

2011 Oregon Wolf Management Report (January-November 2011)

Regulatory Status

Federal Listing Status: As result of an act of Congress, on May 5, 2011 the U.S. Fish and Wildlife Service (USFWS) delisted wolves within the Northern Rocky Mountain Distinct Population Segment from the federal list of endangered species. The delisting included the easternmost portion of Oregon bounded by Oregon Highways 395/78/95. Wolves in the remainder of Oregon (west of those same highways) continue to be federally protected as endangered under the federal Endangered Species Act (ESA).

At the time of delisting, the USFWS also proposed a more comprehensive approach to wolf reclassification throughout the coterminous United States. One part of this approach will be to determine whether wolves in the Pacific Northwest (west of the Northern Rocky Mountains DPS) continue to warrant threatened or endangered status under the ESA. This review is expected to be completed in February 2012. Currently, the USFWS is exploring a number of options to manage wolves in the federally listed portion of Oregon, and this could include the establishment of a new DPS covering portions of Oregon, Washington, and California. In the federally listed portion of Oregon, the Oregon Department of Fish and Wildlife (Department) implements the Oregon Wolf Conservation and Management Plan (OWP) under the guidance of the Federal/State Coordination Strategy (March 2011) for Implementation of Oregon's Wolf Plan.

State Listing Status: Wolves in Oregon remain listed statewide as endangered under the Oregon ESA. The OWP sets a population objective of four breeding pairs for three consecutive years in eastern Oregon before delisting can be considered. A breeding pair is defined as an adult male and adult female with at least two pups at the end of the year.

Oregon Wolf Population: The Oregon wolf population is expanding and the 2011 minimum known wolf population consists of 25 wolves (Table 1), with four known packs in northeastern Oregon. For monitoring purposes, a pack is defined as four or more wolves travelling together in winter. A map of the location of known packs is given in Figure 1. This minimum population estimate is based solely on wolves that staff has verified through direct evidence (data from radio collared wolves, visual observation, remote camera footage, etc.). The actual number of wolves in Oregon is likely greater than this minimum estimate, and the department expects the population and distribution to continue to grow through both natural reproduction and dispersal.

Table 1. **Minimum wolf population** (total = 25) in Oregon on November 30, 2011.

Pack/Area	Adults	Pups	Unknown	Total
Imnaha Pack	4	1		5
Wenaha Pack	4			4
Walla Walla Pack	3	3		6
Snake River Pack			5	5
Umatilla River Area	2			2
Minam River Area			1	1
Dispersers	2			2

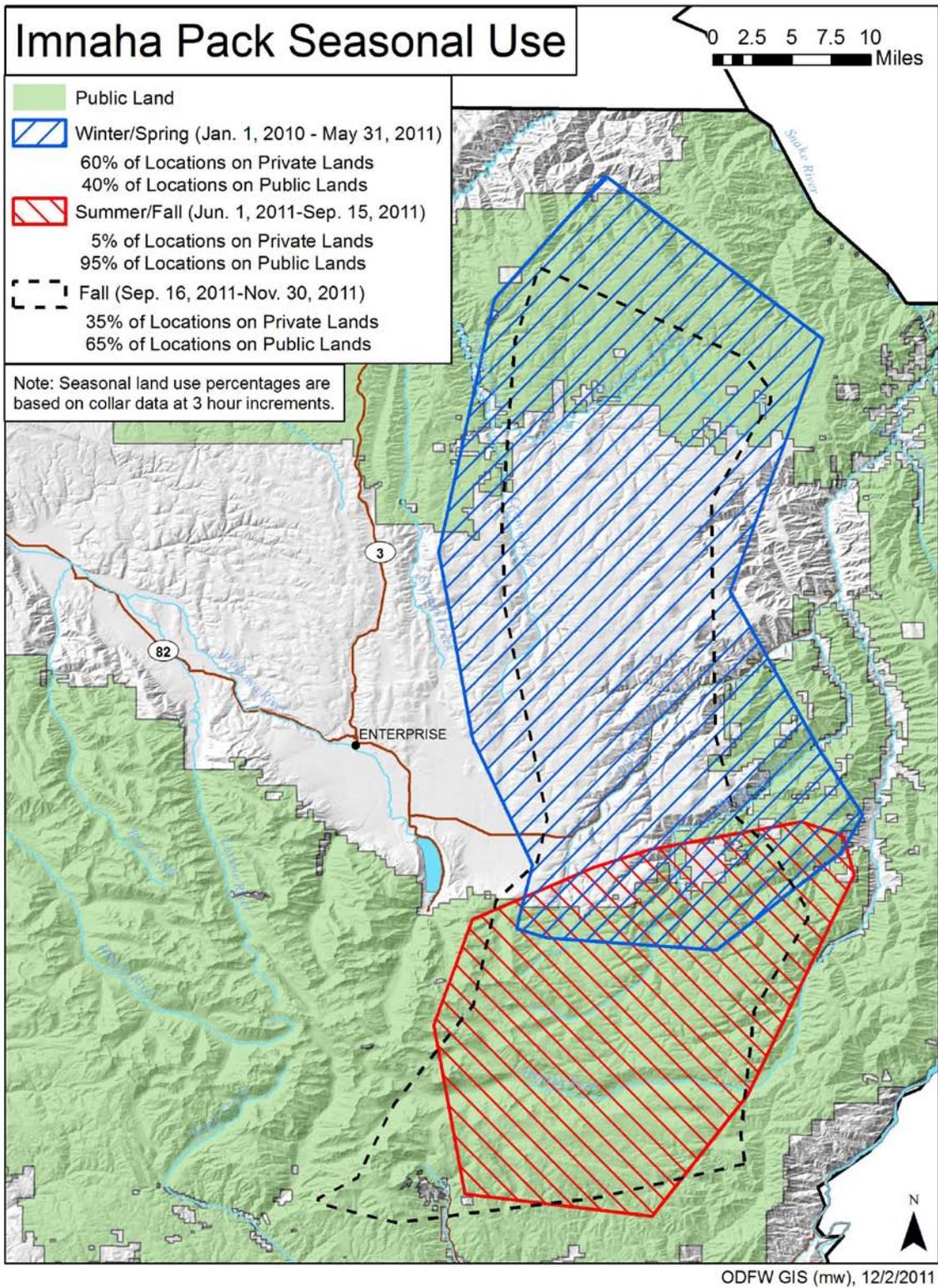
Figure 1. Map of Known Oregon Wolves in 2011.



Imnaha Pack: The Imnaha pack was first documented in 2009 in the Imnaha River drainage of Wallowa County. In December 2010, the Imnaha pack had up to 16 individuals and was counted as a breeding pair. In 2011, the number decreased as a result of three known mortalities (one radio-collared wolf died of unknown cause which may have been capture-related and two lethal removals by the department), four dispersals of radio-collared individuals, and five uncollared wolves with unknown locations and fates. Given that four of six wolves with active radio-collars dispersed from the Imnaha pack, it is likely that several of the five wolves with unknown fates may also have dispersed. In December 2011, four adults and one pup remained in the Imnaha pack.

To date, seven wolves from this pack have been captured and fitted with radio-collars, including the alpha male and alpha female of the pack. In 2011, three Imnaha pack wolves were fitted with Global Positioning System (GPS) collars which provided a total of 5,682 data points (through November 30, 2011). These collars allowed consistent tracking of two dispersers (OR7 and OR9) and the alpha male (OR4) of the pack in 2011. Using these collars, the department tracked the pack's movements, which generally included livestock-occupied low-elevation private lands during the winter/spring months and higher elevation public land (including federal grazing allotments) in the summer (Figure 2).

Figure 2. Seasonal Land Use by Imnaha Pack.



Wenaha Pack: The Wenaha pack was first discovered in forested habitat in northern Union County in 2008. In August 2010, a single male wolf from the pack was captured and fitted with a radio collar. In September 2010, it was found shot. In December 2010, the pack consisted of 6 wolves (3 adults, 3 pups) and was counted as a breeding pair. Though no additional radio-collars were installed in 2011, information continues to be collected on the pack through other monitoring methods – track surveys, howl surveys, howl boxes, and the use of remote cameras. While the exact number of individuals in this pack is unknown as of November 30, 2011, at least 4 wolves have been documented on public lands in the Wenaha Unit.

Walla Walla Pack: Evidence of wolf activity in northern Umatilla County was first discovered in January 2011. Frequent monitoring of this area throughout the summer resulted in the discovery of a pack and in November a minimum of 6 wolves were documented (3 adults and 3 pups). In October, two pups from this pack were captured and fitted with radio-collars. VHF collars were used as the pups were too small for the larger GPS collars. Monitoring data show the wolves using a combination of private and public forest lands, and foothill rangelands in the Walla Walla unit.

Snake River Pack: Evidence of wolf activity was first confirmed in the northern portion of the Snake River unit after receiving reports and trail camera photographs from area hunters. On October 20, 2011, the department confirmed tracks of five wolves. In addition, review of the photographs indicate that at least one pup was produced in this area.

Other Confirmed Wolves: In 2011, additional resident wolf activity was first discovered by the department in Umatilla County (Umatilla River, North Mt. Emily unit) when two adult wolves were documented by remote cameras. It is unknown if these wolves are part of the Walla Walla pack. In addition, the department confirmed sign of at least one wolf in the Minam unit in October.

Dispersers: Four radio-collared wolves have dispersed from the Imnaha pack during 2011.

OR3 is a 3 ½-year-old black male that was collared (VHF collar) in February 2010. This wolf dispersed from the Imnaha pack in May 2011. It was last located by the USFWS in the Ochoco Mountains in central Oregon on September 30 and has not been located since then.

OR5 is a 2 ½-year-old gray female that was collared (VHF collar) in February 2010. This wolf is believed to have dispersed from the pack in December 2010 and was last located in SE Washington on January 25, 2011.

OR7 is a 2 ½-year-old gray male that was collared (GPS collar) in February 2011 and dispersed from the Imnaha pack in September. From September through November, this wolf travelled through Baker, Grant, Harney, Crook, Deschutes, Lake, Klamath, Douglas, and Jackson counties. At the end of November, it was in Klamath County north of Klamath Lake. A map of the dispersal of OR7 may be viewed online at the department's wolf web page. By November 30, it had travelled over 760 miles from the initial pack location and has been as far as 334 linear miles from its natal area. Though dispersal is a natural function within wolf populations, this specific dispersal event has generated international public interest.

OR9 is a 2-½ year-old gray male that was collared (GPS collar) in February 2011. In July, this wolf dispersed from the Imnaha pack and on July 18 entered Idaho by crossing Brownlee Reservoir. Since dispersing, OR9 has travelled over 830 miles. However, the average distance from its natal area (Idaho locations only) is only 43 miles (range = 19-82 miles). Locations of OR9 are provided by the department to Idaho Department of Fish and Game and USFWS.

Program Accomplishments in 2011

Field Survey, Monitoring, and Capture: The department continues to search for evidence of new wolf activity and to monitor known Oregon wolves. Field activities were conducted on all or part of 188 calendar days in 2011 (through November) and included follow-up on public wolf reports, searches for new wolves, monitoring known wolves (i.e., radio-collared wolves), and wolf capture activities. These efforts resulted in the documentation of four newly discovered areas of wolf activity, including two additional packs in northeast Oregon.

Seven wolves were captured using helicopter darting and foothold trapping during 2011. A summary of wolves captured is found in Table 2.

Table 2. Wolves captured in Oregon in 2011.

Date	Wolf ID#	Age/Color/Sex	Pack	Collar Type	Method
2/25/2011	OR7	Subadult, gray, male	Imnaha	GPS collar	Helicopter
2/25/2011	OR8	Subadult, gray, female	Imnaha	VHF collar	Helicopter
2/26/2011	OR9	Subadult, gray, male	Imnaha	GPS collar	Helicopter
5/17/2011		Subadult, black, male	Imnaha	None, Lethal Removal	Trap
5/19/2011	OR4	Adult, black, male	Imnaha	GPS collar	Trap
10/21/2011	OR10	Pup, gray female	Walla Walla	VHF collar	Trap
10/25/2011	OR11	Pup, black, male	Walla Walla	VHF collar	Trap

On February 25-26, utilizing a helicopter, three wolves were successfully captured from the Imnaha pack. GPS collars were applied to two wolves (OR7 and OR9) and a VHF collar was applied to one wolf (OR8). GPS collars increase accuracy and frequency of collection of location data. As part of the capture operation, a brief attempt was made to capture individual wolves from the Wenaha pack. However, no wolves could be located by air or ground.

On March 1, the collar of OR8 emitted a mortality signal and was located approximately 5 miles from the release site. No visible indications of this wolf died were observed. The carcass was taken to the Washington Animal Disease Diagnostic Laboratory for a complete examination. The lab tested the animal for injuries, diseases, and toxins, but they could not establish a definitive cause of mortality. The only abnormal finding was some hemorrhage in the wolf's chest cavity which may have contributed to mortality, and though the specific cause was not determined, it may have been related to capture.

Wolves were also captured using foothold traps in the Walla Walla and Imnaha units in 2011. On October 21, a gray female pup from the newly discovered Walla Walla pack (Umatilla County) was captured and fitted with a VHF radio-collar. On October 25, a black male pup from the same pack was

also radio-collared (VHF) and released. These are the first wolves of this pack to be radio-collared. Twenty radio-locations were obtained from these collars through November 2011.

Two Imnaha pack wolves were trapped in May 2011. Of these two wolves, one was killed by the department as a result of chronic depredation. The second wolf was the alpha male of the pack, which was fitted with a new GPS collar (his original GPS collar had failed in 2010) and was released.

Genetic Analysis: Collection of tissue and scat samples from Oregon wolves for genetic analysis continued during 2011. All samples collected were submitted to the University of Idaho Laboratory for Conservation and Ecological Genetics for analysis. Levels of analysis generally includes species identification (primarily from scat samples), population of genetic origin (i.e., Idaho reintroduced wolves), and parental relationships where possible. Twenty samples were sent for genetic analysis and results to date are contained in Table 3 below.

Table 3. List of samples submitted for analysis to University of Idaho Laboratory for Conservation and Ecological Genetics in 2011.

Wildlife Unit	When Collected	Sample Origin	Results
Imnaha	February	OR7	Progeny of OR2 and OR4
Imnaha	February	OR8	Progeny of OR2 and OR4
Imnaha	February	OR9	Progeny of OR2 and OR4
Imnaha	May	Lethal removal	Progeny of OR2 and OR4
Imnaha	May	Lethal removal	Progeny of OR2 and OR4
Mt Emily	May	1 scat	Confirmed as wolf
Chesnimnus	June	2 scats	Confirmed as coyote
Snake River	October	10 scats	Results Pending
Walla Walla	October	OR10	Results Pending
Walla Walla	October	OR11	Results Pending

Data Management: As the wolf population in Oregon has increased, the amount of location data collected has also increased. For example, the three GPS radio-collars alone yielded 5,046 Oregon location data points in 2011. To improve management of increasing amounts of location data, a new geospatial database was developed which incorporates all wolf location data collected in Oregon into ArcGIS for analysis. The new GIS is useful for tracking wolf distribution and abundance, estimating home ranges, delineating property ownerships, and producing accurate wolf location maps to help with current depredation issues. In addition, to help facilitate data sharing between agencies, the department has now made it possible for USFWS wolf managers to directly incorporate location data into the new database.

In 2011, a new online wolf reporting system was developed in which wolf observations by the public can be directly incorporated into the database and tracked using GIS. Since implementation of this database, a total of 238 public wolf reports (through November 30, 2011) were received by the department, and many of these reports assisted field survey efforts. In one instance, multiple reports received from area hunters led directly to the confirmation of the newly discovered Snake River pack.

Wolf Information and Education: There is tremendous public interest in wolves. The department fielded many calls from newspaper, radio and television media over the past year, along with inquiries from stakeholders, formal public records requests, students writing reports on wolves, and comments from members of the public wanting to voice their opinion about wolf management. In one example, a recent Associated Press story about the travels of OR7 was posted on more than 300 web sites, including major national outlets, MSNBC, Yahoo.com and the Washington Post. News sites in England and Australia picked up the story, and media from Italy and Argentina contacted the department for more information.

In response to the increasing public interest in wolf management, the department has developed the following:

- A new and improved wolf web page with maps of all the packs and dispersers like OR7. In the past year, the main wolf web page received more than 13,500 page views, compared to 4,500 for the cougar page and 4,400 for the sage grouse page.
- A new and improved online reporting form for public wolf sightings.
- A livestock loss investigations page with summaries of the department's depredation investigations, so our investigations and findings are as transparent as possible.
- A process to alert stakeholders and interested media to livestock depredation investigations and other wolf developments.
- A monthly wolf program update about program activities with more than 300 subscribers.

Wildlife District Involvement and Training: As the known wolf population has increased, responsibilities for the implementation of the OWP has increased for the wildlife districts. On August 29-30, the department conducted a two-day training session to improve implementation of the OWP on a local level. District staff responsibilities include: 1) following up on public wolf reports as necessary, 2) data collection and monitoring within each district, 3) response to wolf depredation complaints, 4) livestock producer assistance, and 5) implementation of strategies to address wolf-livestock conflicts.

In 2011, the department began tracking time spent by wildlife district personnel on wolves, and through November, wildlife districts had expended 955 hours conducting wolf management activities. Time spent implementing the wolf plan was not distributed equally as Wallowa and Umatilla personnel expended proportionally more time than other districts due to the presence of established wolves. In those districts, approximately 10% of district time was spent on wolf management activities.

Budget: During the 2009/11 biennium the wolf management program was funded from a variety of sources. These included federal funds from the State Wildlife Grant (SWG) program, Pitman-Robinson (PR) funds and USFWS grants. Generally these federal funds required state match which came from a combination of Other Fund license dollars and non-game Check-off contributions. Table 4 provides total budget allocations since the 2007/09 biennium.

Table 4. Budget by biennium for the Oregon Department of Fish and Wildlife wolf management program.

	<u>2007-2009</u>	<u>2009-2011</u>	<u>2011-2013</u>
Personal Services	\$194,204	\$258,191	\$323,583
Services & Supplies	\$107,573	\$246,232	\$284,686
Total	\$301,777	\$504,423	\$608,269

Note: See Attachment A for more detail.

Issues and Management Challenges in 2011

Livestock Depredation: The first confirmed livestock depredation by the Imnaha pack occurred on May 5, 2010. Since that time, the department has confirmed a total of 17 livestock deaths (through December 15, 2011) and one livestock injury attributed to Imnaha pack members. The latest depredation was confirmed by the department on December 14, 2011 on private land. The USFWS confirmed three additional depredations while the wolves were federally listed, bringing the total to 20 confirmed livestock deaths by the Imnaha pack.

Most wolf management activities were directly or indirectly related to wolf depredation in four broad categories: 1) depredation investigations and findings, 2) livestock producer assistance, 3) implementation of non-lethal/preventative measures, and 4) lethal control actions.

Depredation Investigations and Findings: The department participated in 33 depredation investigations thru December 15, 2011 as follows: 26 in Wallowa County, 6 in Umatilla County and 1 in Union County. The investigations resulted in the confirmation of 10 wolf depredations of cattle (all in Wallowa County by the Imnaha pack). A complete table of investigations and findings is contained in Table 5. Due to increased public interest, summaries of each investigation have been posted on the department's wolf web page.

Table 5. Summary of ODFW Wolf Depredation Investigations and Findings during 2011.

Date	ODFW Finding	Animal	County	Pack
5/4/11	Confirmed	dead calf	Wallowa	Imnaha
5/17/11	Confirmed	dead calf	Wallowa	Imnaha
5/27/11	Possible/Unk	dead calf	Wallowa	Imnaha
6/2/11	Other	dead calf	Wallowa	Imnaha
6/4/11	Possible/Unk	dead cow	Wallowa	Imnaha
6/4/11	Confirmed	dead calf	Wallowa	Imnaha
6/6/11	Possible/Unk	dead calf	Wallowa	No pack
6/12/11	Possible/Unk	Injured	Wallowa	Imnaha
6/15/11	Possible/Unk	Dead cow	Wallowa	Imnaha
6/15/11	Possible/Unk	dead calf	Wallowa	Imnaha
6/20/11	Other	dead calf	Union	No pack
7/5/11	Possible/Unk	Dead bull	Wallowa	Imnaha
7/5/11	Other	dead calf	Umatilla	No pack
7/9/11	Possible/Unk	dead calf	Umatilla	Walla Walla
7/13/11	Possible/Unk	dead calf	Wallowa	Imnaha
7/29/11	Possible/Unk	dead cow	Wallowa	Imnaha
8/15/11	Possible/Unk	dead cow	Wallowa	Imnaha
8/15/11	Possible/Unk	Injured cow	Wallowa	No pack
8/29/11	Possible/Unk	dead cow	Umatilla	Walla Walla
9/5/11	Possible/Unk	dead calf	Umatilla	No pack
9/7/11	Probable	dead cow	Wallowa	Imnaha
9/15/11	Possible/Unk	dead calf	Wallowa	Imnaha
9/15/11	Other	dead cow	Wallowa	Imnaha
9/22/11	Confirmed	dead calf	Wallowa	Imnaha
9/23/11	Other	dead calf	Wallowa	Imnaha
10/8/11	Confirmed	dead calf	Wallowa	Imnaha
10/25/11	Confirmed	injured cow	Wallowa	Imnaha
11/7/11	Possible/Unk	dead calf	Umatilla	No pack
11/8/11	Possible/Unk	injured cow/calf	Umatilla	Walla Walla
11/26/11	Confirmed	dead cow	Wallowa	Imnaha
11/26/11	Confirmed	dead cow	Wallowa	Imnaha
12/11/11	Confirmed	dead cow	Wallowa	Imnaha
12/14/11	Confirmed	dead cow	Wallowa	Imnaha

Livestock Producer Assistance: In response to chronic wolf depredation of livestock in Wallowa County by the Imnaha pack, the department produces a weekly map showing wolf location data that can be viewed by area livestock producers. In addition, livestock producers are texted on the whereabouts of collared Imnaha pack wolves in relation to their livestock. In 2011 (April through November), 4,181 text messages were sent to area landowners on a nearly daily basis. In October, in response to the growing depredation problem, the department received a request to increase the frequency of daily text messages (to twice daily) when the wolves are known to be in the area of livestock. The department agreed to this request, but will text less frequently when wolves are in areas without livestock. In November, 1,023 texts were sent to area producers. It is undetermined if frequent texting has helped prevent depredation. However, it has clearly been received favorably by most livestock producers who receive these messages.

Implementation of Non-lethal/Preventative Measures: Both the department and area livestock producers implemented preventative and non-lethal control measures to minimize livestock depredation. Actions taken in 2011 associated with the Imnaha pack include deployment of fladry (electrified fencing/flagging known to deter wolves), harassment, bone pile and carcass removal, radio-activated guard devices (which emit a noise to deter a collared wolf when it comes near), issuance of radio receivers to area producers, employment of range riders, increased monitoring, and reported changes in husbandry practices (primarily pasture use, stocking numbers, rotation changes, and night feeding) by several producers. A summary of non-lethal/preventative measures taken in Wallowa County is included in Attachment B.

It is important to note that there are no known non-lethal or preventative measures that provide absolute protection against wolf depredation. Deployment of specific measures such as fladry and radio-activated guard devices may be effective for short periods of time and in certain locations. In the area of the Imnaha pack, livestock are widely dispersed during the summer grazing season and these tools are generally not effective.

Lethal Control Actions: In 2011, two types of lethal control were employed in response to continuing Imnaha pack depredations of livestock: 1) issuance of Caught-In-The-Act permits, and 2) lethal removal to deal with chronic depredation.

Caught-In-The-Act Permits: Oregon Administrative Rule (OAR 635110-0010(5)) authorizes the department to issue permits to area livestock producers (and their agents) to lethally take a wolf that is found in the act of attacking livestock. The OAR defines the act of attacking as “biting, wounding, or killing” and these permits may be issued to livestock producers under specific conditions and reporting requirements. In 2011, a total of 31 Caught-In-the-Act permits were issued to producers in the area of the Imnaha pack. To date, no wolves have been taken under these permits.

Lethal Removal By The Department: The OWP states that, “In situations where chronic losses are occurring, lethal control actions may be employed to minimize livestock losses regardless of the wolf population status.” OAR 635-110-0010(6)) authorizes lethal removal of wolves to address chronic depredation if the department (among other requirements):

- Confirms two depredations by wolves on livestock in the area; or
- Confirms one depredation followed by three attempted depredations (testing or stalking).

The Imnaha pack met the criteria for chronic depredation status in spring 2010 and lethal removal was initiated at that time. Lethal removal efforts were terminated in August 2010 with the federal relisting of wolves and no wolves were removed.

Lethal removal efforts were again initiated on May 5, 2011, soon after federal delisting. On May 17-18, two young uncollared wolves were killed by the department as a result of that effort. After an additional depredation was confirmed on June 4, 2011, the department unsuccessfully attempted to remove a third wolf. However, the Imnaha pack moved out of the private land area where the depredations occurred before this third wolf could be removed. The department again initiated lethal removal efforts on September 24, 2011, two days after another depredation from the Imnaha pack was confirmed. This lethal removal effort targeted the alpha male and a yearling. No wolves were removed as a result of this effort and lethal removal efforts were suspended on October 5, 2011 when a stay was issued by the Oregon Court of Appeals pending resolution of litigation challenging the Commission's authority to authorize the killing of listed wolves under the Commission's "chronic depredation" take rules.

The most recent lethal control decision by the department was based on the continuation of the incremental control efforts which began in June 2010 and in response to continuing chronic depredation by the Imnaha pack. The decision to lethally remove the alpha male and the remaining un-collared yearling was an attempt to remove wolves that the department had evidence were present at the scene of the most recent depredation, while preserving the female and the pup.

The department believes a chronic livestock depredation pattern has been established by the Imnaha pack. Altogether a total of 20 livestock deaths have occurred as a result of wolf depredation in the last 18 months by the Imnaha pack. There is every indication that the Imnaha pack will continue to prey on livestock in this part of the Wallowa Valley. While non-lethal control techniques may have limited effectiveness, it is unlikely these techniques will eliminate the depredation risk to livestock from this pack.

The situation in Oregon is similar to other states within the Northern Rocky Mountain (NRM) area. Lethal control of depredating wolves has been conducted in Montana, Idaho, and Wyoming every year since 1996. From 1996 through 1999, while NRM wolf populations were relatively low, the USFWS annually removed from 3 to 14 percent of the previous year's estimated population in response to livestock depredation. Even at that level of agency-caused mortality, abundance and distribution of wolves continued to increase, with the population increasing from 152 to 337 wolves, and number of breeding pairs increasing from 14 to 24. In 2008, the last full year of protection under the federal ESA, 21 packs (approximately 9% of the known packs) of NRM wolves were lethally removed in their entirety as a result of repeated depredations of livestock. During that same year, 264 individual wolves (14% of total population) were lethally removed from the NRM population in response to depredations. Over the course of use of lethal control in the NRM, this wolf population increased from approximately 100 in 1995 to approximately 1,600 in 2010.

Depredation Investigation Procedures

The OWP and associated OARs state that the department is responsible for investigating potential wolf depredation of livestock in Oregon. Accurately investigating potential depredations by wolves is an important goal for the department. Consequences of a confirmed depredation finding include: 1) department responsibility to help prevent future depredations, 2) determining appropriate non-lethal tools, 3) payment for losses, and 4) potential lethal control if depredation is chronic.

Since 2009, the department has investigated numerous potential livestock depredations by wolves and while some have resulted in “confirmed” determinations, many have not. Frequently, the department’s determination has differed with other agency determinations (e.g., Wildlife Services, County Sheriff) and is often different from the determination made by the affected livestock producer. This has resulted in a complex and difficult situation for the department and has negatively affected relationships with some livestock producers.

Response to reports of potential livestock depredations by wolves is a priority for the department. Each scene is investigated using a consistent and objective approach. All investigations are performed using evidence-based procedures for making determinations of wolf depredation. This includes examination, documentation, and collection of evidence that is present. The purpose of an investigation is to determine if wolves injured or killed livestock. The procedure for investigating potential livestock depredations by wolves can be found in Attachment C.

Following the Field Investigation – The Finding or Determination: The ODFW Livestock Depredation Summary Finding Form (Attachment D) is the document which officially states the department’s finding of a depredation incident. The primary investigator summarizes, by category question, pertinent information relative to the investigation. It consists of objectively interpreted data which have been collected and recorded on the ODFW Livestock Depredation Investigation Form (e.g., *“the bite marks were not pre-mortem and therefore indicative of scavenging”*).

The department evaluates each preliminary determination, summary information, and supporting evidence for every investigation. Final approval of the determination is based on the following:

- Was enough evidence or information collected and presented to make an accurate determination?
- Is the evidence presented on the field form and the photographs consistent with the determination?
- Was the information interpreted in a manner consistent with other investigations?
- Are the determination, summary finding information, and supporting evidence defensible?

The department makes every attempt to complete an investigation (which includes an official determination) as soon as possible following an investigation. In addition, the department attempts to notify the affected livestock producer of the official department determination within 24 hours of the investigation. Generally this is done by the primary investigator.

In October 2011, the department implemented new procedures for incorporating third-party information into its investigation procedures. Third-party information is described as any information

relevant to a particular livestock loss investigation where that information may include an interpretation of any evidence collected from or observed at the investigation site. This information will be considered based on its contribution to a better understanding the cause of death of a domestic animal. All third-party information will be acknowledged in a department investigation report or by addendum if the report has been completed.

Note: Information gained after the initial investigation may be used to re-evaluate an investigation finding. ODFW may change the finding based on how new information affects the knowledge of the original investigation. For example, if new information supports that wolves were in the investigation area and the initial determination was “Possible/Unknown,” it may be possible, depending on the entire set of evidence available, to change the determination to “Probable.”

Depredation Review Panel – Findings and Recommendations

The department has always acknowledged that wolves have the ability to impact livestock producers. Now with the advent of the Wolf Compensation fund established by the Oregon Legislature, there is even more interest in the outcomes of these investigations. In recognition of this interest and the large number of investigations conducted in 2011, the department initiated an internal review of the investigation process. On August 11, 2011, the department convened a panel to review recent investigations of suspected wolf depredation in Oregon. The 7-member review panel consisted of wildlife professionals from Oregon, Idaho, and Washington and the purpose of the review was for panel members to discuss and provide feedback regarding the department’s wolf depredation investigation process. A complete report of the review panel is contained in Attachment E.

Findings from the panel are summarized as follows:

- Panel members concluded that ODFW is thorough in their collection of available evidence during each investigation.
- ODFW investigations were conducted at a high standard and determinations made were consistent with the evidence collected.
- The difference between the conclusions of ODFW and WS was problematic for the Panel and it was recommended that ODFW leadership and WS work to address the issue.
- Even if no evidence of depredation by wolves is found, department investigators should consider collecting biological samples and attempt to determine the cause of livestock injury or mortality.
- ODFW should modify the depredation classification system to make the final determination more consistent with the available evidence.

Expectations for 2012

Increase Monitoring and Surveys For Wolves: It is expected that survey efforts for wolves in 2012 will increase in proportion to the increasing number of public wolf reports received by the department. In addition, the increasing wolf population should increase the likelihood of documenting four breeding pairs of wolves in eastern Oregon in 2012. If this occurs, it would mark the first year toward meeting the Phase 1 conservation objectives as defined in the OWP (i.e., four breeding pairs for three consecutive years). Future delisting is an important goal of the OWP and increased monitoring will be necessary in 2012 to effectively monitor the breeding status of Oregon wolves.

Continue to Address Questions and Issues: Questions have been raised by some regarding the categories used by the department (i.e., what constitutes a “probable” or “possible/unknown” determination) during a livestock loss investigation. In addition, the internal review panel also raised questions about the categories during investigations. The department will conduct a review of these categories in 2012.

Continue Non-Lethal and Preventative Efforts: Staff continues to prepare for additional livestock depredations by wolves in Oregon. With an increasing probability of depredation by wolves outside of Wallowa County, it will be important to prepare for increasing demand for non-lethal and preventative measures. Primary focus will be made on the following tasks:

- Continue with ongoing non-lethal and preventative measures in Wallowa County.
- Thoroughly evaluate effectiveness of all measures used to date and use findings to guide future non-lethal and preventative activities and expenditures.
- Continue to purchase non-lethal and preventative supplies so that they are available if needed. Also, we will continue to work with other non-governmental organizations to assist with this effort.
- Use opportunities to encourage and implement new non-lethal and preventative measures in Oregon.

Implementation of Oregon Department of Agriculture Compensation Program: During fall 2011, the Oregon Department of Agriculture initiated a process to develop OARs which will guide the implementation of the new wolf depredation compensation and financial assistance grant program. It is expected that the department will be asked to assist with implementation of these rules through identification of areas of known wolf activity. In addition, the department will continue to provide the results of livestock loss investigations in Oregon per the OWP and in accordance with HB 3560.

Develop a Disease-Testing Protocol: Per the October 2010 updated Wolf Plan, the department will 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.

Wolf Program Budget Details					
07-09 Allocation	Total Allocation Breakdown				
	Personal Services	Services & Supplies	OF- License	OOF-Nongame Checkoff	Federal Fund
<u>State Funds</u>					
<i>Grande Ronde NonGame Tax Check-off</i>	\$32,604			\$32,604	
<u>Grant Funds</u>					
<i>SWG- Eastern Oregon Wolf</i>		\$6,300			\$6,300
<i>SWG- State Wolf Management Planning*</i>		\$10,322			\$10,322
<i>SWG- State Wolf Management Implementation*</i>	\$13,460	\$21,951			\$35,411
<i>SWG- Implementation of Wolf Plan and OCS</i>	\$148,140	\$69,000		\$142,982	\$74,158
Total	\$194,204	\$107,573	\$0	\$175,586	\$126,191
<i>(*Match from above NonGame Tax Check-off)</i>			Grand Total	\$301,777	
			Actual Expenditures: \$299,695		
09-11 Allocation	Total Allocation Breakdown				
	Personal Services	Services & Supplies	OF- License	OOF-Nongame Checkoff	Federal Fund
<u>Grant Funds</u>					
<i>USFWS- Wolf Management Support</i>		\$18,153			\$18,153
<i>USFWS- Wolf Livestock Demonstration</i>		\$24,460	\$12,230		\$12,230
<i>SWG- Implementation of Wolf Plan and OCS</i>	\$191,208	\$165,542		\$178,375	\$178,375
<i>PR- Assistant Wolf Coordinator</i>	\$66,983	\$38,077	\$32,214		\$72,846
Total	\$258,191	\$246,232	\$44,444	\$178,375	\$281,604
			Grand Total	\$504,423	
			Actual Expenditures: \$434329		
11-13 Allocation	Current Allocation Breakdown				
	Personal Services	Services & Supplies	OF- License	OOF-Nongame Checkoff	Federal Fund
<u>Grant Funds</u>					
<i>USFWS- Wolf Management Support</i>		\$20,000			\$20,000
<i>USFWS- Wolf Livestock Demonstration</i>		\$5,686	\$2,843		\$2,843
<i>SWG- Implementation of Wolf Plan and OCS</i>	\$189,617	\$177,000		\$128,316	\$238,301
<i>PR- Assistant Wolf Coordinator</i>	\$133,966	\$82,000	\$53,992		\$161,974
Total	\$323,583	\$284,686	\$56,835	\$128,316	\$423,118
			Grand Total	\$608,269	

Summary of preventive and non-lethal actions by ODFW, USFWS, USDA-WS, and area landowners in response to depredation and wolf activity in the Upper Wallowa Valley (Imnaha pack) since March 2010.

- 1. Hazing/Harassment:** During the period both non-injurious harassment (livestock producers scaring wolves away from livestock) and non-lethal injurious harassment methods (targeted harassment by ODFW and by permit) were used to discourage wolves from the area. In 2011, twenty-three harassment permits were issued to area livestock producers.
- 2. Bone pile Removal:** ODFW completed four cooperative projects with area landowners to clean up five livestock bone piles during the period. The bone piles were identified as attractants and confirmed as such by repeated wolf use of the sites prior to cleanup. In addition, area livestock producers have removed dead livestock carcasses throughout the period to reduce attractants to wolves in private land areas.
- 3. Radio-Activated Guard Devices:** ODFW installed radio-activated guard (RAG) devices during spring months of 2010 and 2011. These devices are designed to discourage wolf use by detecting radio-collared wolves and emitting sounds and light to scare wolves away. They are primarily effective in small areas or areas of confined livestock. They are not useful for dispersed rangeland grazing situations.
- 4. Range Rider:** The purpose of a range rider is to help reduce or eliminate wolf depredation by increasing human presence in situations where wolves are in close proximity to livestock. Both ODFW and Defenders of Wildlife initiated cooperative range rider projects with landowners grazing livestock in the area of the Imnaha pack during 2010 and 2011. The rider uses a radio receiver and the frequencies of VHF collared wolves as well as the latest locations of wolves with GPS collars provided by ODFW to help determine areas to work on a daily basis.
- 5. Fladry:** In February 2011, a cooperative fladry project was initiated between the USFWS and Wallowa Resources (and later, ODFW) to erect fladry around susceptible calving pastures in an effort to prevent depredation. Fladry is electrified wire with attached flagging and has been shown to be an effective short-duration tool in the prevention of wolf depredation. However, because of the amount of area with livestock in the upper Wallowa Valley, only select pens/pastures could be effectively protected. Furthermore, as livestock moved from calving areas to spring pastures, the usefulness of fladry was reduced. From February through April 2011, approximately 11 miles of fladry were installed on 10 properties.
- 6. Radio Receivers:** Five radio receivers were issued to area landowners to detect radio collared wolves. In February 2011, following the capture and radio-collaring of new members of the pack, ODFW issued new frequencies and reprogrammed their radio receivers. The receivers are an additional tool for livestock producers to maintain vigilance when collared wolves are nearby.

7. Agency Monitoring/Livestock Producer Contacts: In 2010, ODFW maintained a monitoring technician on an as-needed basis to specifically monitor the Imnaha pack. Three of the radio collars installed on wolves in 2011 were GPS collars which allow ODFW to receive daily location information of the wolves. ODFW initiated a daily texting program to inform livestock producers on the whereabouts of the Imnaha pack wolves in relation to their livestock. In addition, ODFW has produced a weekly map showing wolf location data that can be viewed by livestock producers.

8. Husbandry Practices: Several landowners in the area of the Imnaha pack have reportedly changed grazing practices solely as a method to reduce depredation. Practices include delayed calf turnout, pasture shifts to avoid areas of wolf use, mixing yearlings with cow/calf pairs, and concentrating livestock into pastures with frequent rotation of pastures.

Wolf-Livestock Depredation Investigation Procedures and Expectations

(Note: The following is adapted from the August 29-30 ODFW Wolf Management Training Manual)

When wolf depredation is suspected, ODFW is charged (by Wolf Plan and OAR) with making a determination of finding. ODFW will conduct wolf-livestock depredation investigations in a prompt, professional and objective manner. The purpose of a wolf depredation investigation is to determine if wolves injured or killed livestock.

Confirmation of wolf depredation is done by answering two basic questions as follows:

Criteria #1. Is there reasonable physical evidence which shows that an animal was actually attacked and/or killed by a predator?

- Pre-mortem bite wounds (showing subcutaneous hemorrhage and tissue damage)
- Other evidence of an attack can be a clearly identified predation scene (hair plume, blood sprayed from wounds, etc.).
- There may be nearby remains of other dead or injured animals for which there is still sufficient evidence to confirm wolf predation allowing reasonable inference of confirmed wolf predation on the animal that has been largely consumed.

Criteria #2. If the animal was attacked by a predator, is there evidence that the predator was wolf?

- Bite marks – location on body, canine spacing.
- Other confirmed wolf depredations in area.
- Chase or attack scene which can be identified as wolf-caused.
- Evidence of other predators at the scene should be considered.
- Evidence which shows wolves were present at the predation site or in the area at the time of the animal(s) death or injury (telemetry, monitoring data, fresh tracks, scat, etc) should be considered but is not, by itself confirmatory.

If the evidence available cannot lead to a confirmation, ODFW must categorize the incident into one of three categories; probable, possible/unknown, or other. Additional information considered to help classify a determination finding.

- When was the last time the livestock was checked?
- Is there any information (non-data) that indicate wolves may be present (reported sightings, howling, or tracks)?
- Any indication regarding the condition and behavior of other livestock in area?
- Other missing livestock?
- Feeding pattern on a carcass which is not totally consumed.
- Other information – type and size of animal killed or injured, information about the area and other predators which may be present.

- What confirmed evidence is available that shows wolves were present at the predation site or in the area at the time of the animal(s) death or injury (telemetry, monitoring data, fresh tracks, etc)?
- Recent confirmed depredation in the area by other predators.

Terms of Depredation Classifications Currently Used By ODFW: ODFW currently uses APHIS-Wildlife Services classifications for depredation and for purposes of wolf management have adapted it specifically for wolf. In general, the meanings of the four classifications can be easily summarized as follows:

Confirmed: The death or injury is wolf-caused. Meets criteria 1 and 2 listed above.

- A carcass or live animal which shows clear evidence of pre-mortem wolf bites.
- A carcass which is mostly consumed, but shows a clear kill scene with evidence that wolves were part of the kill scene.
- Other dead or injured livestock confirmed at same site and time.
- In situations where an animal died, secondarily as a result of wolves (e.g., an injury in which evidence clearly shows was a result of a wolf chase). May be confirmed or probable depending on evidence at the scene.

Probable: The death or injury is probably wolf-caused. Having some evidence to suggest predation (criteria #1), but lacking sufficient evidence to clearly confirm wolf (criteria #2).

- A carcass may be mostly consumed leaving no way to identify or confirm pre-mortem bites, but with clear evidence that predation occurred (i.e., an attack scene). Recent confirmed depredation by wolves in same area and/or some evidence to show that wolves were present at the time of injury or death.
- A live animal may show injuries that appear to be wolf bites and there is either evidence of wolves in the same area or recent confirmed depredation.
- In situations where there is some evidence to suggest that the animal died secondarily as a result of wolves (e.g., an injury in which evidence clearly shows was likely caused by a wolf chase).

Possible/Unknown: It is possibly wolf-caused, but unknown. Cannot meet criteria #1 above (no evidence to show that a predation occurred), and the cause of death or injury is unclear. A possible/unknown classification acknowledges the possibility that wolves were involved, and the level of acknowledgement should be based on evidence collected at the scene.

- A consumed or deteriorated carcass with little or no evidence remaining.
- May be evidence of wolves at scene or in area, but only evidence of feeding/scavenging.
- An injury on a live animal (such as bites) which cannot be positively identified to species.
- Consider if the area has been frequented by wolves or if the habitat is one that wolves use.

Other: It is something else – it is discovered that the cause of death or injury was not likely wolf-related.

Investigation Procedures

General Investigation Segments: For each investigation, ODFW completes the following; 1) ODFW Livestock Depredation Investigation Form, 2) Summary Finding Form, 3) Web-page Investigation Summary. Each investigation consists of four equally important segments as follows:

1. Initial Information (Page 1 of Investigation Form): dates/times of contact, Livestock owner information, information about the event, location, and other relevant information (weather, temperature, etc.)

- Be diligent about this. Try to get as much information as possible from the livestock producer. You will be surprised how much you may know about the situation just from discussion.
- Pay particular attention to time and date information – document notification and response times, cattle/pasture dates, when last checked, etc.
- Recent weather and temperature information is important for determining time of death (maggot development and decomposition).

2. Scene Details (Page 1 and 2 of form): scene modified before arrival, other livestock injured/livestock behavior, specific scene details, tracks/sign, map of site if appropriate

- Details about how scene may have been modified is very important.
- Important to look at the area before it gets compromised – this may mean conducting this portion of the investigation before the examination of the carcass or animal.
- A chase or kill scene, if present, is vital to making an accurate determination; especially if limited carcass remains are present.
- Photograph the scene area! Include the animal in some, but also photograph any notable evidence. Photograph from several angles.
- Do not confuse a disturbance area with a kill scene...there are often important differences.
- As you look at the scene, be careful not to step on tracks or other evidence.
- Be scent conscious! If wolves, there may be follow-up necessary (e.g., trapping?).
- Map out site if appropriate. Include information about areas and distances searched.
- Observations regarding tracking conditions (i.e., poor, fair, good, etc.).

3. Evidence of wolf presence at scene or in area (page 2 of form): May include evidence collected at the site, or may be completed after field investigation (i.e., telemetry data, or other ODFW location data).

- This is really a brief analysis of what we know – a key part of classifying a finding is what is known about wolf presence in the area. Some information may be available from wolf program staff.
- Telemetry data are useful, but may not always tell the whole story. It is important to spend time looking for wolf sign even if radio-collar data do not show wolves are in the area. Not all wolves are radio-collared.
- It is important to record and measure all tracks and sign in area of dead or injured animal. Have dogs been in the area?

4. Examination of animal(s) (Pages 3 and 4 of form): Specific information about the animal as found (very important to be specific), and observations of injured animal or carcass as it is examined (skinned or necropsied).

- Information regarding time of death – decomposition, maggot development, condition of flesh, amount of carcass consumed, and smell of carcass are all important factors in determining how long an animal has been dead.
- Date/time of death is extremely important in situations where there is wolf telemetry data available.
- Particularly note which side is down – this is important to assess in cases where scavenging is noted.
- Before cutting! Accurately describe the parts of the carcass – all visible evidence.
- Before cutting! Photograph the carcass from various angles and the carcass in relation to the larger surrounding area.
- Necropsy – “An examination of a dead animal”
 - Before cutting – look, measure, photograph and note all abnormal marks on the exterior of the animal. Include photos that also show non-injured portions.
 - Be thorough! In situations where all people are in agreement there is a tendency to be less diligent in collecting necessary evidence. Collect information with a goal of being thorough.
 - Be focused! When many people are present and emotions are high it is easy to forget to measure, photograph, or even look at something. Two people really help in this situation.
 - SKIN THE ANIMAL! Or at least the portions available to skin.
 - Why?: With wolves, *“Bite marks on the outside of a carcass may just show tooth marks on the hide, but when the prey animal is skinned, a remarkable amount of hemorrhage is evident at the bite site. Because of this, all examinations of suspected wolf kills should include skinning the carcass completely to check for this typical damage”* (Wade, D.A. and J.E. Bowns. 2010. Procedures for Evaluating Predation of Livestock and Wildlife. Texas Agrilife Extension Service).
 - Carcasses will usually be bloody and have tooth scrapes, and at least some parts consumed. However, nearly all predation of live animals will show extensive tissue damage under the hide.
 - Be careful interpreting decomposition, bruising, and pooling of blood/body fluids. They are often interpreted as hemorrhage.
- PHOTOGRAPH, MEASURE, RECORD, AND COLLECT EVERYTHING!
 - It is impossible to have too many photographs.
 - Be certain your camera has correct date and time setting.
 - Take pictures with a purpose. Consider what evidence you are trying to collect and photograph it. Be systematic.
 - Also consider the quality of the images – watch for sun glare, or distance to subject (use macro setting to avoid blur). Know your camera.

- Use a ruler. Be thoughtful of exactly where it is placed to accurately record what you are trying to show.
 - Photograph each part of animal regardless of whether there is evidence of a wolf or not. Photographs of no evidence can often be as important as photographs of evidence.
 - Always a good idea to take at least two photo's of evidence...one wide angle to show the location on the carcass, and a close-up of the specific evidence.
 - Where possible, have a second person to photograph evidence as requested.
- CANINE TEETH MARKS ARE NOT ALWAYS FROM A CANID
 - Most visible tooth scrapes and punctures are from canine teeth.
 - Often difficult to assign to species because of similarities among all of our large carnivores (and large domestic dogs). Therefore, additional information may be needed.
- WHEN TO COLLECT SAMPLES OR CARCASS FOR FURTHER ANALYSIS
 - ODFW does not have a responsibility to determine the cause of death if evidence clearly shows that predators were not involved. However, it adds to our credibility to be thorough. It may also help a producer to get additional information.
 - When inconclusive evidence is present on exterior of animal or scene which identifies the cause of death it may be helpful to collect samples or the entire carcass for further laboratory analysis.
 - Must have permission from the owner of the animal before proceeding. In some cases, expect to be denied.
 - Use your professional judgment to decide when to collect samples. Consider the situation (i.e., to resolve conflict or disagreements).

Other Duties to be completed during and following the examination:

- It is important that you discuss your observations and findings with the livestock producer. However, it should also be explained that official determinations are made by the agency following a full review of all information.
- Wildlife district staff should not make official agency determinations on site until the agency review is completed.
- Discuss the disposition of the carcass. Recommend removal or burial so that it does not become a wolf attractant. Remember, however, that the carcass belongs to the producer and ODFW has no regulatory authority over it.
- If deemed necessary to get additional information regarding wolf use of the area, the investigator should conduct follow-up surveys of the area and may elect to install a remote camera at the site.

ODFW LIVESTOCK DEPREDATION SUMMARY FINDING

Investigation ID _____

Finding to be completed after full review of all available evidence.

Is there reasonable physical evidence that the animal(s) was actually attacked and/or killed by a predator? Y / N

Summarize:

If the animal(s) was attacked by a predator, is there sufficient evidence to clearly confirm predation by a wolf?

Y / N

Summarize:

Is there evidence to show that wolves were present at the predation site near the time of the animal(s) death/injury? Y / N

How recently had the livestock owner or employee observed the livestock?

Has there been any recent confirmed depredation by wolves in the same or nearby area? Y / N

Summarize:

Is it clear what cause of death/injury was? Y / N

Summarize:

Cause of Death (Circle): Confirmed Wolf Probable Wolf Possible Wolf/Unknown Other

Determination Made: Date and Time

Livestock Owner Notification Made: Date and Time

ODFW Signature

Title

Report Final: Date and Time

Oregon Department of Fish and Wildlife
Wolf Depredation Investigation Internal Review Panel Meeting
La Grande, Oregon - 11 August 2011

Background

The Oregon Wolf Conservation and Management Plan (Wolf Plan) and its associated Oregon Administrative Rules require the Oregon Department of Fish and Wildlife (ODFW) to confirm wolves were caused livestock injury or mortality before some management actions can be implemented. As a result, ODFW has instituted a program to investigate suspected wolf depredations. In conducting these investigations ODFW believes it must adhere to high standards and ensure that the investigation process is conducted on factual basis that produces accurate, objective, and consistent conclusions. The classification system currently used by ODFW for assessing livestock injuries and mortalities by wolves includes: Confirmed, Probable, Possible/Unknown, and Other (see Appendix I for descriptions). This system was developed by USDA-Wildlife Services (WS) and is used by ODFW in an effort to maintain consistency between agencies.

Purpose

ODFW convened a panel (Panel) on 11 August 2011 to review its recent investigations of livestock injuries and mortalities in northeastern Oregon that may have been caused by wolves. The investigations ($n = 8$) reviewed occurred following the 5 May 2011 federal delisting of wolves in the eastern third of Oregon. Specifically, the purpose of this meeting was for the Panel to review and analyze the ODFW wolf depredation investigation process and recommend process improvements.

Review Panel Members

Panel members were selected based on several factors, including experience with predators, predation, and the scientific investigation process. The Panel included wildlife professionals from both within and outside of ODFW (Table 1).

Table 1. List of Panel members participating in review of wolf depredation investigations during meeting in La Grande, Oregon, August 11, 2011.

Name	Position	Affiliation (Location)
Colin Gillin	State Wildlife Veterinarian	ODFW (Corvallis)
Tim Hiller	Carnivore-Furbearer Coordinator	ODFW (Salem)
Bruce Johnson	Wildlife Research Project Leader	ODFW (La Grande)
Gary Miller	Field Supervisor	USFWS (La Grande)
Philip Milburn	District Wildlife Biologist	ODFW (Ontario)
Carter Niemeyer	Retired USFWS and USDA-APHIS-WS	Independent (Idaho)
Paul Wik	District Wildlife Biologist	WDFW (Washington)

Review Process

Carter Niemeyer, retired federal agency wolf biologist, made an initial presentation that summarized characteristics of wolf depredation on livestock. Mr. Niemeyer has >20 years of experience investigating wolf depredation on livestock in Montana and Idaho. His presentation allowed for questions and discussion by Panel members and provided a baseline to compare and critique the ODFW depredation investigation process.

Panel members were provided information and evidence collected by ODFW and WS as ODFW considers all information associated with each investigation when making the final determination. This information included ODFW Livestock Depredation Field Investigation and Summary of Finding Forms, ODFW and WS photographs, and WS Depredation Investigation Reports for investigations ($n = 8$) of cattle injuries and mortalities in Wallowa and Umatilla counties (Table 2). Individual Panel members asked questions of ODFW Wolf Program staff and provided feedback following review of each investigation.

Panel members were asked to review each investigation by considering the following four questions:

1. Was enough information collected (and documented) to make an accurate determination?
2. Is the final determination consistent with the evidence collected?
3. Was the ODFW investigation process conducted at a high standard?
4. Concerns, comments, or recommendations for improvement in the investigation process?

Findings of the Panel

Regarding question #1 (Was enough information collected [and documented] to make an accurate determination?)

Based on the materials presented, the Panel believes ODFW was thorough in their collection of available evidence during each investigation before making a final determination. Discussion from some participants indicated that ODFW uses a process more thorough than what occurs in other

western states. The Panel did not identify any circumstances in which ODFW failed to gather enough evidence or information to meet their primary objective of determining if a depredation by a wolf or wolves had occurred. However, in one case (110604 Butterfield; confirmed depredation by wolves), in which all investigation parties were in agreement, the Panel noted that less evidence was collected and less documentation occurred compared to investigations where wolf depredation was not confirmed. Also, the Panel discussed that in some situations the collection of additional tissue samples and other evidence could assist livestock producers to identify causes of mortality in non-depredation instances.

Regarding Question #2 (Is the final determination consistent with the evidence collected?)

Though the Panel was not asked to specifically reinvestigate each case, they concluded there were no circumstances where the final determination made by ODFW investigators was inconsistent with the evidence collected. However, after reviewing the information collected by both ODFW and WS there were cases in which no evidence that wolves had been in the area and had killed the livestock. In these cases several Panel members stated that a determination of Possible/Unknown was unwarranted. In these cases, a determination of “Other” would have been more consistent with the evidence available (i.e., if wolves clearly were not responsible, then why would ODFW call it Possible/Unknown).

For each investigation reviewed, the information and results of the investigations conducted by WS was also presented. The difference between the conclusions of ODFW and WS was problematic for the Panel. The conclusions of WS’ investigations appeared to the Panel to be inconsistent with evidence presented and in a number of instances appeared to be the result of misidentification of evidence (i.e. wolf bites, hemorrhage, scat, etc.). The Panel found it difficult to understand how WS investigators reached their conclusions from their written reports. The panel recommended ODFW leadership and WS discuss these inconsistencies and the lack of detail in investigation reports.

Regarding Question #3 (Was the ODFW investigation process at a high standard?)

Overall, the Panel determined that ODFW uses a very thorough process of examining available information prior to making any determinations. The use of a stepwise process (i.e., first step is to determine if an injury or mortality was the result of a depredation, second step is to determine if wolves were involved if a depredation did occur) by ODFW was appropriate. The Panel discussed that in some cases (e.g., Confirmed depredations by wolves), where all parties were in agreement in the field, less evidence was collected and documented and that this might result in a less defensible position for ODFW when implementing management actions to address the depredation. Though not directly within control of ODFW, the Panel also raised concerns associated with pre-investigation of a carcass and scene modification by other parties prior to the arrival of ODFW investigators, and the extent that these parties may affect the investigation process used by ODFW.

Regarding Question #4 (Concerns, comments, or recommendations for improvement?)

Meeting the Responsibilities of ODFW

Based on the Wolf Plan ODFW is required to determine if wolves caused injury or mortality of the livestock in question at the invitation of the livestock producer. However, the Panel discussed the responsibility of ODFW in regards to determining the cause of injury or mortality of livestock if no evidence of depredation by wolves was found, and if there is a conflict of opinion or determination among interested parties (e.g., county sheriff, livestock producer, ODFW, USDA-Wildlife Services). Ultimately, the question was, “Should ODFW expend resources to gather additional information and make a determination of cause of livestock injury or mortality even if available evidence fails to show that wolves were involved?”

The consensus of the Panel was that if no evidence of depredation by wolves was found, the investigators should still consider collecting biological samples, with permission from the livestock producer, and attempt to determine the cause of livestock injury or mortality. This could include conducting a field necropsy to collect tissue samples from internal organs for laboratory analysis. Though the Panel acknowledged the implications of extremely detailed investigations and the precedence that this may set (i.e., determining if livestock injuries and mortalities were caused by a wolf or wolves is the goal, not assessing livestock health or all potential causes of livestock injuries and mortalities), it was agreed that in some cases it may help reduce controversy associated with conflicting opinions.

Concerns Regarding the Current Investigation Classification System

Much discussion and concern was raised regarding the WS depredation classification system used by ODFW. Specifically, the Possible/Unknown category was determined to be an especially poor descriptor. This was because most of the investigations reviewed that documented no evidence of wolf depredation still resulted in the determination of Possible/Unknown. The Panel felt the ambiguous classification of Possible/Unknown unnecessarily implicated the possibility of wolves even when there was no evidence of depredation by or presence of wolves at or near the investigation site (i.e., if depredation by wolves was possible based on no evidence, then why wouldn't other possible causes also be listed?). The Panel recommended that ODFW modify the classification system to correct these shortcomings. One suggestion was to use a Highly Improbable category when there is no evidence of wolf presence or depredation at or near the investigation site.

Concerns Regarding Disturbance to and Modification of the Investigation Site

The Panel discussed potential issues (e.g., disturbance to area or animal carcass) associated with investigations conducted by others prior to the arrival of ODFW investigator(s). Wolf Program staff noted that it was unknown if any ODFW investigations were negatively affected under these

circumstances. The Panel recognized that ODFW does not have exclusive authority to investigate, but rather ODFW is present at the invitation of the landowner or livestock producer. However, the Panel recommended that ODFW assess the investigation site as a crime scene, including that the more people that have direct access to the site, the higher the potential for lost or tainted evidence. The Panel also acknowledged that distractions associated with a high number of other participants may also negatively affect the investigation process by ODFW.

Additional Documentation at Investigation Sites

To improve the collection and documentation of evidence during each investigation, an ODFW staff person should be dedicated to take pictures, when possible, to allow investigators to focus efforts on the investigation process. In addition, photographs taken should regularly include both close-up and panoramic images at the investigation site and of individual pieces of evidence.

For investigations where depredation by a wolf or wolves has clearly occurred, the Panel stressed that ODFW should utilize as thorough of a process and documentation as for investigations where such a depredation has not been confirmed. For example, skin the entire livestock carcass (or what is available) during every investigation and take pictures of the entire skinned carcass.

Developing Reference Materials about Livestock Depredation by Wolves

The Panel discussed the important issue of misidentification of evidence used to confirm depredation by wolves and the need to create a broader knowledge base that accurately describes livestock depredation by wolves. One suggestion by the Panel was to develop a photo collection of livestock depredations known to be caused by wolves from throughout the West and provide this as a reference for livestock producers, other agency investigators, and ODFW biologists.

Reducing Speculation in Investigation Reports

The Panel noted the importance for ODFW to focus on factual evidence related to the investigation and avoid any speculation during the investigation process and the determination of finding. This was especially a concern with some investigations where ODFW seemed to be conciliatory by stating a finding of possible depredation by wolves even if there was no evidence of wolf involvement.

Summary

Panel members concluded that ODFW appeared to be very thorough in their collection of available evidence during each investigation of suspected wolf depredations before making a final determination.

The Panel also concluded that ODFW investigations were conducted at a high standard and there were no circumstances identified in the cases presented where the final determination made by ODFW investigators was inconsistent with the evidence presented.

The difference between the conclusions of ODFW and WS was problematic for the Panel. The Panel found it difficult to understand how WS investigators reached their conclusions from their written reports. The panel recommended ODFW leadership and WS discuss the lack of detail in WS investigation reports.

The consensus of the Panel was that if no evidence of depredation by wolves was found, the investigators should consider collecting biological samples, with permission from the livestock producer, and attempt to determine the cause of livestock injury or mortality.

The Panel strongly recommended that ODFW modify the currently used classification system to make the final determination more consistent with the available evidence. In particular, this should address instances where investigations result in no evidence of wolf presence but still result in a determination of Possible/Unknown.

CRITERIA FOR CLASSIFICATION OF REPORTED DEPREDATION INCIDENTS

Reported wolf, bear, or lion depredation incidents should be classified as either **confirmed**, **probable**, **possible/unknown**, or **other**, based on the following criteria.

CONFIRMED – Depredation is **confirmed** in those cases where there is reasonable physical evidence that an animal was actually attacked and/or killed by a predator. The primary confirmation factor would ordinarily be the presence of bite marks and associated subcutaneous hemorrhaging and tissue damage, indicating that the attack occurred while the victim was alive, as opposed to simply feeding on an already dead animal. Spacing between canine tooth punctures, feeding pattern on the carcass, fresh tracks, scat, hairs rubbed off on fences or brush, and/or eye witness accounts of the attack may help identify the specific species or individual responsible for the depredation. Predation might also be confirmed in the absence of bite marks and associated hemorrhaging (i.e., if much of the carcass has already been consumed by the predator or scavengers) **if** there is other physical evidence to confirm predation on the live animal. This might include blood spilled or sprayed at a nearby attack site or other evidence of an attack or struggle. There may also be nearby remains of other victims for which there is still sufficient evidence to confirm predation, allowing reasonable inference of confirmed predation on the animal that has been largely consumed.

PROBABLE – Having some evidence to suggest possible predation, but lacking sufficient evidence to clearly confirm predation by a particular species, a kill may be classified as **probable** depending on a number of other factors such as: (1) Has there been any recently confirmed predation by the suspected depredating species in the same or nearby area? (2) How recently had the livestock owner or his employees observed the livestock? (3) Is there evidence (telemetry monitoring data, sightings, howling, fresh tracks, etc.) to suggest that the suspected depredating species may have been in the area when the depredation occurred? All of these factors, and possibly others, should be considered in the investigator's best professional judgment.

POSSIBLE/UNKNOWN – Lacking sufficient evidence to classify an incident as either confirmed or probable predation, the **possible/unknown** classification is appropriate if it is unclear what the cause of death may have been. The investigator may or may not have much of a carcass remaining for inspection, or the carcass may have deteriorated so as to be of no use. The investigator would want to consider if the area has been frequented by a predator, or if the habitat is one which the predator is likely to use. Possible predation may include cases where counts show that abnormal numbers of livestock are missing or have disappeared above and beyond past experience, and where other known cases of predation have occurred previously in the area.

OTHER – Cause of livestock deaths should be classified as **other** when it is discovered that the cause of death was not likely caused by the animal originally reported to Wildlife Services during a request for assistance. Examples of **other** may include cases where the cause of death is confirmed or is likely due to predation by some other animal or cause determined at the time of the investigation such as red fox instead of coyote or other causes such as, bloat, poisonous plants, stillborn, disease, lightning strike, vehicle collision, etc. If the specific other cause of death can be determined, it should be written in the space provided for Other.

List of Cases Reviewed

Table 2. List of wolf depredations investigations presented to the Review Panel during meeting in La Grande, Oregon, August 11, 2011. Investigations are listed in order presented to Panel.

Investigation ID	Investigation Date	County	General Area (Ownership Type)	Affected Livestock	ODFW Finding
110729 Johnson	29 Jul 2011	Wallowa	Upper Threebuck Creek (private)	Adult cow (mortality)	Possible/Unknown
110709 Thomas	9 Jul 2011	Umatilla	Cottonweed Creek Area (private)	Calf (mortality)	Possible/Unknown
110705 Johnson	5 Jul 2011	Wallowa	Threebuck Creek Area (private)	Adult bull (injured, next-day mortality)	Possible/Unknown
110615 Locke	15 Jun 2011	Wallowa	Elk Mountain-Crow Creek Area (private)	Calf (mortality, partially consumed)	Possible/Unknown
110615 Voss	15 Jun 2011	Wallowa	Gorsline Canyon-Little Sheep Creek Area (private)	Adult cow (injury, euthanized)	Possible/Unknown
110612 Dawson-Qualle	12 Jun 2011	Wallowa	Butterfield Lane-Three Lakes Area (private)	Adult cows (3 with injuries)	Possible/Unknown
110604 Butterfield	4 Jun 2011	Wallowa	Butterfield Lane-Three Lakes Area (private)	Calf (mortality, partially consumed)	Confirmed Wolf Kill
110527 Nash	27 May 2011	Wallowa	North Divide Ridge-Wolf Canyon Area (private)	Calf (mortality, partially consumed)	Possible/Unknown