. State law does not allow the presence of healthy populations of wolves in adjacent states to satisfy delisting criteria, regardless of their importance to wolves located within the state. The number of breeding pairs and their distribution within Oregon must be sufficient to stand alone in determining whether the delisting criteria are met. However, researchers have noted that the establishment of new populations and maintenance of populations that are heavily controlled or harvested rely extensively on a source population of wolves (Fuller et al. 2003).

Strategies for Addressing Wolf Population Decline/Potential for Future State Relisting

Oregon’s wolf population will be monitored over a three-phase adaptive management strategy. When wolves have reached the population objectives for Phase I in eastern Oregon for three consecutive years, ODFW will propose that the Commission institute rule-making to consider delisting the wolf. That public process will include a careful examination of the population data to determine whether the Oregon ESA’s delisting criteria have been met. Once delisting occurs, wolves in eastern Oregon will be managed according to Phase II management strategies and continued conservation efforts would strive to achieve Phase III status in this region. Phase I management strategies for western Oregon will continue to be implemented until separate population objectives for this region have been met.

Upon delisting, wolves will continue to be affected by natural and human-caused factors, and the population may remain stable, continue to increase, or exhibit signs of a decline. Following delisting, breeding pair success could slip below the delisting point of four breeding pairs in eastern Oregon. In this event, population level, distribution, health and reproductive status, as well as the causal factors of the population decline would be assessed. The assessment should take into account natural fluctuations in wildlife populations, but also should consider the severity and the basis for the decline.

If one or more of the presumed breeding pairs does not breed, it is critical to understand why they did not. For example, if illegal poaching or lethal control actions were the causes, relisting may not be necessary. Instead, a reduction in lethal control actions and employment of methods to halt illegal poaching would be initiated. These actions could include increased public education and law enforcement efforts, and impose higher penalties for illegal take. [24]

However, if the reason for decline in breeding pairs or population is due to changing habitat conditions, low prey numbers or disease, these would constitute underlying warning signs of a more serious situation that could warrant a request for relisting.

In the event of a rapid population decline, ODFW may request a status review by the Commission. In the event of a population decline below the conservation population objective at which delisting occurred, but where the decline was not rapid, ODFW would increase monitoring efforts designed

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24 Personal communication with Douglas Smith, National Park Service.
to determine the cause. A one-year monitoring effort that finds the population has continued to decline at the end of that year would initiate a status review to determine whether relisting is appropriate action. Conversely, if a one-year monitoring effort showed a population increase at or above the delisting level, no action would be taken. Intensive monitoring would continue for the next two years specifically for the purpose of following the population trajectory.

The Commission’s authority to relist a species springs from its authority to initially list any species. This authority lies in the listing/delisting provisions of ORS 496.172 and ORS 496.176. Pertinent sections are as follows:

1. ORS 496.172(1) - requires the Oregon Fish and Wildlife Commission to conduct investigations of wildlife species native to this state and to determine whether any such species is a threatened or endangered species.
2. ORS 496.176(2) – gives commission authority to, by rule, add or remove any wildlife species from either list or change the status of any species on the lists.
3. ORS 496.176(3) – provides the criteria the Commission must use in making its decision.
4. ORS 496.176(5) – allows for any person to petition the Commission to add, remove or change a species’ status.
5. ORS 496.176(7) – provides for emergency listing by the Commission when there’s a significant threat to the continued existence of the species within the state.

The decision to re-list the wolf will be based upon scientific assessments of biological data. However, decisions to list or delist any species are often contentious. A species as controversial as the wolf makes this a likely scenario if relisting becomes necessary. It will be in the best interest of this species and the citizens of Oregon that the state takes whatever management steps necessary to safeguard wolves from a population decline that would necessitate a relisting decision.

C. Monitoring Wolf Populations

Objective
- Determine the status of the wolf population in Oregon through a comprehensive monitoring program.

Strategies
- Radio-telemetry will be the standard monitoring technique used to assess the number of wolf breeding pairs during Phases I and II. ODFW is authorized to capture, immobilize with drugs or other devices, and attach radio-collars to wolves.
- Once Phase III is reached, annual counts of wolf packs will be the method by which the population is assessed annually.
- Oregon will rely on cooperative relationships with adjacent states, other state and federal agencies, tribes, landowners, local governments, and non-governmental entities to effectively monitor breeding pairs or packs.
- In addition to radio-telemetry and field observations, reported sightings by the public and cooperators that are verified will be used to determine the distribution of wolves in Oregon, size and location of wolf pack home ranges, and the extent of wolf range expansion.
• Monitoring methods for wolf packs developed and tested in other states will be evaluated for use in Oregon.
• Field observations using methods such as howling surveys and tracking will be used to assess wolf presence, location and pack activity.
• ODFW will maintain a database on wolf depredation of livestock.
• ODFW will maintain a database on wolf population parameters.

Radio-telemetry will be the main technique used to monitor wolf breeding pairs during Phase I and Phase II. During Phase III, wolf packs will be monitored to determine whether population objectives are being met. Biologists will begin the transition from breeding pairs to packs by concurrently surveying packs during winter and determining the number of breeding pairs as defined during Phase II. A wolf pack will be defined as “four or more wolves traveling together in winter.” This methodology is being tested in the Rocky Mountain Recovery Area. Refinements in survey methodology developed in other states will be applied in Oregon when and where appropriate.

Regular radio-telemetry monitoring will provide information regarding other important population parameters such as pack distribution, mortality, dispersal, population trends, wolf den locations, rendezvous sites, winter use areas, and wolf territory boundaries. This information also will provide biologists an increased understanding of suitable habitat for wolves in Oregon.

ODFW will have primary responsibility to monitor the wolf population under this conservation and management Plan. Collaboration with tribes, other state and federal agencies, jurisdictions, universities, landowners, local government, and the public is essential to the success of the monitoring program. This coordination will be especially important when monitoring packs near state borders or when packs are located on or near tribal lands.

Phase I – During Phase I, an effort will be made to collar wolves within reasonable and practical limits with respect to financial, human health, and animal impacts. For known packs, every effort will be made to collar the alpha male and female, and then collar the remaining pack members to the extent feasible. To further improve information gathering and understanding of wolf behavior, each pack will have at least one member collared with a global positioning system (GPS) collar which records geographical movements. At the time collars are attached, blood samples will be taken for health and genetic analysis.

Phase II – Monitoring during this phase will be similar to Phase I. ODFW will continue active collaring on any new packs (once pack activity is identified), with a goal of collaring at least three members of a pack including at least one of the alphas. Ear tagging or tattooing pups would be employed to enable identification and tracking if wolves show up elsewhere. During this phase, data from collaring would be correlated with pack counts (howling surveys, winter track surveys) to enable an informed switch to pack counts in Phase III.

Phase III – The wolf population will be monitored through counts of wolf packs (i.e., a minimum of four wolves traveling together in winter) to assess wolf numbers and distribution. Collaring will be used in select situations, such as with dispersing wolves that appear in new locations. This will help understand how wolves’ behavior modifies according to habitat and situation. Appropriate marking

25 Personal communication with Carolyn Sime, Montana Department of Fish, Wildlife, and Parks.
of all wolves would continue to the extent possible. Trained volunteers may be used during this phase to aid in pack counts and other wolf surveys.

D. Monitoring Wolf Diseases and Health

Objectives

- Determine the health status of wolves in Oregon through monitoring.

Strategies

- Develop a wolf disease testing protocol for Oregon which identifies the scope and frequency of testing, specific diseases to test and monitor, and actions taken if detected and necessary.
- Wolves showing clinical signs for any disease will be collected, sampled, and tested for a diagnosis at a veterinary diagnostic laboratory.
- Utilize an adaptive approach to identifying emerging and re-emerging diseases or endemic diseases already occurring on the Oregon landscape.

A summary of diseases potentially affecting wolves in Oregon is contained in Appendix B of this Plan.

Diseases in carnivores generally have minimal impact on humans or domestic species such as livestock. Though rare, nearly all occurrences of important diseases in carnivores are associated with carnivore-specific pathogens including viruses like rabies, canine parvovirus, and canine distemper. These usually involve public health concerns or carnivore population effects. There are currently no known disease issues affecting Oregon wolf populations or threatening Oregon's public, wildlife, or domestic species.

Two diseases associated with domestic dogs and wild canids have been raised as a concern by some stakeholders. The first, neosporosis is caused by a single celled, protozoan parasite (Neospora caninum), is distributed worldwide, and is known to cause bovine abortion. The protozoa uses domestic dogs and coyotes as its definitive host and can occur in other wild canids like fox or wolf. The second, hydatid disease is caused by a parasitic tapeworm (Echinococcus granulosus) and, like neospora, occurs worldwide using either domestic dogs or wild canids as part of its natural life cycle. For more information see: [http://www.dfw.state.or.us/Wolves/docs/ParasiteFlyer.pdf](http://www.dfw.state.or.us/Wolves/docs/ParasiteFlyer.pdf)

The interest or concern of wolf diseases presently occurring in Oregon can change depending on real or perceived threats to human or domestic animal health. For example, Echinococcus has been known to occur in both domestic dogs and wild canids (including foxes, coyotes, and wolves) throughout the world, but it has only recently become of high concern to certain groups of people in Oregon. Echinococcus has been identified in both Oregon and Idaho before the reintroduction of wolves into Idaho and subsequent immigration of wolves into Oregon. Neosporosis is also present and has been identified in cattle and ranch dogs in Oregon before wolves re-entered the state during the last decade. The risk of transmission to humans or domestic species is considered extremely low as contact with infected wolf feces is required for both parasites. It will be important
to continue identifying emerging and re-emerging diseases or endemic diseases already occurring on the Oregon landscape.

Disease testing and monitoring is part of most sound wildlife management programs and will be included in Oregon’s wolf management efforts. The following factors will be considered in developing a disease testing protocol for Oregon wolves:

1. Identification of specific pathogens and the risk factors that pose a health threat to people, wolf populations, or domestic animals.
2. Rationale for specific disease testing (surveillance, management and control, research) and whether testing meets criteria for costs versus benefits and the probability of providing meaningful results.
3. Use the best technology available or Gold Standard testing protocols for each disease selected.
4. Assess management implications of any detected disease to humans, domestic animals, and other wildlife (i.e., is it socially or biologically important?).
5. Determine the prevalence of an identified disease tested (e.g., how many animals in the population are affected?).
6. Determine other species that may play a role in transmission, reservoir maintenance, or serve as an intermediate host in the case of parasites.
7. If a disease is known to occur in domestic or other wild animals, consider testing those potentially affected species.
8. Determine if testing should be compulsory (test all live-captured or killed wolves for specific, identified diseases that meet 1 and 2 above) or opportunistic based on management questions or research requests.
9. Evaluate the costs associated with testing. Costs would be expected to increase with increasing wolf population numbers.
10. Identify a threshold for when testing may prove unnecessary.

E. Coordination with Other Governments and Agencies

Objective
- Develop and implement agreements with other agencies and/or organizations to help achieve wolf conservation.

Strategies
- The expertise of the U.S. Fish and Wildlife Service (USFWS), the U.S. Department of Agriculture’s Animal Plant Health Inspection Service’s (APHIS) Wildlife Services Program (Wildlife Services), U.S. Forest Service (USFS), Bureau of Land Management (BLM), Oregon Department of Agriculture (ODA), tribal governments and private sector professionals will be used to develop and implement monitoring, research, and depredation response actions.
- Wildlife Services will assist ODFW biologists when responding to reports of wolf depredation in Phase I and II.
- The Oregon State Police Fish and Game Enforcement Division will be the lead enforcement agency.
• ODFW will coordinate with other state land management agencies such as the Department of State Lands, Department of Forestry, and Parks and Recreation Department.
• Non-governmental organizations such as Defenders of Wildlife, Oregon Cattlemen’s Association, and Oregon Hunters Association will be regularly engaged for input regarding wolf management in Oregon.
• Public and private land managers will be informed of wolf activities on the respective lands as needed.
• County boards of government will be advised of wolf-related activities as needed.

A component of conservation involves coordination with adjacent states, other government agencies, tribes, counties, nongovernmental organizations, and willing landowners to share resources, reduce costs and avoid potential duplication of effort. Implementation of this wolf Plan will require close coordination with a number of entities to ensure the success of the wolf program. Similar coordination efforts are a regular part of many current wildlife management activities.

In some instances, memoranda of understanding or cooperative agreements may be needed to ensure certain actions or activities are conducted in a timely manner. For example, close coordination with Wildlife Services will be necessary to respond to wolf damage problems in a timely manner. Details regarding who will respond and what protocols are followed will be essential to successful handling of problem wolves. Agreements with tribes will be needed to spell out roles and responsibilities and coordinate management activities. Close coordination with county governments to secure funding for Wildlife Services also will be necessary. Coordination with the following agencies and entities will occur:
• U.S. Department of Agriculture APHIS Wildlife Services
• U.S. Fish and Wildlife Service
• Non-governmental organizations such as Defenders of Wildlife, Oregon Cattlemen’s Association and Oregon Hunters Association
• Tribal governments in Oregon and Idaho
• U.S. Forest Service
• Bureau of Land Management
• County governments
• Law enforcement entities including the Oregon State Police, U.S. Fish and Wildlife Service, U.S. Forest Service, and county sheriff departments
• Oregon Department of Agriculture and other state agencies

F. Wolf Legal Status

Wolves are classified as an endangered species under the Oregon Endangered Species Act. Following delisting from the state ESA, wolves will retain their classification as special status game mammal under ORS 496.004. During the 2009 Oregon Legislative Session, the status of wolves changed from protected non-game wildlife to a special status game mammal. Thus, this section (F) was brought from Appendix P in the 2005 Plan.

Objective
• Re-classify the legal status of the gray wolf to “special-status mammal” within the “game mammal” category in ORS 496.004(9).
The status would not preclude the use of controlled take through hunting and trapping in response to management concerns. While listed as an endangered species in Oregon the wolf would be protected consistent with the direction outlined in the Plan. Special status mammal classification allows ODFW use of a wide range of management tools to advance the conservation and responsible management of wolves.

Strategy

- ODFW will request through the legislative process that the “game mammal” definition in ORS 496.004(9) be amended to add the gray wolf, additionally labeled as a “special status mammal” within that definition.

Through a public rulemaking process, the Commission shall define the substantive standards governing this classification to include but not be limited to those below.

- Controlled take of wolves would be permitted as a management response tool to assist ODFW in its wildlife management efforts only after the wolf population objectives in the region to be affected have been exceeded and other biological considerations indicate the use of these management tools would not result in the impairment of wolf viability in the region. Controlled take would be authorized as a response to:
  1. chronic livestock depredation problems in a localized region where wolf population levels have grown to beyond stable levels; or
  2. any wild ungulate population is experiencing population or recruitment declines below MOs in a WMU, or locally, that can be attributed to wolf predation.

These scenarios are designed as management response mechanisms should the condition arise where continued growth of a healthy wolf population has proven to impose unacceptable levels of conflict with livestock and/or wild ungulate populations. The use of these management tools is designed to respond to the interests of hunters and trappers, as well as the interests of protecting livestock and healthy levels of wild ungulate populations.

- Controlled take would be permitted by ODFW through a license program and targeted at wolves in a specific location experiencing the above-mentioned conditions that warrant a management response.
- A controlled take program for wolves would require: 1) wolf population objectives for the wolf conservation region have been exceeded; and 2) other biological considerations indicate the use of this management tool would not impair wolf viability in the region.
- General season hunts would not be permitted.
- Trapping would be used as a management tool for both lethal and non-lethal management control. Before receiving a license/permit from ODFW, trappers must be certified by ODFW. Where lethal control is the desired management response, such trappers would be permitted to keep the wolves they have trapped under these prescribed circumstances.
- Maximum enforcement of applicable statutes imposing penalties for harming or killing a wolf illegally would be sought by the State. Rewards would exist for citizens who turn in or provide information leading to the conviction of someone who has illegally killed a wolf; such as those offered by other entities Defenders of Wildlife and the Hells Canyon Preservation Council.
- Where consistent with the above, Oregon’s wildlife laws, wildlife damage statutes, and other related statutes would otherwise remain applicable to this classification.
Nothing in this classification would otherwise change legal options available to livestock producers and other citizens under this Plan or other current law aimed at addressing wildlife damage, livestock protection, and protection of human life.

Wildlife are managed in Oregon under the Oregon Wildlife Policy (ORS 496.012) which states in part: “wildlife shall be managed to prevent serious depletion of any indigenous species and to provide the optimum recreational and aesthetic benefits for present and future generations of the citizens of this state.” The policy includes seven co-equal goals for wildlife management by which wolves will be managed after the goals of this Plan are achieved and after they are de-listed.

The special status mammal classification recognizes the wolf’s distinct history of extirpation and conflict with certain significant human activities, as well as its distinct place in human social attitudes (revered by some but reviled by others) based on experiences and myths that span centuries. This classification is based on Oregon’s management successes with respect to other large carnivores (e.g., black bear, cougar) but also recognizes human and wolf behavior factors that make the wolf somewhat distinct from other large carnivores. It provides the most options for long term management by retaining, in addition to protective measures, tools such as responsive hunting and trapping when required for management purposes, although these management tools would not be applied in the same manner as under a traditional game mammal or fur bearer classification. This would serve the interest of adaptive management capability.

Cougar and black bear, as large carnivores, provide a relevant example for wolf conservation discussions. Both species were unprotected in Oregon through the first half of the 20th century. These animals were shot on sight, trapped, or poisoned without restriction. In the case of cougars, the State offered a bounty payment to citizens that killed cougars and redeemed them for payment.

Populations of both species were reduced to such low levels that citizens and the Oregon State Game Commission (now the Oregon Fish and Wildlife Commission) approached the Legislature to enact laws protecting them from indiscriminant take. Both became classified as game mammals, the same status as deer and elk, and received all the same protections provided by the wildlife laws. Through time, as populations began to increase, limited hunting seasons were authorized in areas experiencing damage. Today, both cougar and black bear species are considered common and widespread in Oregon. Hunting seasons have expanded to statewide general seasons in response to growing numbers and range expansion. Management Plans now guide hunting seasons and other actions taken by biologists to protect and manage the species. It is well established that ensuring human tolerance for large carnivore species requires many tools and strategies.

While game mammal status has potential for attaining the long term conservation and management goals intended for the wolf in Oregon, certain modifications to the traditional game mammal status approach are appropriate with respect to the wolf: These distinctions, as components of this Plan, will be built into the administrative rule(s) applicable to the special status mammal classification.

This classification is intended to allow ODFW to use existing, stable state and federal funding sources and existing field staff to include wolf management as part of their daily duties. These
funding sources include both federal Wildlife Restoration grants (also known as Pitman-Robertson) and fees from the sale of hunting licenses.
G. Literature Cited


