

# Oregon Wolf Conservation and Management

## DRAFT 2016 Annual Report



*This report to the Oregon Fish and Wildlife Commission presents information on the status, distribution, and management of wolves in the State of Oregon from January 1, 2016 to December 31, 2016.*



*Suggested Citation:*

Oregon Department of Fish and Wildlife. 2017. Oregon Wolf Conservation and Management 2016 DRAFT Annual Report. Oregon Department of Fish and Wildlife, 4034 Fairview Industrial Drive SE. Salem, OR, 97302

## TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	2
OREGON WOLF PROGRAM OVERVIEW.....	3
Regulatory Status.....	3
Population, Distribution, and Reproduction.....	4
Monitoring.....	7
LIVESTOCK DEPREDATION MANAGEMENT.....	10
Wolf Depredation Summary.....	10
Options to Minimize Depredation.....	11
Compensation for Wolf-Caused Losses.....	12
WOLF RESEARCH .....	12
INFORMATION AND OUTREACH.....	13
FUNDING.....	14
ACKNOWLEDGEMENTS.....	14

## LIST OF TABLES

Table 1. Minimum wolf population in Oregon on Dec. 31, 2016.....	5
Table 2. Wolves captured and radio-collared in Oregon in 2016 .....	7
Table 3. Wolf mortalities in Oregon in 2016.....	9
Table 4. Summary of 2016 confirmed wolf depredation incidents in Oregon .....	10
Table 5. Funds awarded through the County Block Grant Program .....	12

## LIST OF FIGURES

Figure 1: Wolf Management Zones and Federal ESA Status in Oregon .....	3
Figure 2. Minimum wolf population in Oregon (2009-2016) .....	4
Figure 3. Number of packs and breeding pairs in Oregon (2009-2016) .....	4
Figure 4: Distribution of Oregon wolves in December, 2016.....	6
Figure 5. Starting and ending points for wolves dispersing from Oregon packs.....	9
Figure 6. Number of confirmed livestock losses by year (2009-2016) .....	11
Figure 7. Number of depredation events and wolf population (2009-2016).....	11

## EXECUTIVE SUMMARY

The Oregon wolf population is healthy and wolves continue to expand their range. Wolf program activities are guided by the Oregon Wolf Conservation and Management Plan (Wolf Plan) and the associated administrative rules based on how many successfully reproducing wolves are found in each management area. The end of 2016 marks the third consecutive year that at least seven breeding pairs of wolves were counted in the East Wolf Management Zone (WMZ) east of Oregon Highways 97/20/395. Reaching this population objective advances wolf management activities into Phase III for the East WMZ. The conservation objective of four breeding pairs for three years has not yet been reached in the West WMZ and wolves there are still managed under Phase I. In addition, wolves occurring west of Oregon Highways 395/78/95 continued to be federally protected as endangered under the federal Endangered Species Act (ESA).

The Oregon Department of Fish and Wildlife (Department) monitors the wolf population. The 2016 Oregon minimum known wolf population is 112 wolves. Eleven packs were documented and eight of those packs met the criteria as breeding pairs. In addition to the packs, five more groups of two to three wolves were identified. Known wolf groups occurred in parts of Baker, Grant, Jackson, Klamath, Lake, Morrow, Umatilla, Union, and Wallowa Counties. Eleven wolves were captured and GPS radio-collared and 21 total radio-collared wolves were monitored during the year. At year-end, nine radio-collared wolves (8% of the minimum known population) were monitored in Oregon. Nine dispersing radio-collared wolves were monitored during the year, and three of these dispersed out-of-state by the end of the year. Seven wolf mortalities were documented during the year.

The Department physically investigated reported livestock depredation by wolves. Confirmed depredation events of livestock increased significantly over 2015; 24 incidents of wolf depredation were confirmed in 10 areas of Oregon in 2016, compared to nine incidents in 2015. Per the Wolf Plan, the Department and area producers implemented non-lethal measures to minimize depredation per Oregon Administrative Rule (OAR) 635-110-0010 and -0020. In one instance, the non-lethal methods proved ineffective and four wolves of the Imnaha Pack were lethally removed by the Department to stop chronic livestock depredation. In another instance, a sheep herder shot a wolf caught in the act of killing a sheep.

The Oregon Department of Agriculture's compensation program awarded grants of \$129,664 to 13 counties in 2016. Funds were used for non-lethal preventative measures and for direct payment of confirmed depredations and missing livestock to livestock producers.

The Oregon State University/ODFW wolf-cougar research project in northeastern Oregon continued in 2016. This project is primarily focused on understanding competitive interactions and prey selection between wolves and cougars in the Mt Emily Wildlife Management Unit (Unit). Since 2014, researchers collected information by monitoring radio-collar data of 11 cougars and 11 wolves in four packs within the Mt Emily Unit. The project is expected to be completed in 2018.

The Department prepared this annual report for the Fish and Wildlife Commission. The report includes specific information about Oregon wolves, wolf program activities, livestock depredations and ongoing wolf research.

# OREGON WOLF PROGRAM OVERVIEW

## Regulatory Status

**Federal Status:** Wolves occurring west of Oregon Highways 395/78/95 continue to be federally protected as endangered under the ESA (Figure 1). In the federally listed portion of Oregon, the Department implements the Wolf Plan under the guidance of the Federal/State Coordination Strategy (March 2011). The United States Fish and Wildlife Service (USFWS) makes management decisions regarding harassment and take of wolves and assists in monitoring and depredation prevention.

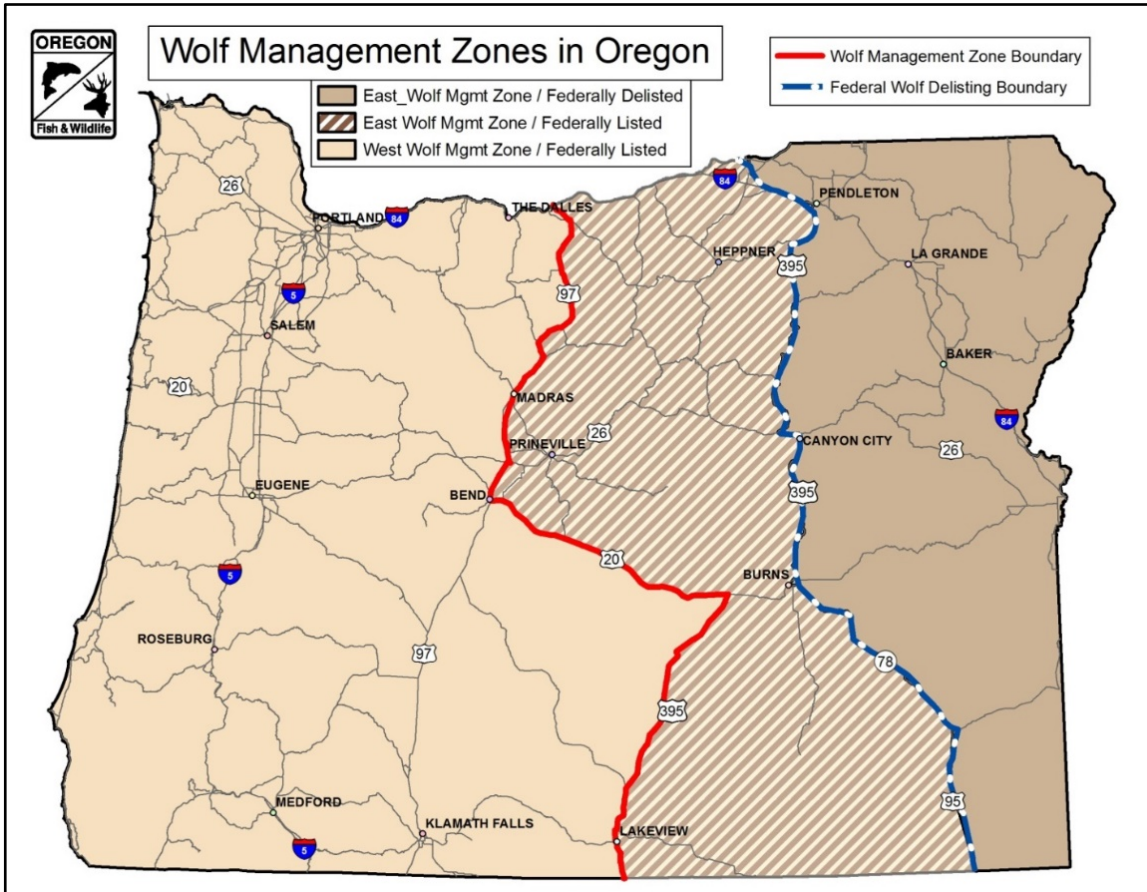


Figure 1. Wolf Management Zones and Federal ESA Status in Oregon

**State Status:** The Fish and Wildlife Commission (Commission) decision on November 9, 2015 removed wolves from the Oregon List of Endangered Species. During the 2016 Regular Session, the Oregon Legislature ratified the Commission’s decision by passing House Bill 4040. A lawsuit challenging the Commission’s 2015 delisting decision was filed by three environmental groups and the case is pending. Also during the 2016 Legislative Session, passage of House Bill 4046 raised the amount the Department may request for restitution for unlawful take of a wolf from \$1,000 to \$7,500 effective January 1, 2017.

Wolves are still protected by the Wolf Plan guidelines and its associated rules based on where they are located. During 2016, wolves in the East WMZ were managed under Phase II rules. Moving into

2017, wolves in the East WMZ are managed under Phase III rules. Wolves in the West WMZ are managed under the ESA-like Phase I rules until their population also reaches a minimum of four breeding pairs for three consecutive years.

Phase III continues to emphasize the use of non-lethal deterrents while addressing instances of wolf-human conflict. This management phase adds two opportunities not available under Phase II, including the use of controlled take in certain situations, and expands livestock producer options for investigating potential wolf depredations of livestock. The Wolf Plan states that controlled take of wolves can be allowed in two specific circumstances: 1) if wolves are determined to be causing declines in ungulate populations such as deer and elk or 2) in specific cases of chronic livestock depredation. Any take under these circumstances will be considered a management response only, there are no plans for controlled take at this time.

In Phase III, the current Wolf Plan allows either the Department or USDA Wildlife Services to confirm wolf depredations in Eastern Oregon. However, USDA Wildlife Services has stated that they will not assist in the lethal removal of wolves or expand their role in depredation investigations (including confirming wolf depredations) until it has evaluated its obligations under the National Environmental Policy Act.

Department staff worked with stakeholder groups on the Wolf Plan-mandated review during 2016. The status of the review process was presented at three Commission meetings (March, August, and October). In March, the Commission received testimony from two panels of invited guests on review of the Wolf Plan, and in October, public testimony was heard by the Commission. In addition, stakeholder groups and organizations, agencies, Tribes, and members of the public provided valuable review and input into the process.

**Population, Distribution, and Reproduction**

Minimum Population and Distribution: The Department provides a minimum known population of wolves in Oregon at the end of the year; this is a direct count of wolves, not an estimate. The minimum known wolf population in 2016 was 112, a 2% increase from 2015. The Department also documents pack numbers annually. A pack is defined as four or more wolves traveling together in winter. Eleven packs were documented in 2016 with pack size ranging between four and twelve wolves.

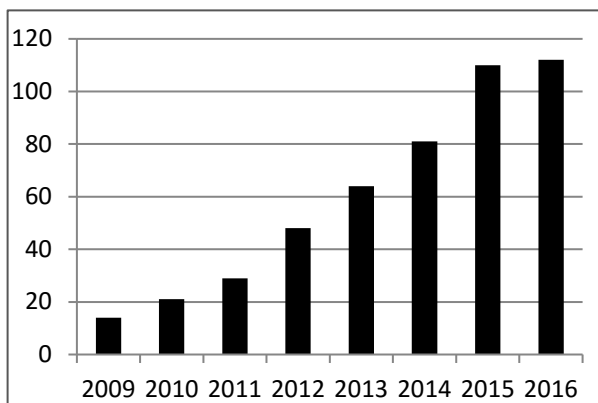


Figure 2. Minimum wolf population in Oregon (2009-2016).

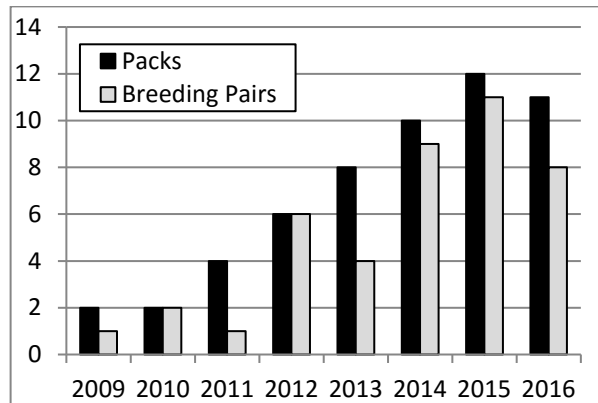


Figure 3. Number of packs and breeding pairs in Oregon (2009-2016).

The eleven packs were distributed in two geographic areas of Oregon; ten packs in northeastern Oregon and one in southwestern Oregon (Table 1). Eight percent of Oregon wolves were in the West WMZ. Known wolf groups occurred in parts of Baker, Grant, Jackson, Klamath, Lake, Morrow, Umatilla, Union, and Wallowa Counties (Figure 4). In 2016, 49% of documented locations for resident wolves were on public lands, 50% on private lands and less than 1% on tribal lands. For packs that had substantial GPS radio-collar data (n=6), the pack territory sizes ranged from 178 to 828 mi<sup>2</sup> (461-2,145 km<sup>2</sup>) with a mean of 385 mi<sup>2</sup> (997 km<sup>2</sup>).

Table 1. Minimum wolf population (Total = 112) in Oregon on Dec. 31, 2016 by pack and Wolf Management Zone. Underlined packs were counted as breeding pairs.

<b>Pack/Group</b>	<b>WMZ</b>	<b>Total</b>
<u>Catherine Pack</u>	East	5
<u>Chesnimnus Pack</u>	East	9
<u>Harl Butte Pack</u>	East	10
<u>Meacham Pack</u>	East	7
<u>Minam Pack</u>	East	11
Mt. Emily Pack	East	8
North Emily Wolves	East	3
Rogue Pack	West	6
Shamrock Pack	East	4
<u>Snake River Pack</u>	East	9
Unnamed Wolves (Heppner Unit)	East	3
<u>Walla Walla Pack</u>	East	11
<u>Wenaha Pack</u>	East	12
OR29/OR36 Pair	East	2
OR30 Pair	East	2
Individual/Misc. Wolves	East	7
Individual Wolves	West	3

The wolf population continued to expand in distribution during 2016. New areas of wolf activity were documented in northeastern and southwestern Oregon. In northeastern Oregon, OR30 is with a different wolf than he was found with in January 2016; the new pair is now resident in the northern Starkey and Ukiah Units south of I-84. OR37 was a resident and alone in the Lookout Mt Unit during 2016. OR29 and OR36 have been traveling together since February 2016 and are using the majority of the Pine Creek Unit. The Chesnimnus Pack occupies an area previously used occasionally by multiple packs in the in the Chesnimnus Unit. In southwestern Oregon, OR3 (an eight-year-old male originally from the Imnaha pack) paired with OR28, a three-year-old GPS radio-collared female originally from the Mt Emily pack. The two are believed to have produced at least one pup in 2016. They primarily used the Silver Lake Unit in western Lake County, a new area of wolf activity, and were called the Silver Lake wolves. OR28 was found dead in October. One large wolf has been documented in the area this winter, but the status of the pup is unknown.

Two previously occupied areas had new wolves. The North Emily wolves were documented in the territory previously held by the Umatilla River Pack. The Unnamed wolves in the Imnaha and Snake River Units have been named the Harl Butte Pack. This pack is using part of the area previously held by the Imnaha Pack.

The South Snake Pack, with no radio-collars, was not located during the spring, summer or fall. Three wolves were located in the southern portion of the use area during January 2017, but at this time it is unknown if they are resident new wolves or part of the South Snake Pack. The Unnamed Wolves in the Heppner Unit was a pack discovered in January 2016 in southwestern Umatilla County. The intent was to name the pack after further investigation determined its use area, but the pack was not located during the spring, summer or fall. This winter three wolves were once again discovered and counted in the Heppner Unit. The Desolation Unit was monitored throughout 2016, after March only one wolf was observed in the area.

Two collared lone wolves were monitored in southwestern Oregon. OR25 traveled alone through Klamath and Lake Counties, as well as California during 2016, but primarily used the Sprague and Fort Rock Units. OR33 dispersed though central Oregon, then spent February through August traveling alone throughout Klamath and Jackson Counties. OR33’s collar failed in August, and his current status is unknown. Although three different wolves were documented in the Keno use area during the year, only one wolf was detected at the end of the year.

The past three years have seen the population increase by 27% to 36%. The weak 2016 population growth rate could be due to a number of factors such as; wolves present but not counted, decreased breeder success, known/unknown human-caused mortality, diseases affecting pup survival, and dispersal out-of-state. The Department will continue to monitor the population closely.

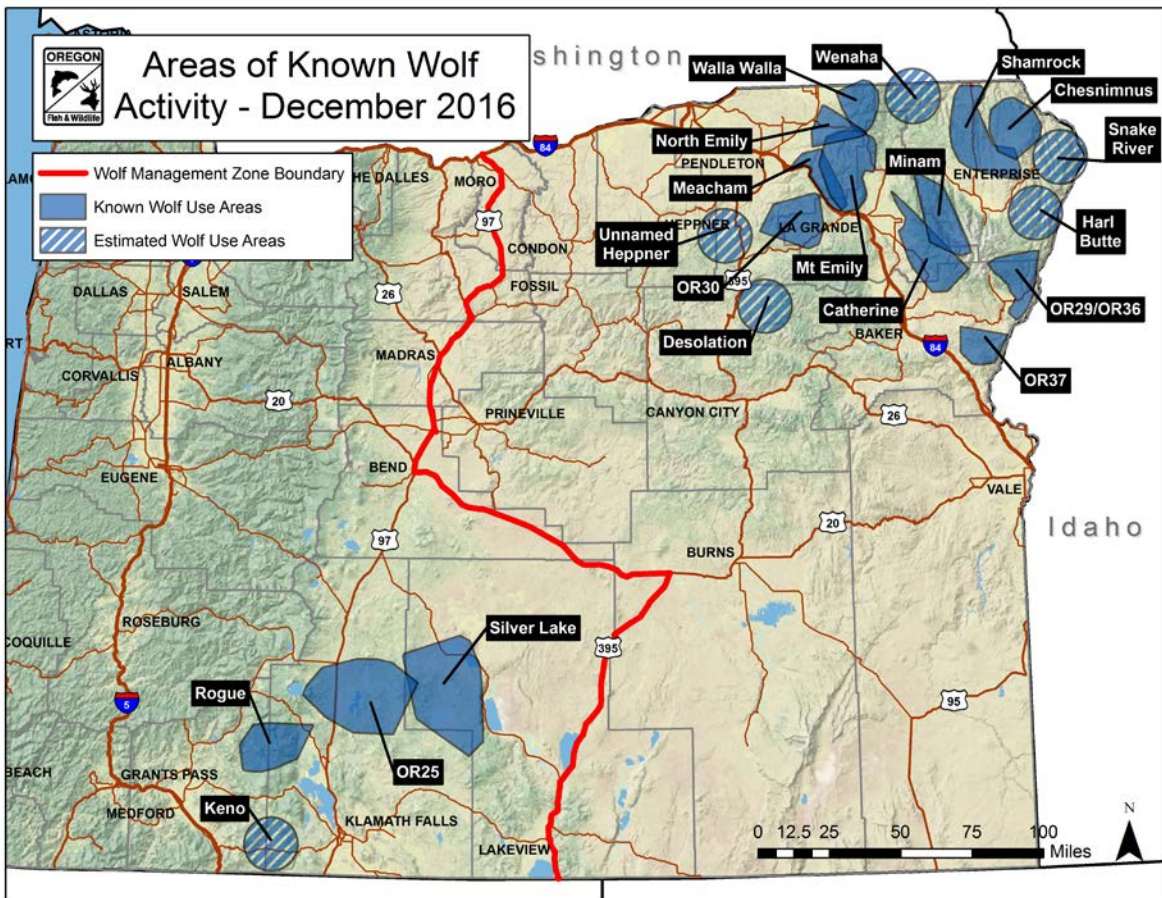


Figure 4. Distribution of Oregon wolves in December, 2016.

**Reproduction:** A breeding pair is defined as an adult male and adult female with at least two pups that survived to December 31 of the year of their birth. Eight successful breeding pairs were documented for 2016 (Table 1). All eight packs that qualified as breeding pairs were in Umatilla, Union and Wallowa counties of northeastern Oregon. Reproduction was confirmed in the North Emily wolves, Rogue Pack, Silver Lake pair (OR3/OR28), and suspected in the Shamrock Pack. By December 31, only one pup each was confirmed in the North Emily wolves and Rogue Pack.

## Monitoring

The 2016 survey season proved challenging due to a lack of radio-collared packs and weather conditions that hindered some aerial and ground surveys until February, 2017. In Oregon, wolves disperse from their natal pack most often in November, January and February. Dispersing wolves are harder to locate and count than wolves in packs, so these wolves may have been missed in the count. The 2016 pack and population count could increase if evidence is collected during 2017 of additional packs present during 2016.

**Capture:** Twelve wolves from five different groups were captured during 2016. Eleven were radio-collared with Global Positioning System (GPS) collars (Table 2). The DNA analysis done at the University of Idaho Laboratory for Ecological, Evolutionary and Conservation Genetics showed that three of the wolves were dispersing from their natal packs in Oregon when captured.

In June, a wolf pup was captured in a foothold trap in the Chesnimnus Unit, confirming that there was a pair of wolves breeding in the area. The two-month-old pup was too small to carry a radio-collar and was released unharmed. Later that month the breeding female was caught incidentally by USDA Wildlife Services, then successfully radio-collared by Department staff and released.

Table 2. Wolves captured and radio-collared in Oregon in 2016

Date	Wolf ID	Age/Color/Sex	Pack	Method
1/8/2016	OR37	Adult, gray, male	Dispersing wolf	Helicopter
3/2/2016	OR38	Subadult, gray, male	Dispersing wolf	Helicopter
3/9/2016	OR4	Adult, black, male	Imnaha	Helicopter
3/9/2016	OR39	Adult, gray, female	Imnaha	Helicopter
5/12/2016	OR40	Adult, gray, female	Walla Walla	Trap
5/13/2016	OR41	Adult, gray, male	Shamrock	Trap
6/6/2016	Pup	Pup, gray, male	Chesnimnus	Trap
6/29/2016	OR42	Adult, gray, female	Chesnimnus	Trap
10/14/2016	OR43	Adult, black, male	Dispersing wolf	Trap
12/12/2016	OR29	Adult, black, male	OR29/OR36 Pair	Helicopter
12/12/2016	OR36	Adult, gray, female	OR29/OR36 Pair	Helicopter
12/31/2016	OR44	Subadult, gray, male	Chesnimnus	Helicopter

**Monitoring:** Radio-collars provide specific information on wolf movements. Twenty-one radio-collared wolves were monitored in Oregon in ten groups during 2016. At year-end approximately 8% (n=9) of the population were radio-collared in four packs (Catherine, Chesnimnus, Shamrock, and Walla Walla), two pairs (OR29/OR36 and OR30 pair) and one individual (OR25). Contact with 13 radio-collars was lost during the year because three wolves died, three wolves dispersed out of state, and seven radio-collars failed.



Four of the 10 radio-collars placed in 2016 failed within six months, causing the Department to consider other radio-collar options. GPS collars collect large quantities of valuable location data, but have a high failure rate due to their technological complexity and the batteries are only expected to last three years. The average life span of GPS collars placed by the Department since 2011 has been 18 months before mechanical failure. VHF radio-collars must be monitored from the field, but the collars are less likely to fail and the batteries are expected to last 6.5 years.

In addition to monitoring information downloaded from radio-collars, Department biologists also visually monitored radio-collared and accompanying wolves from the air and ground, implemented track and howling surveys and remote camera surveillance. During the year the Department collected a total of 14,896 wolf location data points in Oregon; most using GPS collars.

Wolf reports from the public increased over 2015, with 393 wolf reports received by Department biologists or the Department's online wolf reporting system ([www.odfw.com/wolves](http://www.odfw.com/wolves)) during the year. Subsequent follow-up of some of these reports yielded valuable information about packs without radio-collars and new wolf activity.

Disease testing: Blood serum samples collected from 18 captured wolves were analyzed for exposure to common canine diseases such as: canine parvovirus, canine distemper virus, leptospirosis and canine adenovirus. The samples were collected between 2014 and 2016 within the Chesnimnus, Imnaha, Meacham, Minam, Mount Emily, Shamrock, Snake River, South Snake, and Walla Walla packs. A positive titer result shows that an animal has been exposed to the pathogen and does not necessarily indicate current active clinical disease.

Positive parvovirus titers were found in all but one wolf (a two-month-old pup) and in all nine of the packs tested. Although parvovirus had been found in 89% of samples analyzed in 2013, only 5% of those samples had positive IgM titers. Samples analyzed during 2016 had 68% positive IgM titers indicating a much higher prevalence of active or recent infections. Though parvovirus can cause increased pup mortality affecting short-term population growth rates, it is not expected to significantly affect long-term wolf recovery.

Canine distemper virus was not detected in the Oregon wolf population when samples from 2010 to 2013 were analyzed, even though it is present throughout the state in both domestic and wild canids and raccoons. In 2016 testing, positive distemper titers were discovered in three wolves from two packs (Minam and Chesnimnus). Distemper outbreaks have been documented in other states and the disease appears to cause short-term population declines by limiting pup survival. No positive leptospirosis titers were found in 2016, down from two samples in 2013. Canine adenovirus titers (>1:8) were detected in 61% of the samples and in eight packs, similar to 2013.

Mortalities: Seven mortalities were documented during 2016 (Table 3), including three radio-collared wolves. Two wolves were killed and both investigations are ongoing. Oregon State Police (OSP) and USFWS Law Enforcement are actively seeking more information about the cases.

Five wolves were killed lawfully per OAR 635-110-0020 (Phase II rule) in eastern Oregon. Four wolves of the Imnaha Pack were lethally removed in response to a chronic depredation situation. One wolf was killed legally under the Caught-in-the-Act (CIA) regulations. Please see the Livestock Depredation Management section (below) for more information.

In October 2015, a radio-collared dispersing gray-colored wolf was shot by an individual who reported that he misidentified the animal as a coyote. The individual pled guilty to taking an endangered species in February, 2016. He was ordered to pay a \$1000 fine, pay \$1000 restitution to the Department and forfeited his gun to the state.

Table 3. Wolf mortalities in Oregon in 2016

Date	Wolf	Pack	Cause of Death
3/2/2016	Subadult	Walla Walla Pack	Shot
3/31/2016	OR4	Imnaha Pack	Lethal Removal
3/31/2016	OR39	Imnaha Pack	Lethal Removal
3/31/2016	Subadult	Imnaha Pack	Lethal Removal
3/31/2016	Subadult	Imnaha Pack	Lethal Removal
5/21/2016	Adult	Walla Walla Pack	CIA Lethal Removal
10/5/2016	OR28	Silver Lake wolves	Under Investigation

**Dispersers:** Nine radio-collared dispersing or single wolves were monitored in 2016. Several wolves traveled to other states, and three were still out of state (OR38 and OR43 in ID, OR35 in WA) at the end of year. Mapping the starting and ending locations of 34 wolves that have dispersed from Oregon packs shows that some wolves have dispersed short distances within northeast Oregon and to southeast Washington, while others have made longer-distance dispersals to southwestern Oregon, California, Idaho and Montana (Figure 5).

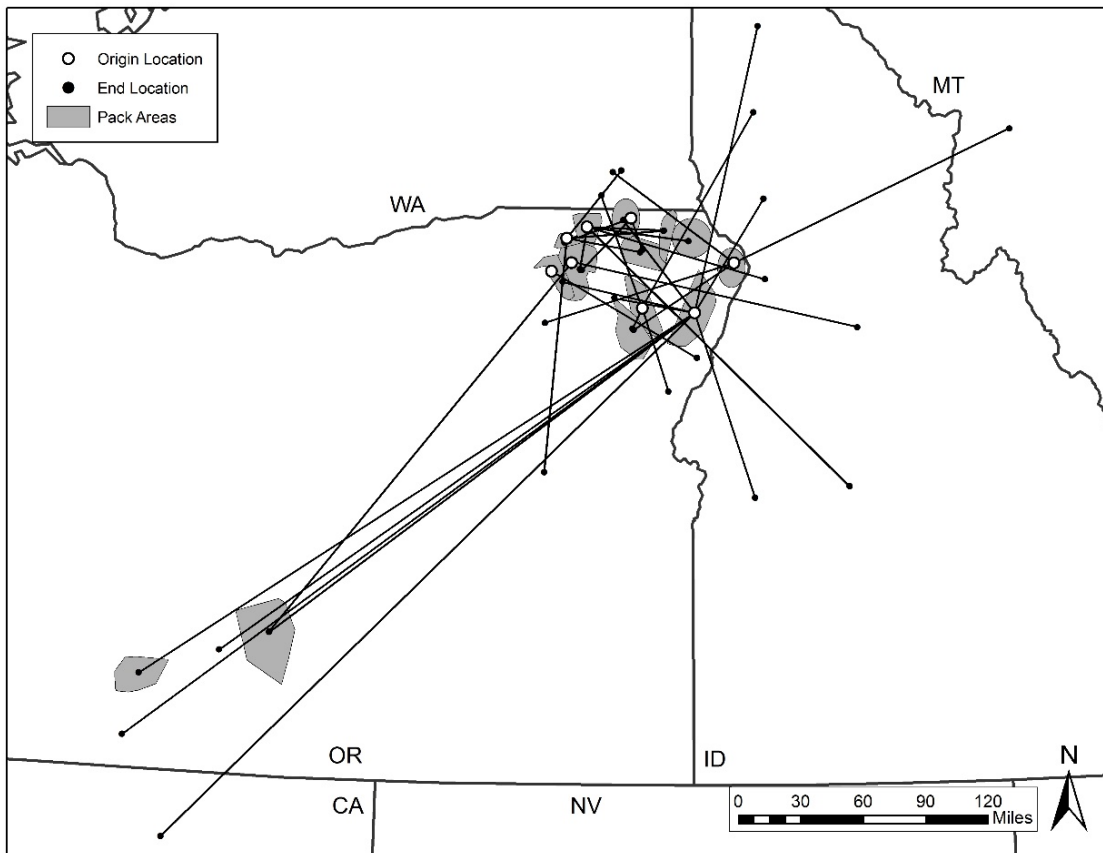


Figure 5. Approximate starting and ending points for wolves dispersing from Oregon packs (2010-2016).

## LIVESTOCK DEPREDATION MANAGEMENT

### Wolf Depredation Summary

Confirmed incidents of depredation increased significantly in 2016 from the previous year (24 vs. 9), and the number of losses also increased (Figure 6). Confirmed losses in 2016 were 11 calves, seven sheep, one goat, and one llama (Table 4), compared to three calves, 10 sheep and one working dog in 2015. Eight of Oregon’s wolf packs (Chesnimnus, Harl Butte, Imnaha, Meacham, Mt. Emily, Rogue Shamrock, and Walla Walla), the Silver Lake wolves, and one individual radio-collared wolf (OR33) depredated livestock. During 2016, 57% of packs that were active during the year (n=14) depredated livestock.

Table 4. Summary of 2016 confirmed wolf depredation incidents in Oregon.

Date	Animals Affected	County	Pack Area
2/22/2016	Cow (Injured: 1 calf)	Klamath	OR33
3/9/2016	Cow (Dead: 1 calf)	Wallowa	Imnaha
3/25/2016	Sheep (Dead: 1 ram)	Wallowa	Imnaha
3/28/2016 A	Cow (Dead: 1 calf; Injured: 1 calf)	Wallowa	Imnaha
3/28/2016 B	Cow (Dead: 1 calf)	Wallowa	Imnaha
3/30/2016	Sheep (Injured: 1 ram)	Wallowa	Imnaha
5/9/2016	Llama (Dead: 1 dam)	Wallowa	Shamrock
5/21/2016	Sheep (Dead: 1 lamb)	Umatilla	Walla Walla
6/10/2016	Goat (Dead: 1 nanny. Injured: 1 nanny)	Jackson	OR33
6/13/2016	Sheep (Dead: 1 adult)	Jackson	OR33
6/28/2016	Cow (Dead: 1 calf)	Wallowa	Shamrock
7/15/2016	Cow (Injured: 1 calf)	Wallowa	Harl Butte
8/20/2016	Cow (Dead: 1 calf)	Umatilla	Meacham
9/1/2016	Sheep (Dead: 4 ewes)	Umatilla	Mt. Emily
9/6/2016	Cow (Dead: 1 calf)	Wallowa	Chesnimnus
9/28/2016	Cow (Dead: 1 calf)	Wallowa	Harl Butte
9/29/2016	Cow (Injured: 1 calf)	Lake	Silver Lake
10/5/2016	Cow (Dead: 1 calf)	Klamath	Rogue
10/5/2016	Cow (Dead: 1 calf)	Klamath	Rogue
10/6/2016	Cow (Injured: 1 calf)	Klamath	Rogue
10/6/2016	Cow (Injured: 1 calf)	Wallowa	Harl Butte
10/13/2016	Cow (Injured: 1 calf)	Wallowa	Harl Butte
10/19/2016	Cow (Dead: 1 calf)	Klamath	Rogue
11/21/2016	Cow (Dead: 1 calf)	Wallowa	Shamrock

Oregon’s confirmed depredation of cattle and sheep data across all years (n=89) shows that 70% of depredation events happen during five months (May, June, August, September and October). Domestic calf depredations peaked in May, September, and October. Sheep depredation was highest in May, June, and August. Since 2009, 71% of depredation events have occurred on private land. In 2016, the Department conducted 67 wolf depredation investigations in ten Oregon counties, which resulted in 24 (36%) *confirmed* incidents, three (4%) *probable* incidents, 20 (30%) *possible/unknown* incidents, and 20 (30%) *other* incidents. USDA Wildlife Services assisted with field investigations.

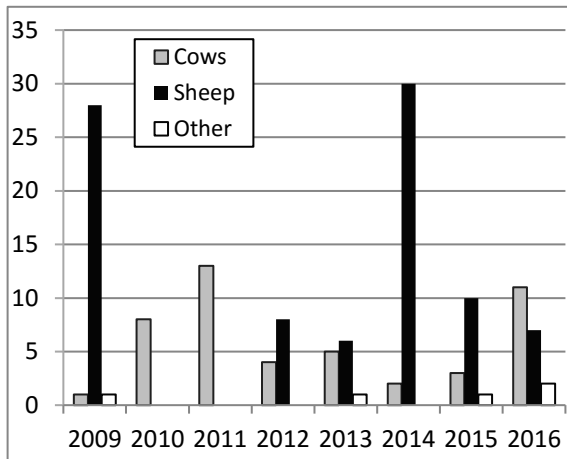


Figure 6. Number of confirmed livestock losses by year (2009-2016).

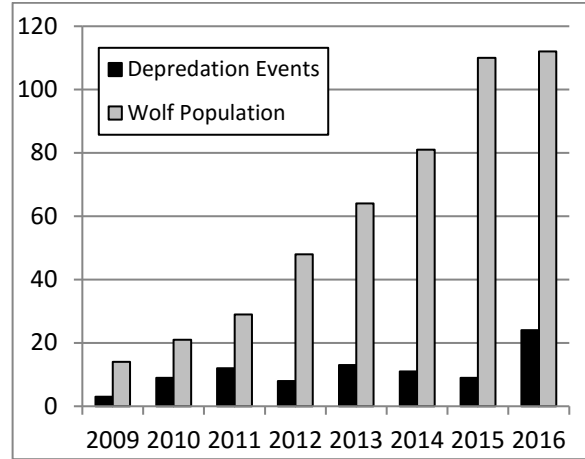


Figure 7. Number of depredation events and wolf population (2009-2016).

### Options to Minimize Depredation

The Wolf Plan mandates focusing on non-lethal efforts before lethal removal is considered in all phases of wolf management. Though the wolf population has increased significantly over the last eight years, depredation events and livestock losses have not increased at the same rate (Figure 7).

Non-Lethal Options: Effective proactive non-lethal measures vary by the type of livestock being protected and the size of the pasture. Reducing attractants by carcass and bone pile removal may be the single best action to keep from attracting wolves to areas of livestock. There are no non-lethal measures which are 100% effective in preventing livestock depredation by wolves. The Department and USFWS continued to support producers with fladry, electromesh fencing, solar chargers, and RAG boxes.

In 2016, wolf program personnel designated, posted, or revised 17 Area of Known Wolf Activity maps in order to inform livestock producers of resident wolf activity. District wildlife biologists informed producers when wolves were near their livestock and worked with them to implement non-lethal strategies. In response to depredation, five Areas of Depredating Wolves and four Conflict Deterrence Plans were also developed and posted on the Department's wolf website.

Lethal Options: Within the federally listed portion of Oregon, west of Highways 395/78/95, all lethal take is regulated by the USFWS and no lethal removal was conducted in this area. Within the federally delisted portion of Oregon east of Highways 395/78/95 and under Oregon Administrative Rule 635-110-0020 (Phase II), there are two options for lethal control in response to wolf-livestock conflicts.

One option available to livestock producers east of Highways 395/78/95 is to lawfully shoot a wolf caught in the act of biting, wounding, killing or chasing livestock or working dogs without a permit in certain circumstances. In May, a sheep herder shot a wolf that he saw killing a sheep and fighting with a livestock protection dog. The Department confirmed that the ewe had been killed by wolves.

Second, in chronic depredation situations and under certain conditions the Department may lethally remove wolves or issue a limited duration permit for a livestock producer to kill a wolf or wolves to minimize further depredation. In March, four wolves of the Imnaha Pack were lethally removed in response to a chronic depredation situation after five depredations were confirmed in a 3-week period. The Department also lethally removed two wolves from the Imnaha Pack during 2011. Between 2010 and 2016, the Imnaha Pack was responsible for 38 confirmed depredations with 45 dead or injured livestock.

### Compensation for Wolf-Caused Losses

The Oregon Department of Agriculture’s Wolf Depredation Compensation and Financial Assistance County Block Grant Program was again implemented in 2016. The program provides four types of financial assistance options; 1) direct depredation payment, and 2) missing livestock payment, and 3) preventative measures, and 4) program implementation costs. The Department’s primary roles are determining if wolf depredation has occurred and to delineate areas of known wolf activity. The Department was also asked by some counties to provide input on appropriate non-lethal and preventative measures. A total of 13 counties were awarded \$129,664 in grant funds (Table 5).

Table 5. Funds awarded through the County Block Grant Program in 2016 (source; Oregon Department of Agriculture)

County	Death/Injury	Missing	Prevention	Admin	Total
Baker	0	\$11,793	\$10,000	\$495	\$22,288
Crook	0	0	\$2,000	0	\$2000
Jackson	0	0	0	\$495	\$495
Klamath	\$3,796	0	\$5,000	0	\$8,796
Lake	0	0	\$3,000	0	\$3,000
Malheur	0	0	0	\$495	\$495
Morrow	0	0	\$3,000	\$675	\$3,675
Sherman	0	0	\$750	\$500	\$1,250
Umatilla	\$2,931	\$25,172	\$24,000	\$675	\$52,778
Union	0	0	\$5,000	0	\$5,000
Wallowa	\$3,887	\$5,250	\$17,000	\$750	\$26,887
Wasco	0	0	\$1,000	\$750	\$1,750
Wheeler	0	0	\$750	\$500	\$1,250
<b>Award Amount</b>	<b>\$10,614</b>	<b>\$42,215</b>	<b>\$71,500</b>	<b>\$5,335</b>	<b>\$129,664</b>

### WOLF RESEARCH

The Oregon State University/ODFW wolf-cougar research project in northeastern Oregon continued in 2016. This project is primarily focused on understanding competitive interactions and prey selection between wolves and cougars in the Mt Emily Unit.

Since summer 2014, researchers have collected data by monitoring 11 GPS radio-collared cougars and 11 wolves from four packs using area in the Mt Emily Unit. Researchers used GPS location cluster analysis methods to identify potential prey acquisition sites and document prey species selection and acquisition rates. To date, project researchers have investigated 456 potential wolf prey acquisition sites during winter months and 115 prey items were identified at these sites. Elk remains were

identified at approximately 60% of acquisition sites and mule deer at 22% of the sites. White-tailed deer (7%), unknown deer (9%), and non-ungulate prey (2%) were present at the remainder of sites. Of the elk remains where age of animal could be determined, 49% were calves, 46% were adults, and 5% were yearlings. Out of all deer (mule deer and white-tailed deer) remains where age class could be identified, 59% were adults, 32% were fawns and 9% were yearlings.

Prey remains were also located at 43 of 200 potential wolf prey acquisition sites during summer months with elk comprising 64% and mule deer 17% of the prey remains. White-tailed deer (3%), deer unidentifiable to species (3%), and non-ungulate (13%) prey were present at the remainder of sites. The age of the elk prey identified during summer months were calves (83%), adults (13%), and yearlings (4%). Out of all deer remains where age class could be identified 57% were adults, 29% were yearlings, and 14% were fawns.

The most common wolf-cougar interaction documented was wolves at prey remains of cougar kills (70%). Using elements at the scene and the GPS data for both predators three classes of wolf-dominated interaction have been identified at cougar kills; wolves feeding on prey remains from cougar (seven cases), visiting prey already abandoned by cougar (four cases), or usurping prey before/during time periods cougar were actively feeding on remains (three cases). Other interactions include two cases where wolves chased cougars up trees, two cases of where cougar visited a wolf kill, and one case of wolves killing young cougar kittens.

Fieldwork investigating prey acquisition sites concluded in November 2016 for the Mt Emily wolf-cougar research project. Data collection will continue through summer 2017 where the project will continue to; 1) collar additional wolves, and 2) monitor GPS collared cougars within the study area to investigate competitive interactions between the two species. Data analysis and the project are expected to be completed in 2018.

## **INFORMATION AND OUTREACH**

The Department continued to rely on its internet-based wolf webpage (<http://www.odfw.com/wolves>) as the primary information distribution tool in 2016. Throughout the year, the online wolf pages received 176,833 views. The wolf program home page alone received nearly 47,000 views. Currently, 6,049 people subscribe to the Department's wolf update page. Its subscribers increased by 621 (11%) during 2016.

In 2013, the Department added a Wolf-Livestock update page that focuses on the needs of livestock producers and the requirements of Phase I Oregon Administrative Rules. Since this page was launched, 4,203 people subscribed to receive updates on confirmed depredations, maps of Areas of Known Wolf Activity and Areas of Depredating Wolves, Conflict Deterrence Plans and other information.

The Department also shared wolf-related content on its social media channels (Facebook, Instagram, and Twitter), including photos and infographics about the population, which generated significant engagement. It also regularly responds to wolf-related questions and comments on these channels.

In addition to web-based information, the Department conducted numerous media interviews to print, radio, and television reporters. The Department presented at three workshops that focused on

educating livestock producers about successful implementation of non-lethal methods. Presentations were given to schools, universities, other agencies, agriculture meetings and organizations, sportsman organizations, and conservation groups. Wolves were also a popular topic for students of all levels writing papers or articles, and the Department responded to a variety of questions from these students.

### **WOLF PROGRAM FUNDING**

Wolf program funding during the 2015-2017 biennium consists of federal funds from the Pittman-Robertson Grant Program and support grants from the US Fish and Wildlife Service. These federal sources provide 80.6% of the wolf program funding. Some of these federal grants require state match which comes from a combination of Oregon Department of Fish and Wildlife license dollars (6.6%) and Lottery Funds (12.8%). Two full time employees are associated with the program. The total budget allocation for the 2015-2017 biennium is \$793,282.

### **ACKNOWLEDGEMENTS**

Wolf management in Oregon is a cooperative effort by the Oregon Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, USDA-APHIS Wildlife Services, and Oregon Department of Agriculture through their Wolf Depredation Compensation and Financial Assistance County Block Grant Program and all cooperating Counties. The Oregon wolf program also benefited in a multitude of ways from the continued collaboration of other state and federal agencies and private interests such as the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs, the U.S. Forest Service, the U.S. Bureau of Land Management, and Oregon State University.