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Oregon Grey Wolf Reintroduction, Conservation and Management Evaluation

Karin Traweek
Western Oregon University

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Oregon Grey Wolf Reintroduction, Conservation and Management Evaluation

By

Karin M. Traweek

An Honors Thesis Submitted in Partial Fulfillment
of the Requirements for Graduation from the
Western Oregon University Honors Program

Dr. Karen Haberman
Thesis Advisor

Dr. Gavin Keulks,
Honors Program Director

Western Oregon University

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PREFACE: THE ISSUE AND OBJECTIVES

Canis lupus, the grey wolf, is the largest member of the Canidae family. Wolves are opportunistic, carnivorous, keystone predators that significantly impact the functioning of their surrounding ecosystem. They are successful habitat generalists that can survive in forested and open environments, given the availability of necessary resources like food, shelter, and mates. A great deal of interspecies competition exists within the ecosystem as wolves, other predators, ungulate species, livestock, and human populations compete for shared resources and space (ODFW 2012g, USFWS 2011b, Ripple 2004).

The recent migration of grey wolves into Oregon along the Oregon-Idaho border has altered interspecies relationships and presented new conflict within the Oregon ecosystem. The Oregon Department of Fish and Wildlife (ODFW) currently manages wolves under the Oregon Wolf Management Plan 2010 which is designed to “ensure the conservation of gray wolves as required by Oregon law while protecting the social and economic interests of all Oregonians” (ODFW 2010c). The plan has been in effect for over two years and yet conflict still exists among Oregonians. Throughout the state numerous organizations and individual citizens have contacted ODFW with concerns about the wolf plan and departmental management practices (ODFW 2010a). ODFW issues a yearly progress report to self-evaluate their progress in the context of their management objectives, but this report fails to incorporate public comment (ODFW 2010b).

As a biology student and Oregon resident, it is important to raise public awareness about the issues surrounding wildlife conservation and management practices. State taxes help fund organizations like ODFW, and it is important to make sure our money and their efforts are put to good use. If current policies and management strategies are ineffective, then changes need to be made to more successfully meet both animal and public needs.

This project's objective is to evaluate the effectiveness of the ODFW Oregon Wolf Management Plan 2010 as a case study for a currently endangered species – the grey wolf. In the context of this discussion, I have defined effectiveness as *a plan that meets the majority of animal needs with minimal human interference, but also recognizes and balances the statewide needs of the human population*. To evaluate the effectiveness of the plan, this project will do the following:

1. Compare the Oregon and Idaho management plans. Since wolves are entering into Oregon from Idaho, it is valuable to compare the similarities and differences that exist between the plans. Wolves do not recognize human-contrived state boundaries and will continue to expand their territories across state borders. Collaboration between Idaho and Oregon will be necessary to monitor wolf population size and migratory behavioral patterns. The comparison will address similarities and differences between plan development histories, population objectives, management zones, wolf-livestock conflict management tactics, and budgets. Using these five aspects of each plan, I will discuss how well suited each plan is for its intended state. The components of the plans

that meet my definition of “effective” will provide clues as to what makes a management plan successful.

2. Employ a survey to assess public perceptions about wolf management in Oregon since the implementation of the Conservation and Management Plan in 2010. In the evaluation of their own plan, ODFW does not include public comment or surveys.

However, I would argue that it is valuable to assess public opinion because people are living with wolves, sharing and competing for available resources. My objective is to collect data through a public survey that will provide insight on general public opinion about the “effectiveness” of the Oregon plan.

3. Outline the necessary components that make both the Idaho and Oregon plans successful. I will also address what changes, if any, need to be made to the Oregon Wolf Management Plan 2010 to make it more successful in effectively meeting plan objectives. The conclusions I draw from my evaluation of the Oregon plan can then be applied to conservation and management of endangered species as a whole.

OREGON/IDAHO COMPARISON:

1. Plan Attitude: Who and How is the plan being implemented?

There are numerous factors that must be considered when comparing Oregon and Idaho plan design and implementation. First, the two states have different social and political attitudes that affect their state management styles. Second, the states have different relationships with the US Fish and Wildlife Services (USFWS) that affect their plan design.

Who is Idaho?

Idaho is a politically more conservative state than Oregon, which is reflected in plan language, design, and overall management style. The Idaho plan takes a “conservative” management approach, which by my definition emphasizes the necessity to protect human rights and liberties. The plan promotes conservation, population growth, and public tolerance of wolves, but it does so in a conservative way that protects human liberties and regards wolves as a potential economic commodity. Species conservation is part of the plan, but human production and productivity are the more important underlying needs addressed by the Idaho plan.

Canadian wolves were reintroduced into Idaho, which is considered as a “nonessential experimental area” for reintroduction, and were relisted under the federal Endangered Species Act (ESA) in 1995 and 1996 (ILWOC 2002; Secretary of the Interior and State of Idaho 2006). At the same time, a Memorandum of Agreement

(MOA) between the USFWS, Secretary of Interior, and State of Idaho was released in 1996 (Secretary of the Interior and State of Idaho 2006). The document describes the relationship that was expected to exist between the two organizations following the reintroduction of wolves into Idaho. Expected roles of USFWS included the authorization of legal take of wolves, procurement of funding and equipment for the state, enforcement of federal ESA laws, and assistance in issuing permits to Idaho residents (Secretary of the Interior and State of Idaho 2006).

Although USFWS initiated the reintroduction program, Idaho Department of Fish and Game (IDFG) was expected to conduct the majority of wolf management according to federal regulations. Expected roles of IDFG included land investigations, removal of threatening wolves, issuance of 1-year take permits, control of problem wolves, implementation of lethal control and translocation, confirmation of depredation, research, and removal of carcasses (Secretary of the Interior and State of Idaho 2006). Additionally, the State of Idaho was granted the opportunity to develop a statewide management plan to be approved by USFWS in correspondence to the Northern Rocky Mountains federal population regulations (Secretary of the Interior and State of Idaho 2006; ILWOC 2002, USFWS 1897a).

The USFWS decision to reintroduce wolves into Idaho was based on the state's history with wolves and habitat availability for species reintroduction. The decision to reintroduce wolves was not based on statewide request from IDFG or the public. Elected officials at the time, Idaho governor Dirk Kempthorne and Secretary of the

Interior Gail Norton collaboratively signed the MOA to “facilitate an orderly transition from federal management to state management and to further enhance the conservation of the gray wolf” (Secretary of the Interior and State of Idaho 2006).

Kempthorne was part of the Republican Party and historically Idaho has been a conservative state comprised by a majority of Republican voters (see Figure 1).

Although his political beliefs may have aligned with the public on most issues, Kempthorne’s decision to sign the MOA is one example where a politician’s decision does not reflect the wants of the public.

Based on the MOA, the State of Idaho was obligated to develop a wolf management plan and serve as primary wolf managers, regardless of the citizen’s of Idaho desire to do so (Secretary of the Interior and State of Idaho 2006). As a result, the Idaho plan reflects the mentality of obligation and frustration, part of which is due to USFWS’s failure to define their term “nonessential experimental area” (Secretary of the Interior and State of Idaho 2006). The open-ended definition leaves room for interpretation, and the use of “nonessential” almost makes Idaho appear unappreciated in the eyes of the federal government. It could be interpreted that Idaho is viewed as no more than a test subject and guinea pig. This may explain why the Idaho plan has an abrupt and abrasive voice in defense of public rights that Idaho must have felt were violated in the creation of the MOA without public input.

Idaho’s plan begins with Constitution Article 1 Section 1: “All men are by nature free and equal and have certain inalienable rights, among which are enjoying and

defending life and liberty; acquiring, possessing and protecting property; pursuing happiness and securing safety” (ILWOC 2002). The plan then continues with the statement that Idaho officials are on record asking the federal government to remove wolves from the state in accordance with the 2001 House Joint Memorial Number 5 (ILWOC 2002; Legislature of the State of Idaho 2001). In an appeal to the House of Representatives, Idaho state legislature “Demands that the state of Idaho be granted removal of wolves from the state that were previously translocate[d] to the state from Canada, and that all Federal efforts to sustain wolf survival in the state be terminated upon immediate request by the state” (Legislature of the State of Idaho, 2001). The bold request from Idaho State Legislature to remove wolves from Idaho indicates a level of dissatisfaction with the decision to reintroduce wolves into Idaho. This dissatisfied, defensive tone is consistent throughout the plan.

Although IDFG and the Idaho public did not request wolf reintroduction, the plan claims to seek a balance between animal and human needs. In general, the IDFG conservation and management objective claim “all wildlife, including all wild animals, wild birds, and fish, within the state of Idaho [as] property of the state of Idaho. It shall be preserved, protected, perpetuated, and managed... for the use and enjoyment of all people, now and in the future” (ILWOC 2002). This “mission statement” of sorts is the basis for IDFG wolf management practices, but in reality the plan is assertive and forceful about implementing conservative management practices. A significant amount of energy is directed toward wolves becoming an economic commodity in Idaho.

During the initial stages of reintroduction, the plan states that IDFG will place restrictions on human behavior to allow for population growth and stabilization (ILWOC 2002). Once the numbers increase and wolf territories are established, wolves will be delisted from the federal ESA and “increasingly more aggressive control[s] will be applied. Upon delisting, every individual has the right to protect their person and property, on private, state, and federal lands from wolf depredation” (ILWOC 2002). Wolves will then be reclassified as a big game animal or special classified predator susceptible to controlled take and sport hunting (ILWOC 2002). IDFG makes it clear that there shall be no preferential treatment given to wolves and the same considerations for wolves shall be made in regard to livestock, domestic animals, and human interaction as with other big game species.

IDFG’s stated intent is to support the federal wolf reintroduction program to ensure viable, self-sustaining wolf populations (ILWOC 2002). However, the plan clearly defends human rights as a priority and tends toward long term human gain from the reintroduction of wolves into Idaho. Human “gain” could mean a number of things from increased hunting/trapping opportunities to a reduction in other interspecies conflict as a result of introduction of new predator into Idaho ecosystem; it depends on who you ask and their opinions on the subject of wolf reintroduction. In Part 4: Management Strategy Wolf-Livestock Conflict I will address Idaho’s conservative approach to resolving wolf-livestock conflict through hunting and gaming practices.

Who is Oregon?

Oregon is a politically more liberal state than Idaho, which is reflected in the plan language, design, and overall management style. The Oregon plan takes a liberal and conservation-based approach to wolf management. The term liberal, by my definition, places a significant amount of energy on the right of wolves to exist for themselves, rather than for human gain. The primary stated objective is to establish and sustain a naturally reproducing wolf population that will hopefully be delisted from both federal and Oregon ESA protections. The secondary stated objective is the promotion of social tolerance toward wolves as ODFW plans to address human-wolf conflict.

Following the initial reintroduction of wolves into Idaho, wolves began to migrate throughout Idaho and into Oregon. After three wolves migrated into Oregon, ODFW developed the initial Wolf Conservation and Management Plan in 2005. At that point and up until 2009, wolves remained listed under federal control but there was no mandated expectation for Oregon to develop a management plan. ODFW initially developed the conservation and management plan because they felt legally and morally obligated to do so under Oregon's ESA (ODFW 2010c). The development of a state plan proved invaluable in 2009 when wolves were removed from federal ESA protections in both Idaho and a portion of Eastern Oregon (see figure 3); (ODFW 2010c). This region of Oregon is primarily where wolves are now entering into the state from Idaho, making it imperative for Oregon to have their own wolf conservation and management plan.

ODFW began by offering numerous workshops, town meetings, and public forums in search of general public consensus prior to developing their plan (ODFW 2010c). Plan development began early, and in 1999 public opinion indicated a 70% approval rating to proceed with plan development (ODFW 2010c). Some of public apprehension to support federal reintroduction program in Oregon included concern for human and pet safety, livestock depredation, livestock loss compensation, overall cost, and predation on other wildlife. Although there was evidence of controversy and only partial public support in 2003, ODFW continued with plan development (ODFW 2010c).

Unlike Idaho, Oregon made the choice to initiate and implement its own plan in support of the federal wolf reintroduction plan, with greater consideration for public opinion. Oregon developed a plan based on public attitude and state ESA guidelines, with minimal federal oversight. ODFW studied the Idaho, Montana, and Wyoming wolf management practices, which have been compiled to create a comprehensive conservation and management plan in Oregon. Based on their research, ODFW acknowledges that human presence has changed the Oregon landscape since the time when wolves first lived in Oregon, but “wolves are habitat generalists, and thus a wide range of Oregon ecosystems are theoretically capable of supporting wolves” (ODFW 2010c; USFWS 2011b). ODFW argues that, “[their] ability to persist [and success of the management plan] will be largely determined by the degree of human tolerance for the species” (ODFW 2010c). Thus ODFW’s approach to wolf management emphasizes human tolerance of wolves and their right to exist for themselves, rather than for human gain.

This “liberal” approach to management remains consistent throughout the plan. Unlike the Idaho plan, Oregon does not mention intent to apply “aggressive measures” following the stabilization and delisting of wolves in Oregon. The language and tone used consistently throughout the plan emphasizes education and tolerance to reduce conflict. ODFW emphasizes the use of an incremental management approach, “designed to provide options to wolf managers, livestock producers and the public while promoting the goal of conservation for wolves” (ODFW 2010c). Although having options available is beneficial, it is imperative that ODFW hold public forums and issue frequent surveys to assess public needs in addition to animal needs.

Part of the challenge ODFW faces in the development of their plan and assessment of public need is that there exists a greater degree of political division throughout Oregon compared with Idaho. The majority vote throughout Oregon has historically been Democratic, but when we break down statewide voter distribution, the majority of the Democratic vote comes from the metropolitan cities (United States 2008). In 2008 presidential election, Benton, Clackamas, Clatsop, Columbia, Lane, Lincoln City, Marion, Multnomah, Tillamook, Wasco and Washington Counties voted Democratic (see figure 2). These counties have high population density and dominant statewide vote, but they do not represent the conservative Republican opinions that exist throughout central and eastern Oregon.

It is important to draw attention to the political divide that exists among the public because ODFW headquarters is located in Salem, a Democratic metropolitan area.

It is therefore likely that many of the ODFW plan developers have a more democratic and liberal attitude, which I feel is reflected in the voice used throughout the Oregon plan. This is especially problematic because plan developers live on the opposite side of the state from where wolves are actually entering Oregon. Wolves are currently living in Eastern Oregon, where the majority of residents have a conservative, Republican perspective. Are the needs of those citizens being heard and met by ODFW, a group of people on the opposite side of the state with a different political agenda? The political divide is a large part of the reason conflict exists surrounding the development and implementation of the Oregon Wolf Conservation and Management Plan.

USFWS Role in Nationwide Management

Federal USFWS has an important role in the conservation and management of endangered species throughout the United States. USFWS is responsible for initiating the reintroduction of wolves into Idaho, which necessitated the development of both the Idaho and Oregon plans. However the relationship between each state and USFWS is quite different, which consequently affects the state management strategies.

Idaho developed a wolf management plan as required by USFWS to support and supplement the federal wolf reintroduction program (Secretary of Interior and State of Idaho 2006). The federal government has provided consistent support throughout Idaho, however IDFG explains that this support is, in some ways, restrictive. Since the Idaho plan is only meant to be an extension to the federal program, IDFG is unable to

employ some management practices they would like to implement in order to support USFWS management objectives.

Oregon chose to develop a wolf management plan in support of the USFWS reintroduction program, despite the fact that the USFWS has not required them to do so. As a result, Oregon receives significantly less support from USFWS because the collaborative relationship that exists between USFWS and Idaho does not exist equally between USFWS and Oregon. The Federal Wolf Delisting Boundary, which removes wolves from federal ESA regulations on the east side of the boundary, reveals the minimal amount of support provided to ODFW by the USFWS (see figure 3). Wolves enter into Oregon in the particular region that is no longer governed by federal ESA regulations. However, wolves on the west side of the boundary are still regulated by both federal and state ESA regulations. The inconsistent federal support throughout Oregon makes it difficult to develop a uniform plan throughout the state.

Based on the comparison between Oregon and Idaho, I have come to the conclusion that USFWS needs a standard set of regulations and practices that can be applied nationwide for any species listed on the federal ESA. USFWS must establish a minimum population objective for any listed species, which must be met prior to delisting. USFWS must also have clear standards that protect all listed species from hunting and poaching. They must also explicitly make clear their role in nationwide species conservation and management, and their expectations of state wildlife management departments.

It is my opinion that in addition to federal protections, all states should be required to develop a management plan to protect any federally listed species. Federal regulations should provide minimum protections for species conservation nationwide, while state regulations should be tailored to the specialized needs of a population based on the state's environment. Each state has its own unique environmental, social, and political challenges that ought to be taken into consideration when managing any species, whether or not it is endangered.

To apply my proposed ideas to wolf management practices, I argue that all states currently neighboring those containing at minimum 1-4 breeding pairs should prepare for the possibility of a wolf migration event by developing a basic management plan. Wolves are highly mobile predators that are able to occupy a large range of territories and survive in various habitats. As Oregon has seen with radio-collared wolf OR7 that has traveled over 760 miles from his initial pack location and 334 linear miles from his birthplace, wolves are highly mobile and we should expect to see continued expansion of wolf territory (see Figure 5); (ODFW 2012d; Oregon 2012a).

First, it is imperative that states take into consideration whether or not their ecosystem is able to support a growing wolf population. In their consideration, states must consider whether the geographical, topographical, and environmental conditions are suitable for the population. They must also consider the possible impact this species may have on the livelihood of other native species living in the ecosystem. If deemed unsuitable, states may choose to relocate wolves to a more suitable habitat. Louisiana

for instance may not have a plan for wolves, and may not desire to create a plan for wolves because environmental conditions have not historically been suitable to support a wolf population (Shelton 2007). However, if the environmental conditions are deemed suitable, the state must then proceed with the development of a conservation and management plan.

Second, states should use the successful management strategies employed by other states during what I am calling the intermittent period. By my definition, the intermittent period is the time during which animals are migrating into a state and require some form of management while the state wildlife department develops a concrete management plan. During this transitional period, I recommend that states temporarily put into effect management strategies from another state's plan. However, this can only be temporary because each state has a unique environment, social structure, and politics that must be factored into the development of a comprehensive conservation and management plan.

Third, each state must develop their own plan by integrating ideas from other plans and generating their own management strategies to meet the needs of that state. Based on my research, there exists a complex relationship between climate, habitat availability, and interspecies relationships that affect the success of wolves in any state. First, climate, geography and landscape affect the habitat in which wolves establish their territory. Second, the habitat must be suitable and large enough for wolves to establish a territory. Finally, a pack's ability to establish territories and obtain necessary

resources for long-term success is affected by relationships with other species.

Interspecies relationships between wolves and other species include their relationships with ungulates, other predators like black bears, cougars or coyotes, and humans.

Consideration of wolf-ungulate relationships is important because wolves are carnivorous predators that target and may potentially deplete ungulate populations if left unmanaged. Although wolves and ungulates often share overlapping territories, it is important to “prevent the serious depletion of indigenous wildlife, provide optimum recreational and aesthetic benefits, and maintain populations at levels compatible with the primary uses of the land” (ODFW 2010c). In Oregon, wolves are likely to target elk, mule deer, black-tailed deer, white-tailed deer, pronghorn, California big horned sheep, Rocky Mountain big horned sheep, and Rocky Mountain goat populations (ODFW 2010c). In Idaho, wolves are likely to target elk in the winter and smaller animals like beavers, marmots, snowshoe hares, ground squirrels, and voles in the warmer months. Idaho acknowledges that wolves also depend on mule deer and white-tailed deer as well, but each year varies (ILWOC 2002).

It will also be important for states to consider the relationship between wolves and other native predators. With the introduction of wolves, competition between predators will increase, both in defense of prey and territory (ILWOC 2002; ODFW 2010c). Wolves have been known to fight off other animals like cougars, mountain lions and most often coyotes. As a result, the introduction of wolves into any state is going to affect ecosystem dynamics. More specifically it may alter the behavioral patterns

previously observed in other species that may begin to “attempt to avoid direct contact with wolves” (ODFW 2010c).

2. Management Strategy: Animal Classification and Population Objectives

Idaho and Oregon plans maintain separate standards for establishing population objectives. Three major factors contribute to the fact that Oregon has a clear set of population objectives while Idaho refrains from using population approaches to population objectives. First, the amount of time wolves have been in each state is different. Second, this difference has affected the wolf’s status in the two states. As a result, the states are able to have different objectives. Third, should the lack of population objectives in Idaho become problematic, their relationship with USFWS is more well established than in Oregon, and they may receive more federal support to aid in wolf recovery.

Idaho’s Timeline, Animal Status and Federal Support

In 1998, the USFWS reintroduction program brought 12 already established packs and 10 litters from Canada into the state of Idaho (ILWOC 2002). Over the course of seven years prior to the creation of the IDFG wolf management plan, wolf population size grew to an estimated 14 breeding pairs and 261 total individuals by the end of 2001 (ILWOC 2002). In 2001, population size reached a stable 30 breeding pairs and IDFG was mandated to create a wolf management plan by USFWS (ILWOC 2002).

In the creation of their plan, IDFG analyzed data to predict wolf population growth rate, assuming environmental conditions remained similar and wolves remained unaffected by interspecies or intraspecies competition (ILWOC 2002). Based on their observations and predicted growth rate, the Idaho plan takes the stance that “population estimates are, at best, approximations, and establishment of specific population sizes to be maintained is not realistic” (ILWOC 2002).

IDFG takes this perspective toward population objectives for two reasons. First, the amount of time wolves had been in Idaho between 1998-2001 had allowed population size to increase significantly prior to the development of the Idaho plan. The initial wolf population reintroduced into Idaho included well-established packs and litters that were able to reproduce and disperse naturally. By the time IDFG was mandated to create a wolf management plan independent of the federal reintroduction program population size had increased significantly. Although this extended period of time allowed IDFG to gather information about wolf location and migration patterns throughout the state, it would have been unreasonable for IDFG to attempt to monitor each wolf individually. Instead, IDFG took a holistic approach by focusing on total statewide pack number.

The second reason IDFG avoided a set population objective is because population numbers fluctuate. Population size can fluctuate due to intraspecies and interspecies relationship as wolves compete for food and territory. Fluctuation in prey density can also lead to change in wolf populations (ILWOC 2002). If, for instance, there

has been a shortage of rainfall there may be less grass to sustain the elk population, meaning a decline in elk population. The reduced size of the elk population may mean reduced food source for wolves, and thus increased wolf competition for resources. Wolf populations fluctuate naturally as result of changes within the ecosystem, and IDFG contends that a strict population objective is unnecessary.

The Idaho plan uses a pack-based model to describe the management strategies IDFG intends to use under two population conditions, greater than or less than 15 packs statewide. The large pack minimum of 15 packs is meant to ensure long-term survival of wolves in Idaho by preventing the population size from getting too small. Should the population fall below the 15-pack minimum, the plan is designed to increase restrictions and, “ [IDFG] will begin instituting remedial measures, and if it falls below 10 packs, we will revert to the control plan currently specified in federal rules” (ILWOC 2002). If these changes were not effective, IDFG would work with USFWS to consider the re-listing wolves under federal ESA (ILWOC 2002). The plan does not describe in depth what these terms mean because the overall attitude is that wolves will persist with the current plan.

As of 2011, the wolf population remains well over 15 packs, with approximately 101 documented packs and 746 wolves in 2011 (IDFG and Nez Perce Tribe 2011). Current numbers are well over the minimum 15-pack limit established within the plan, which means the plan follows the “More than 15 Packs Model” at this time (see figure 9). Within this model, wolves will be managed similar to other large game predators including black bears and mountain lions (ILWOC 2002). IDFG makes it clear that so long

as wolves are able to reproduce and expand in a manner that limits conflict between wolves, humans, and other animals, populations will be allowed to increase. However, IDFG also explains that population size will remain balanced and overpopulation will be avoided through natural self-regulation and regulated hunting (ILWOC 2002).

At the time this plan was created in 2002, wolves still remained on the federal Endangered Species List (ESL), and regulated hunting was not to occur until wolves had been federally delisted. However sport and leisure hunting are an integral part of Idaho culture and in early 2011 wolves in both Idaho and Montana were delisted from the federal ESL (ILWOC 2002; CBB 2011). Now that wolves are no longer listed as endangered in Idaho, there has been controversy over the ethical choice to delist an animal that has recently been reintroduced and recovered from “endangered status” (Lutz 2012). For more information regarding hunting and controlled take, refer to section 4, Management: Wolf-Livestock Conflict.

Oregon’s Timeline, Animal Status and Federal Support

Oregon has developed a wolf conservation and management plan under a set of circumstances quite different from Idaho, which has led to the implementation of clear population objectives. First, wolves were not reintroduced into Oregon through a federally funded program as they were in Idaho. The natural migratory patterns of wolves in Idaho led to the migration of three wolves from Idaho into Oregon in 1999 and 2000 (ODFW 2010c). As a result, Oregon was underprepared for the arrival of

migratory wolves entering into the state and devised a management plan as an afterthought.

Second, because wolves naturally migrated, the populations did not have the pre-established breeding pairs or packs seen in Idaho's reintroduction program. The federal government initially gave Idaho the same number of breeding pairs that Oregon is now attempting to establish by implementing population objectives. Oregon must contend with the expected continued expansion of the Idaho wolf population, "supply[ing] new dispersing wolves to Oregon, which will diversify the gene pool and fill in home ranges" (ODFW 2010c).

Continued expansion of wolves from Idaho presents Oregon with a different type of fluctuating population than observed in Idaho. Although continued migration of wolves from Idaho into Oregon will fill in Oregon home ranges, it makes it very difficult to track actual population size. Idaho wolves may not be part of a breeding pair or pack, so when they migrate into Oregon they are in search of a mate and new territory. This could lead to increased competition for resources and territory between migrating individuals and Oregon wolves.

This problem is exacerbated by the fact that wolves have only been in Oregon for a brief interval of time, and Oregon has not had the same opportunity as Idaho to observe wolf behavior. Oregon has no record of wolf behavior prior to the 1946 wolf extinction event that occurred in Oregon (ODFW 2010c). Oregon has managed to best

understand wolf behavior by studying the current records available from Idaho, Montana, and Wyoming.

Since wolf population size in Oregon is small, ODFW created a three phase population objective. The population objectives are a combination of both conservation and management efforts, meant to help Oregon permit growth of a naturally reproducing wolf population and promote social tolerance for wolves throughout Oregon (ODFW 2010c). Phase I corresponds to the efforts of conserving and establishing population objectives, while Phases II and III correspond to management efforts (ODFW 2010c). The phases are sequential, meaning Phase I objectives must be met before ODFW will move into Phase II. Once a viably reproducing population has been established, the population will have been “conserved.”

With such a small population, ODFW focused on number of breeding pairs that exist throughout two management zones. Unlike Idaho that focuses on number of packs statewide, Oregon focuses on breeding pairs, which are federally defined as, “an adult male and adult female with at least two pups surviving to the end of December,” (ODFW 2010c). Oregon differentiates a pack from a breeding pair, by defining a pack as “four or more wolves traveling together in winter,” (ODFW 2010c).

Oregon has also divided itself into two management zones (see the following section for further discussion). In order to move from one phase to the next, population objectives must be met in either region. However, it would be more ideal if population objectives were met in the Eastern zone because the Eastern management zone borders

with Idaho, where wolves are entering into the state (ODFW 2010c). It is also more likely that population objectives will be met initially in the Eastern zone, and for this reason the plan refers to objectives being met in the Eastern region first. A brief description of the phase objectives is as follows:

Phase I requires that 4 breeding pairs have been established and maintained within the state for at least 3 years (ODFW 2010c). Based on Idaho statistics, four breeding pairs equates to 6-6.5 packs or 38.4-50.7 wolves (ODFW 2010c). This conservation-based objective “represents a sufficient number of wolves to ensure the natural reproductive potential of the wolf population is not in danger of failure” (ODFW 2010c). Once this objective has been reached, the state will consider delisting of wolves from the Oregon ESA (ODFW 2010c).

Phase II population objectives require that 7 breeding pairs have been established and maintained within the state for at least 3 years. Based on Idaho statistics, seven breeding pairs equates to 10.5-11.4 packs or 67.2-89 wolves (ODFW 2010c). This part of the phase objectives corresponds to the implementation of initial management efforts. Phase II acts as a “buffer” phase to prevent population decline and necessity to relist wolves in Oregon ESA (ODFW 2010c).

Phase III specifies no numerical population objectives, claiming it is too early in population growth and establishment to create a population cap (ODFW 2010c). The plan maintains that this third phase is necessary, however, once wolf populations have reached Phase III ODFW intends to reevaluate population objectives.

In summary, Oregon has a much more comprehensive description of population objectives based on numerical value of breeding pairs to help establish a viable population, compared with Idaho's objective to sustain a viable population. Once wolf population in Oregon is established, I recommend Oregon switch to a pack-based population objective strategy to reduce management costs.

Is Oregon's future anything like Idaho?

The main objective of the Idaho plan is to maintain population size and viability. At the time the Idaho plan was written, there was no need for a population objective because the wolf population was already well on its way. The main objective of the Oregon plan is quite different, to simply establish a viable population through the promotion of social tolerance.

The two plans have different population objectives for three reasons. First, wolves are classified differently in the two states, which provides some liberties and restrictions. In Idaho, wolves are delisted from the federal ESA but in Oregon wolves remain listed both on the federal and state ESA (IDFG 2011; USFWS 2012c). Second, wolves have persisted in the two states for different lengths of time. Wolves have lived in Idaho for a longer period of time, which has enabled the population to grow and become more stable than what is seen in Oregon. Third, the states have different attitudes toward wolf population growth. Idaho has a large enough population to show concern for overpopulation while Oregon is more focused on merely establishing a population.

Despite the current ecosystem-based approach observed in Oregon, I predict that the Oregon plan will look more similar to the Idaho plan once the wolf population stabilizes. It is foreseeable that as the wolf population increases, ODFW will also increase the required number of minimum breeding pairs and packs. The current minimum of 7 breeding pairs establishes a strong foundation for wolf populations of approximately 89 wolves. As ODFW makes clear, the plan objectives will be modified by Phase III and it is my opinion that ODFW match the IDFG base minimum of 15 packs. It makes the most sense for both states to set a population minimum without placing a population cap.

ODFW already mentions a plan to switch from a breeding pair to pack emphasis once statewide numbers have stabilized and remain consistent. With an increased population size, it makes more sense to switch to a pack-based population objective. It only seems logical, in my opinion, to establish similar objectives between Oregon and Idaho because wolves are going to continue migrating across the state border. There has even been some mention by Idaho Governor C.L. "Butch" Otter that suggests Idaho is willing to relocate some of their wolves into Oregon (Idaho State Capitol 2012). Whether it is by state exchange or natural migration, the two populations will continue to integrate and it would benefit the animals if the two states had similar management objectives. At minimum, Oregon and Idaho need to have some sort of collaboration to meet the animal, as well as public, needs.

In addition to the change in population objective emphasis, I also predict that ODFW will loosen some of the plan restrictions and implement a regulated hunting program. The plan mentions the future possibility that wolves will be classified as a game mammal following federal and state delisting. Once this happens, ODFW will likely implement a regulated take program similar to large predator and big game mammal hunting programs currently carried out in Oregon. If this happens, the first two years should be a “trial-run” with extremely high-regulated, controlled take. At this point in time, the Oregon wolf population remains too small to implement a regulated take program but it is likely that this type of program will be tested once ODFW enters into Phase III. If Oregon implements a regulated take program, I do not think it will not have the same intended use as it currently does in Idaho, to prevent overpopulation. For more information on regulated take, see section 4, Management Strategy: Wolf-Livestock Conflict.

3. Management Strategy: Management Zones

Another difference between the plans is the choice to use management zones. A management zone informally refers to the division of states by some dividing line(s) established by the state. Idaho refrains from the establishment and use of management zones while Oregon has subdivided the state into two management zones.

Idaho: No Management Zones

Idaho has been divided into 78 units that together make up 29 zones (see figure 6). Currently, a number of the big game animals, not including wolves, are managed

according to the zones and units, which also help IDFG regulate hunting, trapping, and harvesting practices. Although the state has been divided into units and zones, IDFG does not manage wolves based on this division.

The IDFG stance is that Idaho wolf management “does not require zone management; however, IDFG may establish management zones as experience with wolf management dictates” (ILWOC 2002). Although IDFG considered the implementation of zone management, they decided against it for reasons unexplained in the Idaho plan (ILWOC 2002). Instead, IDFG intends to implement regional management advisory committees that will aid in monitoring of wolf population size, population distribution, breeding behaviors, and changes in pack territory over time (ILWOC 2002). The committees are to be distributed throughout the state to ensure consistency among statewide management practices (ILWOC 2002). IDFG does address the possibility of including wolves in current big game management units, should wolf behavior follow similar trends as other big game mammals (ILWOC 2002). The plan does not specify what behavioral trends IDFW would be looking for in order to make the decision to take this approach.

Ideally, Idaho should use a combination of the two strategies by assigning regional management advisory committees to each unit or zone. Wolves are included in Idaho’s regulated hunting, which divides the state into 13 larger hunting zones (see figure 7, 8). If Idaho were to implement management zones, I would recommend that they use fewer, larger zones consistent with those used for regulated wolf hunting and

trapping. At minimum one advisory committee should be assigned to each zone to ensure that statewide practices are being effectively implemented in each portion of the state.

Oregon: East and West Management Zones

Oregon, on the other hand, has divided the state into two East and West management zones, dividing the state in half through central Oregon along the US Highway 97, 20, 395 junction (ODFW 2010c). The purpose of dividing the state in half is to meet the needs of wolves as they migrate across the state borders and expand their territory throughout Oregon.

Since wolves are primarily migrating from Idaho into Oregon, the majority of initial colonization is expected to occur in the Eastern part of the state. Following the initial colonization, wolves will begin to migrate from the eastern to western part of the state. At present, there has only been documented migration of one wolf, OR7, into the western management zone (ODFW 2011c; Oregon 2012a). The two zones enable ODFW to provide “active management of wolves in the eastern portion of the state following delisting while maintaining needed protections for wolves that enter western Oregon” (ODFW 2010c). In other words, once wolves establish territory and reach population objectives in the eastern portion of the state, ODFW would like to initiate delisting and employ Phase II management strategies. This would mean that wolves in the eastern region are viable and self-populating, but it is expected that wolves will continue to migrate throughout the state. As wolves continue to migrate to the western part of the

state, these wolves will not have the same stability as those in the eastern part of the state. It is important that ODFW “allows state delisting goals to be achieved in eastern Oregon while ensuring continued protections for wolves in western Oregon” (ODFW 2010c). As a result, the plan is designed to support both sides of the state as wolves reach self-populating viability at different times.

The decision to divide the state along the US Highway 97, 20, 395 junction was based on predicted level of increased conflict at that highway junction point (ODFW 2010c). I argue that ODFW made a wise decision to divide the state in half at this junction point, because it allows them to focus on the needs of both wolves and the public. It allows ODFW the opportunity to assess animal needs throughout the migration process, before complete statewide wolf expansion is complete.

The simple division of Oregon into two management zones allows ODFW to use their time and resources in an efficient way. Although ODFW headquarters is located in Salem, it would be pointless to implement management practices in the western management zone because wolves are entering into the eastern zone along the Oregon-Idaho border. There are currently no packs in the western zone, and it is necessary that ODFW focus their efforts on wolves in the eastern zone while the population remains small. The small population size allows ODFW to more easily locate animals and implement specialized monitoring technology to track wolf behavior. It provides an excellent opportunity for ODFW to collect data, test different management practices, and gain a better understanding of wolves, in the context of the eastern Oregon

climate¹. This opportunity also allows ODFW to focus on the needs of the eastern Oregon rural communities and develop strategies to resolve conflicts experienced by agricultural livestock owners (ODFW 2010c).

Right now wolves are primarily at their highest levels in the eastern management zone because migratory expansion across the state has yet to happen. It is expected that the natural dispersal of wolves will lead to their expansion in areas “outside northeastern Oregon ...with the large expanse of private land in the center of the state being a potential obstacle” (ODFW 2010c). Central Oregon presents a more densely populated region with an increase in private landowners compared to Eastern Oregon where wolves are currently living. As the animals expand westward, they are going to begin to encounter greater human population density, and likely a decrease in both habitat and prey availability. As a result, human-animal conflicts are likely to increase as wolves migrate further west, and ODFW needs to manage wolves accordingly.

I would argue that the less-populated forested and agricultural areas are ideal locations for wolves to establish territories with the most minimal amount of human conflict. Unfortunately, Oregon does not have the same abundance of remote, open, and forested landscapes found in Idaho that arguably provides the most ideal habitat with the least amount of conflict (ODFW 2010c). Additionally, wolves cannot be confined to any region because they are a migratory species, and it will be challenging

¹ Climate meaning geographical, social, and political.

to predict where wolves will choose to establish territories considering the wide range of habitats available throughout Oregon (USFWS 2011b; USFWS 2012c).

It is imperative that ODFW continue to implement some sort of management zones to prepare for continued migration and potential conflicts that will result as wolves continue their expansion. Using the highway junction at the dividing line is good tactic because this is crucial point where human population density increases, and the landscape trends toward more urban areas. Conflict is bound to increase and become more complex as wolves have greater contact with the human population. It is likely that ODFW will initiate a re-location program as one management strategy to reduce conflict in more urban areas.

In summary, the use of a basic two-zone management approach is an effective management approach that allows ODFW to focus on animal and human needs as wolves migrate throughout Oregon. As currently divided, the two regions present different challenges and the use of management zones enables ODFW implement different management strategies according to the needs of the two regions. Once the wolf population has become more stabilized and enters into Phase III, it would be wise for ODFW to implement a plan that uses big game hunting zones to manage wolves.

4. Management Strategy: Wolf-Livestock Conflict

One challenge that persists with any wildlife management plan is the ability to effectively monitor and reduce conflict between animals. In the case of wolf reintroduction conflict exists between wolves and native wild animals including other

carnivores and ungulates, but the primary source of public frustration stems from wolf-livestock or wolf-human conflict. Keep in mind that livestock and agricultural/farming property should be considered an extension of human property and a source of conflict.

Wolves are nomadic predators that expand to acquire necessary resources for survival including mates, territory, and food. Wolves will continue to migrate throughout the state and across state borders, without consideration for property lines or borders. As wolves migrate throughout the state in search of suitable habitat, they are bound to encounter agricultural and farming areas rich with livestock. Wolves are most likely to encounter livestock areas as they follow ungulate prey during seasonal migrations and/or in search for new territory. Instances where wolves and livestock reside in close proximity for extended periods of time increase chances for wolf-livestock conflict (ODFW 2010c). Research has indicated that it is less likely for individual wolves traveling on their own to attack livestock than it is for wolves traveling in pairs or packs (ODFW 2010c). During times when food resources are limited, livestock make for an easy and more readily available target to satisfy a wolf's nutritional needs.

Both Idaho and Oregon struggle with this inevitable conflict between wolves and livestock. As stated in both the Idaho and Oregon plans, the generalized objective is to establish and manage wolf populations while ensuring minimal conflict between wolves and humans (ILWOC 2002; ODFW 2010c). The two plans share similar objectives, but

utilize different strategies to reduce conflict while still meeting the needs of animals and people.

Idaho: Compensation & Lethal vs. Non-Lethal Controls

IDFG takes the stance that wolves are being incorporated into the Idaho ecosystem and are expected to cause livestock conflict, therefore it is necessary to establish some sort of compensatory loss program for livestock operators (ILWOC 2002). Presence of wolves has certainly led to livestock harassment, injury, and fatality. Recent evidence also suggests that wolf presence can cause decreased weaning weight, decreased pregnancy, increased aggression, and delayed rebreeding in livestock (ILWOC 2002; ODFW 2010c). Although wolf-livestock conflict includes a number of issues, the Idaho compensation program is only applicable to confirmed or probable wolf-related livestock loss. Current livestock loss compensation comes from Defenders of Wildlife and US Department of Agriculture (USDA) Wildlife Services. Between 1995-2000, Defenders of Wildlife contributed \$49,746 to compensate for livestock losses, provide education, and prevent a continuation of wolf-livestock conflict. US Department of Agriculture Wildlife Services has an annual budget of \$200,000 to fund the Idaho, Montana, and Wyoming wolf depredation management programs (ILWOC 2002).

Since the federal government initiated the reintroduction of wolves into Idaho, IDFG argues that the federal government should remain responsible for a statewide livestock loss compensation program once wolves are delisted (ILWOC 2002). Idaho is expected to support the federal reintroduction program but without adequate support

to cover the cost of wolf management, IDFG makes it clear that “the State of Idaho is under no obligation to manage wolves” (ILWOC 2002). IDFG argues that it is unfair for livestock owners to suffer livestock loss in support of the federal program without some form of compensation. The compensation program is necessary to prevent livestock owners, who may be tempted to take wolves illegally, from taking matters into their own hands (ILWOC 2002). It is not only expected that federal funds will be provided for compensation, but that the Idaho Congressional delegation will also fund all other overall management strategies used to reduce conflict (ILWOC 2002). Additional funding for wolf monitoring will come from the state of Idaho and other wolf advocacy groups.

A compensatory program is part of the IDFG management strategy to deal with wolf-livestock conflict. The plan also outlines other efforts that will be used including the use of radio-collars, scent stations, track surveys and in-the-field surveys (ILWOC 2002). It is important that this information remains accurate, factual and objective to aid IDFG “efforts to reduce illegal take and depredations on livestock” (ILWOC 2002). IDFG draws on the value of both non-lethal and lethal monitoring efforts to reduce statewide wolf conflict.

In the plan, IDFG maintains the notion that once wolves are delisted from the federal ESA, “every individual has the right to protect their person and property, on private, state, and federal lands from wolf depredation” (ILWOC 2002). It is important to keep in mind that Idaho favors big game hunting/trapping as a source of economic revenue, entertainment, and population control. Following federal delisting, wolves will

be designated as a big game species, furbearer, or special classified predator (ILWOC 2002). As a result, they will be considered part of the IDFG legal take program, allowing individuals to hunt wolves as one way to reduce or eliminate conflict (ILWOC 2002). The plan makes it clear that use of more aggressive management and game programs will only be used once populations are viable and self-sustaining (ILWOC 2002).

As of May 2011, Idaho wolves were delisted and are currently under the sole management of the Idaho plan (Lutz 2012). Wolves are now part of Idaho big game hunting and trapping program, with regulations similar to bears and mountain lions. An individual must be certified to hunt and trap in the state, must obtain up to but no more than five tags per calendar year, and must obey hunting/trapping seasons (IDFG and Nez Perce 2012). Reportedly, 375 wolves have been killed between Montana and Idaho since wolves were delisted (Lutz 2012).

The Idaho Plan stresses prompt conflict resolution, presentation of balanced objectives, and use of an incremental management approach (ILWOC 2002). However, many consider the approach that has followed grey wolf delisting in Idaho as overly aggressive. There has been some speculation that hunters have targeted wolves more aggressively than other big game animals in Idaho (Lutz 2012). Defenders of Wildlife president Jamie Rappaport Clark claims that Idaho is “treating wolves like vermin instead of managing them like valuable native wildlife. That’s not how Idaho manages other species like black bears and mountain lions” (Lutz 2012). Considering that Idaho allows any hunter up to five tags or kills per hunting season, it is possible that the Idaho

wolf regulations are at present too unrestrictive. That being said, IDFG should reconsider their hunting/trapping regulations to remain more consistent with the statements made in their original plan. This is important to keep in mind when comparing Idaho and Oregon, to prevent Oregon from facing the same controversy.

Oregon: Compensation & Lethal vs. Non-Lethal Controls

Unlike Idaho, the Oregon plan emphasizes human tolerance and application of preventative and non-lethal efforts to resolve wolf-livestock conflict rather than focusing on a livestock loss compensation program. In brief, the ODFW breaks down each phase of the plan to discuss appropriate livestock owner response to wolf-livestock conflict. Each of the management plan phases allows for slightly different application of the actions against wolf-livestock conflict (see figure 10).

Specifically, the plan discusses variations among non-injurious harassment, non-lethal injurious harassment, relocation of wolves, and lethal take of wolves (ODFW 2010c). **Non-injurious harassment** is defined by ODFW as “scaring off an animal(s) by firing shots into the air, making loud noises or otherwise confronting the animal(s) without doing bodily harm” (ODFW 2010c). **Non-lethal injurious harassment** is defined by ODFW as the permitted use of “rubber bullets, bean bag projectiles, vehicle(s) or other pursuit-oriented hazing [methods], following confirmation of wolf depredation on livestock or other wolf-related conflict” (ODFW 2010c). **Relocation** is summarized as a more immediate solution to move wolves after they have entered into an area that may harm the wolves or result in conflict with people (ODFW 2010c). **Lethal take** of wolves

requires that an individual acquire a permit from ODFW, who ultimately encourages all permit holders to “implement non-lethal actions to minimize or avoid wolf-livestock conflict” (ODFW 2010c). Lethal take is permitted primarily under three conditions, if wolves threaten human safety, to stop wolves in the act of attacking livestock on private or public land, or to stop chronic depredation (ODFW 2010c).

As alternatives to implementing a compensation program, the Oregon plan includes agency response to depredation and livestock producer assistance programs to alleviate wolf-livestock conflict. While wolves remain protected under the federal ESA, ODFW expects that USFWS will investigate reported wolf depredations (ODFW 2010c). Once wolves are delisted, ODFW plans to implement the agency response program. The objective of the program is to investigate the complaints and find solutions to problems in a similar manner that agents currently respond to coyote, cougar, and black bear complaints. ODFW plans to implement the program once wolves are delisted. Livestock owners are expected to report conflict and either ODFW or USDA Wildlife Services will respond to help livestock owners find a solution to ongoing conflict (ODFW 2010c). The program is funded through Wildlife Services, which receives a bi-annual \$220,000 budget from ODFW (ODFW 2010c). The livestock producer assistance program works in addition to the response program to better educate and provide outreach to livestock owners suffering from conflict. The program focuses on providing necessary resources to reduce and resolve conflict by providing livestock owners with the most current information on areas of wolf activity (ODFW 2010c).

Oregon has also worked with the Wildlife Defenders in their Wildlife Coexistence Partnership program to minimize conflicts. The program has helped Oregon successfully reduce conflict, demonstrating “that losses to wolves can be dropped to near zero levels if appropriate, proactive steps are taken to prevent conflict. Ranchers are able to safeguard their livestock while helping to maintain healthy populations of native wildlife” (Motsinger 2012). It is great that Oregon has programs in place that support non-lethal efforts to reduce and eliminate wolf-livestock conflict. The implementation and practice of these programs is consistent with the ODFW plan objectives. However, protection of livestock of livestock and human property cannot solely be the responsibility of ODFW. Oregon livestock owners must take responsibility to protect their livestock by minimizing attractants and implementing non-lethal efforts as supported by ODFW.

In the 2011 review of the Oregon Wolf Management plan, Wolf Coordinator Russ Morgan summarizes a list of preventative and non-lethal actions taken by ODFW, Defenders of Wildlife, USFWS, and USDA-WS in response to depredation and wolf activity. The methods described by Morgan were applied in the Upper Wallowa Valley to alleviate depredation caused by the Oregon Imnaha wolf pack. A total of 20 confirmed livestock deaths were attributed to the Imnaha pack alone in 2011 (Morgan 2011). Imnaha pack depredation and conflict has provided ODFW with a good starting place to implement non-lethal controls and practice various management techniques in response to the conflict. ODFW response to conflict has included depredation

investigations, livestock producer assistance, non-lethal, and lethal control methods (Morgan 2011).

It is important that state and federal organizations encourage the implementation of non-lethal and preventative methods to stay consistent with plan objectives to promote social tolerance of wolves. It is valuable that these organizations promote non-lethal efforts prior to endorsing lethal management approaches. Some of the public resistance to non-lethal and preventative efforts stems from the attitude that people are exempt from modifying their behavior and lifestyles. However, it is important to keep in mind that wolves do not respect human-contrived property lines, and conflict should be expected to arise. Livestock owners should utilize the available state resources to implement non-lethal and preventative methods. The use of these methods does not guarantee that conflict, harassment, depredation, and livestock losses will not occur, but they do have the potential to resolve conflict.

It is my recommendation that livestock owners implement non-lethal and preventative methods prior to obtaining caught-in-the-act permits and/or using lethal measures to resolve wolf-livestock conflict. The 2011 management plan review describes 8 current preventative and non-lethal practices used by ODFW, to reduce predation by the Imnaha Pack in the Upper Wallowa Valley. The practices described include: hazing/harassment, bone pile removal, radio-activated guard devices, range riders, fladry, radio receivers, agency monitoring and husbandry practices (Morgan 2011). Below, I have ranked the management practices from 1-8 as I see most effective

based on cost, ease of implementation for both livestock owners and ODFW, and consistency with Oregon plan objectives.

1. **Bone Pile Removal:** Removal of animal carcasses that attract wolves to a particular region (Morgan 2011). Wolves pick up the chemical cues sent out from a decaying carcass as they migrate in search of food and territory. Not only can they be attracted to carcasses of animals killed by other predators in the wild, but wolves can also be attracted to decaying carcasses and bone piles on landowner property. They become attractants that draw wolves closer to the property, increasing chances of wolf-livestock conflict. This is an example of a simple, inexpensive, and proactive preventative measure that all livestock owners should implement. It is irresponsible for livestock owners to keep such attractants on their property if they are aware of wolves in the nearby area. Failure to remove such attractants will most certainly lead to increased wolf-livestock conflict.

2. **Husbandry Practices:** Shift in grazing practices including delayed calf turnout, pasture shifts, mixing yearlings with cow/calf pairs and concentrating livestock into pastures with frequent rotation of pastures (Morgan 2011). Wolves are known to observe people and learn our patterns of behavior, in order to understand our behaviors that pose potential threat to their livelihood (Geiss 2012). Their observation of our behavior also allows them to learn pasture schedules and more easily target livestock. Varying our behavior and husbandry practices may help

prevent wolves from memorizing a routine schedule, which ultimately may help reduce wolf-livestock interaction, and minimize harassment and depredation.

The primary drawback to modifying husbandry practices is the absence of a routine. Moving away from a routine affects the day-to-day schedule of livestock owners and may be considered a hassle that could potentially reduce overall productivity. An unstructured routine and feeding schedule may also negatively affect the livelihood of the livestock. Despite these two setbacks, modification of husbandry practice is another example of an inexpensive and proactive preventative management strategy. I would argue that although this management practice requires a great deal of planning, the potential benefits outweigh the amount of work on behalf of the livestock owner.

3. **Fladry:** “Electric wire with attached flagging and has been shown to be effective short-duration tool in the prevention of wolf depredation” (Morgan 2011). This method was shown most effective in select pen and pastures containing livestock, and it was least effective during periods when livestock were moved from calving areas to spring pastures (Morgan 2011). This would be an excellent approach to reduce wolf-livestock conflict but it does require financial support from ODFW and other organizations. The negatives are the implementation costs and limited range of protection provided. I recommend continued program application of fladry,

particularly in regions with high wolf activity, in addition to other preventative and non-lethal methods.

4. **Radio-Activated Guard Devices (RAG):** External devices installed in an area that detect radio-collared wolves and emit sounds and light to scare wolves away (Morgan 2011). The devices are only effective in small areas or areas of confined livestock rather than dispersed rangeland and grazing circumstances (Morgan 2011). Application of the devices should again be supported by ODFW, USFWS, and other organizations to minimize depredation. The benefit of RAG devices is that unlike other methods, the devices are only activated when wolves are present and do not require human presence to be activated. It is a way for livestock owners to minimize conflict without altering their schedules to spend time searching for wolves in the area. The drawbacks include the implementation expenses, limited range of the devices, and the devices rely on ODFW to radio-collar wolves. Thus, the devices only work on radio-collared wolves. I recommend continued application of RAG devices, particularly in regions that experience continued depredation. This practice aids in the ODFW objective to minimize wolf-human interaction because the devices work in the absence of the livestock owner, and actually require a minimal amount of effort on behalf of the livestock owner.

5. **Agency Monitoring/Livestock Producer Contacts:** Three radio-collars were installed on members of the Imnaha pack in 2011. The collars showed the wolf GPS locations

that were sent to ODFW. ODFW provided livestock producers the opportunity to receive this information through a daily texting program and weekly map (Morgan 2011). Since ODFW emphasizes the promotion of social tolerance, it is important that information collected through agency monitoring is made available to the public. Doing this allows for more open communication between agencies and the public, which is necessary in order to successfully meet plan objectives. The daily text message program and weekly map are excellent initial efforts on behalf of ODFW to reduce conflict, however I think the programs would be more effective with a few modifications.

For starters, anyone interested in signing up for the text message program should be able to do so online at the ODFW website. Similar to the current link to receive updates by E-mail, there should be link that allows individuals to enter their phone number at the website. The program should also allow for any number to receive unlimited text messages, which would require ODFW to budget for an “unlimited texting plan” in their annual budget. Ideally, modification to the ODFW map program may eliminate the need for the text message program entirely.

All collared wolves *should* have GPS tracking capabilities to provide ODFW accurate information about animal whereabouts and migratory behavior. This information could be compiled more often than once a week, to better inform the public about immediate wolf whereabouts. The current map is only updated weekly, but the map

program has potential to do so much more. ODFW could use GPS information similar to domestic pet tracking devices like Tagg: The Pet Tracker, which allows pet owners to monitor their pet's location and movements on a real-time online map (Tagg: The Pet Tracker 2012). Using a real time map, the public could enter city, county, or GPS coordinates that could indicate the presence of collared wolves in the specified area.

Modification to the map program relies on ODFW implementation of GPS radio-collared devices. It would be beneficial for ODFW to invest time and money to collar wolves, especially while current population size remains small. As size increases, I recommend an approach similar to Idaho, collaring 1-2 individual wolves per pack. Public response to the text message program has been positive so I predict that modification to both programs would be well received by the public. Ideally the proposed modifications will provide more up to date information for the public and alleviate some wolf-livestock conflict.

6. **Radio Receivers:** Devices that detect radio-collared wolves in nearby regions, and provide livestock owners an additional way to monitor wolves and increase vigilance (Morgan 2011). Like other non-lethal and preventative monitoring strategies, radio receivers rely on ODFW to continue radio-collaring wolves. This practice has potential benefits but is difficult to implement because radio receivers must be acquired from ODFW. Radio receivers are less efficient than GPS tracking because

they require ODFW to collar wolves, and distribute the radio receiver devices to livestock owners. The devices are not easily accessible and would be costly to distribute to livestock owners on a large scale. In reality, radio receivers only benefit a small population of livestock owners and should only be distributed to livestock owners who suffer from continued harassment and depredation. The majority of livestock owners would be better off relying on the text message and map programs described above (see number 5. Agency Monitoring/Livestock Producer Contacts).

7. **Range Rider:** “Help(s) reduce or eliminate wolf depredation by increasing human presence in situations where wolves are in close proximity to livestock” (Morgan 2011). Individuals from ODFW and Defenders of Wildlife patrol grazing livestock areas on horse or in a vehicle to minimize wolf-livestock conflict. Riders use radio receivers and VHF collar frequencies to determine what areas require additional monitoring.

My main concern with this program is the amount of time and money being devoted to patrolling individual pastures. According to Defenders of Wildlife, the range rider program has been beneficial and has been “proven effective when they’re given a chance. ... Ranchers are able to safeguard their livestock while helping to maintain healthy populations of native wildlife” (Motsinger 2012). The Defenders of Wildlife has implemented programs in a number of other states supplying a total of

\$300,000 in 2011 to fund their Wildlife Coexistence Partnership program (Motsinger 2012).

Although the range rider program has been beneficial, would time and money be better spent on other management strategies? Organizations could invest effort in collaring more individual wolves or conducting genetic and disease testing. My point here is not that the programs are ineffective, but specifically that efforts would be better spent implementing other non-lethal practices before relying heavily on a range rider program.

8. **Hazing/Harassment:** Livestock owners and ODFW use non-injurious harassment and non-lethal injurious harassment methods to discourage or scare wolves away from a particular area (Morgan 2011). To remain consistent with the Oregon plan, this form of non-lethal management should be used after other methods that minimize wolf-human interaction. Hazing and harassment indicate that wolves have encroached into human territory, which may be preventable through the application of other previously mentioned preventative and non-lethal methods. Practices that emphasize conflict avoidance should be prioritized over hazing and harassment, which should ultimately be prioritized over lethal take.

Despite all non-lethal and preventative efforts, conflict, including harassment, depredation, and livestock loss, is bound to occur. Many livestock owners utilize non-

lethal and preventative measures but still incur losses, and it is irresponsible in my opinion not to include a compensation program in the Oregon plan. The plan only minimally mentions development of a livestock loss compensation program. A compensation program is especially important during early phases of wolf migration, because the wolf population is small and in the process of establishment. Livestock owners who implement non-lethal and preventative methods are supporting the growth of a wolf population. It would be unfair for livestock owners making these efforts to minimize conflict to continue suffering losses without some sort of acknowledgement and compensation from either the state of Oregon or the federal government.

Since the implementation of the Oregon plan in 2010, a wolf compensation plan was approved Governor Kitzhaber in 2011. The budget totals \$82,970 to be distributed throughout Wallowa, Umatilla, Union, Baker, Malheur, Grant, Jefferson, and Crook counties east of the Cascade Mountains (ODA 2012a). Financial distribution throughout the eight counties, located in the Eastern management zone, was based on history of reported wolf depredation in each county. The program compensates “ranchers who take proactive steps to minimize potential conflicts” and suffer depredations or losses (Motsinger 2011). The bill also allocates one third of funds to “implementing effective nonlethal deterrents to help ranchers prevent losses to wolves. This ensures that livestock producers are doing their part to protect their animals while giving Oregon’s wolves a real chance of survival” (Motsinger 2011).

5. Management Strategy: Oregon Wildlife Budget

It is my opinion that the federal government should provide funding for the Oregon plan in recognition of Oregon's efforts, whether it is through use of grant money or other means. Federal funding, in addition to state funding, would enable ODFW to improve their conservation planning, animal status surveys, research, and public education program.

USFWS created the cooperative endangered species conservation fund, with an estimated \$11,000 budget for conservation grants in the year 2011. The program provides federal grants. The conservation grants serve as a resource to minimize species threats to recovering, endangered, threatened or at-risk animals like wolves, currently listed as endangered in Oregon. This federal grant program is an excellent source of funding for the Oregon Wolf Conservation and Management plan. However, the grant program requires that Oregon make the agreement with USFWS that federal funding will not be their only source of management funding (ODFW 2010c). Although I argue Oregon should receive a majority of their funding from the federal government, it is also important that ODFW receive non-federal funding as well.

The plan itself proposes a number of possible resources to provide non-federal funding including federal grants, special federal appropriation, tax paying funds, recreational license/tag fees, public donation, sales tax, private funding, initiative petitions, user fees, volunteers, and Oregon tribal operations (ODFW 2010c). Some of

the proposed options are more financially plausible than others based on the current state of the economy and public interest in the issue.

It is my suggestion that Oregon get additional funding from at least three non-federal sources. First, I recommend incorporating wolves into marketing strategies like stamps, license plates, and other merchandise to both raise public awareness about wolves and generate revenue. Second, I recommend implementing user fees at state parks and campsites to help incorporate wolves into the Oregon ecosystem and promote ecotourism. Third, I recommend ODFW develop a relationship with Native American tribal representatives as other states like Idaho have done, to fund wolf wildlife operations and handle wolf activities around reservations. A fourth possibility of initiating sales tax or allocating general tax paying funds toward wildlife management seems like a great idea, but at this point in time it would be hard to convince the public to spend tax money on wildlife conservation during at time of economic instability.

Mention of the budget is important because financial support is essential for the actual implementation of any proposed conservation and management practices. Without financial backing, ODFW will be unable to actually implement their plan. It is not only important to consider possible sources to fund wolf conservation and management, but to also consider how that money should be spent.

I made a side-by-side comparison between the Oregon and Idaho plan budgets based on a series of six categories: staff fees, monitoring, management, education/outreach, control/depredation, and other (see Figure 11). Comparing the

two budgets it was important because the way in which money has been allocated and total expected yearly expenditures are quite different. Based on those differences, I have evaluated Oregon's budget based on how I believe ODFW should prioritize spending their money.

1. Money should primarily be spent on financing improved **research methods** in Oregon.

Since wolves are currently entering into the state and there exists minimal information about wolves in Oregon from previous records, it is important that ODFW emphasize research in their budget. The allocated \$250,000 for funded research allows a fair amount of flexibility that will be necessary as wolf populations establish themselves throughout the state (ODFW 2010c). ODFW research may include population surveys, wolf range and spatial mapping, disease testing, livestock loss and depredation surveys, and/or evaluation of non-lethal management efforts. I strongly advocate that the ODFW budget allocates a significant amount of funding for research projects to better understand wolves as they migrate throughout the state, establishing new relationships with other animals and people.

2. To conduct research, ODFW must allocate enough funding to both **monitoring and management**. A budget for monitoring includes staff travel fees that are necessary to get ODFW representatives in contact with the animals. ODFW headquarters are in Salem, on the opposite side of the state from where the wolves are. Oregon's total expected budget for monitoring is \$56,500, which includes total estimated vehicle mileage and flight time for tracking and capture (ODFW 2011c). Oregon's monitoring budget is a

great deal higher than the \$20,000 budget in Idaho, partly because in Oregon the animals are not well established and have a shifting range (ILWOC 2002). Tracking wolf movement throughout Oregon requires a significant amount of time and money from ODFW to cover all of the areas that may be within wolf range. Therefore, monitoring should be given first priority over management because without a budget to get to the animals there would be no need for a management budget.

With sufficient funding for monitoring and transportation costs, there must also be sufficient funding to implement animal management practices. Idaho's management practices include wolf capture, handling and instrumentation, training, harvest season budget, hunting, hide tagging, and lab work. Oregon's plan budgets for similar needs including training, sampling equipment and lab fees, and surveying equipment like radio collars and GPS equipment. Oregon's allocated budget is \$29,500 compared with Idaho's \$200,000 budget (ODFW 2011c; ILWOC 2002). This is quite a nearly tenfold difference in the budget, and based on the little information Oregon currently has about wolves, it would be important to allocate more money toward management. It may not be necessary for Oregon to match the same budget as Idaho because the Oregon wolf population is much smaller than in Idaho; however, I would argue the current funds for management are not enough.

3. Oregon needs to consider public needs like **livestock loss compensation** and increased public education about wolves. The Oregon plan itself makes minimal mention of a livestock loss or depredation compensation program, but fails to include it

in their budget. Since the Oregon plan was written, the Oregon Department of Agriculture (ODA) has developed a compensation plan, and the plan needs to be updated to include this change. The plan itself needs to clearly state all the existing criteria used to define probable and confirmed livestock loss. In my opinion, the program needs to take into consideration the age of the animal at the time of its death and the amount of time a livestock owner has invested in the animal. Again, it is my opinion that the federal government should be held responsible for funding the depredation compensation program, especially as wolf populations are being established and management practices are not yet set in stone. The federal government should fund this program to support Oregon's attempt to continue the federal reintroduction efforts.

4. Finally, Oregon should increase their current budget for **educational outreach** to increase public awareness and concern about the status of grey wolves nationwide. Educational outreach includes the development of programs to increase awareness about recognizing wolves based on their appearance and behavior, as well as education about policies and regulation. ODFW needs to inform the public about current policies in place and the state's ability to mandate laws pertaining to wildlife conservation and management. ODFW also needs to better educate livestock owners about all the possible non-lethal options available to reduce wolf-livestock conflict. It is important for ODFW to increase their educational budget in order to maintain open communication between ODFW, USFWS and the public.

As population objectives are met and ODFW transitions out of Phase I, it will be necessary for ODFW to reevaluate their current budget and adjust their funds accordingly. It will be especially important to reprioritize plan objectives as wolf populations stabilize, which affects the budget and expenditures.

PUBLIC COMMENT & SURVEY RESULTS

Ideally I would have liked to work with ODFW to observe and study the Oregon wolves but due to my circumstances, I was unable to participate in the field research. I still wanted to include an original research component in my thesis. The topic of wolf reintroduction into Idaho and now Oregon has resulted in a significant amount of conflict between people and wolves. It is important to address this conflict as part of my project.

As I learned more about wolf management, I began to realize that this is an interdisciplinary topic that incorporates aspects of anthropology, biology, politics, communication, psychology, and more. To provide a balanced evaluation of the Oregon Wolf Conservation and Management Plan, I must take into consideration both the needs of wolves as well as people. As wolves migrate into Oregon they interact with other species including people. There exists conflict not only between people and wolves, but also among Oregonians. Livestock loss, caught-in-the-act permits, and regulated take are just a few of this issues causing controversy amongst Oregonians. The different opinions make it challenging to develop a conservation and management strategy that best meets animal needs while also taking into consideration general public opinion.

I developed a public survey² in an attempt to assess public perceptions about wolf management in Oregon since the implementation of the Conservation and Management Plan in 2010. It is valuable to assess public opinion because we as people

² My survey received WOU IRB Approval December 19, 2011.

are living with wolves, sharing and competing for equal resources. The survey is a series of questions based on issues raised in the “Oregon Wolf Conservation and Management Plan – 2010 Evaluation” (ODFW 2010b). The document addresses a number of issues regarding management plan objectives, practices, and projected outcomes of the plan. It also provides suggested alternatives to resolve the issues (ODFW 2010b). This evaluative document provided a framework for me to develop my own survey questions that included sixteen multiple-choice and four short-answer questions. The available choices for the multiple-choice questions were generated from ideas proposed by the 2010 evaluation as well as ideas of my own.

I initially sent my survey to individuals involved in wildlife management and conservation, hoping to gain their professional opinions. However, I needed a wide range of participants to represent general public opinions. I encountered a set of Public Correspondence documents that had been compiled and published on the ODFW webpage. The series of documents included letters and emails that had been sent in to ODFW from the public regarding their opinions on the ODFW wolf management plan and practices. People from throughout Oregon had sent the letters and emails, providing the diversity I was in search of for my survey. From the Public Correspondence documents, I contacted roughly 70 possible participants requesting their participation in my survey, to which I received 12 responses³. Although the

3 In my selection of possible survey participants I made sure to respect privacy notices on all letters and emails that specified not to contact the individual if I was not part of ODFW.

number of total participants was fewer than I would have liked, I did receive interesting results and valuable public comment.

I asked my participants to rate their level of knowledge on a scale of limited to excellent. Interpretation of the scale of knowledge was left up to the discretion of each participant. The results showed that two participants or 18% claimed they had moderate knowledge on the subject. Four participants or 36% claimed they had moderate to excellent knowledge on the subject. Six participants or 45% claimed they had excellent knowledge on the subject (see Figure 12P). Below I have included results for eight of my survey questions that I feel are most pertinent to issues addressed in my thesis. (Complete survey results are in the Appendix).

My first question asked participants to discuss their opinions on the current status of management zones, and whether or not they felt it would be appropriate to modify the Oregon Eastern and Western Boundary to be consistent with the Federal Delisting Boundary (see figure 12A). General responses indicated that the boundaries should remain as they currently are because there have been no significant problems with having two separate boundaries. If boundaries are to remain separate, it is important that ODFW and USFWS maintain strong sense of communication to ensure sure policies, objectives, and management strategies correspond with one another. The most interesting response to this question came from one participant who acknowledged that wolves do not recognize artificial human boundaries and borders, so they suggested that zones be fluid and flexible. This brings up the question as to

whether or not Oregon should maintain boundaries as part of their management strategy or devise a more similar structure to the Idaho Plan.

The second survey question asked participants their opinions about the plan's population objectives (see figure 12C). I was specifically interested to see if the Phase I population objective was too high or low. General results indicated that the current population objective of at least 4 breeding pairs was a good minimum, although five participants indicated that more than 4 breeding pairs would be ideal. The current population objective of four breeding pairs corresponds with federal objectives. The results from this question indicate that there still exists discrepancy among the public as to whether current population objectives are high enough to establish a stable wolf population throughout Oregon.

In follow up to the previous question, for participants who answered that four breeding pairs was not an adequate population objective, I asked how many breeding pairs should be established prior to Phase I delisting (see figure 12D). One participant answered eight breeding pairs and the remaining four participants answered more than ten breeding pairs. Both of these answers exceed the current Phase II objective of seven breeding pairs. The results could indicate that those currently dissatisfied with the Phase I population objectives feel that the objective is too low, and a larger population objective is necessary prior to delisting. I think my results to this question may have been different had I rephrased my answers from the number of breeding pairs to the number of wolves. As stated earlier, 7 breeding pairs is the equivalent to 67.2 –

89 wolves (ODFW 2010c). A minimum of 8-10 breeding pairs would be equivalent to +100 wolves, which means results indicate that the population minimum should be over 100 wolves.

Considering the difference between Idaho and Oregon regarding non-lethal efforts, I asked participants their opinions regarding a number of different issues to help alleviate wolf-livestock conflict. My initial question asked about translocation, a non-lethal method that involves the removal of wolves from livestock areas where depredation has been observed and/or conflict is predicted to occur. The plan allows ODFW to translocate wolves within the state where needed, but does not state where relocation is expected to take place. Current OAR regulations suggest that wolves be moved to the “nearest wilderness.”

I asked participants if the plan language should be modified to define and better describe translocation criteria (see figure 12G). General results indicated that the plan language should be clarified to state that wolves be relocated either to the “nearest wilderness” or “most suitable habitat.” Overall, most participants agreed that ODFW should have authority over wolf relocation and that translocation efforts are generally considered valuable. However, three participants argued that efforts to relocate wolves are unnecessary, and instead individuals should be allowed to lethally take wolves as means to resolve conflict.

Another controversial topic regards the use of caught-in-the-act permits to resolve wolf-livestock conflict. Currently, caught-in-the-act permits can be issued,

allowing landowners to lethally take of wolves following a documented incidence of wolves attacking livestock. Prior to issuing a caught-in-the-act permit, OAR language mandates that “efforts must be deemed ineffective before lethal permits can be issued.” In a series of questions I asked about the current policies surrounding the issuance of caught-in-the-act permits.

First, I asked participants if they felt the language “ineffective good faith non-lethal and preventative efforts” required clarification (see figure 12H). General responses suggested that the language was unclear and should be clarified before ODFW continues to issue more caught-in-the-act permits. Some participants suggested that caught-in-the-act permits be considered one form of non-lethal and preventative efforts used to reduce conflict. Responses to the question indicate that the language is unclear, but do not offer suggestions about how the language should be clarified.

Second, I asked participants their opinion on the current status of how caught-in-the-act permits are used (see figure 12K). Only four participants were satisfied with current caught-in-the-act permit system while the remaining participants had a range in answers including, 1) caught-in-the-act permits should not be issued while wolf populations are low 2) never issue permits and relying only on non-lethal methods, and 3) do not require a permit to take lethal action against problem wolves. The most interesting response came from a livestock owner who argued that lethal permits should not be issued because livestock owners are responsible for protecting their animals and any livestock losses should be considered a business expense.

All my questions pertaining to caught-in-the-act permits showed the clear polarization that exists surrounding the management of wolf-livestock conflict and the lethal take of wolves. Ideally, in order to remain consistent with the plan objectives, permits should emphasize non-lethal and preventative efforts prior to allowing livestock owners to lethally take wolves. Based on survey results, it is clear that the use of permits is an emotionally charged issue with advocates for use of both non-lethal and lethal measures to resolve conflict.

Finally, I asked participants their opinions about a mandatory compensation program for livestock losses. The question is based on concerns raised in the 2010 plan evaluation, which discussed the necessity to pursue Legislative approval of a compensation plan. However later in my research I realized that a compensation plan was developed in early 2011, making this question somewhat irrelevant now. At best it provides information about public opinion regarding the necessity to sustain a program and possible sources to fund the program further. Results suggest that the program continue to be funded by Oregon legislature, federal, local, state and private sources (see figure 12N). One participant argued that livestock owners should be compensated in early stages of management and phased out once the wolf population stabilizes. Four participants argued that the current compensation program is flawed and unnecessary.

It is important to remain objective when analyzing the survey results, and to keep in mind two things. First, I designed the survey questions and multiple choice answers based on questions I was interested in addressing during my researching

process. The questions I asked were shaped by ideas and concerns that had been raised in the 2010 plan evaluation, but they were also questions of interest to me. My personal history, interests and biases shaped the development of the questions in the survey, and I have done my best to remain objective in the discussion above. Second, the survey results are statistically insignificant because my sample size is so low. The results provide interesting insight about public opinion on some of the current issues surrounding wolf conservation and management, but in no way am I suggesting that my results speak for all Oregonians.

Although my sample size was quite small, there were a wide variety of answers among my participants. My results confirmed that this is a highly polarized issue among the public, and there is no clear “right answer” to resolve the conflict that exists among Oregonians. The results reveal that even though the plan has been in effect for over two years, controversy still exists among the public regarding the effectiveness of the overall plan. Although some of the survey questions tended toward one answer, there was never a clear or unanimous opinion expressed by all survey participants. Based on my results, I can conclude that open communication between ODFW, USFWS and the public is necessary to work toward conflict resolution. More public surveys and forums are crucial in maintaining open communication, answering questions, and developing solutions that best meet the needs of people as well as animals.

PLAN STATUS AND RECOMMENDATIONS:

It is important to draw attention to the different approaches being used by Oregon and Idaho, neighboring states that currently face similar issues regarding wolf conservation and management. Although the perspectives and management strategies may differ, it is essential that both states effectively communicate and collaborate to meet nationwide wolf management objectives. A lack of collaboration will inevitably lead to greater conflict and work negatively against the federal objective to reintroduce wolves into the United States.

In brief review, I compared five specific aspects of the Oregon and Idaho plans. I discussed the different attitudes, the different management zones, the population objectives, the methods of wolf-livestock conflict resolution, and budgets. My survey assessed public opinion on ODFW management, providing some insight on the wide range of attitudes that exist among Oregonians surrounding the controversial subject of wolves in Oregon.

To conclude my research, I attended the Oregon Grey Wolf Conservation and Management Symposium on Saturday May 12th, 2012. The public symposium held in Albany, Oregon included a series of presentations from many organizations including ODFW and USFWS. Speakers addressed the most current issues facing wolf conservation and management, providing the opportunity for public comment. The educational opportunity reaffirmed my survey results and I was able to experience first hand the clear tension and difference of opinion that exists between Oregonians.

Based on my Idaho/Oregon comparison, public survey results and my attendance at the Oregon Wolf Symposium, I would argue that the Oregon Wolf Conservation and Management Plan 2010 has many components that make it effective at this point in time, but there remains room for improvement. To reiterate, I have defined effectiveness as *a plan that meets the majority of animal needs with minimal human interference, but also recognizes and balances the statewide needs of the human population*. I would argue that ODFW had made a significant number of attempts in plan development and implementation to take into consideration the needs of both wolves and people.

Part of what makes the Oregon plan effective is that during plan development ODFW conducted a significant amount of research on other state management plans including Idaho, Washington, Montana, and Wyoming. It was exceptionally valuable for ODFW to examine aspects of other state programs to help Oregon get a variety of ideas that would prepare them to manage wolves in Oregon. I first want to recognize that this proactive approach to plan development, as taken by Oregon, should be viewed as an ideal strategy for the development of any species management plan.

Although many components of the plan are currently effective, I do predict a significant amount of change and numerous revisions following population stabilization and wolf delisting. At present, I would argue that the use of East and West management zones is beneficial because it allows ODFW to utilize resources according to the different needs of each side of the state. The placement of the ODFW East/West

management line is also suitable because it is a predicted point where wolves will encounter more urban areas and human-wolf conflict will certainly increase. As this happens, ODFW will be forced to re-evaluate management practices within the two management zones. Once the wolf population has stabilized, I recommend that Oregon take a similar approach to Idaho by emphasizing statewide management and relying on smaller hunting and gaming zones.

I would also argue that current ODFW population objectives are effective and require no modifications. The minimum objective of 4 breeding pairs for 3 consecutive years is consistent with the federal regulations, and equates to an estimated 38-50 wolves. The current emphasis placed on number of breeding pairs makes a considerable amount of sense because a pack may not necessarily contain a breeding pair. In the early phases of population establishment, it is important to emphasize breeding pairs that will produce offspring and increase population size. Once the population reaches a stable number of wolves and breeding pairs, ODFW will be able to focus more on the number of packs. This assumes that although every pack may not have a breeding pair, with enough wolves total throughout the state there will still be a sufficient number of breeding pairs to sustain the wolf population. Although it is impossible for ODFW, IDFG, or USFWS to ever know the actual number of wolves in the state, information from the public will help agencies get the most accurate count possible.

To improve the plan, increase public awareness, and improve public attitude, ODFW needs to focus on providing more opportunities for open communication.

Although some people may not be excited about the prospect that wolves are now entering Oregon, natural migration of wolves from Idaho into Oregon was expected. At this point, Oregonians need to stop debating the necessity of integrating wolves into the Oregon ecosystem and focus their energy on implementing an effective conservation and management program. Once people from opposing sides are able to put aside their emotions and focus on the issues, with an open mindset toward compromise, the following practices will be effective (Allen 2012).

Honest communication between the public and organizations including ODFW and USFWS is essential to best meet the plan objectives. It is important that ODFW initiate more public forums, public surveys, and educational sessions to increase communication. First, I recommend that ODFW hold bi-annual public forums to provide the public with information on current management practices and the opportunity to comment on management practices. Forums should occur in June and December of each calendar year, serving as checkpoints to evaluate management strategies. Forums, however, must be viewed as a conversation between ODFW and the public to encourage communication and brainstorming to resolve problems. Second, ODFW needs to implement more public surveys to assess public satisfaction and get feedback. I recommend that ODFW, at minimum, issue an annual public opinion survey that asks the public to evaluate management strategies. Ideally, ODFW should issue four seasonal public opinion surveys, and also prior to the implementation of new management practices or strategies. The department could easily create an online survey and post a link to their webpage. Third, ODFW needs to budget for increased

educational outreach through public forums, wolf symposiums, and classroom education as a few examples. In my opinion, an educated and informed public is essential to the implementation of effective conservation and management. Ultimately, the use of public forums, public opinion surveys and educational outreach will theoretically increase communication between ODFW and the public.

Improved communication will help alleviate some tension among Oregonians and find resolution to resounding issues like wolf-livestock conflict. Wolf-livestock conflict is one example of an issue that has created a significant amount of disagreement among Oregonians.

ODFW currently emphasizes use of non-lethal management efforts to resolve wolf-livestock conflict. Roy Elikor from ODFW mentioned at the Wolf Symposium that range riders have actually been the most effective form of non-lethal conflict resolution because it puts people in between wolves and cattle (Elikor 2012). However, I recommend the use of radio-collars and GPS tracking because I argue they are the most effective, long-term, preventative and non-lethal method available. As Rocky Mountain Elk Foundation representative David Allen commented, “without collars, packs don’t exist because we can’t find them” (Allen 2012). Although collars are expensive to implement and require a fair amount of maintenance, they allow ODFW to track wolves in areas where ranchers may not be able to implement other non-lethal methods due to topographical restrictions (Anderson 2012). Collars also allow ODFW to then implement

a GPS or GIS automated database system to track wolf movements, and improve communication between ODFW and the public (Eliker 2012).

I recommend that a federal compensation program should support ODFW emphasis of non-lethal management efforts. Livestock owners currently incur livestock losses to a much greater extent than most people realize. Livestock owners put a lot of time, money, and energy into raising livestock to sell for economic profit. However, continued depredation is problematic and frustrating, especially for livestock owners making continued effort to implement non-lethal and preventative methods. As Idaho rancher Casey Anderson explains, ranchers only truly receive approximately 7-10% compensation for their total number of losses. Ranchers are only compensated when they can prove a wolf killed the animal. There must be visible trauma wounds with a “clotting ring” around the wound site, which suggests that the livestock was alive at the time of the wound was inflicted (Anderson 2012). Without that specific evidence, many ranchers are unable to prove that a wolf inflicted the wound at the time the animal was alive (Anderson 2012). As a result, hundreds of probable cases remain unresolved and livestock owners are left with half eaten carcasses or living animals suffering from severe injury, but no means to gain compensation from the compensation program.

The 2011 compensation program provides compensation to livestock owners who are “doing their part to protect their animals while giving Oregon’s wolves a real chance of survival” (Motsinger 2011). However, the current system is not satisfying the needs of ranchers who are suffering economic loss and emotional impact. I propose

that Oregon Department of Agriculture re-evaluate the required criterion to confirm livestock loss and depredation to include scratches, bite marks, and other patterns of predation visible on animals. This will require ODA to work with ODFW to better understand feeding behavior of individual wolves, as well as packs.

This is a complex issue that will take time, continuous communication, and a lot of hard work to develop an effective conservation and management plan. Over time, the plan will see a number of revisions to meet the changing needs of the wolf population and the public. I have discussed only a few of the issues related to this topic, and I would have loved to discuss more. A few additional, related topics include wolf-ungulate conflict, carnivore-carnivore conflict, wolf-working dog/domestic dog conflict, Oregon Native American Tribe affiliation with the ODFW plan, and mandated disease-testing protocol.

Overall, the Oregon plan is not flawless because no management plan fits the needs of both animals and people all the time. However, ODFW is continuing to modify their plan to best meet the needs of the animals and the public. They have a very comprehensive plan that is effective, although it does need some revisions in my opinion. I have proposed some ideas in this paper that I feel may work at this point in time, June 2012, to alleviate current conflict. As with all wildlife management programs, the animals and circumstances are constantly changing and it requires that we as humans adapt to the situation.

APPENDIX

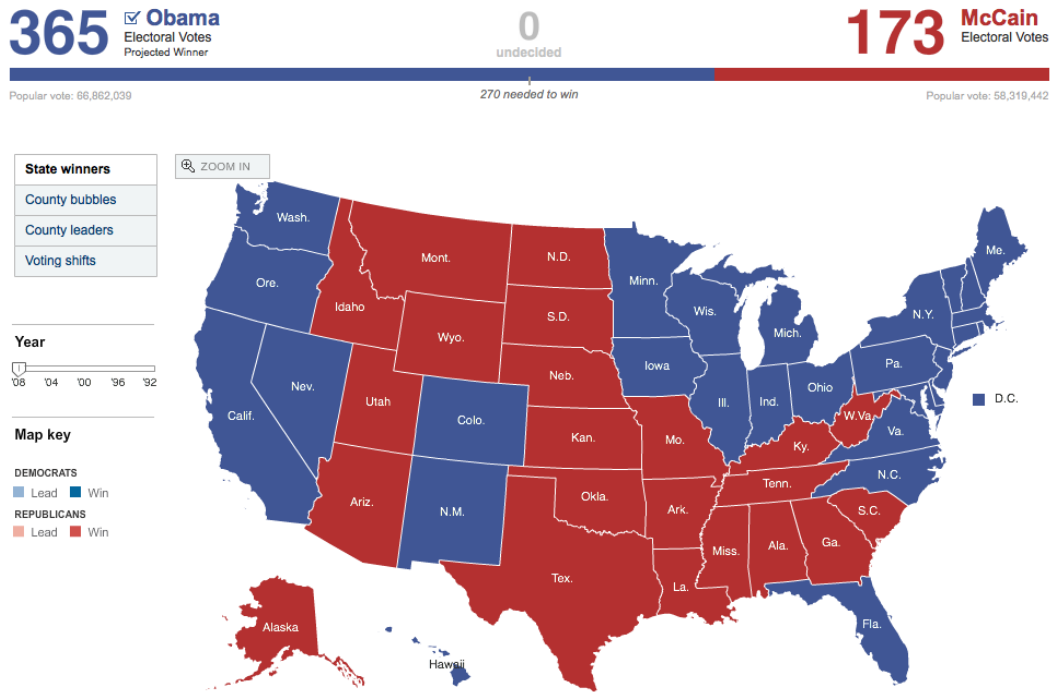


Figure 1: 2008 Presidential Election results. Blue represents democratic votes for Barack Obama and red represents republican votes for John McCain (United States 2008).

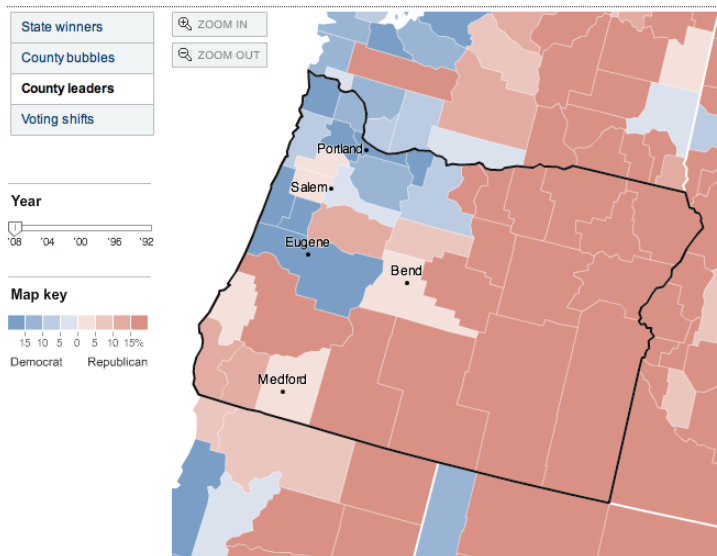


Figure 2: 2008 Presidential Election results in Oregon. Blue represents democratic votes for Barack Obama and red represents republican votes for John McCain (United States 2008).

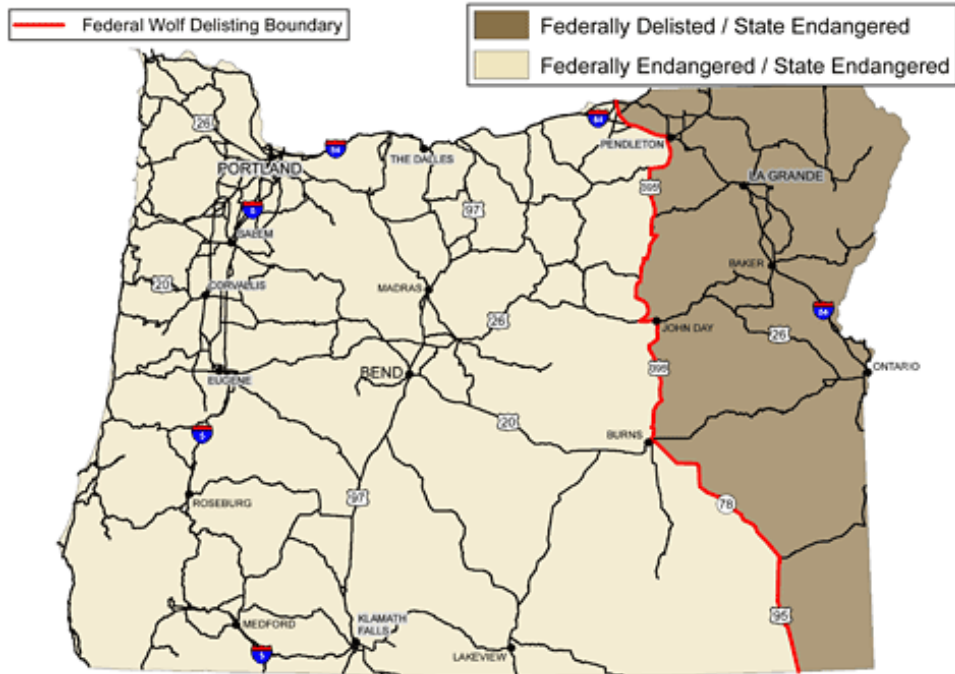


Figure 3: The Federal Wolf Delisting Boundary. Wolves are federally delisted east of the boundary and federally endangered west of the boundary. Wolves remain endangered under the Oregon ESA (ODFW 2012e).

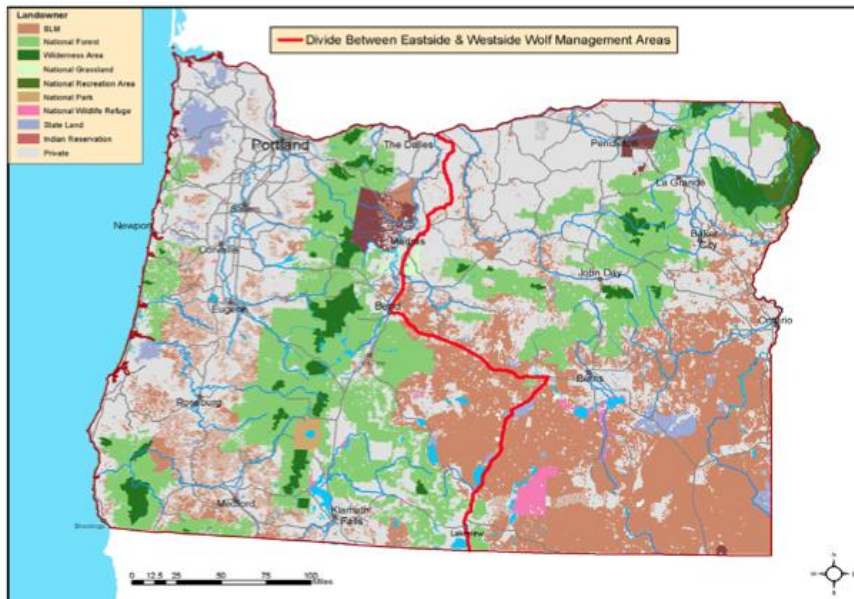


Figure 4: The ODFW east and west management zone boundary, defined by US Highways 97, 20, and 395 (ODFW 2010c).

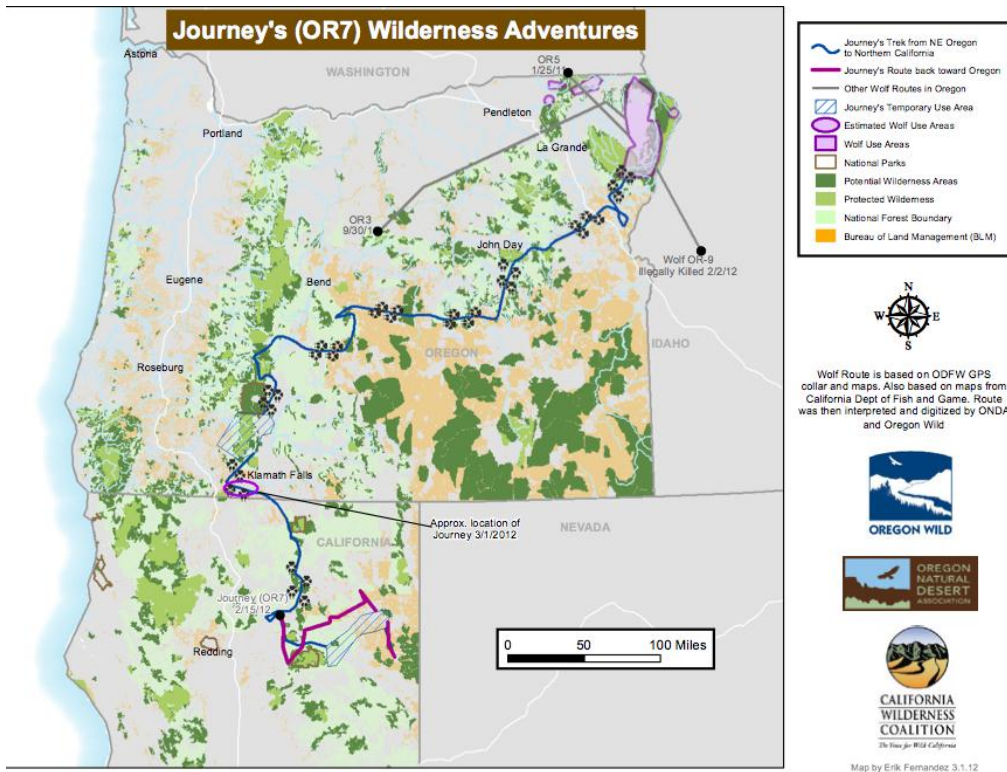


Figure 5: Migration of radio-collared wolf OR7, renamed Journey, in relation to land uses across Oregon (Oregonette 2012a).



Figure 6: Wildlife management and hunting unit map of Oregon (Oregon 2008b).

Elk Management Zones

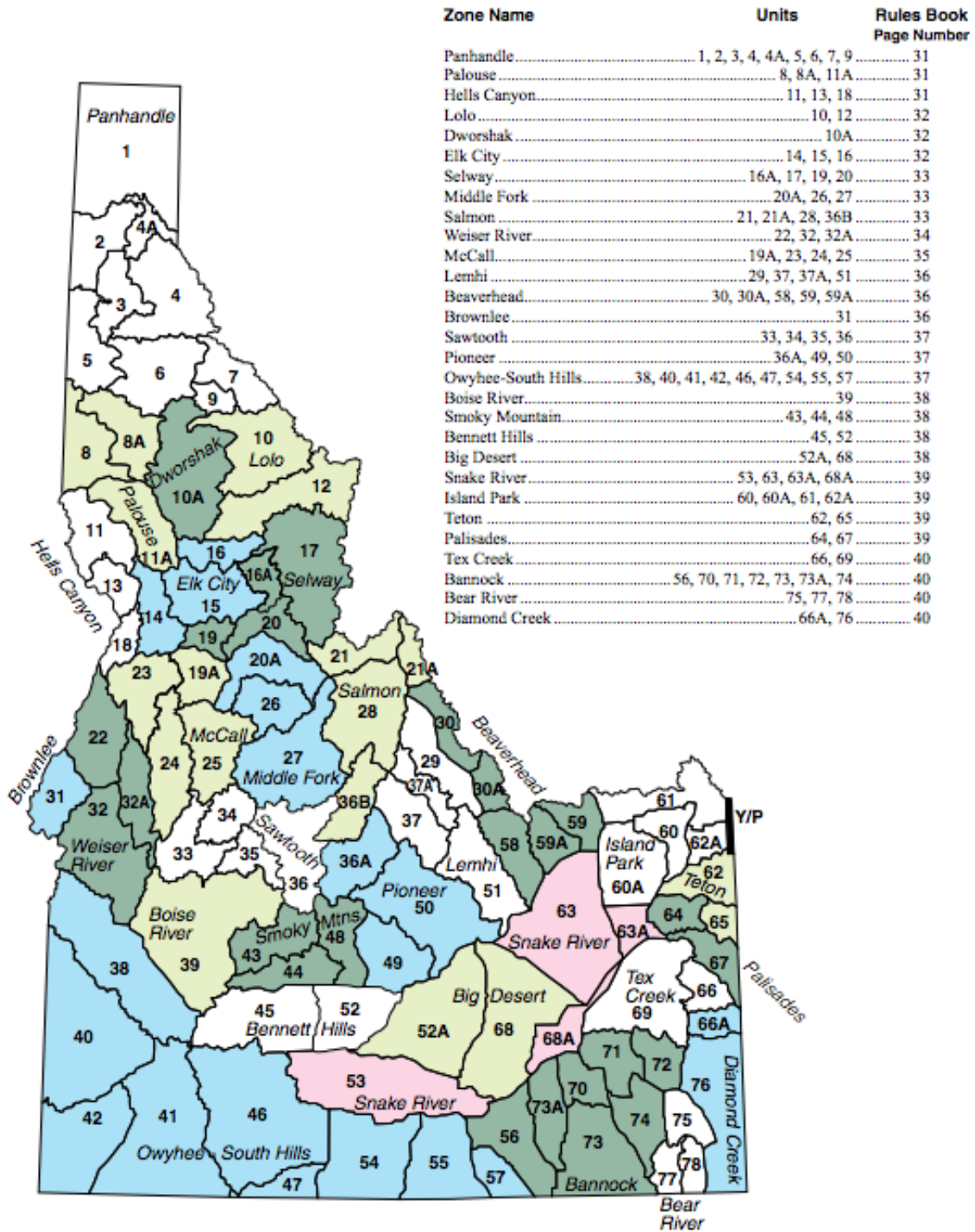


Figure 7: Elk management and hunting zones in Idaho for 2012-2013 (Idaho 2012).

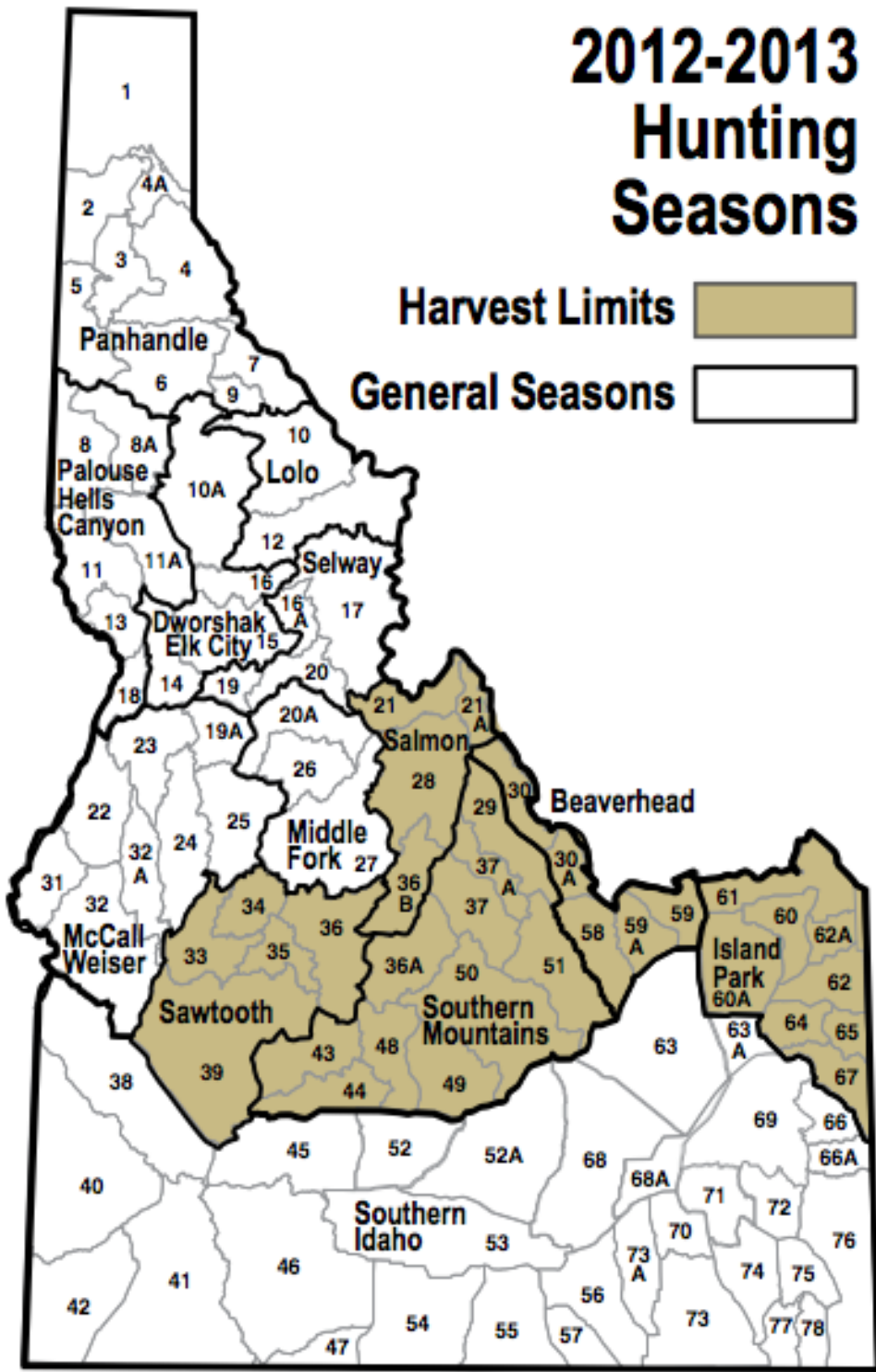


Figure 8: Wolf hunting and trapping zones in Idaho for 2012-2013 (Idaho 2012).

Table 1: Summary of Wolf Management Actions

Less than 15 Packs Management	More than 15 Packs Management
IDFG conduct review of management policy to determine if changes are needed to maintain wolf population.	Wolves managed under IDFG Commission regulations, similar to black bears and mountain lions. Wolf plan updated in the same process as all other species plans.
Control	Control
Depredation control becomes increasingly stringent until at <10 packs it reverts to the control plan specified in the final rule (50 CFR Part 17, page 80270). In the unlikely event the number of packs in Idaho falls below 10, depredations will be addressed with nonlethal control unless unusual circumstances absolutely necessitate the use of lethal control to end the depredation problem.	Depredation control is treated like all other large mammalian predators.
Monitoring	Monitoring
Monitoring becomes increasingly intensive to the point that each pack contains some radio-collared individuals and reproduction and survival in each pack is monitored on a regular basis.	Monitoring is done primarily by indicators such as wolf depredation complaints, autumn scent station surveys, telemetry, winter track surveys, and other observations of field personnel.
Listing under ESA	
Listing remains a possibility for wolves if they are likely to become endangered as determined by Section 4 of the ESA (16 USC 1533) (note 1, p. 31).	

Figure 9: Summary of wolf management actions in Idaho based on a 15-pack minimum (ILWOC 2002).

Table III-1. Matrix of Wolf Conflict Management Options.

		PLAN IMPLEMENTATION PHASES		
		Phase I	Phase II	Phase III
ACTION	CURRENT OREGON LAW	STATE ENDANGERED	DELISTED	DELISTED
Non-injurious harassment	Allowed with a permit if conservation finding can be made. ³¹	Allowed without a permit. ³² Reporting required within 48 hours.	Allowed without a permit. ³⁹ Reporting required within 48 hours.	Allowed without a permit. ³⁹ Reporting required within 48 hours.
Non-lethal injurious harassment	Allowed with a permit if conservation finding can be made. ³⁸	Allowed with a permit. Reporting required within 48 hours.	Allowed without a permit on private land and by permit on public land. ³⁹	Allowed without a permit on private land and by permit on public land. ³⁹
Lethal take for wolves found 'in the act' of attacking livestock	Allowed with a permit if conservation finding can be made.	Allowed with a state permit	Allowed with a state permit.	Allowed with a state permit.
Lethal take for wolves involved in chronic livestock depredation	Allowed by ODFW and/or Wildlife Services if conservation finding can be made. ³⁸	Allowed by ODFW and/or Wildlife Services only.	Allowed by permit. Reporting required within 48 hours.	Allowed by permit. Reporting required within 48 hours.
Lethal take to defend human	Allowed. See text of Plan for details.	Allowed. See text of Plan for details.	Allowed. See text of Plan for details.	Allowed. See text of Plan for details.
Controlled take	None allowed.	None allowed.	None allowed.	Allowed by special permit, for chronic wolf-livestock depredation or wolf pressure on ungulate populations. Reporting required within 72 hours.

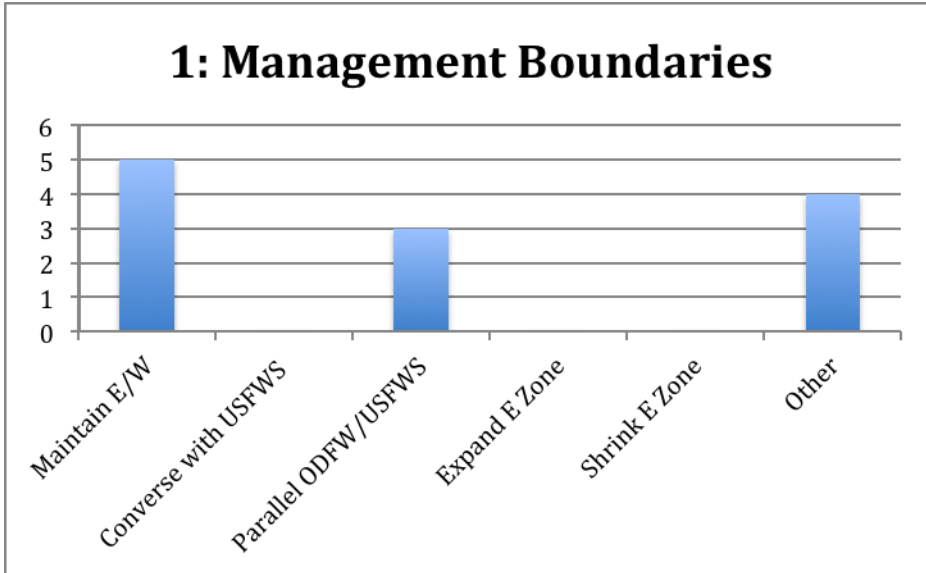
Figure 10: Summary of wolf-livestock conflict management options for each phase of ODFW management plan (ODFW 2010c).

		<u>Oregon</u>	<u>Idaho</u>
Staff:	Field Biologist vs. Project Coordinator	99,590	60,000
	Field Biologist Assistant vs. 6 Technicians	56,540	116,000
	Wildlife Services Assistant	125,000	n/a
	Public Information Officer	50,000	n/a
	TOTAL:	331,130	176,000
Monitoring:			
	Fuel, Transportation	19,000	20,000
		37,500	n/a
	TOTAL:	56,500	20,000
Management:	Tracking/Capture	6,000	200,000
	Training	1,500	n/a
	Equipment	18,000	n/a
	Lab work	4,000	n/a
	TOTAL:	29,500	200,000
Education/Outreach:	Updates/Presentations	15,000	50,000
	TOTAL:	15,000	50,000
Control/Depredation:	Damage Control	n/a	100,000
	Depredation Compensation	n/a	100,000
	TOTAL:	0	200,000
Other:	Office	10,000	n/a
	Overhead	n/a	91,325
	Overall Ungulate Management	n/a	100,000
	Research	250,000	n/a
	TOTAL:	260,000	191,325
	Total Budget	692,130	837,325

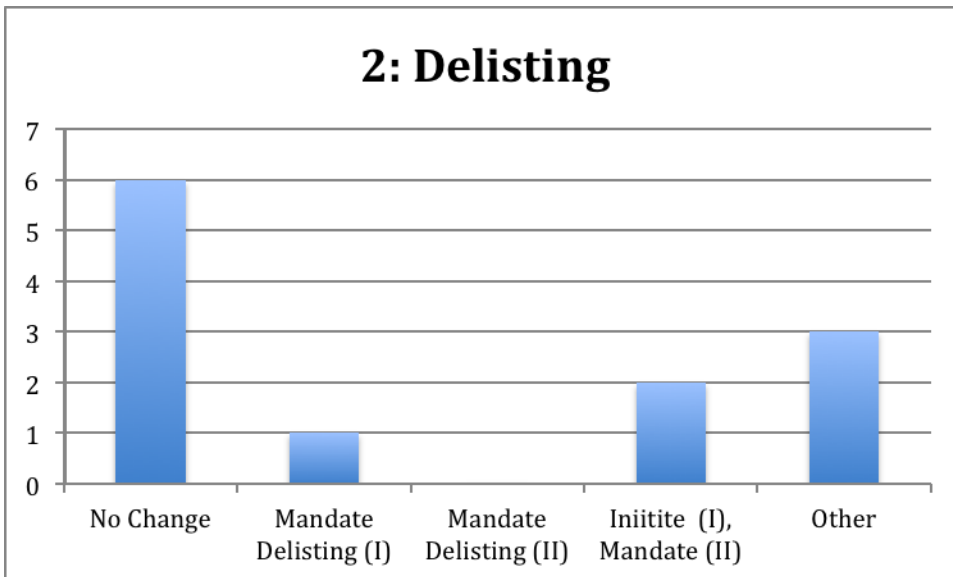
Figure 11: Comparison of Idaho and Oregon plan budgets based on six categories: staff, monitoring, management, education/outreach, control/depredation, and other.

Figure 12A-12P: Public Comment and Survey Results. WOU IRB approval was received December 19, 2011.

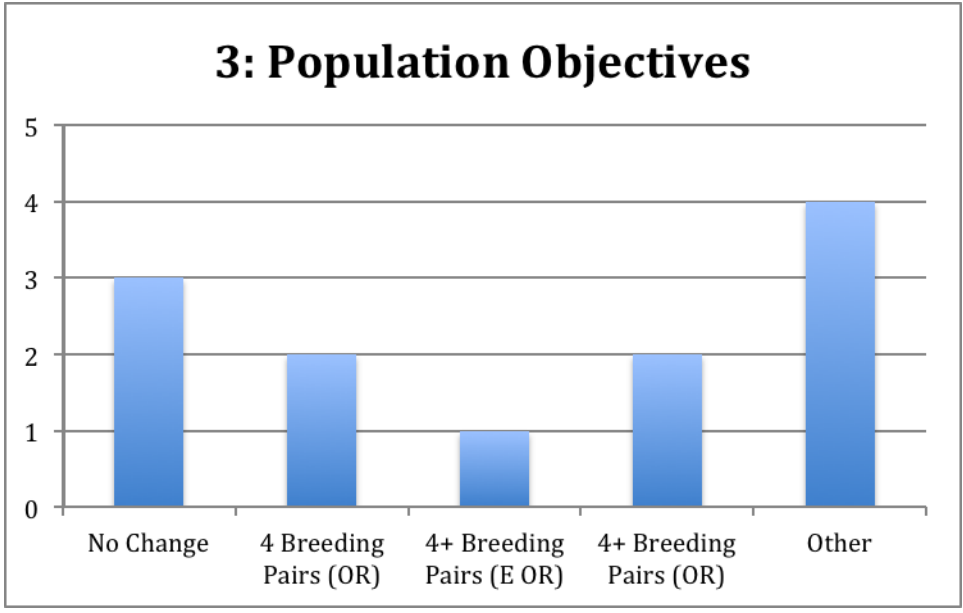
12A. Oregon wolf management is currently divided into Eastern and Western management zones. Should Eastern and Western management zones be modified to parallel the Federal Wolf Delisting Boundary?



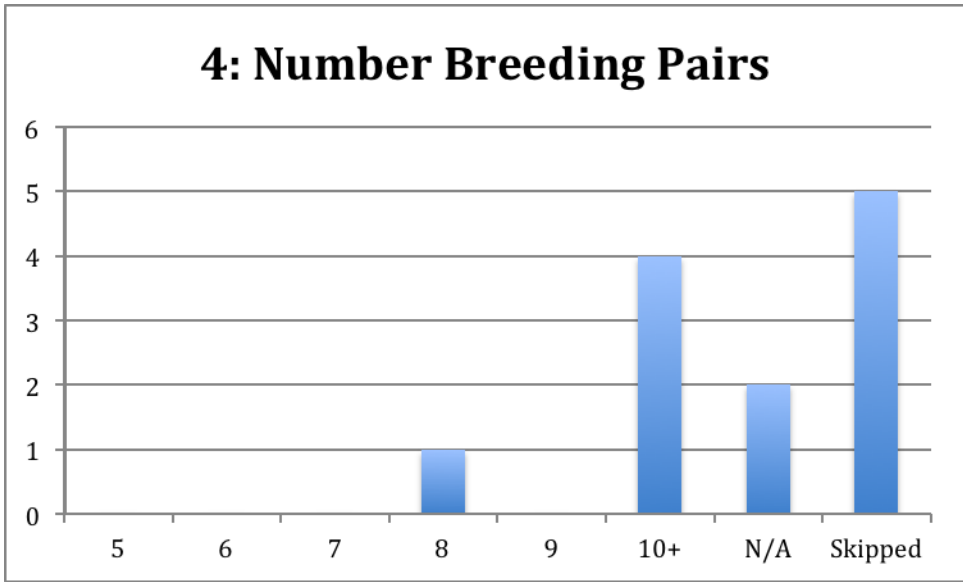
12B. The Plan states, “The rulemaking process to consider delisting will be initiated when the conservation population objective for eastern Oregon is met.” Should the Plan be modified to mandate delisting immediately after population objectives are met?



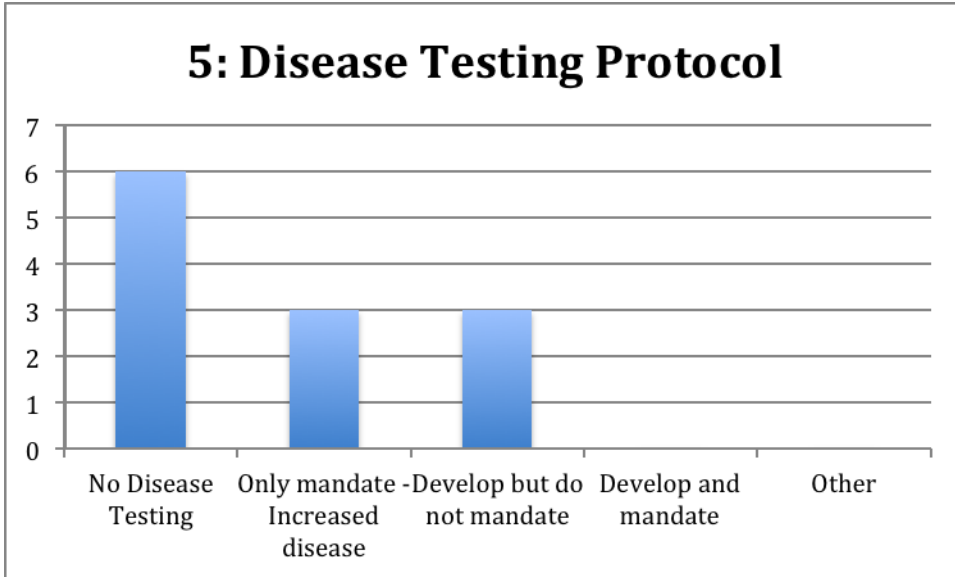
12C. The current objective is a population of four breeding pairs in the Eastern management zone prior to considering wolf de-listing. Are ODFW population objectives reasonable?



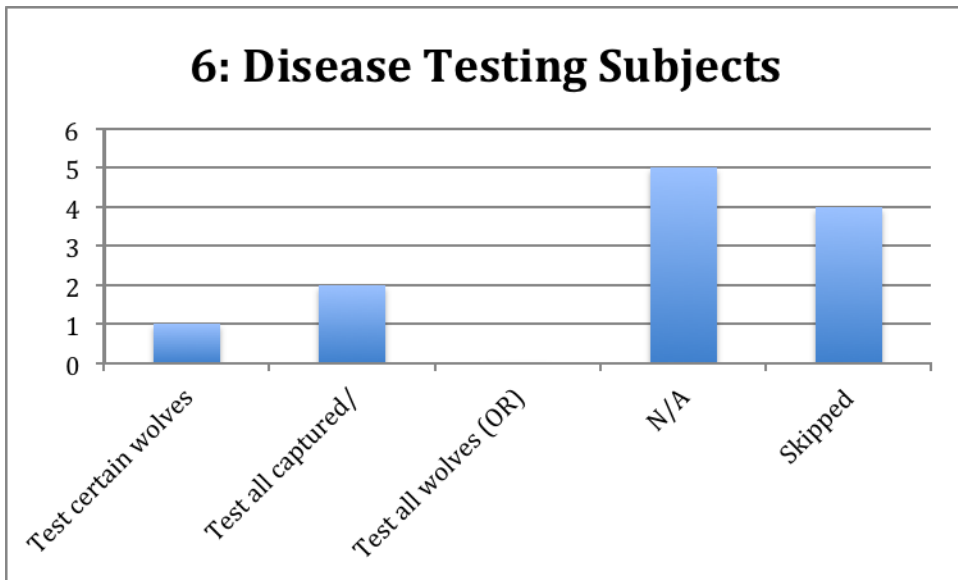
12D. If you answered either D or E in the previous question, how many breeding pairs should be established prior to delisting?



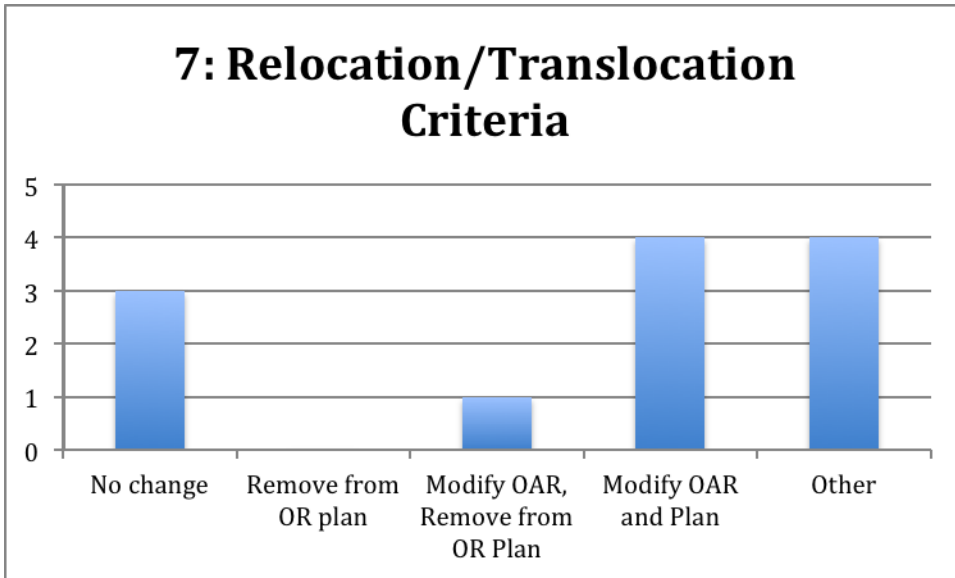
12E. Should the ODFW Plan mandate disease testing in wolf populations? If so, under what conditions should disease testing be mandated?



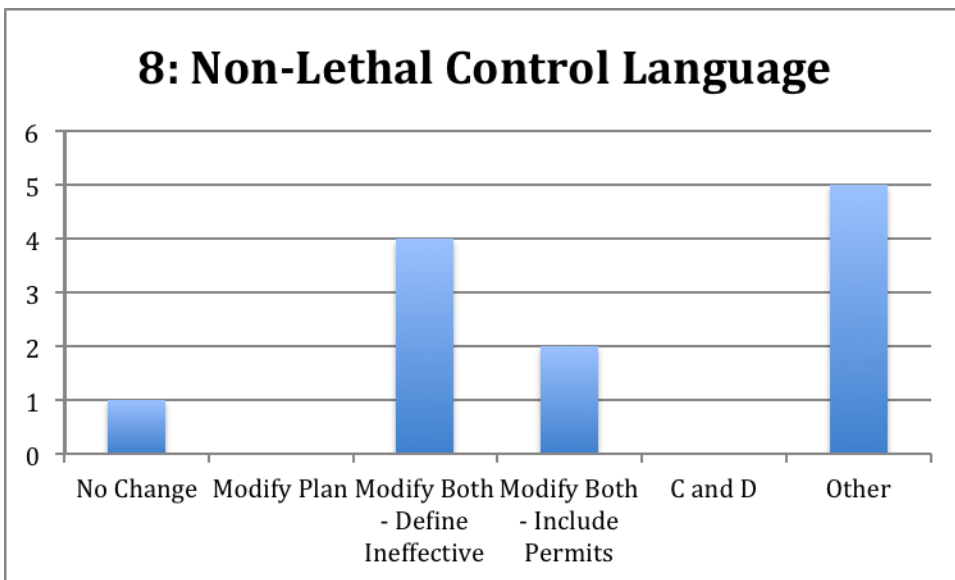
12F. If you answered C, D or E above, which individuals should be included in the disease testing protocol?



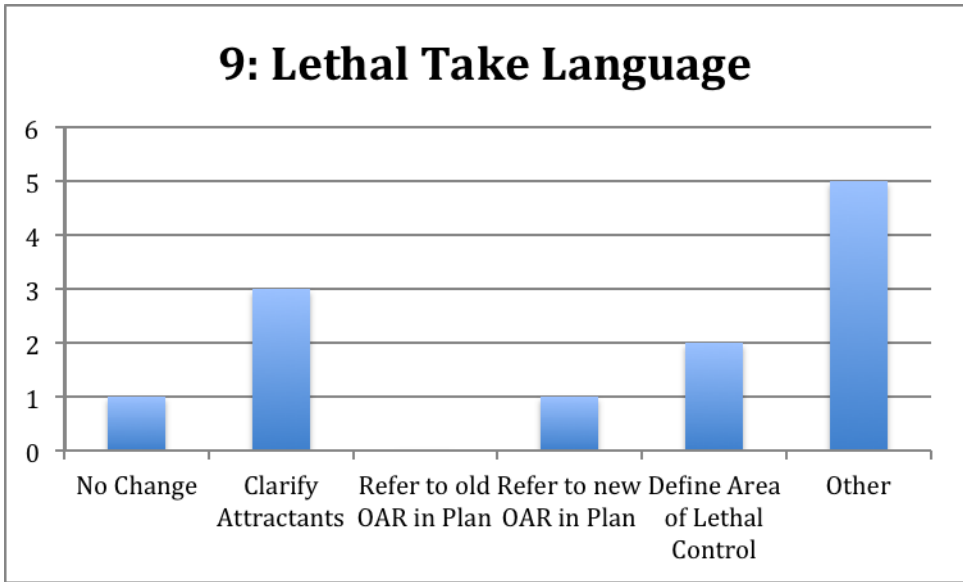
12G. The Plan states “translocation of wolves within the state may be used where needed” while OAR suggests wolf translocation occur to the “nearest wilderness.” Should the Plan and/or OAR be modified to better describe and define existing criteria for wolf relocation and translocation?



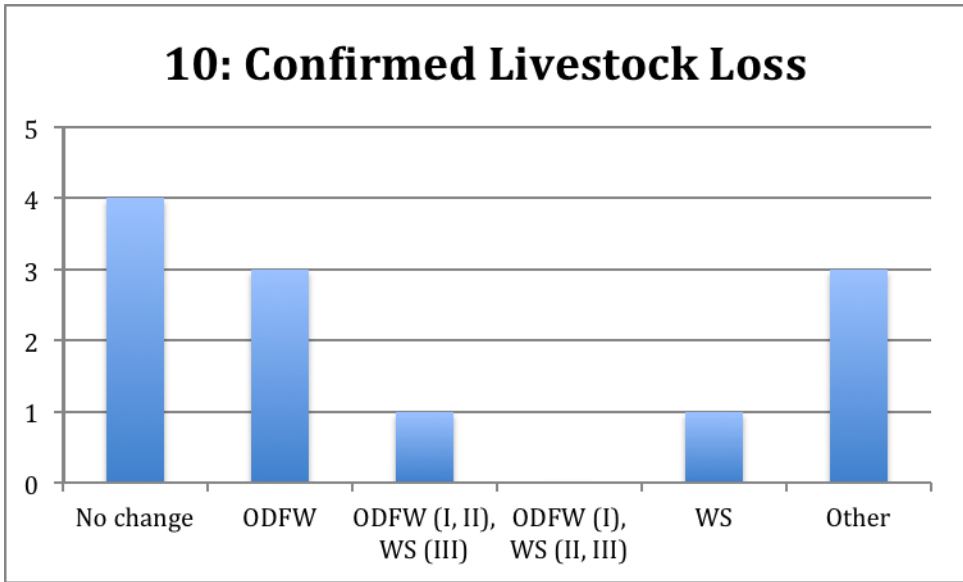
12H. Current OAR language mandates, “efforts must be deemed ineffective before lethal permits can be issued.” Should Plan and/or OAR language be modified to clarify existing criteria for ineffective good faith non-lethal and preventative efforts?



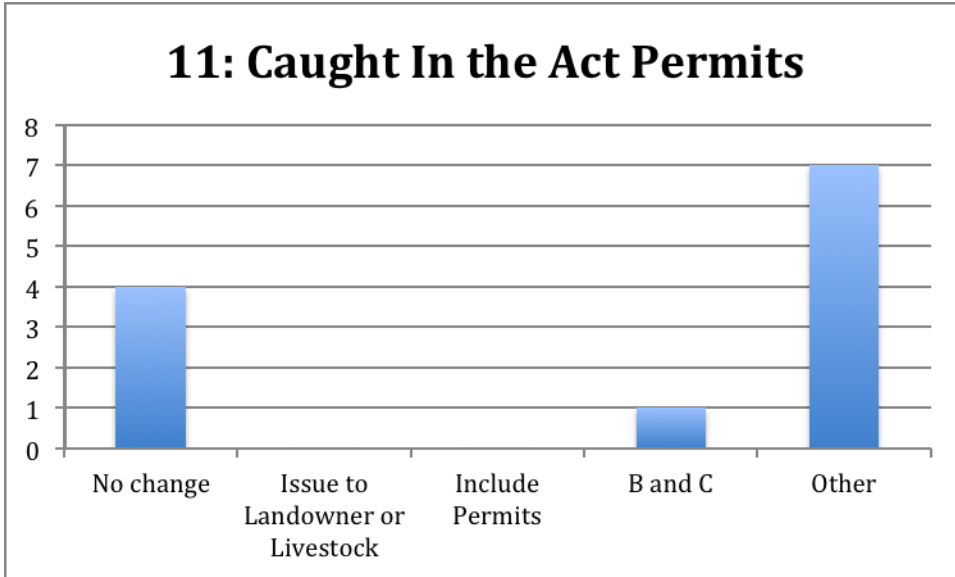
12I. Does the language used in the ODFW plan clearly define existing criteria enabling the ODFW-authorized legal take of livestock depredating wolves?



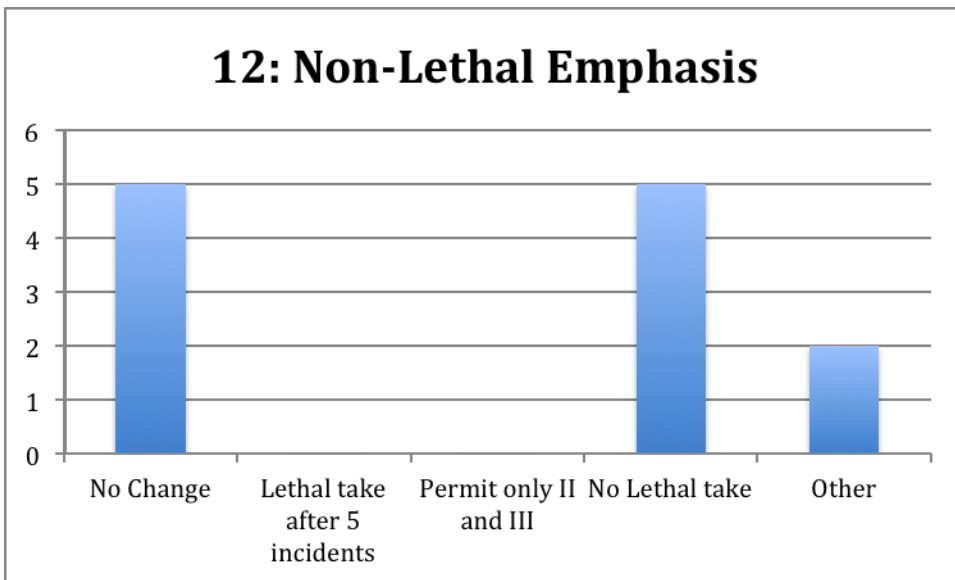
12J. Currently, ODFW is the primary wildlife management agency in Oregon currently able to confirm livestock depredation due to wolves. Should other organizations in Oregon have an involvement in confirming livestock losses due to wolf depredation?



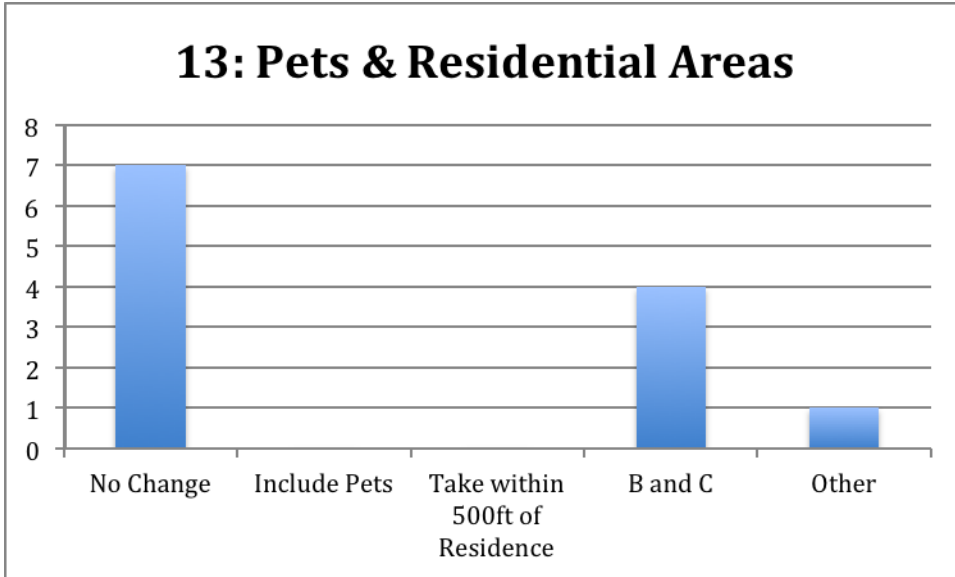
12K. The ODFW Plan currently issues “caught-in-the-act” permits to landowners, allowing for lethal take of wolves following a documented incidence of wolf attacking livestock. Is this permit system adequate and clearly defined in the Plan?



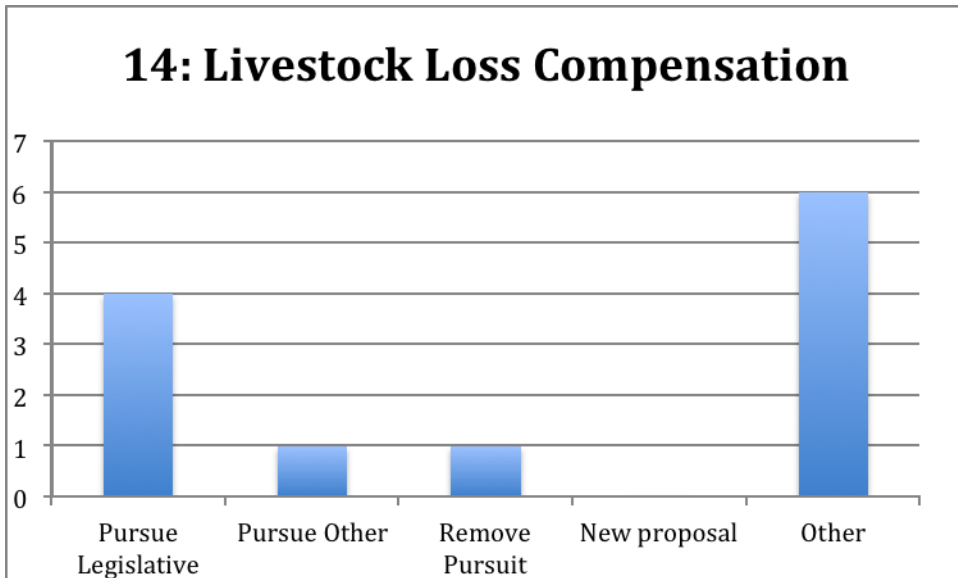
12L. Caught-in-the-act permits allow for lethal take of wolves. Should Oregon policy emphasize non-lethal methods of control after issuing these permits rather than lethal take?



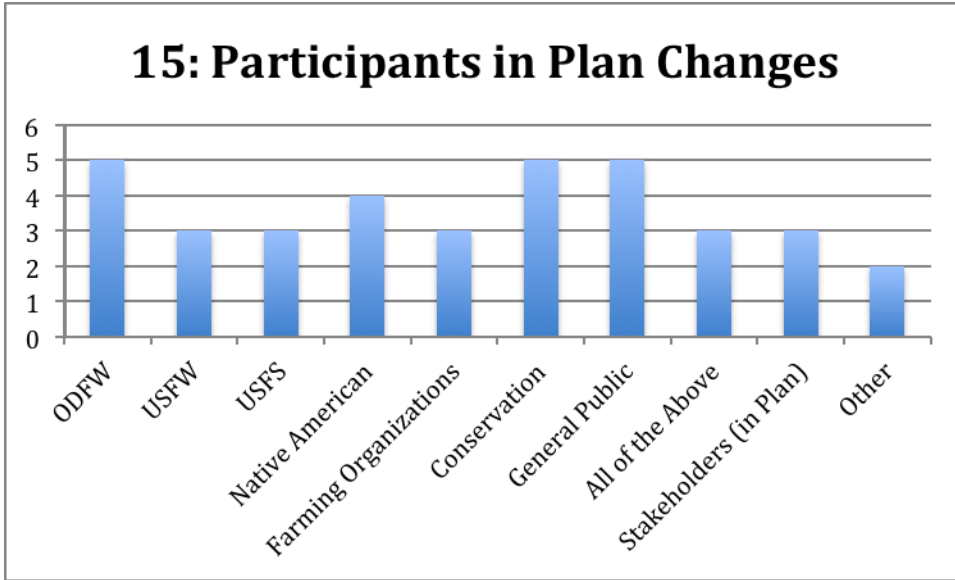
12M. Should wolf-livestock conflict rules also apply to domesticated pets and residential areas?



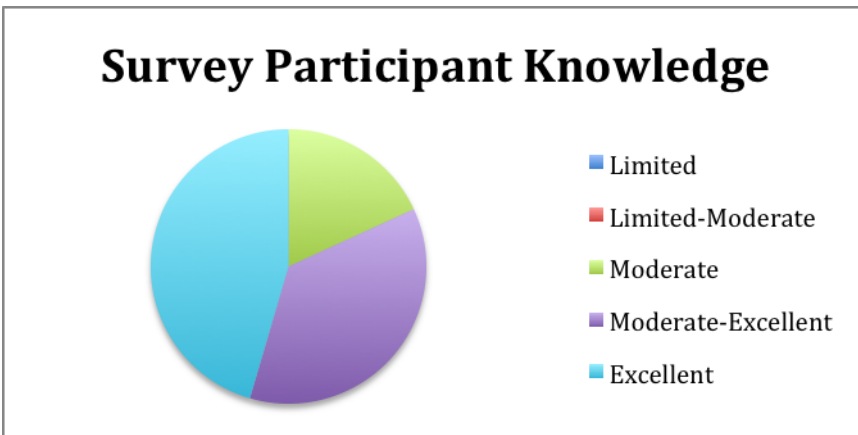
12N. Should the plan continue to mandate compensation for livestock, working dog and sporting dog losses as result of wolf-domesticated animal interaction?



12O. Upon changing any existing criteria or language in the Plan, who should be involved in the changing the language? Select all that Apply.



12P. How would you rate your level of knowledge about ODFW objectives and progress with the Oregon Wolf Management Plan?



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