Oregon Wolf Conservation and Management

2017 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, 2017 to December 31, 2017.

Suggested Citation:

Oregon Department of Fish and Wildlife. 2018. Oregon Wolf Conservation and Management 2017 Annual Report. Oregon Department of Fish and Wildlife, 4034 Fairview Industrial Drive SE. Salem, OR, 97302

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

Wolf program activities are guided by the Oregon Wolf Conservation and Management Plan (Wolf Plan) and the associated statutes and administrative rules. The Oregon Department of Fish and Wildlife (Department) monitors the wolf population and implements the Wolf Plan based on how many successfully reproducing wolves are found in each management area. The end of 2016 marked 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 advanced wolf management activities into Phase III for the East WMZ. The conservation objective of four breeding pairs for three years has not 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). Wolves are delisted statewide under the Oregon List of Endangered Species.

The Oregon minimum known wolf number at the end of 2017 was 124 wolves. That count increased by 11% from the 2016 minimum known number of 112. At the end of the year, twelve packs were documented and 11 of those packs met the criteria as breeding pairs. In addition, nine more groups of two or three wolves were identified. Wolves were discovered in the northern Oregon Cascades in Wasco County in late 2017. Other wolf groups occurred in parts of the following counties: Baker, Grant, Jackson, Klamath, Lake, Umatilla, Union, and Wallowa.

Nineteen wolves were captured and radio-collared and 25 radio-collared wolves were monitored during 2017. At year-end, 14 radio-collared wolves (11% of the minimum number) were monitored in Oregon. Thirteen wolf mortalities were documented during the year, including 12 that were human-caused. Six dispersing radio-collared wolves were monitored during the year, and four of these dispersed out of state before the end of the year.

The Department investigated 66 reports of livestock depredation by wolves. Of those reported depredations, 17 were confirmed in 2017, compared to 24 confirmed depredations in 2016. As stipulated in the Wolf Plan, the Department and area producers implemented non-lethal measures to minimize depredation. Per Oregon Administrative Rule (OAR) 635-110-0030, in two instances, non-lethal methods proved ineffective and four wolves of the Harl Butte Pack and one wolf of the Meacham Pack were lethally removed to reduce chronic livestock depredation.

The Oregon Department of Agriculture's compensation program awarded grants of $252,570 to ten counties in 2017. Funds were used for non-lethal preventative measures and for direct payment of confirmed depredations and missing livestock to livestock producers.

Field research for the Oregon State University/ODFW wolf-cougar research project in northeastern Oregon was completed in 2017. This project is primarily focused on understanding competitive interactions and prey selection between wolves and cougars in the Mt Emily Wildlife Management Unit (WMU). Since 2014, researchers have collected information from radio-collar data of 11 cougars and 11 wolves in four wolf groups. The project is expected to be completed in 2018.

OREGON WOLF PROGRAM OVERVIEW

Regulatory Status

Federal Status: Wolves occurring west of Oregon Highways 395/78/95 continue to be protected as endangered under the federal 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 collaborates on monitoring and depredation response.

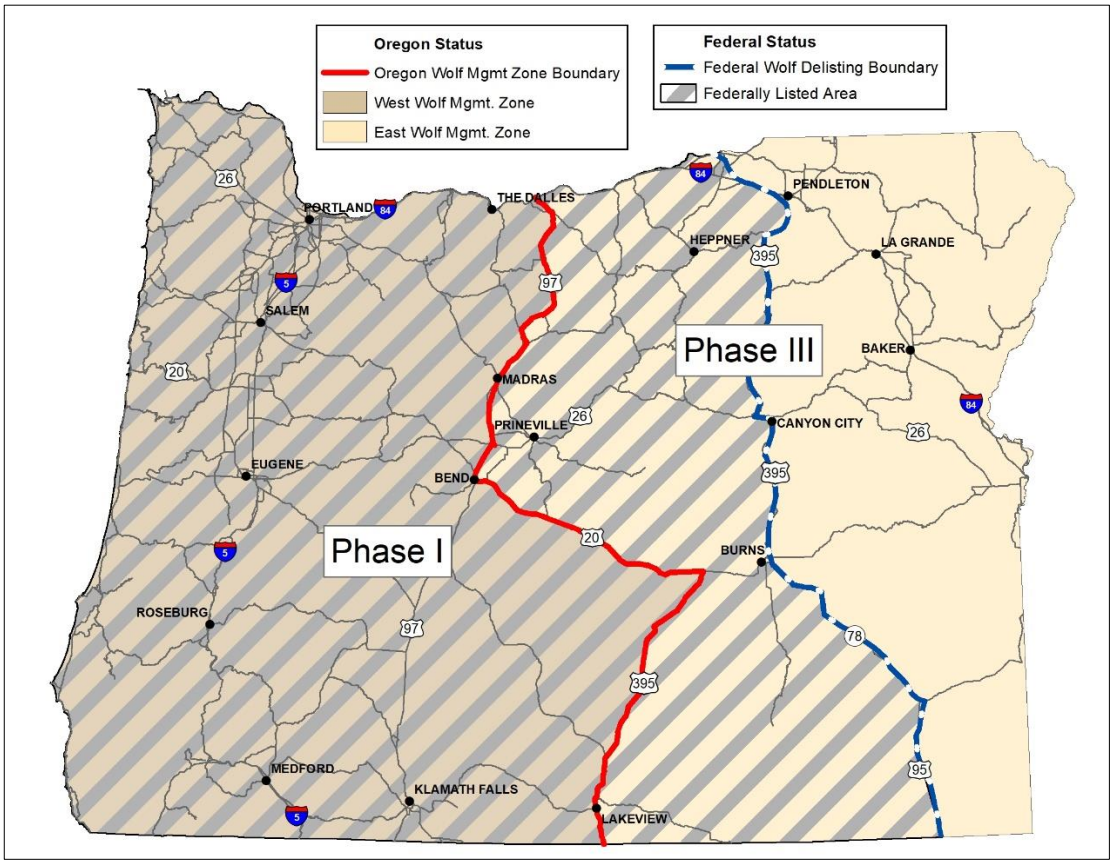

Figure 1. Wolf Management Zones and Federal ESA Status in Oregon

State Status**:** The Fish and Wildlife Commission (Commission) decision on November 9, 2015 removed wolves from the Oregon List of Endangered Species. A lawsuit challenging the Commission's delisting decision was filed by three environmental groups and the case is pending.

Wolves are still protected statewide and managed by the Wolf Plan guidelines and associated rules based on where they are located. Wolves in the West WMZ are managed under the more protective Phase I rules until their population reaches a minimum of four breeding pairs for three consecutive years (one breeding pair in 2017). 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.

In March 2017, wolves in the East WMZ moved into management under Phase III rules after a minimum of seven breeding pairs was documented for the third consecutive year. Phase III continues to focus on conservation of wolves while addressing instances of wolf conflict. This includes continuing to emphasize the use of non-lethal deterrents to reduce livestock depredation, the use of controlled take in certain situations, and expands livestock producer options for investigating potential wolf depredations of livestock.

Department staff continued work on the Wolf Plan-mandated review in 2017, an effort that began in 2016. The status of the review process and the draft Wolf Plan was presented at four 2017 Commission meetings (April, May, September and December). Prior to the April meeting, a draft Wolf Plan was made available to the public. In April and May, public testimony was heard by the Commission and the Commission hosted a public field tour with a wolf presentation in April in Klamath County. Prior to the December meeting, a working copy of the draft Wolf Plan was made available to the public. At the December 2017 December meeting, the Commission received testimony from two panels of invited guests of their review of the draft Wolf Plan. In addition, stakeholder groups and organizations, agencies, Tribes, and members of the public provided valuable review and input into the process. No votes were held by the Commission on approving the draft Wolf Plan and the update will continue in 2018.

Minimum Numbers, Distribution, and Reproduction

Minimum Count and Distribution: The Department provides a minimum known number of wolves present in Oregon at the end of the year; it is a direct count of wolves, not an estimate. The minimum known wolf number in 2017 was 124, an 11% increase from 2016 (Figure 2). The Department also documents pack numbers annually. A pack is defined as four or more wolves traveling together in winter. Twelve packs were documented at the end of 2017, with a mean pack size of 7.3 wolves and ranging between four and eleven (Figure 3). The pack and wolf numbers could increase if evidence is collected during 2018 of additional wolves present during 2017. Throughout this report, a group is used to denote two or more wolves traveling together.

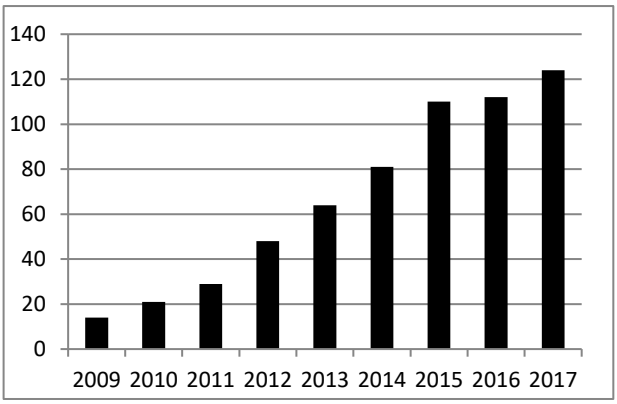

Figure 2. Minimum wolf numbers in Oregon (2009-2017).

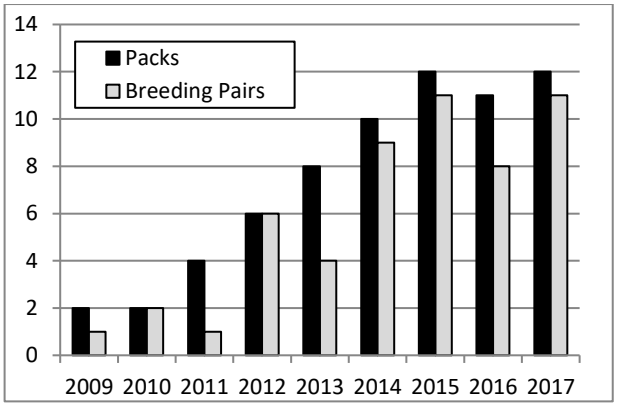

Figure 3. Number of packs and breeding pairs in Oregon (2009-2017).

The twelve packs were distributed in two geographic areas of Oregon; eleven packs in northeastern Oregon and one in southwestern Oregon (Table 1). Eleven percent of Oregon known wolves were in the West WMZ. Known wolf groups occurred in parts of Baker, Grant, Jackson, Klamath, Lake,

Umatilla, Union, Wallowa, and Wasco Counties (Figure 4). For groups that had considerable GPS radio-collar data (n=7), the pack territory sizes ranged from 130 to 461 mi^2 (335-1,193 km^2) with a mean of 267 mi^2 (691 km^2).

Table 1. Minimum wolf number (Total = 124) in Oregon on Dec. 31, 2017 by pack and Wolf Management Zone. Underlined packs were counted as breeding pairs.

Pack/Group	WMZ	Total	Pack/Group	WMZ	Total
Catherine Pack	East	4	Rogue Pack	West	7
Chesnimnus Wolves	East	3	Ruckel Ridge Pack	East	7
Desolation Wolves	East	2	Shamrock Wolves	East	3
Harl Butte Pack	East	4	Snake River Pack	East	10
Meacham Wolves	East	3	Walla Walla Pack	East	7
Middle Fork Pack	East	6	Wenaha Pack	East	10
Minam Pack	East	11	White River Wolves	West	2
Mt. Emily Pack	East	5	OR30 Wolves	East	3
Noregaard Pack	East	9	OR52 Wolves	East	3
North Emily Wolves	East	2	Individual/Misc. Wolves	East	10
Pine Creek Pack	East	8	Individual Wolves	West	5

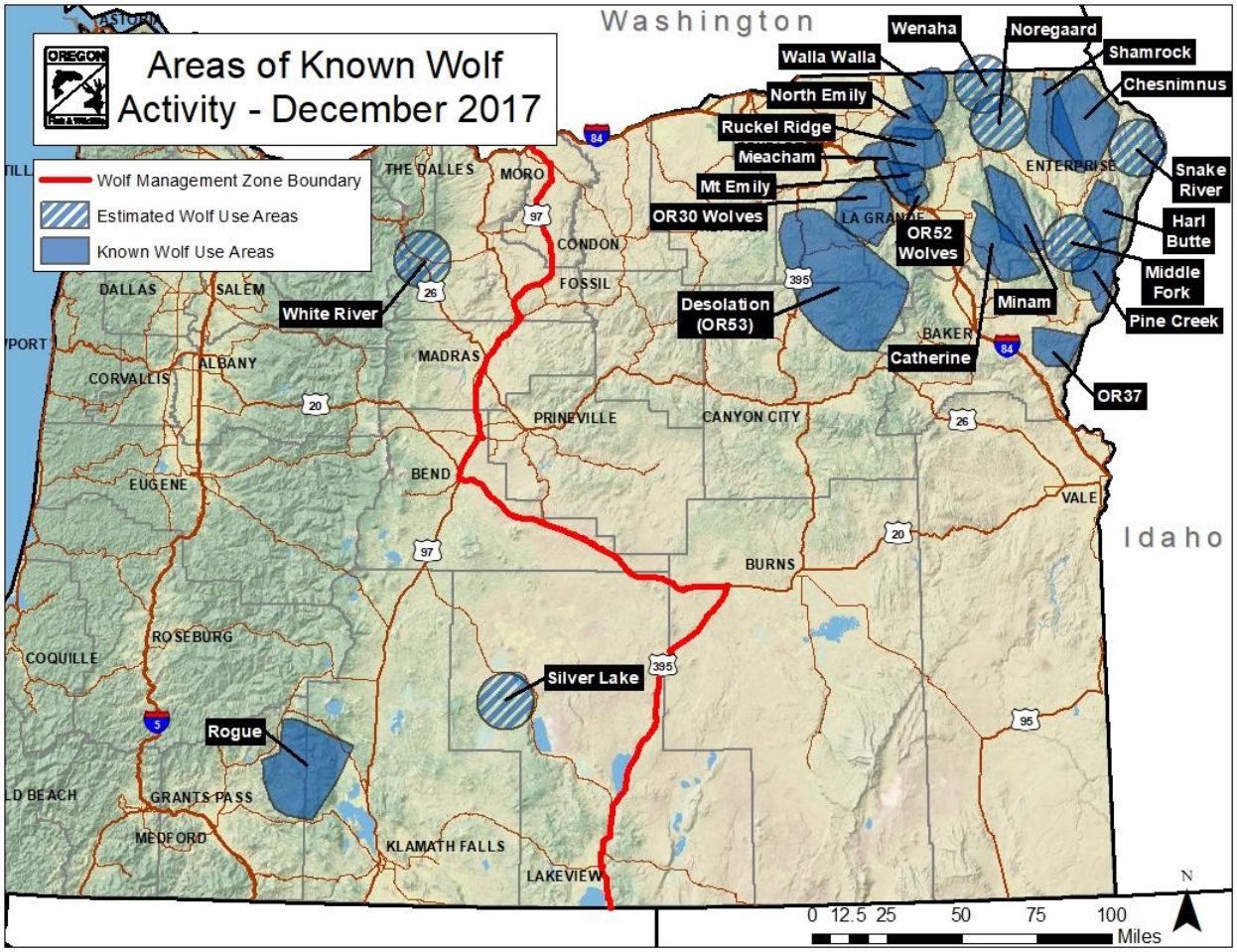

Figure 4. Distribution of known Oregon wolves in December, 2017.

Resident wolves were documented in a new region of the state. At least two wolves, in the White River WMU, used an area in southern Wasco County, marking the first time multiple wolves have been confirmed in the northern portion of Oregon's Cascade Mountains since they began returning to the state. The wolves were documented on the White River Wildlife Area, Mt Hood National Forest and were also observed on the Warm Springs Indian Reservation. Several wolves are known to have dispersed through Wasco County in the past few years, but the repeated evidence of multiple wolves suggests residency in the area.

During 2017, two new pairs bred in the Mt Emily WMU, in addition to the three groups already resident there. Two new packs were discovered in Wallowa County. The Middle Fork Pack was discovered in the southwestern portion of the Imnaha WMU and the Noregaard pack was found in the Sled Springs WMU. A new pack (Grouse Flats Pack) was documented in the northern portion if the Wenaha WMU in late 2017 but denned in Washington so the pack was counted in Washington's year-end numbers.

Five individual wolves were documented in the West WMZ; one radio-collared wolf was actively dispersing through the northern Oregon Cascades, and one each was counted in Interstate, Keno, Rogue, and Silver Lake WMU. Ten wolves unassociated with packs were counted in the East WMZ. Single wolves were counted in the Lookout Mt, Walla Walla, and Wenaha WMUs. A group of two wolves was documented in the Sled Springs WMU, two wolves in the Catherine Creek WMU, and three wolves in the southern Wenaha WMU. Some of these wolves were resident; others were located during the winter count and will continue to be monitored for residency.

The loss of a breeding male or female can impact pack composition, pup survival, and territory longevity. Seven packs had changes in breeder status during the year. In six packs, the breeding female died (5) or disappeared (1). In one pack, a new dominant male was documented present in the pack, and at some point the pack's breeding male left permanently. All seven of these areas were still occupied during the winter count, but the number of individuals decreased in five of the groups compared to the 2016 winter count. Pups survived in three packs, were not found in two packs, and pup status is unknown in two packs.

Two wolf activity areas were discontinued after wolves were not confirmed for over one year. The unnamed wolves in the Heppner WMU and the Keno Wolves were never located again after tracks were found in January 2017. Reproduction was never confirmed in the Keno area and may simply be a corridor for wolves moving between Oregon and California.

Reproduction: Reproduction was the highest documented since wolves reestablished in Oregon with pups born in eighteen groups, a 50% increase from 2016. Eleven groups were documented as successful breeding pairs for 2017, a 38% increase from 2016 (Figure 3). Although not counted as a breeding pair, reproduction was confirmed in Chesnimnus, Harl Butte, Meacham, North Emily, Shamrock Packs, and the new OR30 and OR52 pairs. The breeding female of the Chesnimnus pack died in May likely causing the loss of her pups. By December 31, only one pup was confirmed with OR52 and her mate, and two pups were with OR30, but he had lost his mate, thereby both situations failed to meet the definition of a breeding pair. The status of pups in the other four groups is unknown.

Monitoring

Nineteen wolves were captured and radio-collared during 2017, compared to eleven wolves captured in 2016. Five of the 19 captures were to replace failed or failing radio-collars. Twelve wolves were radio-collared with GPS radio-collars and seven with VHF radio-collars. VHF radio-collars are more labor intensive to monitor in the field, but the collars have a lower failure rate and much longer battery life. Wolves were captured using foothold traps (n=8) or helicopter darting operations (n=11). USFWS assisted with trapping and radio-collaring one wolf in the West WMZ. One wolf was incidentally trapped by a licensed trapper, radio-collared by the Department, and safely released.

Data was collected for twenty-five total radio-collared wolves representing 13 groups during 2017. By year end, fourteen wolves were radio-collared (approximately 11% of the known wolf number) and represented five packs (Catherine, Mt. Emily, Pine Creek, Rogue, and Ruckel Ridge), two groups of three wolves (OR52 and OR30), two pairs (North Emily and Desolation) and one lone individual (OR44). Contact with 11 radio-collars was lost during the year when four wolves dispersed out of state, four radio-collared wolves died, two GPS radio-collars failed, and status/location of one VHF radio-collar was unknown.

Six radio-collared dispersing wolves were monitored in 2017. Two wolves dispersed within Oregon; one traveled west across the state to the Cascades, the other joined a pack in an adjacent pack area in northeastern Oregon. Four wolves dispersed out of state, traveling to Idaho (n=2), Montana (n=1), and Washington (n=1).

Between 2009 and 2017, 58 wolves were radio-collared by the Department. By the end of 2017, 15 of those radio-collared wolves had dispersed out of Oregon. Of the remaining 43 collared wolves, 17 wolves died, 14 collars were still being monitored, 8 wolves with failed collars were still being monitored sporadically, 1 collar slipped off, and 3 had unknown status (e.g. collar failed, wolf dispersed). The causes of death of the collared wolves were: disease (2), lethal removal (3), unlawful take (8), other human causes (3), and unknown (1).

In addition to monitoring information downloaded from GPS radio-collars, Department biologists visually monitored radio-collared and accompanying wolves from the air and ground, implemented track and howling surveys, and conducted remote camera surveillance within areas of known or suspected wolf ranges. During the year the Department collected a total of 11,851 wolf location data points in Oregon. In 2017, 54% of documented locations for resident wolves were on public lands, 44% on private lands, and 2% on tribal lands.

Wolf reports from the public increased slightly over 2016, with 397 wolf reports received by Department biologists or the Department's online wolf reporting system (www.odfw.com/wolves) during the year. Subsequent follow-up of some of these public reports yielded valuable information about new wolf activity or existing groups without radio-collars.

Mortalities: Thirteen wolf mortalities were documented during 2017 (Table 2), including twelve that were human-caused.

Three wolf deaths were investigated by Oregon State Police (OSP) and determined that criminal charges were unwarranted. One wolf died after encountering an M-44, a spring-activated device containing poison, which was placed by USDA Wildlife Services (WS) to control coyotes on private land. The unintentional killing of a wolf pup occurred while a sheepherder was investigating places to water the sheep band and his livestock protection dog encountered the wolf pup. No dogs or other wolves were injured in the encounter. One wolf was shot by an elk hunter who believed his life was in danger.

Four wolves were illegally killed in 2017 and three of those investigations are ongoing. OSP and USFWS Law Enforcement are actively seeking more information about the open cases. Rewards ranging from $2,500 to $15,000 have been offered for information leading to convictions. One case has been prosecuted where a man trapping illegally caught a wolf in a foothold trap and shot it.

Five wolves were killed lawfully per OAR 635-110-0030 (Phase III rule) in northeastern Oregon. Four wolves of the Harl Butte Pack and one wolf of the Meacham Pack were lethally removed in response to chronic depredation situations (see the Livestock Depredation Management section for information).

A necropsy completed by the Oregon State University Veterinary Diagnostic Laboratory revealed that one wolf died of natural causes related to brain inflammation from an unidentified infectious cause.

Table 2. Wolf mortalities in Oregon in 2017. Date refers to when the wolf died or was discovered.

Date	Wolf	Pack	Cause of Death
2/25/2017	OR48	Shamrock	Unintentional Take, M-44
4/23/2017	OR33	No Pack	Shot, Under Investigation
5/8/2017	OR42	Chesnimnus	Disease
7/25/2017	Pup	Ruckel Ridge	Killed by Livestock Protection Dog
8/6/2017	Subadult	Harl Butte	Agency Lethal Removal
8/8/2017	Subadult	Harl Butte	Agency Lethal Removal
8/17/2017	Subadult	Harl Butte	Agency Lethal Removal
8/25/2017	Adult	Harl Butte	Agency Lethal Removal
9/7/2017	Adult	Meacham	Permitted Lethal Removal
10/27/2017	Adult	OR30 Group	Shot, Self Defense
10/28/2017	OR25	No Pack	Under Investigation
11/14/2017	OR23	Shamrock	Shot, Under Investigation
12/17/2017	Subadult	Putative Ruckel Ridge	Illegally Trapped, then Shot

Forty wolf mortalities have been documented since 2000. Thirty-four have been caused by human activities, either intentionally (e.g. lethal removal) or unintentionally (e.g. vehicle collision). Three wolves have died from natural causes, and three from unknown causes (Figure 5).

Anthropogenic (human-caused) mortality is the primary factor that influences dynamics of most wolf populations. Since 2009, the number of documented human-caused mortalities has varied (Figure 6).

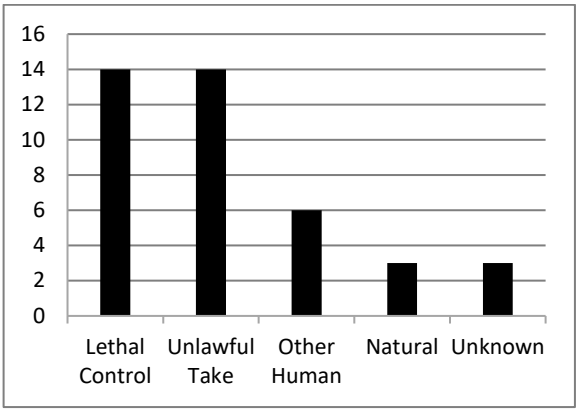

Figure 5. Causes of known wolf mortalities in Oregon (2000-2017).

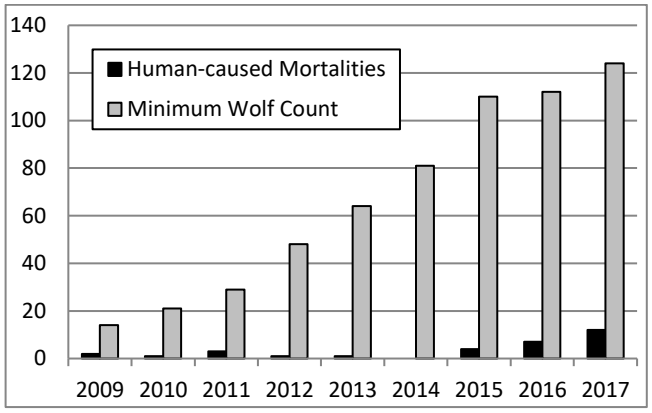

Figure 6. Human-caused wolf mortalities and minimum wolf number (2009-2017).

LIVESTOCK DEPREDATION MANAGEMENT

Wolf Depredation Summary

Confirmed depredation events decreased in 2017 from 2016 (17 vs. 24). Confirmed losses in 2017 were 11 calves, 1 llama, 1 alpaca, and 23 domestic fowl (Table 3), compared to 11 calves, 7 sheep, 1 goat, and 1 llama in 2016 (Figure 7). One individual wolf and five wolf groups each depredated one time during 2017. Two packs depredated more than once: Meacham (n=4), and Harl Butte (n=7). During 2017, 24% of known packs that were active at some time during the year (n=17) depredated livestock, compared to 57% (n=14) for 2016.

Table 3. Summary of 2017 confirmed wolf depredation incidents in Oregon.

Date	Animals Affected	County	Pack or Wolf Area
2/25/2017	Cow (Dead: 1 calf)	Jackson	OR25
3/23/2017	Fowl (Dead: 16 chickens, 7 geese)	Wallowa	Shamrock
4/7/2017	Cow (Dead: 1 calf)	Wallowa	Harl Butte
7/22/2017	Cow (Injured: 1 calf)	Wallowa	Harl Butte
7/26/2017	Cow (Dead: 1 calf)	Wallowa	Harl Butte
8/13/2017	Cow (Dead: 1 calf)	Umatilla	Meacham
8/14/2017	Cow (Dead: 1 calf)	Umatilla	Walla Walla
8/16/2017	Cow (Dead: 1 calf)	Wallowa	Harl Butte
8/16/2017	Cow (Dead: 1 calf)	Umatilla	Meacham
8/17/2017	Cow (Injured: 1 calf)	Umatilla	Meacham
8/19/2017	Cow (Dead: 1 calf)	Umatilla	Meacham
9/29/2017	Cow (Dead: 1 calf)	Wallowa	Harl Butte
10/1/2017	Cow (Injured: 1 calf)	Wallowa	Harl Butte
10/9/2017	Cow (Dead: 1 calf)	Union	Catherine
10/11/2017	Cow (Dead: 1 calf)	Wallowa	Harl Butte
11/25/2017	Llama (Dead: 1 llama)	Union	OR52 group
12/10/2017	Alpaca (Dead: 1 alpaca)	Union	OR30 group

In 2017, the Department conducted 66 wolf depredation investigations in eleven Oregon counties, which resulted in 17 (~26%) *confirmed* determinations, 0 *probable* determinations, 7 (~10%) *possible/unknown*, and 42 (~64%) *other* (not wolf-related). Depredations were confirmed in four counties: Jackson, Umatilla, Union, and Wallowa.

Since 2009, 75% of confirmed events have occurred on private land. Oregon's depredation of cattle and sheep data across all years (n=100) shows that 59% of depredation events happen during four months (May, August, September, and October).

USDA WS agents continued to attend Department depredation training workshops and to assist with depredation field investigations. During 2017, USDA WS assisted at 18% of the Department investigations, and since 2010, they have assisted at 47%. In Phase III, the Wolf Plan allows either the Department or USDA WS to confirm wolf depredations in Eastern Oregon. During 2017, USDA WS chose not to assist in the lethal removal of wolves or expand their role in depredation investigations until they evaluated their obligations under the National Environmental Policy Act.

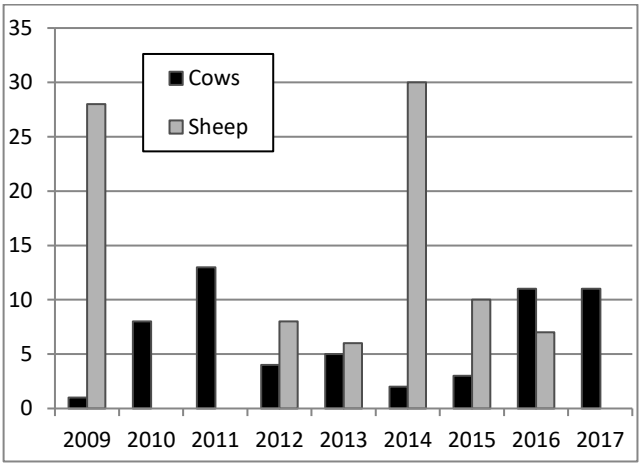

Figure 7. Number of confirmed cow and sheep losses by year (2009-2017).

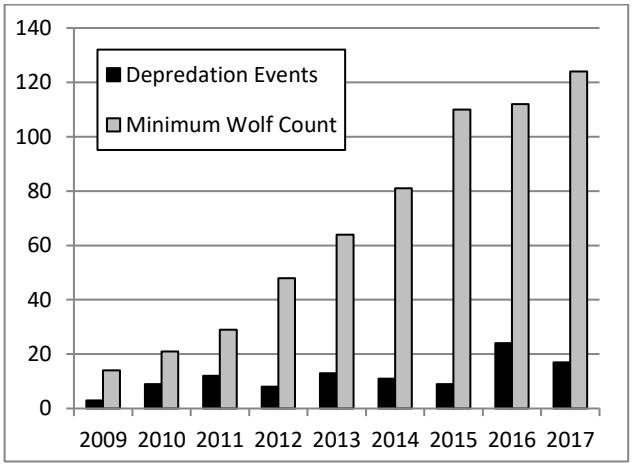

Figure 8. Number of confirmed depredation events and minimum wolf number (2009-2017).

Efforts to Minimize Depredation

The Wolf Plan mandates focusing on non-lethal efforts before lethal removal is considered in all phases of wolf management. Although minimum wolf numbers have increased considerably over the last eight years, depredation events and livestock losses have not increased at the same rate (Figure 8).

Non-Lethal Options: Effective proactive non-lethal measures vary by the type of livestock being protected and the size and location 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. The Department, USFWS, and USDA WS continued to support producers with technical advice and non-lethal supplies. Assistance was given with attractant removal, electrified fladry, electromesh fencing, solar chargers, and radio-activated guard (RAG) boxes.

In 2017, wolf program personnel designated or revised and posted thirteen Area of Known Wolf Activity maps in order to inform livestock producers of resident wolf activity. District wildlife

biologists informed producers when new areas of resident wolves overlapped with their livestock and worked with them to implement non-lethal strategies. In response to depredation, one Area of Depredating Wolves and one Conflict Deterrence Plan were also developed and posted on the Department's wolf website, per OAR 635-110-0010 (Phase I).

The automated wolf notification system was discontinued in 2017. The system had been created to inform livestock producers when wolves were near their livestock so they could proactively respond to the area to increase human presence. The system was limited in its ability to reduce depredation by several factors; receipt of GPS data from radio-collars is sporadic, the program software experienced repeated failures, data was only from the small percentage of radio-collared wolves, and the wolves could be many miles away by the time the producers reached the area. The system was effective at informing producers about how fast wolves can move across the landscape and areas they frequent, but it was only able to inform about where wolves had been, not where they were going. The notification system may have created a reliance on information that had limited value and a false sense of security, as wolves often do not travel together during the months when depredation is most likely.

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 OAR 635-110-0030 (Phase III), there are two options for lethal control in response to wolf-livestock conflicts.

One option available to livestock producers to stop a depredation event 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 under certain circumstances. In June, a livestock producer in the Harl Butte Pack area reported shooting at a wolf that was chasing his livestock. OSP investigated and no evidence was found that a wolf had been injured or killed.

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 wolves to minimize further depredation. The Department authorized incremental lethal removal of wolves in two pack areas after non-lethal measures and hazing were unsuccessful in minimizing depredation. In August, two wolves of the Harl Butte Pack were lethally removed by the Department in response to an ongoing chronic depredation situation. After additional depredation, two more Harl Butte wolves were removed in late August. The Department also issued two limited-duration permits to livestock producers in response to chronic depredation situations in August (Meacham Pack) and October (Harl Butte), which resulted in one wolf of the Meacham Pack being lethally removed in September.

Compensation for Wolf-Caused Losses

The Oregon Department of Agriculture's Wolf Depredation Compensation and Financial Assistance County Block Grant Program was implemented again in 2017. The program provides four types of financial assistance options; direct depredation payment, missing livestock payment, preventative measures, and 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 wolf activity and appropriate preventative non-lethal measures. A total of ten counties were awarded $252,570 in grant funds (Table 4).

Table 4. Funds awarded through the County Block Grant Program in 2017 (source; Oregon Department of Agriculture)

County	Death/Injury	Missing	Prevention	Admin	Total
Baker	0	$16,125	$6,599	$495	$23,219
Jackson	$267	0	$10,916	$675	$11,858
Klamath	$4,070	0	$10,000	0	$14,070
Lake	$600	0	$10,000	0	$10,600
Malheur	0	0	0	$450	$450
Morrow	0	0	$12,000	$675	$12,675
Umatilla	$900	$11,212	$83,771	$675	$96,558
Union	0	0	$5,000	0	$5,000
Wallowa	$9,390	$7,605	$59,195	$450	$76,640
Wheeler	0	0	$1,000	$500	$1,500
Award Amount	**$15,227**	**$34,942**	**$198,481**	**$3,920**	**$252,570**

WOLF RESEARCH

The Oregon State University/ODFW wolf-cougar research project in northeastern Oregon concluded field data collection in 2017. This project is primarily focused on understanding competitive interactions and predation patterns between wolves and cougars in the Mt. Emily WMU.

From 2014 to 2016, researchers monitored radio-collared cougars (n=11) and wolves (n=11) using area in the Mt. Emily WMU. Researchers used GPS location cluster analysis to identify potential prey acquisition sites and documented prey species use and acquisition rates. Predation was monitored for six wolves from three packs and one newly formed pair over 489 winter wolf-days and for four wolves from two packs over 64 summer wolf-days.

Project researchers investigated 656 potential wolf prey acquisition sites and identified prey remains of 159 carcasses at 152 sites. The most common ungulate in wolf diets was elk (64%), followed by white-tailed and mule deer combined (36%). Calves (56.3%) were the most frequently used age class of elk followed by adult (31.2%), unknown age (7.5%), and yearling (5.0%) elk. Of the adult elk remains for which sex could be determined, 77% were cows and 23% were bulls. When wolves killed deer, mule deer were the most common species in wolf diets (80%) for remains where deer species could be distinguished. The most frequent age class of deer in wolf diets was adults (37.8%) and unknown age (37.8%) deer, followed by fawns (15.6%), and yearling (8.8%) deer. Of the adult deer remains for which sex could be determined, 50% were bucks and 50% were does.

Researchers documented eighteen cases of collared wolves scavenging, which represented 11.3% of all prey remains identified. All collared wolves engaged in at least one scavenging event and 78.9% of scavenged remains were of native ungulates. Non-ungulate prey items included domestic sheep (n=3) and feral horse (n=1). Causes of death for the domestic sheep were ruled “other” (i.e. died from disease, starvation, old age) by ODFW at the time of investigation and were not considered wolf killed. Researchers identified three cases in which wolves usurped prey remains from cougars still actively feeding, seven cases in which wolves scavenged prey remains from cougar cache sites vacated prior to wolf arrival, and four cases in which wolves visited prey remains of a cougar cache, but scavenging could not be determined.

Fieldwork investigating prey acquisition sites for wolves and cougar concluded in November 2016 for the Mt. Emily wolf-cougar research project. Data collection and monitoring of GPS collared cougars concluded in 2017. 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 webpages (http://www.odfw.com/wolves) as the primary information distribution tool in 2017. Throughout the year, the online wolf pages received 177,139 views. The wolf program home page alone received nearly 36,000 views. Currently, 6,899 people subscribe to the Department's wolf program email update page.

The Department also maintains a wolf-livestock update page that focuses on the information needs of livestock producers and the requirements under Phase I Oregon Administrative Rules. Since this page was launched, 5,022 people have 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.

In September, just before most hunting seasons opened, the Department released an online Coyote and Gray Wolf Identification Quiz to educate hunters to reduce the chance for accidental shootings of wolves misidentified as coyotes. The quiz gives tips for telling them apart and reminds hunters of their responsibility to know their target. The "Canid Quiz" received considerable print and social media attention and was taken 31,995 times in the first 3.5 months it was available.

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 one day-long workshop in Union County 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. The Department responded to a variety of queries from students of all levels writing papers or articles on wolves.

WOLF PROGRAM FUNDING

The majority of wolf program funding for the 2017-2019 biennium consists of federal funds from the Pittman-Robertson Grant Program. This federal grant requires 25% state match which comes from a combination of Oregon Department of Fish and Wildlife license dollars (9.5%) and Lottery Funds (15.5%). Two full time employees and one summer student intern are associated with the program. The total budget allocation for the 2017-2019 biennium is $678,223.

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, Oregon State Police, Oregon Department of Agriculture and cooperating counties through the Wolf Depredation Compensation and Financial Assistance County Block Grant Program. The Oregon wolf program also benefited in a multitude of ways from the continued collaboration with the Confederated Tribes of the Umatilla Indian Reservation and Confederated Tribes of Warm Springs, as well as private landowners, county sheriffs and other agencies and private interests such as the U.S. Forest Service, the U.S. Bureau of Land Management, Defenders of Wildlife, and Oregon State University.