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## Wildlife governance and the politics of transborder commons: the gray wolf case

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# **Wildlife Governance and the Politics of Transborder Commons: the Gray Wolf Case**

By

Jennilee M. Pelc

Accepted in Partial Completion  
Of the Requirements for the Degree  
Master of Science

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Moheb A. Ghali, Dean of the Graduate School

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# **Wildlife Governance and the Politics of Transborder Commons: the Gray Wolf Case**

A Thesis Presented to  
The Faculty of  
Western Washington University

In Partial Fulfillment  
Of the Requirements for the Degree  
Master of Science

By  
Jenni Pelc  
May 2011

## ABSTRACT

Wildlife management north and south of the Border is markedly different and is a direct reflection of the respective political systems. This variance in governance structures on either side of the border makes coordination, implementation, and management of transborder natural resources difficult. Transborder wildlife, particularly those shared across international borders, present many challenges to their successful management. Environmental governance scholars have indicated that a shift to more “fluid” polycentric governance, or multiple centers of governance among several smaller jurisdictions, may be more effective than governance through a single large structure. The following questions were used to guide (1) a sub-national governance comparison, (2) semi-structured interviews, and (3) a public perception survey. Is wolf management in the Cascadia region polycentric in arrangement and practice? Do perceptions of wolf governance vary across the Border? And what role do those perceptions play in current and future management? Semi-structured interviews of fourteen wolf and wildlife managers were conducted to gain an understanding of wolf management in the Cascadia ecoregion and to examine regional wolf manager’s perspective on wolf governance in the region. A public perception survey was administered and completed by 369 citizens in British Columbia and Washington State to establish if citizens supported and identified with the managers and agencies involved in wolf governance. Survey and interview results indicated that there are few venues for polycentric wolf governance in WA and even fewer in B.C. Citizens in both WA and B.C. agreed that the states/provinces should be the primary lead wolf managers and that public should be more involved in the wolf management process.

**KEYWORDS:** *resource conservation, wolves, common pool governance, Cascadia*

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## ONE: INTRODUCTION

In a small room beneath a bookstore in Fairhaven, Washington people crowded together one rainy May afternoon to discuss the concept of ‘rewilding the world’ – the return of habitats to a natural state in a world of people and borders. The speaker was Carolyn Fraser and the year was 2010. Ms. Fraser’s examination of the collision of conservation and politics exposed ‘fault lines between property owners and the landless, between colonizers and indigenous people, between rich and poor.’ These fault lines she identified aren’t physical cracks on the ground; they are divisions between people and divisions between countries. Fraser (2009) offered that conservation is about managing people, not about managing wildlife. In some instances this may be the case, but I would offer that it is not just about managing people, but rather engaging them in the conservation process.

The endangered species status of the gray wolf in the United States offers an example of the fault lines Fraser referred to. Since a decision in early 2010 by U.S. District Judge Donald Malloy of Missoula to relist the gray wolf as an endangered species after the USFWS delisted the wolf in early 2009 in many Western States, Democrats, Republicans, and environmental groups have been pitted against one another over the fate of the gray wolf in the Western United States. What is at stake is more than just the fate of the gray wolf though; it is the endangered species act. Malloy defended his ruling with, “Decisions on the Endangered Species Act should be based on science and not on political boundaries, such as state lines.”

While state lines and inter-jurisdictional battles expose the fault lines of endangered species governance in the U.S., another fault line lies quietly to the north; the International Border. Environmental governance north and south of the U.S.-Canadian border (the Border) is markedly different and is a direct reflection of the respective political systems at work. For purposes of natural resource management, the most important difference between the two systems is the greater degree of decentralization of the Canadian system compared to the US system. Consequently, natural resource management in Canada rests largely in the hands of the provinces, but there is insufficient legislation to

support that regulatory power, whereas in the U.S. the national government plays a more significant role (Alper 2004; Bernstein 2002). This variance in governance structures on either side of the border makes coordination, implementation, and management of transborder natural resources, such as the gray wolf, difficult.

Environmental governance scholars have indicated that a shift to more “fluid” polycentric governance, or multiple centers of governance among several smaller jurisdictions, may be more effective than governance through a single large structure (Abel, 2010; Dietz et al., 2003). However, polycentrism is not the only alternative form of governance. This research specifically focuses on the role of polycentric governance in British Columbia (B.C.) and Washington State (WA) because of tendency of polycentric governance to foster collective action and what Singleton (2002) coined as ‘greater flexibility produces greater efficiency’ (Ostrom, 1990 and Dietz et al., 2003). For instance, Singleton (2002) observed that devolving authority to local governments and affected stakeholders fosters fine tuning of regulations based on local conditions and circumstances. The gray wolf (*Canis lupus*) was chosen as a management case study because of the transborder range of the wolf and subsequent potential need for their transborder collective management. However, the intention of this research is not to collapse the geographic and political differences between B.C. and WA, but instead to acknowledge those difference spaces and examine the potential for collaborative wolf management within the different frameworks at work in B.C. and WA.

The following questions were used to guide (1) a sub-national governance comparison, (2) semi-structured interviews, and (3) a public perception survey: Is wolf management in the Cascadia region polycentric in arrangement and practice? Do perceptions of wolf governance vary across the Border? And what role do those perceptions play in current and future management? Semi-structured interviews of wolf managers were conducted to gain an understanding of wolf management in the Cascadia ecoregion and to examine regional wolf manager’s perspective on wolf governance in the region. A

public perception survey was conducted to establish if citizens supported and identified with the managers and agencies involved in wolf governance.

In Chapter Two, I first examine the role of common pool resources in theories of transborder collective action in a largely geographic framework. Garrett Hardin, in his 1968 parable, 'freedom in the commons brings ruins to all' described an inexorable dilemma that rational self-interested individuals will act to maximize their individual profit at the expense of the common resource. Opposing views have challenged this fallacy over the years and have shown that common pool resources (CPR) and their users are not doomed to tragedy, but instead can succeed with more of the right resource conditions, resource user attributes, and a combination of institutional features. And lastly, I conduct a brief historical treatment of the wolf in North America with particular attention to the Casacadia ecoregion to help enframe the survey research portion of this thesis. Chapter Three describes how a governance comparison, semi-structured interviews and a public perception survey were conducted to gain an institutional and user perspective of the role of polycentric governance in wolf management across the Border. Chapter Four explores the environmental governance regimes at work on either side of the Border and how those regimes pertain to wolf management in Cascadia. Results from the semi-structured interviews of wolf managers and public perception survey are discussed in Chapter Five. Survey and interview results indicated that there are few venues for polycentric wolf governance in WA and even fewer in B.C. Citizens in both WA and B.C. agreed that the states/provinces should be the primary lead wolf managers and that public should be more involved in the wolf management process. Managers in both B.C. and WA did not agree on how or that the public should be more involved in the wolf management process. Chapter Six presents my reflection on the results and their implications for both the scholarship of common pool resource conservation and its practice.

## 1.1 UTILITY OF RESEARCH

Cascadia is home to many transboundary common resources. Perhaps the most publicized and of economical importance is salmon. Pacific salmon spend their lifetime split between fresh water rivers and the ocean crossing borders and political boundaries along the way. The gray wolf (*Canis lupus*), throughout the Cascadia region, is also an example of a common resource that is not managed collectively throughout its range. As a wide-ranging carnivore, the gray wolf in Cascadia utilizes both sides of the Border. South of the Border, the wolf is listed as an endangered species and its management is heavily regulated at the federal level. North of the Border, the wolf is, for all intents and purposes, not managed. The wolf, however, moves between these two management regimes. From a management perspective, this situation can be problematic when wolves that are reintroduced south of the Border under federal endangered species legislation wander north of the Border and are shot and vice versus. This thesis builds on previous studies of transborder wildlife management in the Cascadia ecoregion (Abel et al., 2010; Alper, 2004) and contributes to the growing field of transborder common pool resource theory through an examination of the role of the Border in wolf management throughout the border region of British Columbia and Washington State. This research aims to provide an evaluation of the potential for collaborative wolf management and will act as a basis for further prescriptive research for transborder natural resource management throughout the Cascadia ecoregion.

The following chapters will provide a context for the examination of polycentric governance as it relates to large carnivores, specifically the gray wolf.

## CHAPTER TWO: LITERATURE REVIEW

In his *Continental Divide* book Lipset (1990) describes a scene of colonial North American values and institutions, where both the U.S. and Canada are on parallel trains headed to conquer the West, but the tracks never converge. A similar parallel could be drawn to present day wolf management in Cascadia. Both British Columbia and Washington are concomitantly pursuing different avenues for wolf management in the same ecoregion. Polycentric governance, as explored by Ostrom (2000) and Dietz et al. (2003), offers polycentric governance as a means to collectively govern a common resource. The following chapter provides a background in (1) polycentric environmental governance in British Columbia and Washington State, (2) common pool resources in transborder collective action dilemmas, and (3) a brief historical treatment of the wolf in North America.

### 2.1 The Role of Scale and Space

Garrett Hardin, in 1968, wrote in his controversial article, *The Tragedy of the Commons*, “freedom in the commons brings ruin to all.” Hardin was alluding to the theory developed by Mancur Olson (1965) that rational self-interested individuals will act to maximize their individual profit. The works of Olson and Hardin were some of the first to address the theories of common resource dilemmas and collective action. Common resources are resources that are shared by users. Common resource dilemmas occur when a resource is either un-owned or multiple users have rights to access a resource (Giordano, 2003). Examples of these include: rivers, fisheries, wildlife, airsheds, etc. Theories of collective action examine the actions of multiple users in common resource interactions. Rarely are these interactions examined in a strictly geographical context. However, commons dilemmas are rooted in the interactions of scale and space, the foundational underpinnings of geography. The following section will explore the role of space and space in geography and the contribution of each to the development of common resource theory.

Humans have long since worked to establish a connection with their environment; a sense of place. The concept of place confers many definitions depending on the relativity of scale and space. The role of scale and space in the field of geography is oftentimes assumed to be inherent. This has been especially true in common-pool resource research (Giordano 2003). Geography has, for the most part, not focused on common resource issues. The fields of economics, anthropology, and political science have extensively developed the field of common resource theory, but the field of geography has tended to not focus on the systematic underpinnings of commons issues. However, Giordano (2003) argues that commons problems are fundamentally rooted in the relationships of scale and space.

What is 'space'? The concept of space is one of the fundamental building blocks of geography as a field of science. There is no work in geography that does not somehow embrace the idea of space (Mazur and Urbanek, 1983). However, geographical space has not been explicitly defined throughout the field of geography. This has had negative ramifications for theoretical geographical research and the field of geography as a whole (Mazur and Urbanek, 1983).

Geographical space is relational. For space to be relational, it must contain 'quantities in relations and proportions' (Mazur and Urbanek, 1983). Without relational context, space becomes absolute and empty; the antithesis of geography. Mazur and Urbanek (1983) comment that geographical space acquires meaning and sense only when related to other humans, landscape elements, and our environment. The simplest concept of geographical space separates space into two categories: my space and our space. 'My space' is considered a private resource and 'our space' is a common resource. Giordano (2003) defines three spatial relationships pertaining to the study of common resources: coincident, intersecting, and independent. Commons exploitation occurs when the natural domain of a resource is either intersecting or coincident with at least two users with the right or ability to access and/or exploit that resource. The right or ability to exploit a commons resource is also influenced by scale.

As with space, scale is also considered one of the foundational concepts of geography and is also writ with varying versions of its definition. Richard Howitt (1998), in his research, identified three facets of scale: size, level, and relationship. Both scale as a level and scale as relation profoundly impact common resource interactions. Scale as a level refers to levels of complexity and hierarchy. Levels of complexity and hierarchy are distributed throughout our natural and social environment and often dictate social interactions dealing with commons issues. Scale as relation is particularly important in addressing commons issues because of the inherent complexities of our social systems. Relations between territories, cultures, economies, and environments plague commons issues and are the foundation for policy surrounding commons resources.

Extensive literature has been devoted to the role of scale in common resource dilemmas (Ostrom, 1990; Schlager 2004, McCay 2002), albeit, largely from the political science field. Ostrom uses geographic space to construct the events that situate collective action dilemmas and she uses scale to evaluate those interactions. Geography continues to play a critical role in the evolution in collective action and common pool resource theory as our society becomes more globalized. Giordano (2003) developed a typology that divides common resources into four categories: private, open access, fugitive, and migratory. Scholars generally inadvertently address at least one of these spatial categories in their research, but Giordano uses these categories as the foundation for his analysis on the common resource dilemma. Giordano argues that commons interactions are fundamentally influenced by first space, then scale. The sociopolitical contributions made by other scholars are supported by this argument (Ostrom, 1990; Weaver, 2001; Singleton, 2002).

## **2.2 POLYCENTRIC GOVERNANCE**

In the U.S., environmental governance framework first emerged in the 1960's and 1970's (Fiorino, 2006; Abel et al., 2010) in response to significant environmental degradation born out of the

industrial revolution. The subsequent nationalization of environmental laws and institutions led to the development of a “command-and-control” system where regulations were adversarial, and dealt with pollution at the end-of-the-pipe, so to speak. A similar style became prominent in natural resource management and sometimes is characterized as a “fence-and-fine” or “protect-and-patrol” approach. While these environmental regulations led to significant reductions in air and water pollution and protection of large areas of habitat in the Western U.S., they are now proving inadequate to manage today’s environmental challenges that require transborder and multilevel strategies across smaller fragmented landscapes.

Conversely, in Canada, the majority of the legislation surrounding wildlife conservation and habitat management did not emerge until the late 1990’s and early 21<sup>st</sup> century and even then the province’s involvement in conservation was limited (Fiorino, 2006; Loo, 2006). Olewiler (2006) concluded that while provincial governments were not racing to attract investors with lower pollution standards, they also weren’t racing to be leaders in environmental protection. They had become “stuck at the status quo” (p. 142) or even worse, “stuck at the bottom” (p. 137) as the provinces have converged or harmonized their environmental policies to a lower common denominator than the U.S.. Throughout the 20<sup>th</sup> century, private individuals and organization continued to carry out some of the most important wildlife work in Canada. In fact Loo (2006) notes that,

*“The very kinds of people who were targeted by state management regimes as responsible for the decline in wildlife - rural people who hunted for their own tables for money to supplement their incomes or who made livings in the bush – did as much if not more to further the cause of environmentalism and in many cases to conserve particular species and habitats as those who were employed by the state.”*

The result was the development of fewer layers of environmental governance compared to the United States. One exception may perhaps be the salmon fisheries on both the east and west coasts of

Canadian and the United States. Salmon fisheries are valued as a resource both north and south of the Border and are consequently monitored and regulated rigorously (Harris, 2001 and Harris, 2008).

There are now well worn criticisms directed at the environmental regulatory systems in North America. As one recent appraisal put it, existing environmental policies have been widely viewed as “heavily bureaucratic, prescriptive, fragmented in purpose, and adversarial in nature” (Durant, Fiorino, and O’Leary, 2004, 1). Or, as some describe it, environmental regulation is primarily command-and-control. Businesses and other critics have long complained as well about the overall complexity and rigidity of rules and regulations, the high costs of compliance with policy requirements, the focus on remedial rather than preventive actions, the lack of incentives for companies to innovate or to go beyond compliance with regulatory standards to achieve better environmental results, and the difficulty of using comprehensive and integrated strategies that cut across different environmental media (Davies and Masurek, 1998; Eisner, 2007; Fiorino, 2006).

A variety of alternatives to the concentration of environmental policy power at the national level have been recognized in recent years. Two concepts have gained support and include both the devolution of policy-making responsibility from the federal government to state and local jurisdictions and attempts to increase the influence of citizens in environmental decisions (Abel and Stephan, 2000; John, 2004). This kind of polycentric governance stands in stark contrast to environmental policy driven by national experts or interest groups (Abel et al., 2011). Much of the discussion about new directions in environmental policy has focused on the likely effectiveness, efficiency, or public and political acceptability of alternatives to federal command-and-control regulation. This shift represents a turn of scholarly attention towards both supranational and subnational dimensions of environmental governance that looks beyond just the national scale. Swyngedouw (2004) termed this “glocalization” in a broad characterization of research on global or local efforts, while others provide specific efforts that explore transborder policy research and practice (Loucky et al., 2008).

Many environmental governance alternatives have been identified. These include a plethora of voluntary initiatives by business and voluntary public-private partnerships, substantially increased use of market incentives, more flexible regulation based on environmental results or performance, greater involvement of citizens and other stakeholders in regulatory decision making, particularly through more open, and collaborative processes, further decentralization of environmental responsibilities to the states and local or regional governments, greater attention to denationalization, and more holistic approaches captured in the term 'ecosystem management'.

## **2.3 COMMON POOL RESOURCES (CPR)**

Commons theories of collective action are a useful tool in examining transborder wildlife management because these theories address a diverse range of stakeholders and conditions that are characteristic of wildlife resources. These theories will be explored in the subsequent section.

### **2.3.1 Large Carnivores and the Conservation of Biodiversity**

Wildlife, especially large carnivores, is susceptible to collective action dilemma because of their large home ranges and habitat requirements. According to Ray et al. (2005), the past century has witnessed a shift in our perception of the role of large carnivores in ecosystems, with an increasing weight of evidence suggesting that large carnivores can have an important functional role within ecosystems. Scholars throughout the field have discussed the role of large carnivores as both a target and a tool of conservation action (Ray et al., 2005; Weaver, 2001). Typically, this occurs when the specific objective of a conservation action is the protection of a particular species with the assumption that its conservation will achieve conservation for other biodiversity elements as well.

Ecosystem management emerged in the nineties as an alternative to policies that dealt with discrete environmental elements such as water, species, or forests. This concept represents one of the many examples of collaborative approaches to environmental policy that can now be found in almost

every federal agency and many state governments (Bardach 1998). Yet collaborative environmental management embodies one of the classic problems of politics: the collective action dilemma. “One cannot merely assume that groups arise and are maintained; rather, formation and maintenance are the central *problems* of group life and politics generally” (Shepsle and Bonchek, 1997, p. 238). Collective action dilemmas are most prominent in the case of common resources, or a resource is either un-owned or multiple users have rights to access the resource (Giordano, 2003; Hardin, 1968; Ostrom, 1990; Ostrom et al., 2002).

The ecoregion spanning the Border between British Columbia and Washington State offers an example where governance of natural resources is often subject to the collective action dilemma because of incongruent management regimes on either side of the Border. As one Washington State manager observed, *“Yes, wolf harvest policies in B.C. are a big issue in limiting dispersal of wolves into Washington and hence overall recovery in the state [of Washington].”* Another British Columbia manager agreed, *“It [the Border] does create challenges just because they are an endangered species in Washington and they aren’t here. They’re trapped and hunted here and there isn’t a lot of conservation concern for them. Now the people want them extirpated, but the reality is that they aren’t likely to be extirpated because they are so resilient. So the Border does present a problem, no question.”*

### **2.32 Transborder Common Resources**

Common resources (or “commons”) are resources that are shared by users. Transborder common resources are resources that are shared by users across borders or political boundaries. Common resource dilemmas occur when a resource is either un-owned or multiple users have rights to access a resource (Giordano, 2003). Examples of these include: rivers, fisheries, wildlife, airsheds, etc. Theories of collective action examine the actions of multiple users or stakeholders in common resource interactions.

Ultimately, natural resources are connected in a global ecosystem, yet humans generally do not acknowledge or manage natural resources in that manner. However, we are seeing a move towards the acknowledgment of a more globally connected ecosystem. For example, in the Pacific Northwest, what was once named the Georgia-Basin-Puget has now adopted the name of the Salish Sea. First Nations, cities, states, provinces, and national governments worked together to approve this designation. The designation of the Salish Sea will provide a framework for future collaboration across political boundaries in the Cascadia ecoregion.

The Salish Sea also provides an example of what Giordano (2002) defined as an open access resource; where the rights of able users intersect with the domain of the resource. Giordano (2003) defined four spatial aspects of natural resources: (1) private property, where the rights of the users are separate from the domain of the resource; (2) open access; (3) fugitive resources, such as rivers, where movement of the resource is unidirectional, and (4) migratory resources, such as wildlife, where the resource domain migrates between the rights of the resource users. Consequently, the temporal and sociopolitical scale of natural resources depends on the geographic nature of the resource and should be governed dynamically through a variety of nested layers of environmental governance (Giordano 2003).

### **2.33 Transborder Wildlife Management - Wildlife as “Commons”**

Wildlife is often considered a common resource because it is a resource that is shared by users and one that is potentially difficult to exclude other users from (Dolsak and Ostrom, 2003). Wildlife does not adhere to political boundaries and are consequently challenging to manage under a single management regime. To successfully maintain and manage populations of carnivores, species must be maintained at the individual, population and metapopulation levels (Weaver, 2001). At the individual level, conservation and management strategies must provide adequate food resources and habitat.

Conservation at the population level requires security from excessive hunting, and management practices to keep mortality rates commensurate with recruitment. The metapopulation level requires regional habitat connectivity with landscape linkages for carnivores with wide ranging habitats and for access to suitable habitat as our climate changes (Weaver 2001).

The United States-Canadian border (the Border) extends through the maritime ecosystem of the Pacific Ocean on the west, through the coniferous forests and permafrost of the Cascades and Canadian Rockies, across the foothill grasslands and prairies, through the marshes and dunes of the Great Lakes, to the Atlantic Ocean on the east (Fleishner, 2008). A significant number of ecological communities that support numerous species reside within the ecoregions spanning this international border. Their persistence is intrinsically connected to natural resource management regimes on both sides of the international border (Morrison, 2009; Weaver, 2001). This research focused on the wildlife, specifically the gray wolf, within the ecoregion spanning the Border.

The physical and political presence of the U.S.-Canadian International border is itself a dilemma facing wildlife managers of the Cascadia ecoregion. Wildlife management north and south of the Border is markedly different and is a direct reflection of the respective political systems. For purposes of wildlife management, the most important difference between the two systems is the greater degree of decentralization of the Canadian system compared to the US system. Consequently, natural resource management in Canada rests largely in the hands of the provinces whereas in the U.S. the national government plays a more significant role (Alper, 2004; Bernstein, 2002). This variance in wildlife management structures on either side of the border makes coordination, implementation, and management of transborder resources difficult. The implication for wildlife is that management and conservation policy is not congruent throughout the entire ecoregion.

### 2.34 History of the Commons

Common resources are wrought with conflict because they are just that, common. Resources become considered common when there are excessive costs associated with excluding potential users (Ostrom, Gardner, and Walker, 1994). Theories of collective action attempt to explain common resource interactions among people, institutions, markets and increasingly, the environment. Historically, collective action theory developed from Adam Smith's economical analysis (also see Ronald Coase, 1937) in response to the rise of "social costs." Mancur Olson's work in *The Logic of Collective Action: Public Goods and the Theory of Groups* (1965) marked the emergence of collective action theory in the fields of sociology and political science. Although common resources are economic in nature, the emergence of collective action theory in sociology and political science presented the opportunity to examine collective action dilemmas in a purely social context. The social research will be the focus of the following discussion.

Mancur Olson, in 1965, published *The Logic of Collective Action: Public Goods and the Theory of Groups* (1965) amidst the apex of the Vietnam War and an unstable global environment. Olson questioned the cooperative nature of humans by stating that 'unless there is coercion or some other special device to make individuals action in their common interest, rational self-interested individuals will not act to achieve their common or group interests.' This later became known as the 'zero contribution theory' as Olson's work was evaluated and expounded upon by other scholars (Ostrom 2000, Schlager 2004, Mcay 2002).

Olson's work focused on the dynamics of group size and the provision of public goods. According to Olson, there are three types of groups: privileged, intermediate, and latent. Members of the privileged group have an incentive to see the provision of a public good, even if they have to bear the provisional burden themselves without the benefit of collective action. Intermediate group members do not receive enough incentive to contribute to the provision of a public good, yet their lack of

contribution greatly affects other contributors. Coercion or collective action may be required to engage members of an intermediate group. The latent group is comparable to “large groups.” If one member does not contribute to the provision of a public good, other members are not significantly affected. This often results in ‘free-riding’ by members. Olson argues that coercion and incentives are the only means to engage members and avoid the free-rider problem of latent group collective action. Solutions to the free-rider problem have been extensively researched by Ostrom (1990), among others.

While Olson’s work did not emphasize the spatial role of commons resources, it illuminated the relationship of scale. Olson used the development of group sizes and their hierarchical and relational (economic) interactions in the provision of a public good to define a relationship between collective action and commons resources. Olson’s theory on collective action and public goods was and still is controversial and it fueled future research (Hardin 1968, Ostrom 2000, Shalger 2004, among others) regarding the nature of humans as individuals in collective action settings.

Shortly after Olson published his book on collective action (1965), Garrett Hardin , in 1968, published his famous article on the ‘tragedy of the commons.’ Hardin’s landmark article addressed the issue of natural resource degradation as a direct correlation of overpopulation using spatial constructs. Hardin argued that at the core of the population problem is the conscience, or lack thereof. He cited National Parks and pollution as contrasting examples to the “tragedy of the commons” that occurs from overpopulation in an unconscious society. Hardin offered social arrangements that create coercion as a solution to exploitation of the commons and in doing so he acknowledged that private property was not a realistic solution to the “commons” dilemma. This article was at the theoretical forefront exploring the issue of how to govern the commons in a growing and evolving population. Hardin’s ideas were often viewed as simplistic and radical, but his work marked the beginning of what would later be seen as the environmental movement of the 1970s.

The environmental movement of the 1970's brought abundant scholarly research in all scientific fields to the forefront. Collective action and common-pool resource theory flourished as the environmental movement unfolded because of the inherent connections between the theoretical research and the rapid and innovative environmental regulation changes happening on the ground. A rich literature emerged (Ostrom, 1990; Ostrom, 2000; Schlager, 2004; Dietz et al., 2002; Dietz et al., 2003; Dolsak and Ostrom, 2003) that suggests that a complicated web of resource, user, and institutional conditions are keys to successful commons resource management. The 2009 Nobel Prize for the Economic Sciences was shared by the most influential scholar in this field. Ostrom and many others have challenged the conventional wisdom that common resources are poorly managed and should be either regulated by central authorities or privatized.

Elinor Ostrom was among the collective action scholars whose theoretical research had profound implications in the social-science and economic fields. Ostrom used the constructs of both scale and space to refute Hardin's famous axiom, 'freedom in the commons brings ruin to all.' Dietz, Ostrom, and Stern (2003) claimed Hardin's evaluation was an oversimplification of the problem. Hardin claimed that centralized government and private property were the only entities that could sustain the commons in the long run and that the resource users were unable to create solutions otherwise. The authors interject that there are many types of social groups capable of managing the commons through self-governing institutions.

Ostrom (2000) explored the evolutionary connection between participants of collective action, social norms, and the realistic outcomes of those interactions. Ostrom identified three types of players: the classical self-interested rational egoist, conditional cooperators, and willing punishers, the latter two contributing to the balance in successful collective action. Ostrom argued that these multiple types of players emerged from an indirect evolutionary approach where social norms lead to differential behavior rather than a strict evolutionary model where individuals inherit strategies that do not change

over a lifetime. This idea directly conflicts with traditional game theory and Mancur Olson's zero contribution theory that 'unless there is coercion or some other special device to make individuals action in their common interest, rational self-interested individuals will not act to achieve their common or group interests.' Instead individuals have the ability to learn and cooperate with one another to achieve a desired outcome based on changing circumstances. In short, individuals have the ability to act dynamically rather than statically.

According to CPR theory, a resource must have several characteristics to be suitable for polycentric governance with several smaller jurisdictions. First, the improvement of the resource must be feasible. Second, reliable and valid indicators of the resource conditions must be available at low cost. The predictability of resource flows is a third condition, and fourth, the spatial extent of the resource must be amenable to defining its borders and its internal microenvironments. And while Ostrom's initial work focused on conditions that support collective action among stakeholders and the common resource itself, her more recent work has focused on conditions of collective action that support governing arrangements. In particular, she has suggested eight institutional design principles necessary for successful commons resource management (Schlager, 2004):

1. Clear definition of boundary rules,
2. Access to the resource is restricted and benefits are allocated proportionally to contributions,
3. Cooperative users affected by a particular resource regime can participate in making and modifying the regime,
4. A monitoring mechanism exists that monitors both the cooperative users and the resource and is selected by the resource users themselves,
5. The resource regime uses graduated sanctions that depend on the seriousness and context of the offense. Graduation sanctions should be enforced by other cooperative users or by a legitimate authority established by the participants, or by both,
6. Users have access to fast and low-cost mechanisms for conflict resolution between other cooperative users and between cooperative users and authorities,
7. Cooperative users have the right to devise their own rules without interference from a higher authority, and
8. Governance activities should be nested.

Fragile institutions have few of these characteristics while more robust ones have many. The debate over collaborative institutions as an effective alternative to adversarial regulation in environmental policy remains vigorous. Proponents hail the superiority of collaborative institutions over adversarial ones (John 1994; Marsh and Lallas 1995; Weber 1998, 2003). Others argue that collaborative environmental decision making is a passing fad at best, and at worse the collaboration may create perceptions of progress without real changes because it is slower and people expect short term results (Kenney 2000). For example, Lubell (2004) examined one of the most prominent collaborative institutions in environmental policy, the U.S. EPA's National Estuary Program (NEP). His survey results indicated that while levels of consensus were higher for NEP estuaries, there was no more cooperation than in estuaries outside the NEP framework. The field of collaborative environmental governance provides the broadest scholarly context for research on transborder wildlife management. Ostrom and others have shown that CPR and their users are not doomed to tragedy, but instead can succeed with more of the right resource conditions, resource user attributes, and a combination of institutional features.

Environmental policy scholars have explored the ways in which collaborative institutions overcome the collective action dilemma. Trust, institutional mechanisms, and political leadership have all been theorized as key factors in encouraging collective action. Trust is often connected to social capital (Putnam 1995; Fukuyama 1995). In experimental settings, researchers have found that positive interactions in a collective action simulations result in players learning to trust one another and tend to be reinforcing (Lubell and Scholz 2001; Ostrom 2000). Others have found greater collaboration among individuals who have experienced a history of cooperation in various institutional settings (Lubell et al. 2002, Schneider et al. 2003, Weber 1998). In theory then, the success of a transborder wildlife management framework will depend on a history of stakeholders interacting in cross-national networks that foster reciprocal trust. Ostrom (2000) also argued that successful self-organized regimes are largely

dependent on trust. Cooperative users depend on trust to overcome what Ostrom defined as the second dilemma, the ability to change the rules. If a group of cooperative users can successfully change the rules of a regime for the good of the collective action, it is possible that the resilience of the collective action could be improved.

This research was also informed by a growing literature that examines the institutional challenges of transboundary collaborative institutions. For instance, Norman and Bakker (2009) examined how transboundary water governance was hindered by asymmetrical governance structures, limited institutional capacity, and the lack of intrajurisdictional integration. Alper and Salazar (2005) also found little evidence of transboundary identity among Canadian environmentalists. Conversely, Alper (2004) focused on the regional governance arrangements being fostered by a set of normative/constructivist ideas in the Georgia Basin/Puget Sound. Dupeyron (2008) conceptualized a social-political Cascadia geography dominated by technical experts and economic interests. Masters theses (Bernstein 2002), entire journal issues (Brunet-Jailly and Simon 2008) and book monographs (Day et al. 2003; Loucky et al. 2008) have continued the scholarly attention to the Cascade borderland. This proposed project will join this scholarly discussion with a case study of wildlife conservation initiatives in the Cascades ecosystem.

**Table 1. Norman and Bakker’s (2005) Drivers and Barriers**

Drivers of Cooperation	Barriers of Cooperation
Specific Issues	Mismatched Government Structures
Respect / Fairness	Lack of Institutional Capacity
Practicality	Lack of Leadership
Transparency	Asymmetrical Participation
Leadership	Lack of Data or Difficulty Accessing
Informal Contacts	Gaps in Knowledge of the ‘Other’ Country
Established Networks	Spatial Distance
Crisis	Lack of Financial Resource
Personal Relationships	Mistrust
Public Availability of Data	Different Government Cultures and Mandates
Proximity	Lack of Intra Jurisdictionally integration
Legal Obligations	Federal Jurisdiction Tempers Regional Action
Opportunity Driven	

Two recent studies are particularly relevant to this exploration. Norman and Bakker (2005) examined the drivers and barriers to cooperation as described by stakeholders collaborating on transborder watershed management (Table 2 below). Pedynowski (2003) examined the limits and opportunities for continued ecosystem management in the Crown of the Continent Ecosystem (COCE) encompassing Glacier National Park and Flathead National Park in the U.S., the Flathead Basin in B.C. and Alberta’s Castle Integrated Resource Plan Area in Canada. In both studies, the researchers combined interviews, surveys, and management policy reviews. These mixed-methodologies rely on a case study approach that this project also utilized.

### **2.35 The Commons in the New Millennium**

Globalization has been occurring since at least 1492 in the form of colonialist capitalism. However, spatial or geographical strategies were rarely considered in describing the dynamic interactions associated with globalization (Swyngedouw, 2004). Industrialization, communications technology, and the invention of commercial flight have brought all reaches of the globe together.

Humans now have the ability to exploit resources not just in a different state, but within a different country and across oceans as well. What are the implications for commons management? Commons dilemmas at the local and regional scale will likely not decrease, but there is a new need for effective commons management at a global scale (Ostrom et al. 1999).

Research by numerous scholars (Swyngedouw, 2004; Alper, 2004; Fiorino, 2006; Teske, 2004; and Klyza and Sousa, 2008; among others) on the scale and type of institutional involvement in resource management has indicated a shift towards glocalization (Swyngedouw, 2004). According to Swyngedouw, glocalization is the process by which institutional and regulatory arrangements shift simultaneously to both a global and local level. Alper (2004) identifies local level involvement as more conducive to a normative/constructivist mode of interaction. This perspective focuses on discourse between epistemic communities composed of scientists, activists and officials, governmental and non-governmental, rather than regulation (Alper 2004).

The ability of local actors to participate in environmental governance and collective action commons management has been profoundly impacted by advances in communication technology. The advent of the Internet has greatly improved the ability for lay people to access information. Social networking tools such as email, Facebook, cell phones, and laptops virtually eliminate a lag time for information exchange and also make it possible to share information with large groups of people instantly. As a result, the rise of local/community groups and non-government organizations (NGO's) has been on the rise (Teske 2004, Alper 2004). Teske (2004) argues that while the number and incidence of local actors in environmental governance has increased, it has not necessarily correlated with an increase of power for those local actors. While local actors have the ability to initiate change and identify change, they constantly battle the scale of environmental governance, making it difficult to implement change.

Intrinsically connected to the scales of environmental governance and commons management is space. Geographic space can be defined by political and physical boundaries. Geographic space on either side of those boundaries is often managed differently. This is particularly true for the international border separating Washington State and the Province of British Columbia. This transborder region is marked with numerous international common resources; some of them are managed through international treaties (such as fisheries) and others are not managed at all (such as the wolf).

Berstein (2002), Giordano (2002), and Ross (1971) each used the spatial and scalar challenges of international natural resources for a discussion examining transboundary collective action and environmental governance. Berstein's (2002) institutional framework analysis revealed striking differences between the United States (U.S.) and Canada. In the U.S., the federal government plays an enormous role in the management of land and natural resources, whereas in Canada, individual provinces maintain predominant jurisdiction over their land and natural resources. The implications of these differences are profound for natural resource management. U.S. public lands are managed for the conservation, preservation, or development of natural resources. In Canada, the federal government plays a very small role. In British Columbia, the Ministry of Forests plays the greatest role and more often than not, timber resource value outweighs that of habitat and wildlife value. Berstein's policy and management recommendations are a direct reflection of this relationship and are largely directed at Canadian provincial policy changes. Do these differences arise out of the presence of the international border?

Giordano (2002) and Ross (1971) examined the role of international treaties in the management of natural resources. Giordano explored the allocation of resource use rights in the Columbia Basin with regards to water and salmon. In his research, he discovered that resource allocation varied widely by resource type and political scale. In the case of water resources and salmon, the doctrine of absolute sovereignty and the doctrine of absolute river integrity are usually in direct conflict with one another

depending on if you are an upstream or downstream user, or a fish. So, in many cases, international treaties find political middle ground where national and local laws cannot. Water from the Columbia Basin is used as an example of this. Columbia Basin water is well regulated under the international Columbia River Treaty of 1964, but this treaty does not account for salmon. Salmon instead are managed under a variety of treaties and legal frameworks nationally and internationally, the most controversial being the historic rights principle of “first in time, first in right.” Although even under this principle, allocation rights for water and salmon are reversed. Dr. Giordano again begs the question can these two resources be managed together and if they could, would they benefit from it?

Giordano (2002) also defines the three elements fundamental to the study of wildlife in an international context: the process behind the internationalization of wildlife, the evolution of international wildlife policy, and the principles behind that policy and how it affects allocation rights. The driving factor behind the internationalization of wildlife is how the resource users interact with the wildlife; in other words, what benefit do the users derive from the presence or absence of the wildlife? While the same holds true for other resources, wildlife is a special case because it is a resource humans can identify with. As a result, international wildlife treaties have become more prominent, the range of species treated has increased, and the geographic location of treaty signatories has expanded (Giordano, 2002). Subsequently, future international wildlife management and allocation is going to be even more complex because of the diverse number of signatories and their differing motives for participation (Giordano, 2002).

There lies a common theme among each of the case studies Giordano examined. The rules that govern common resources must evolve as the resources change and our population changes. Giordano discussed several types of sovereignty and how each can apply to allocation management principles. More importantly, he recognized that management techniques must reflect the geographic and political scale of the resources being managed. What this means for a transborder resource such as the wolf is

that the ideal management framework for this species may not be unilateral or bilateral, but may require a polycentric and perhaps regional framework (Bhat et al., 1996) that considers attitudes about the resource on both sides of the Border (McCleary, 2009).

### **2.36 Conclusion**

The management of common resources are wrought with conflicts of scale and space; politically, socially, and geographically. Human nature complicates interactions involving common resources because humans can be both rational and self-interested and collaborative (Ostrom, 1990). Common resource theory has aimed to explore commons interactions and develop tools to overcome the 'dilemmas' they create. Theoretical geography has played an important role in the evolution of common resource theory as the geographical foundations of scale and space form the framework for common pool resource theory. Until recently, geography has made only minor contributions to the field of commons resource theory, but the future promises more integrated involvement from the field (Swyngedouw, 2004). Globalization and the continued growth of the human population promise to bring natural resources such as the wolf and humans in conflict with one another.

## **2.4 HISTORICAL TREATMENT OF WOLF**

The subsequent sections aim to explore the origin of the wolf-human conflict in North America, focusing in the Cascadia ecoregion, as a foundation for examining wolf management governance across the Border through survey research.

To enframe the current management regime of the Wolf, I conducted a brief historical treatment to situate the current perception of the Wolf. I investigated the human-Wolf relationship from the time period of white colonialism in the early 1800s to present. Government documents were examined and interviews of government agency employees were utilized to gain an understanding of how and why the management of the Wolf has changed over this time period. Where possible, I

augmented this examination with the both the Native and rancher/sportsman experience with the Wolf. This historical treatment is admittedly incomplete as far as historical treatments go, but it provides a context with which to frame the sociopolitical climate of the Wolf in present day.

#### **2.41 Contemporary Wolf History - United States**

Gray wolves gained protection under the Endangered Species Act in 1974 after nearly being extirpated in the 1930's. European-American settlers moving westward depleted large populations of bison, deer, elk, and moose which were important prey for wolves. With less natural prey available, wolves increasingly turned to sheep and cattle that were being supported by the conversion of a once seemingly empty landscape to landscapes dominated by farming, ranching, and an increased settler population. To protect livestock, ranchers and government agencies began an eradication campaign that lasted as late as 1965. Wolves were persecuted: trapped, shot, poisoned, dug from their dens, and hunted with dogs. In Montana alone, 5,450 wolves were presented for payment in 1884 (Montana Fish and Game website). By the time wolves were protected by the Endangered Species Act of 1973, only a few hundred remained across the entire United States. Consequently, Gray wolves were listed as endangered in the contiguous 48 States and in Mexico, except that in Minnesota they were listed as threatened. Alaska wolf population numbers ranged from 6,000 to 7,000 and were not considered endangered or threatened. Lone wolves from Canada began colonizing the Glacier National Park area around 1979 and by 1994 there were approximately 48 wolves in and around Glacier National Park (Montana Fish and Game website and Askins, 2002).

In 1994, the United States Fish and Wildlife Service reintroduced wolves into Yellowstone National Park, designating them as a Non-Essential Experimental Population<sup>1</sup>. By 1995 the USFWS had captured 14 wolves from Alberta's Jasper National Park in Canada and transported them to Yellowstone

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<sup>1</sup> There are repercussions for this designation which will be discussed in more detail in the subsequent section.

for soft release<sup>2</sup>. Additional wolves from Canada were later captured and transported to Idaho and Yellowstone in the winter of 1995 and 1996, respectively, using both hard<sup>3</sup> and soft release techniques. Wolf populations throughout Yellowstone and Idaho grew quickly, expanding their habitats to surrounding states. By the end of 2002, the Northern Rockies wolf population met the biological recovery criteria of 30 breeding pairs for at least three years in a row. Consequently, some states began pushing for increased management flexibility and possibly delisting of the gray wolf. This legal battle ensued until April 2009 when the USFS declared the Northern Rocky Mountain (NRM) wolf population a distinct population segment (DPS) and removed the NRM DPS from the Endangered Species list within NRM DPS boundaries<sup>4</sup>, except in Wyoming. It was determined that Wyoming's wolf management plan did not provide the necessary regulatory mechanisms to assure that the NRM wolf population would be conserved if the protections of the ESA were removed (USFWS website). With the first wolf hunts planned since the listing of the species in 1974, legal proceedings once again ensued and by August 2010, ESA protections were reinstated for the NRM DPS of wolves.

## 2.42 Contemporary Wolf History-Canada

Much like in the U.S., wolves were virtually extirpated throughout British Columbia by 1968 due to bounty hunting and predator control (Mowat, 2007). However, unlike the U.S., wolf populations recovered on their own beginning in the 1970s with the end of bounty hunting and predator control and without the aid of endangered species legislation. Wolves are legally protected on only 2.7 percent of Canada's land area, but even that figure is high because some areas are open to native hunting (Steinhart, 1995).

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<sup>2</sup> Soft release refers to acclimatizing the wolves in pens for a given time in their "new" home before releasing.

<sup>3</sup> A hard release is an immediate release of the wolves without acclimatization in pens.

<sup>4</sup> The NRM gray wolf DPS encompasses the eastern one-third of Washington and Oregon, a small part of north-central Utah, and all of Montana, Idaho, and Wyoming.

In British Columbia, the exact number of wolves is not known. Studies connected to caribou mortality offer varying estimates (Mowat, 2007; Oort and Bird 2010). Mowat, 2007 cited that wolf numbers in the West Kootenay region are still low and may be due to excessive snow depths or lack of moose. In the West Kootenay region there is a mix of ranching, farming, and a lot of open space and the presence of wolves are felt more deeply there. To the west, towards Vancouver wolves are essentially non-existent. The large population and intense infrastructure leaves no place for the wolves. However, British Columbia has an enormous land base, approximately equivalent to the size of Washington, Idaho, Montana, and Wyoming combined. In the northern portion of the province where human density is near zero, there is still room for wolves. In fact, Steinhart (1995) stated that Canada is likely the best hope for the persistence of the wolf. Steinhart estimates that there are approximately 50,000 wolves across the north and west of Canada despite repeated organized government wolf-control populations aimed at increasing moose and caribou populations for hunters. Biologists have argued that wolf hunts in Canada are precisely what kept the wolf population thriving; wolf kills ramp up their reproductive capacity (Steinhart, 2005; Senger, 2010). So while there does exist meager legislation for some at risk animals across Canada and specifically, British Columbia, that legislation does not and will not cover the wolf. Current wolf management includes a nine month hunting season in most areas with a 2 bag limit per hunter. The trapping season is 5.5 months long with no bag limit (Mowat, 2007). Reporting of wolf kill has been required since 1975 (Mowat, 2007).

### **2.43 Conclusion**

The divide between humans and wolves exists on both sides of the International Border, but in the U.S. is fueled by the power of the litigious landscape of wildlife conservation. So in a sense, while no legislation exists in British Columbia to protect the wolf, it is arguable that none is yet needed despite people seeing the wolf differently, which is ironic given that they are still persecuted. To most

Canadians, the wolf is just another creature on the landscape. Farley Mowat, one of Canada's most famous storytellers wrote in his book, *Never Cry Wolf* – "*We have doomed the wolf not for what it is, but for what we deliberately and mistakenly perceive it to be –the mythologized epitome of a savage ruthless killer – which is, in reality, no more than a reflected image of ourself.*" No other species has done more to destroy nature than Homo sapiens. The message in Mowat's book is true – the wolf makes a very convenient scapegoat for the ecological problems we have caused. In the U.S. and WA State those ecological problems are magnified by endangered species legislation and a dense urban and rural ranching population whereas in Canada, and specifically B.C., smaller urban population centers and an economy dominated by extractive rather than ranching industries provide less conflict with the wolf on the landscape.

## CHAPTER THREE: RESEARCH FRAMEWORK

### 3.1 Introduction

As a common pool resource, the presence of wolves affects a large and diverse population of people throughout the Washington-British Columbia region. Park et al. (1993) noted that it is useful to employ a range of participatory research (Park et al., 1993), discourse analysis, survey research, and sociopolitical research to examine such a large and diverse population. This project employed a subset of several of these tools to perform sub-national case studies of provincial and state wolf management and perception using collective action criteria. Semi-structured interviews of wolf managers were conducted to gain an understanding of wolf management in the Cascadia ecoregion and to examine regional wolf manager's perspective on wolf governance in the region. A public perception survey was conducted to establish if citizens supported and identified with the managers and agencies involved in wildlife governance. The research framework for this project built off of methodology and results in Abel et al. (2011) *Borders, Barriers, and Breakthroughs in Cascadia's Wildlife Commons* investigation.

### 3.2 Case Study Approach

Case studies allow a researcher to focus attention to a particular aspect or region of a study and are commonly used to evaluate the interaction of collective action and natural resources, such as the wolf (Ross, 1971; Giordano, 2002; Bernstein, 2002; Ostrom, 1999; Ostrom, 2000; McCay, 2002; Martin, 2001; Baird et al., 2009). For example, Abbott et al. (2007) used the Upper Zambezi River as a case study for examining fisheries management in rivers as both resources and borders. My research utilized two case study regions, the southeast corner of British Columbia and the northeast corner of Washington State. Within these case study regions, ranchers and sportsmen were selected as the primary stakeholder for inclusion in the research. Informal discussions with regional wildlife managers and NGO's suggested focusing on stakeholders that are most opposed to the presence of the wolf. It should

be noted that there are numerous other sectors of stakeholders involved in the wolf management process. However, this intention of this study was to focus in on groups of stakeholders that were either (1) directly involved in the management of the wolf or (2) identified as a potential barrier to collaborative wolf management across the Border.

### **3.3 Data Collection Procedures**

I employed a three part process to examine how the governance and perception of the wolf across the Border impact their management as a transborder species. Baird et al. (2009) utilized a similar research design that consisted of semi-structured interviews and a cross sectional survey to assess perception of risk to wildlife in Africa. Numerous other scholars have utilized interviews and questionnaires as complimentary survey tools for targeting a broader respondent audience (Weber et al., 2005; Baird et al., 2009; McCleary, 2009; Pedyowski, 2003; Lubell et al., 2002). These steps included:

Part 1 – Perform a transborder comparison of wolf governance and management

Part 2 – Conduct semi-structured interviews of wolf managers across the Border

Part 3 – Administer a public perception survey across the Border

The National Institutes of Health (NIH) requires all researchers, students, and staff involved with human subjects to complete human subjects protection training. Human subjects review is required as part of University protocol for working with human subjects. Standards and operating procedures were followed and implemented per 45 CFR 46 prior to the initiation of the survey research.

#### **3.3.1 Part 1 – Transborder Comparison of Wolf Governance and Management**

The Border constructs a political boundary and political identities dividing Washington and British Columbia. These boundaries are permeable to ideas, values and beliefs, and the environment as

the borderland region frequently shares social, cultural, and economic ties on a daily basis. In addition to the various forms of interaction between the US and Canada across this borderland, another commonality that transcends the border are natural resources. Natural resources are often managed as common resources constrained by political boundaries that are not coincident with the domain of the resource (Giordano, 2003). A comparison of governance regimes pertaining to wildlife, specifically wolf management, on either side of the Border was conducted to establish a background for performing survey research across the Cascadia region.

### **3.3.2 Part 2 – Semi-structured Interviews of Wolf Managers**

The factors contributing to or hindering collective action throughout the Cascadia region identified in the governance analysis and those contributed by the commons literature of Ostrom (1990) and Norman and Bakker (2009) served as the foundation for conducting semi-structured interviews of wolf managers and leaders of regional ranching and sportsman associations. This information was also utilized in the formation of the questionnaire administered to public stakeholders within the case study region (see next section). According to Babbie (2004) survey research is one of the better methods available for examining a population too large to observe directly and is a great measure of attitudes and orientations towards a particular topic. One challenge of survey research is operationalizing variables so interview and survey questions are not misinterpreted by interviewees (Babbie, 2004). The semi-structured interviews of wolf managers and regional leaders of ranching and sportsman associations were conducted prior to the administration of the public perception survey to help illuminate the mechanisms governing the respective wolf management institution, how regional managers felt about the current wolf management regime, where more attention was needed, and if they felt there was an opportunity for a more regional approach to wolf management. This process

allowed for a qualitative comparison of the opportunities and obstacles for wolf management between managers and the ranching/sportsman community, and across the Border.

Semi-structured interviews were chosen as the design method for gathering information from the wolf management managers because of the qualitative nature of survey interviews. While a structured interview has a formalized and limited set of questions, a semi-structured interview is flexible, allowing new questions to be brought up during the interview as a result of what the interviewee says within a general framework of topics (Babbie, 2001). Qualitative research is especially effective when (1) studying subtle nuances in attitudes and behaviors and for examining social processes over time (Babbie, 2001), (2) for its flexibility in design, and (3) its cost effectiveness. The semi-structured interviews were imperative for establishing a background in wolf management across the region to base the public perception survey off of. The ability to interact with the interviewee and have the flexibility to delve deeper into some questions and less into others while allowing the interviewees express their view in their own terms was instrumental in establishing an overall tone from the interviewee with regards to wolves and their management.

Semi-structured interviews were chosen as a design method over a questionnaire for this portion of the research because when using a questionnaire, the researcher must assume each item will mean the same thing to every respondent and each response will mean the same thing even when given by different respondents (Babbie, 2001). While this is an impossible goal, questionnaires are necessary when trying to survey a large population of attitudes and perceptions. While questionnaires are most effective for sensitive issues (such as how do you feel about the wolf), interviews are more effective for complicated ones (such as what do you think the opportunities and obstacles in wolf management are) (Babbie, 2001). In 2005, Alper and Salazar employed semi-structured interviews as a research design to explore the relations with place identification to political practice. Their research design offers an example of when conducting survey interviews over administering a questionnaire is useful and

successful. When dealing with a complicated and polar topic, such as wolf management, conducting interviews, rather than administering a questionnaire, can also increase response rate, decrease the “don’t know” responses, and can mitigate for potentially confusing questions. Due to the small population size of wolf managers in the Cascadia region, conducting interviews was possible for Part 1 of this research while administering a questionnaire was appropriate for Part 2 of the research.

### *Interview Sample Population*

An initial sample of transborder conservation stakeholders was constructed from the participants in four annual wildlife conservation meetings *Wild Links*. Sponsored by the regional environmental organization Conservation Northwest, the 2009 *Wild Links* conference was “Thinking across borders: recognizing the needs of wildlife” and focused on the transboundary issues for habitat and wildlife between the US and Canada. The 2010 *Wild Links* conference was “Building partners, connecting habitat, adapting to change” and served as a platform to refine the sample of stakeholders gathered for Abel et al. (2011) to focus specifically on wolf managers in Washington and British Columbia. Conference participants from both the 2009 and 2010 conferences were asked to identify other influential regional wolf management stakeholders to construct a snowball sample of ten or more interviews each for both the northern Washington and southern British Columbia region. Other potential stakeholders were selected from a website search of the Washington Wolf Working Group, regional state/provincial and federal wildlife agencies, the Washington Wolf Working Group, and regional leaders of sportsman and ranching associations.

### *Interview Design*

The interview questions were semi-structured in nature and were modified from Abel et al. (2011), other wolf and wildlife surveys, and comparative studies in natural resource management (see Weber et al., 2010; Lubell, 2003; Pedykowski, 2003; W.D.o.F, 2010; Green, 2009; and Alper and Salazar,

2005). In particular, both Abel et al. (2011) and Weber et al. (2010) developed semi-structured interview questions specific to collective action and endangered species conservation which were modified for specificity to wolf management in Cascadia. Significant focus was directed to wording and messaging of the interview questions. Due to the controversial nature of current wolf management practices throughout the Cascadia region, it was important to remain as neutral as possible in the interview process. Resource Media, a public opinion research firm out of Boulder Colorado, was consulted for assistance in reviewing the interview questions. In a study done by Resource Media in 2008 that explored the relevance of wolf messaging in Washington and Oregon, they concluded that it is important to:

- Put wolves in the positive context of other valued Washington wildlife,
- Always emphasize solutions,
- Emphasize with ranchers and do not antagonize them,
- Publicize co-existence success stories,
- Look for opportunities to partner with diverse stakeholders, and
- Accept that people have legitimate concerns and address them with respect.

The interview questions were developed with these criteria from Resource Media as a guideline for messaging and additional criteria developed by Dillman (2000) and Yin (1984). Dillman's Total Design Method is discussed in detail in Section 3.3.2 below.

See Appendix I for a list of final interview questions.

### *Interview Implementation*

The interviews were conducted both over the telephone and via Skype when possible. There are pros and cons in choosing to conduct the interviews over the telephone. Conducting the interviews in person allows the interviewer to observe the interviewees reaction to questions and responses, however Babbie (2001) notes that the use of telephone surveys may lead to increased participation in the interview and more candid responses because of the comfort of not being face to face.

An email was sent out to each of the potential interviewees requesting their participation in the interview. Confidentiality was of utmost importance. Each interview was transcribed anonymously and the digital copy of the interview deleted. Two weeks after the initial email request went out, another email was sent to those who had not yet responded requesting their participation in the interview process. At this time, thank you emails were sent out to those who had already responded and thank you emails were sent out to remaining participants in the next two weeks.

The interview process was kept as consistent as possible given the semi-structured nature of the questions. According to Babbie (2001), for responses to be comparable it is important to keep question wording consistent between interviews to prevent inconsistent interpretations of the questions by interviewees. Probing for responses was conducted when the respondents answer was incomplete, irrelevant, or they seemed particularly interested in that question. Responses were transcribed exactly as recorded as stored anonymously. Interview lengths ranged anywhere from thirty to 90 minutes.

Response rates were initially quite low with five participants from Washington and two from British Columbia. Several participants commented that the controversial nature of the wolf topic may have been preventing people from wanting to participate in an interview. In other words, a telephone interview as not confidential enough. Consequently, the interview questions were transformed into an online survey and requests were sent out to remaining non-respondents asking for their participation in the online “interview” in an attempt to increase response rates. Questions were not modified for the online survey. However, two additional quantitative questions were added that directly assessed the respondents perception of wolf governance. Participants were asked to respond to the open-ended questions with as much detail as they wanted.

### **3.3.3 Part 2 – Transborder Public Perception Survey**

Throughout the wildlife conservation literature (Woodroffe et al., 2005; Bangs, 2001; Fraser, 2009; Ray et al., 2005; Loo, 2006; Goodale et al., 2003) it is acknowledged that people are the root of

the wildlife management dilemma, not the wildlife themselves. The semi-structured interviews provided a background in what wildlife managers feel the opportunities and obstacles for wolf management throughout the region are. However, it is quite clear from public news media and focus groups (Washington Department of Fish and Wildlife, 2010) on wolf re-introductions, that the “public” and the agency managers have different perceptions and attitudes on how wolves should be managed. The purpose of the public perception survey was to help identify the gap between how agency managers feel the wolf should be managed and how ranchers and sportsman feel they should be managed.

The survey used information gathered throughout the semi-structured interviews and governance comparison to design a survey of approximately twenty open and closed-ended questions to assess: (1) the attitude of the respondent with regards to the Wolf, (2) the relationship of the respondent to the management process of the Wolf, (3) the respondent’s opinion of the factors that contribute to the successful transboundary management of the Wolf.

### *Survey Population*

The presence of wolves in Cascadia and how they should be managed (and across much of the western North America in fact) is a highly polar topic and plagued with controversy. Conflicts of interest between wolves and ranchers and sportsman are often cited as one of the major contributors to the controversy (Bangs and Shivik, 2001; Steinhart, 2005). It would be impossible to sample the entire population of the representative case study regions, and difficult still to obtain a statistically sound representative sample without a significant monetary investment. Consequently, this study focused on the user groups that are generally (1) most affected by the presence of wolves and (2) have historically exhibited the most polar attitudes towards the presence and management of wolves; ranchers and sportsman. Ranchers with negative attitudes towards wolves argue the case of increased livestock depredations and competition for grazing lands while sportsman with negative attitudes towards wolves

fear the wolf will reduce their game supply for hunting (Bangs and Shivik, 2001; Gaynor et al., 2007; Steenweg et al., 2009; Roorda and Wright, 2007; W.D.o.F., 2010).

An initial sample of 103 respondents was gathered through an internet search of ranching and farming outfitters, sportsman outfitters, and ranching and sportsman associations in NE Washington and SE British Columbia. The initial sample population was heavily weighted towards Washington respondents. To increase the overall numbers of respondents a snowball sample was implemented, asking respondents to please forward the questionnaire to others to complete. Dillman (2009) and Fowler (1988) discuss some of the problems associated with selecting a sample population using similar techniques for mail and telephone surveys. Oftentimes, males are listed as the primary contact for associations and member lists because men's names are more likely to be listed than their spouse's names. However, in telephone surveys women are more likely to participate. Similar data on internet surveys is just now being published, but postulates that similar findings will be true of internet survey response demographics (Dillman, 2009). Kish (1949) developed a detailed procedure for designated respondents using a set of randomized tables, but given the need to use snowball sampling to obtain respondents, this techniques was not applicable. This would pose a problem if a representative sample of both negative and positive attitudes about wolf management were being sought. However, this research attempted to target the most negative attitudes in a population of respondents to determine what their perception of opportunities and obstacles in wolf management practices. So while the survey population was not statistically valid for quantitative analysis, the intention was to perform qualitative content analysis of the survey response.

### *Survey Design*

Messaging was a critical factor in designing the survey questions. According to the research done by Resource Media in 2008 on public attitudes and values about wolves in the southwest United

States, addressing messaging in survey questions is even more important than when conducting interviews because you do not have the ability to interact with your respondent. The same messaging techniques used to craft the interview questions were applied to the survey questions.

The goal in the writing of the survey questions was to develop questions that every respondent would interpret the same way (Dillman, 2000). Dillman (2009) developed a set of criteria to consider when crafting survey questions; (1) does the question require an answer, (2) to what extent do respondents have an accurate ready-made response, (3) can people accurately recall and report past behaviors, (4) will the respondent feel motivated to answer the questions, is the respondents understanding of the response categories likely to be influenced by more than words, and (5) is survey information being collected in more than one mode. The majority of the survey questions selected for use were taken and adapted from previous wolf, wildlife, and collective action surveys and had thus been pre-tested. A mixture of both open and closed ended questions, including several ordinal ranking questions, was used. Guidelines used for forming the survey questions were adapted from Dillman (2000) and Fowler (1998) and were as follows:

- Use consistent messaging throughout the question
- Make sure the question is technically accurate
- Ask one question at a time
- Use simple and familiar words
- Avoid bias from unequal comparisons
- State both sides of attitude scale in question stems
- Develop response categories that are mutually exclusive
- Soften the impact of potentially objectionable questions
- Use specific and concrete words to specify concepts clearly
- Use as few words as possible to pose the question
- Use complete sentences with simple sentence structure
- Make sure yes means yes and no means no
- Be sure the question specifies the response task

Each of the survey questions was modified and/or crafted with Dillman's (2000) criteria and guidelines. Survey questions were then pre-tested on a group of university faculty, wildlife managers, non-governmental organizations (NGOs), and several members of the general public. The pre-test group

was comprised of both individuals both vested and non-vested in the management of wolves. Pre-testers were asked to consider the following questions when reviewing the survey:

- Have I included all the necessary questions?
- Can I eliminate some of the questions?
- Will the questions allow me compare to other results?
- Are any of the questions confusing or do any of the questions need altered?

Survey Gizmo, an online survey software tool, was selected for administration of the online survey. Online survey software varies in how much flexibility the user has in designing the online survey, and Survey Gizmo provided an adequate survey design option that was cost-effective. Dillman (2000) offers suggestions for visual design of online surveys that were utilized to help make the visual presentation of the survey clear, concise, and appealing for respondents.

See Appendix I for a copy of the final survey.

### *Survey Implementation*

The public perception survey was intended to be administered in phases, as a mixed mode survey, progressing from internet administration, to mail, to telephone until the desired number of respondents was reached; fifty in Washington and fifty in British Columbia. Dillman et al. (2009) discusses the increasing popularity of mixed-mode surveys as technological and cultural changes have impacted how humans communicate. Dillman et al. notes the benefits of using mixed-mode surveys are (1) lower costs, improved timeliness, (3) improved coverage, (4) improved response rates, and (5) reduced measurement error. With the snowball sampling technique in the distribution of the initial internet survey, additional modes of survey administration were not necessary. As mentioned previously, Survey Gizmo was the online survey software tool selected for administration of the online survey.

Dillman (2000) recommends a system of five contacts when administering the survey. This system was adapted to account for the anonymity restrictions required for this survey. Dillman (2000) argues that progressing through a version of this system of five contacts can increase response rates by establishing trust between the researcher and the respondent. Trust is critical to forming the belief that in the long run the benefits of completing the survey will outweigh the costs of doing so.

1. **Brief Pre-Notice Letter**- According to Dillman (1990), research has consistently shown that a pre-notice letter can improve response rates by three to six percent. The purpose of the pre-notice letter is to inform recipients, in a positive and timely manner, that they will be receiving a request for their help in an important survey. This letter was sent out via email to the 103 contacts in Washington and three in British Columbia several days before the survey.
2. **The Survey**-An email was sent out to each of the contacts with a link to the survey on the Survey Gizmo website. A brief cover letter preceded the link to the survey. Respondents were asked to forward the email, and link to the survey, to others that might be interested in participating in the study. The survey was administered anonymously and confidentially. Respondents were assigned a number by the Survey Gizmo survey when they responded, eliminating any connection to their responses.
3. **Thank You Note**-The purpose of the thank you note was not to overcome resistance from respondents, but to jog memories about the survey. A thank you email was sent out to the original contacts one week after the initial survey was sent out, requesting the contacts' participation in the survey if they had not done so yet. The anonymity of the survey prevented knowledge of who and who had not completed the survey yet, so thank you notes were sent out to all initial contacts.

4. **Replacement Survey and Final Contact**-The replacement survey and final contact was sent out to contacts 2-4 weeks after the initial survey was sent out. Again, because of the anonymity of the survey, there was no way to tell who had responded and who had not. Consequently, the replacement survey was sent out to all initial contacts.

In addition to the snowball sampling request embedded in the survey participation request email, ranching and sportsman associations were asked to send the survey out to their members through their respective member lists. Due to the controversial nature of the presence of wolves, it was hoped that receiving the survey participation request from within the ranching and sportsman associations would increase willingness to participate in the survey, by establishing authenticity and trust. Dillman (1990) emphasizes the benefits of establishing trust not only for survey response rates, but the thoughtfulness in participation as well.

### 3.3 Data Analysis Procedures

Survey research offers a way to explore perceptions and opinions within a large population of respondents that is too large to observe directly (Babbie, 2001). Survey research can be used for descriptive, explanatory, and exploratory purposes. This study used a combination of semi-structured interviews and the administration of a public perception survey to explore the opportunities and obstacles for the collective management of the wolf in Cascadia. The semi-structured interviews were conducted first and were used to inform the development of the public perception survey.

#### 3.4.1 Semi-Structured Interviews

Each interview was transcribed and stored anonymously. Upon completion of the interview process, the interviews were analyzed using content analysis. Content analysis is a research technique for making valid and replicable inferences from texts to the contexts of their use (Krippendorff, 2004). Various studies have used content analysis to examine the use of language and its relationship to

environmental issues and the social beliefs of policy stakeholders (Abel and Stephan 2008; Koski, 2007; Kraft and Clary, 1991). Researchers have defined three conceptions of content analysis:

1. Content inherent in a text
2. Content as a property of the source of the text
3. Content that emerges in the process of a researcher analyzing a text relative to a particular context

Throughout the analysis of the interview transcripts it was important to keep each of these foundations of content in perspective to allow for an objective analysis. Krippendorff (2004) warns that a context is always constructed by someone, thus a researcher must be clear about the objectives of the analysis.

According Krippendorff ( 2004), six questions must be addressed in every content analysis:

1. Which data are analyzed?
2. How are they defined?
3. What is the population from which they are drawn?
4. What is the context relative to which the data are analyzed?
5. What are the boundaries of the analysis?
6. What is the target of the inferences?

This process is an example of analytic induction, in that it begins with observations, and it is analytic because it goes beyond descriptions to find patterns and relationships (Babbie, 2001). Using these questions, the interview transcripts were qualitatively categorized and classified for patterns pertaining to the interviewees (1) perception of the wolf, (2) level and attitude about current wolf management practices, (3) the existing opportunities and obstacles currently facing wolf management, and (4) opportunities and obstacles for a transborder, collective, wolf management regime.

### **3.4.2 Public Perception Survey**

There is a trade-off choosing a qualitative or quantitative measure of analysis. A quantitative analysis allows a researcher to deal with larger amounts of data, aggregate, compare and summarize this data using statistical analysis. Qualitative data, on the other hand, preserves the richness of data but is not necessarily suitable for large amounts of data (Babbie, 2001). Consequently, a mixed-mode analysis was conducted on the survey responses.

The public perception survey was comprised of both open and closed ended questions. Survey results were compiled within the Survey Gizmo software a qualitative assessment of the open-ended questions was performed using the content analysis procedure described above. Responses to the questions were qualitatively categorized and classified for patterns pertaining to the respondents (1) attitude and perception of wolf and (2) attitude on current wolf management practices.

The closed-ended questions allowed for quantitative analysis of the responses. Descriptive statistics were performed on all nominal questions. Ordinal questions were normalized on an interval scale from 1 to 5; 1 for strongly disagree and 5 for strongly disagree and results were averaged per statement. All questions were compared between the two sample populations.

## **3.5 Conclusion**

Throughout this research I utilized a comprehensive and inductive method for evaluating what factors might lead to the successful transborder management of the Wolf. This research methodology utilizes deductive reasoning in its framework of commons resource theory. However, because the commons resource theory is not specific to the Wolf, an inductive approach much be taken to address the questions at hand. After a brief historical treatment, comparative governance analyses, semi-structured interviews, and surveys were administered within the case study regions. Ideally, employing multiple research methods would produce the most comprehensive assessment, however multiple

methods are not always complimentary within a single study. For instance, it would be of great value to explore the cognitive change in mindset that lead to the perception of the Wolf changing from revered to vermin. While the brief historical treatment touched on the issue of Wolf perception, a full study in the human-nature relationship with the Wolf is warranted.

## **CHAPTER FOUR: GOVERNANCE ANALYSIS**

### **4.1 ENVIRONMENTAL GOVERNANCE IN BRITISH COLUMBIA AND WASHINGTON STATE**

#### **4.11 Introduction**

The physical and political presence of the U.S.-Canadian International border is a dilemma facing natural resource managers of the Cascadia ecoregion. Environmental governance typically includes numerous actors from government, non-governmental organizations (NGO's), corporations, scientific communities, and increasingly, local communities. Environmental governance, particularly natural resource management, north and south of the U.S.-Canadian border is markedly different and is a direct reflection of the respective political systems. Canadian and U.S. governments share similar structural features. These include federalism, similar regulatory systems, and somewhat autonomous local governments (Alper 2004). Federalism is defined as a government form with two or more levels of shared sovereignty (Harrigon, 1997). In the Canadian Parliamentary System, the Legislative and Executive branches are fused. This is true at both the national and provincial level. Conversely, the U.S. system maintains an institutional separation among the legislative and executive branches. For purposes of natural resource management, the most important difference between the two systems is the greater degree of decentralization of the Canadian system compared to the US system. Consequently, natural resource management in Canada rests largely in the hands of the provinces whereas in the U.S. the national government plays a more significant role (Alper 2004; Bernstein 2002). This variance in natural resource management structures on either side of the border makes coordination, implementation, and management of transborder natural resources difficult. The implication for wide-ranging species, such as the Gray Wolf, is that conservation policy is not congruent throughout the entire ecoregion.

The comparative governance analysis was conducted first to examine the environmental governance institutions at work within each of the case study regions. Klyza and Sousa (2008) argue that

state/provincial governments may have greater flexibility for innovative environmental policy implementation. However, current wildlife conservation in the U.S. and Canada is dominated by federal legislation. This comparison of the wildlife management governance networks was conducted to reveal potential factors regarding the arrangement and interaction of governance institutions that hinder or support collaborative transboundary wolf management. This research was also utilized in the semi-structured interviews as background information on how agencies and institutions of the respective interviews operated.

## **4.2 CANADIAN ENVIRONMENTAL GOVERNANCE**

### ***Regulatory Authorities***

Canadian government is characterized by a constitutional monarchy. The Canadian government, like the U.S. is a federal state. A federal state is a synthesis of different political communities within a common government for a common purpose. Canada operates as a Parliamentary-cabinet Government, with a sovereign Queen. In Canada there are multiple tiers of government: the crown, the national government, provincial government, and local government. However, the national, provincial, and local governments are the primary governing bodies and are similar in structure.

There are several differences between U.S. and Canadian federalism. First, Canada is a constitutional monarchy and the U.S. is a republic. As such, in Canada, the Head of State and the Head of Government are represented by different people. In the U.S. the President is both the Head of State and the Head of Government. Another difference is the U.S. constitutional foundation on the separation of powers and institutional separation among its main branches of government. The U.S. President cannot be a member of either the House or Congress. In Canada the executive and legislative branches are fused; a concentration of powers. This is true at both the national and provincial level. Another important difference involves the balance between the parties. In the U.S., Senators and Representatives are elected for a fixed term regardless of the party affiliation of the President. So what

can end up happening is that a President can be faced with opposing majorities in the House and Senate. In Canada, as long as the Government can keep the support of a majority in the House of Commons, they can pass any legislation they see fit. If the Government loses support in the House of Commons that Government must either step aside or call for a new election. This is referred to as responsible and responsive governance in Canada (Forsey, 2005). These differences in structural governance can impact natural resource management. In the U.S. environmental governance can be litigious and adversarial as a result of opposing parties and majorities in government. In Canada, while environmental governance is not as litigious, legislative changes often require a change in government as well.

A profound difference in governance, between Canada and the U.S., for natural resource management and wildlife conservation governance is the type of federalism each country embodies. The U.S. government is highly centralized with wide national and narrow state powers, while the Canadian government is de-centralized with narrow national power and wide provincial power (Forsey, 2005). One implication of this is that natural resource management and wildlife conservation policies in Canada are largely controlled by the individual provinces, whereas in the U.S. the national government plays a significant role (Butch Interview; Alper, 2004, Bernstein, 2002).

The Canadian national government consists of three branches: Executive, Legislative, and Judicial branches. Influential government authorities are generally concentrated within the Cabinet of the Executive Branch and each is examined below.

### National Authorities - The Cabinet and Ministries

The Prime Minister chooses members of the Cabinet. Cabinet members (Ministers) automatically become members of the Queen's Privy Council. Cabinet members are normally Members of the House of Commons. Every province normally has at least one Cabinet Minister (Forsey, 2005).

Cabinet Members have no term and maintain their office as long as the Prime Minister maintains the majority. Each Cabinet Member is responsible for particular departments, totaling 29-30 Ministries. An examination of those pertaining to terrestrial carnivore conservation and habitat management follows.

First, the Ministry of Natural Resources provides innovation and expertise in earth sciences, forestry, energy and minerals and metals to ensure the responsible and sustainable development of Canada's natural resources ([www.nrcan-rncan.gc.ca](http://www.nrcan-rncan.gc.ca)). The forest ecosystems division is the most relevant to wildlife habitat as the ministry works to establish healthy and diverse forest ecosystems where wildlife can also thrive.

Second, Environment Canada is the primary national enforcer behind wildlife conservation and habitat management, although most wildlife conservation and habitat management is delegated to the provinces. Environment Canada's mandate is to conserve and enhance the quality of the natural environment, including water, air and soil quality; to conserve Canada's renewable resources including migratory birds and other non-domestic flora and fauna; to conserve and protect Canada's water resources; to enforce the rules made by the Canada-U.S. International Joint Commission related to boundary waters; and to coordinate environmental policies and programs for the federal government. The Canadian Wildlife Service (CWS), a part of Environment Canada, is responsible for the conservation of migratory birds, species at risk and biodiversity. The Species at Risk Registry and the Canadian Wildlife legislation are the primary mechanism for management and enforcement by Environment Canada. Canadian wildlife legislation protects species in Canada, particularly migratory birds. It is also aimed at conserving threatened or potentially threatened species internationally. These laws regulate human intervention, such as hunting or trade that could adversely affect long-term wildlife conservation. The implementation of these laws involves activities carried out by officers throughout the various regions of

Canada. It includes work in collaboration with several national and international agencies and organizations ([www.ec.gc.ca](http://www.ec.gc.ca)).

### Provincial Authorities - The Province of British Columbia

Provincial government in Canada is structured similarly to the national government. The national Governor General appoints a provincial Lieutenant General who performs similar duties and is answerable to the Governor General. British Columbia has an 85-member elected Legislative Assembly. The leader of the majority in the Legislative Assembly is appointed as the Premier by the Lieutenant General. The Premier selects Ministers from the government's party in the legislative assembly. Provincial Cabinet Ministries are delegated to manage the provinces natural resources, including wildlife and their habitat. The Ministries have the authority to initiate and implement legislation with little interference from the national government. The Ministries pertaining to terrestrial carnivore conservation and habitat management are listed below:

**Ministry of the Environment** - The Ministry of the Environment is B.C.'s powerhouse for environmental legislation and management. The ministry is sub-divided into the following divisions:

1. *Environmental Protection Division* – The Environmental Protection Division works to prevent pollution, and promote and restore environmental quality.
2. *Environmental Stewardship Division* – The Environmental Stewardship Division is the primary regulatory force behind wildlife conservation in B.C. Their mission is to 'maintain and restore the natural diversity of provincial ecosystems and fish and wildlife species and their habitat,' as well as providing overall leadership for oceans resources and marine fisheries. The division delivers programs and services through four branches and the Species at Risk Coordination Office (SaRCO):
  - i. Ecosystems Branch – responsible for biodiversity science, standards and policy for the Ministry, and is responsible for the preparation of a biodiversity strategy

for British Columbia. The Ecosystems Branch is the primary branch responsible for habitat and species conservation;

- ii. Fish and Wildlife Branch – ‘establishes legislation, policies and procedures for managing fishing and hunting activities, and for the allocation of fish and wildlife resources for recreational and commercial use. The branch manages the provincial fish culture and stocking programs to support recreational fishing and endangered species recovery;’
- iii. Species at Risk<sup>5</sup> Coordination Office – ‘provides recommendations on how the province addresses species at risk issues and coordinates and accelerates recovery planning for three broad-ranging species; Marbled Murrelet, Mountain Caribou, and Spotted Owl.’ SaRCO collaborates across government ministries and with various stakeholders to coordinate recovery.

- 3. *Compliance Division* – The Compliance Division provide ministry wide support for compliance management.
- 4. *Parks and Protected Areas Division (BC Parks)*
- 5. *Strategic Policy Division* - provides corporate leadership, coordination, analysis and inter-agency communications services to the Ministry of Environment.
- 6. *Environmental Assessment Office* – operates independently and coordinates with First Nations, government agencies, and the public for the assessment of proposed projects as stipulated under the Environmental Assessment Act.

**Ministry of Forests and Range** – responsible for the management and persistence of B.C. forests and in some cases, the wildlife contained within them. Management occurs through five divisions: BC Timber

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<sup>5</sup> See regulatory section for specific information on the Species At Risk Act

Sales, Corporate Services Division, Forest Stewardship Division, Operations Division, and Tenure and Revenue Division.

### *Regulatory Environment*

Canada's decentralized government produces a convoluted regulatory environment for wildlife conservation and habitat management. While much of the regulatory power for natural resource management is delegated to the provinces, there is insufficient legislation to support that regulatory power at the federal level. The majority of wildlife and habitat protection legislation exist at the federal level, where provincial authorities have less ability to influence and interact. Contributing to this is the relatively young emergence of environmental governance in Canada. The majority of the legislation contributing to wildlife conservation and habitat management did not emerge until the late 1990's and early 21st century. Contrast this to the U.S., where the environmental governance framework emerged in the 1960's and 1970's (Fiorino, 2006).

The Species at Risk Act (SARA) is the most influential of wildlife conservation and management legislation and is implemented at both the national and provincial levels. The purposes of the Act are to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, and encourage the management of other species to prevent them from becoming at risk. The Act establishes the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk; requires that the best available knowledge be used to define long and short-term objectives in a recovery strategy and action plan; creates prohibitions to protect listed threatened and endangered species and their critical habitat; recognizes that compensation may be needed to ensure fairness following the imposition of the critical habitat prohibitions; creates a public registry to assist in making documents under the Act more

accessible to the public; and to be consistent with Aboriginal and treaty rights and respect the authority of other federal ministers and provincial governments. SARA is a result of the implementation of the Canadian Biodiversity Strategy, which is in response to the United Nations Convention on Biological Diversity. The Act provides federal legislation to prevent wildlife species from becoming extinct and to provide for their recovery. Currently, extirpated terrestrial mammals on the list include the prairie population of the Grizzly Bear and Black-footed Ferret. Endangered species include the Banks Island and High Arctic populations of the Caribou and the eastern population of the wolverine. Listed terrestrial mammalian species of special concern include the northwestern population of the Grizzly Bear, the Polar Bear, the Gray Fox, and the western population of the Wolverine ([www.sararegistry.gc.ca/species/schedules](http://www.sararegistry.gc.ca/species/schedules)).

Another important, also less influential piece of federal legislation is the *Canadian Wildlife Act of 1985*. The Act allows for the creation, management and protection of wildlife areas for wildlife research activities, or for conservation or interpretation of wildlife. The purpose of wildlife areas is to preserve habitats that are critical to migratory birds and other wildlife species, particularly those that are at risk. The Wildlife Area Regulations prohibits all activities that could be harmful to species and to their habitat, unless a permit is issued indicating the permitted activity. Activities such as hiking, canoeing, photography and bird watching can be carried out without a permit in most areas ([www.cws-scf.ec.gc.ca/enforce](http://www.cws-scf.ec.gc.ca/enforce)).

The decentralized nature of environmental governance in Canada leaves much legislative authority to the provinces. However, there exists only minimal environmental regulation and most of what does exist is in its infancy. The *Forest and Range Practices Act of 2004 (FRPA)* protects forest values including watersheds and wildlife habitat, and creates efficiencies for both government and industry through streamlined planning processes. FRPA encourages innovation by skilled resource professionals and holds industry responsible for outcomes ([www.for.gov.bc.ca/code](http://www.for.gov.bc.ca/code)). The Minister responsible for the

Wildlife Act may establish one or more categories identifying species of wildlife as species at risk, regionally important wildlife or ungulate species and their winter ranges. Under the Forest and Range Practices Act, the Minister responsible for the Wildlife Act, the Minister of Environment, is authorized to establish two categories of wildlife which require special management attention to address the impacts of forest and range activities on Crown land: (1) These two categories are Species at Risk, and (2) Regionally Important Wildlife. The Species at Risk category includes endangered, threatened, or vulnerable species of vertebrates and invertebrates that are negatively affected by forest or range management on Crown land and are not adequately protected by other mechanisms. The Regionally Important Wildlife category includes species that are considered important to a region of British Columbia, rely on habitats that are not otherwise protected under the FRPA, and may be adversely impacted by forest or range practices. Together these two categories of wildlife—Species at Risk and Regionally Important Wildlife—are referred to as Identified Wildlife under the IWMS.

The IWMS provides direction, policy, procedures and guidelines for managing Identified Wildlife. The goals of the Strategy are to minimize the effects of forest and range practices on Identified Wildlife situated on Crown land and to maintain their limiting habitats throughout their current ranges and, where appropriate, their historic ranges. In some cases, this might entail restoration of previously occupied habitats, particularly for those species most at risk. Identified Wildlife are managed through the establishment of Wildlife Habitat Areas (WHAs) and the implementation of General Wildlife Measures (GWMs) and wildlife habitat area objectives, or through other management practices specified in strategic or landscape level plans ([www.for.gov.bc.ca/code/wildlife.htm](http://www.for.gov.bc.ca/code/wildlife.htm)).

The second piece of provincial legislation that is pertinent to wildlife is the Wildlife Act of 1996. The Wildlife Act is administered by the Fish and Wildlife Branch of the Ministry of the Environment and is the main provincial law for protecting wildlife, endangered species and wildlife habitat. The Act has a number of provisions for protecting, managing, and purchasing habitat areas as well as protecting

endangered and threatened species. The Act employs two primary vehicles for managing wildlife: managing wildlife takings through licensing schemes and particular species protection measures; and managing habitat areas. Several amendments are underway, one of which would provide park rangers with increased authority to monitor hunting and fishing activities to ensure those activities are being done in accordance with the Wildlife Act. The legislation also authorizes the environment minister to make regulations that restrict the feeding and attracting of certain wildlife in specific areas. This will make it easier for the ministry to deal with wildlife feeding problems where and when they arise, and to enhance public safety ([www.env.gov.bc.ca](http://www.env.gov.bc.ca)).

#### **4.3 UNITED STATES ENVIRONMENTAL GOVERNANCE**

##### *Regulatory Authorities*

As in Canada, the Cabinet in the Executive Branch is the primary enforcer of federal environmental laws and legislation. The Cabinet and independent federal agencies are responsible for the day-to-day enforcement of federal environmental legislation. Departments and agencies with responsibilities specific to natural resource and wildlife management are: (1) the Department of Agriculture, which includes the Forest Service and Natural Resource Conservation Service and (2) the Department of the Interior, which includes the Bureau of Land Management, Bureau of Indian Affairs, United States Fish and Wildlife Service (USFWS), and the National Park Service (NPS). Compared to Canada, there are many more layers of environmental governance at the federal level.

In the U.S., governance is highly centralized and states have comparatively less governing authority than the federal government. Many state departments are subsets of larger federal divisions who maintain governing authority. Regardless, many states are using what sovereignty they are granted to develop innovative groups and commissions to solve environmental problems within their respective

regions. Washington State utilizes three governing bodies for natural resource and wildlife management: (1) the Department of Ecology, who focuses on air, land, and water, (2) the Washington Department of Fish and Wildlife, which is a subset of the USFWS, and (3) the Department of Natural Resources, which is largely concerned with land management.

### *Regulatory Layers*

United States governance is characterized by three levels of government: national, state, and local. As mentioned previously, in Canada, much of the governance power is conglomerated at the provincial (state equivalent) level. In the U.S. the states have less governing power and are subject to national intervention and law in most matters (Fiorino, 2006). However, in the U.S. there are several national laws and acts that guide conservation of wildlife and their respective habitats specifically. States laws are descendents of the federal laws in many cases, especially with regards to wildlife conservation and habitat management. Nationally, there exists the Endangered Species Program (which will be discussed in detail in the subsequent section) and the *Wilderness Act of 1964*. An important aspect of the Wilderness Act is that when Congress designates each wilderness area, it includes a very specific boundary line in statutory law. Once a wilderness area has been added to the System, its protection and boundary can only be altered by another act of Congress. That places a heavy burden on anyone who, all through the future, may propose some change. Congress considers additional proposals every year, some recommended by federal agencies and many proposed by grassroots conservation and sportsmen's organizations ([www.wilderness.net](http://www.wilderness.net)).

In Washington State, wildlife (including endangered species legislation) is regulated through the (1) *Species of Concern* – Species of Concern in Washington include those species listed as State Endangered, State Threatened, State Sensitive, or State Candidate, as well as species listed or proposed for listing by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, (2) *Priority*

*Habitats and Species, 1989* – The Priority Habitats and Species (PHS) Program fulfills one of the most fundamental responsibilities of the Washington Department of Fish and Wildlife (WDFW) - to provide comprehensive information on important fish, wildlife, and habitat resources in Washington. The PHS Program serves as the backbone of WDFW's proactive approach to the conservation of fish and wildlife. PHS is the principal means by which WDFW provides important fish, wildlife, and habitat information to local governments, state and federal agencies, private landowners and consultants, and tribal biologists for land use planning purposes. PHS is the agency's primary means of transferring fish and wildlife information from our resource experts to those who can protect habitat, and (3) *2009-2015 Game Management Plan Development* – Starting in June 2007, the WDFW began updating the 2003-2009 Game Management Plan. This revised plan will guide the Department's management of hunted wildlife for 2009-2015. The focus of the plan is on the scientific management of game populations, harvest management, and other significant factors affecting game populations. Other legislation and regulation exists within this framework, but will not be addressed here.

#### **4.4 REGULATORY ENVIRONMENT NORTH AND SOUTH OF THE BORDER**

Environmental governance typically includes numerous actors from government, non-governmental organizations (NGO's), corporations, scientific communities, and increasingly, local communities. Interactions among these actors can be cumbersome and difficult to navigate. Alper (2004) identifies three frameworks for environmental governance: crisis/reactive, state-centric, and normative/constructivist. Environmental governance at the national level generally doesn't occur until a crisis condition is identified. At the state-centric level, the focus is on governmental actors—especially states and provinces—creating bilateral institutions, signing MOUs, etc. State-centric interactions focus on the government actors as the motivators in shaping environmental interests (Alper 2004). States are closer to the people and businesses that they regulate and thus can shape policies that better match the

interests of their citizens and businesses (Teske 2004). Klyza and Sousa (2008) argue that state governments may have greater flexibility for innovative environmental policy implementation. Additionally state attorney generals increasingly use courts to challenge federal and congressional gridlock as a form of state ascendancy (Klyza and Sousa 2008; Teske 2004). Examples of state-centric groups collaborating for innovative policy implementation include: the Western Governors Initiative, which produced the Western Climate Initiative, the Georgia Basin Ecosystem Initiative, the Greater Vancouver Regional District, the British Columbia-Washington Environmental Cooperation Agreement, which produced the British Columbia-Washington Environmental Council, among others.

U.S environmental regulation was built on the framework of combating the pollution problem. That framework includes three reasons for centralization of federal control in environmental governance: (1) pollution control advocates in the 1970's argued that pollution does not respect political boundaries and that national policies were necessary, (2) there was a fear that the states would lack the political will to regulate pollution if there was an economic tradeoff, and (3) without minimum national standards, there would be a 'race to the bottom' where states would compete for economic interests by implementing tax pollution control laws (Fiorino, 2006). While this reasoning may have been justified in the 1970's, many states have proven superior at devising and implementing innovative environmental management policies (Teske, 2004). States are often test centers for new environmental legislative and subsequently, NGO's and lobbyists have begun venue shopping for states where more progressive legislation may be accepted (Teske, 2004).

One major factor contributing to states becoming innovators for environmental policy management is the political stalemate at the national level (Fiorino, 2006). Environmental policy was developed in the 1970's with the aim of controlling pollution rather than preventing it. With the exception of the Endangered Species Act, which was ratified in 1973, the majority of environmental legislation was geared towards water, air, and waste pollution control. At the time, the legislation was

highly successful and was able to maintain and reduce pollution levels in some cases, despite the increase in industry. The regulatory approach has not evolved much since its original adoption in the 1970's because of partisan conflict and adversarial relationships (Fiorino, 2006). While other countries have allowed their regulatory approach to evolve, the U.S. has devised 'more rules, more complicated laws, and more intricate systems for permitting and reporting' to elaborate on its old rules-and-deterrence model (Fiorino, 2006).

The result of both the centralized government and lack of policy evolution has been an extremely adversarial governing environment and what Robert Kagan (1991) terms adversarial legalism. Kagan argues that adversarial legalism in the U.S. 'results in enormously costly, time consuming, and erratic policy implementation, and dispute resolution, conducted in courts or in the forbidding shadow of judicial review.' Wildlife conservation and habitat management in the U.S. is particularly adversarial in nature at both the national and state level. The process is cumbersome, complex, and generally poorly understood. It can happen two different ways: through the petition process or through the candidate assessment process. The ESA provides that any interested person may petition the Secretary of the Interior to add a species to, or to remove a species from, the list of endangered and threatened species. Through the candidate assessment process, FWS biologists identify species as listing candidates. Both processes may result in a species being proposed for Federal listing under the ESA ([www.fws.gov](http://www.fws.gov)).

Unlike the U.S., Canada does not have stringent legislation to protect threatened and endangered species and their habitats. Canada signed the United Nations Convention on Biological Diversity, committing to promote the conservation of biodiversity by adopting laws to protect and recover species at risk. Canada implemented the Species at Risk Act in 2002 to protect species at risk through the implementation of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). However, the legislation is insufficient in its protection and insofar, few species have successfully been listed. The listing process begins with a species assessment that is conducted by

COSEWIC. Based on a status report, species specialist subcommittees assess and assign the status of a wildlife species believed to be at some degree of risk. When COSEWIC completes its assessment, they must provide the Minister with a copy of the assessment and its reasons for the status designation. Upon receiving an assessment, the Governor in Council may on the recommendation of the Minister, amend the List and add a wildlife species; reclassify a listed wildlife species; or remove a listed wildlife species. When the Governor in Council has not taken a course of action within nine months of receiving the assessment, the Minister shall amend the List in accordance with COSEWIC's assessment ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)). However, SARA provides protection for species on federal lands. Federal lands comprise about 1% of BC lands (Nixon, Page, and Pinkus, 2008). SARA gives the federal government the power to apply “safety net” provisions to protect species outside of federal lands; but these discretionary powers have never been used (Nixon, Page, and Pinkus, 2008).

BC signed the National Accord for the Protection of Species at Risk in Canada in 1996, committing to enact endangered species legislation or use existing laws and policies to protect species at risk and their habitat. Currently, eighty-nine percent of known threatened and endangered species in BC are not protected under BC's laws and policies, or under Canada's federal endangered species legislation. The vast majority of BC's species at risk thus receive no legal protection. Instead, the province relies on a fragmented legislative and policy framework that provides poor protection for biodiversity, some of which is exacerbated by industrial logging priorities. Approximately four percent of BC's species at risk receive legal listing under provincial laws, but this does not include their habitat.

### *Endangered Species Legislation*

#### United States - The Endangered Species Act

The emergence of endangered species legislation at both the federal and state level was a result of a shift in public attitudes towards public lands, the environment, and wildlife (Keiter and Holscher,

1990). Keiter and Holscher (1990) note that while the intellectual foundations for this ecological ethic can be traced back to the turn-of-the-century progressive conservation movement, they are also linked to contemporary ideas about land and resource management such as Aldo Leopold's "Land Ethic". Leopold's "Land Ethic" proclaims a role change for humans from land conqueror to member and citizen and by 1964 the views were being translated into federal policy such as the Endangered Species Act.

The Endangered Species Act is the primary legislation offering protection to wildlife in the United States. The Act regulates the activities of all federal agencies, requiring them to conserve listed species and actions that may jeopardize those species. For an endangered species to be de-listed, at least two things are required, (1) scientific evidence of recovery, and (2) approved state management plans for that species. Moreover, the Act applies on private property. Under the Act, it is illegal to "take" a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct (USFWS website)." In 1982, the Act was amended to authorize "experimental populations" which are managed more flexibly than other protected species. Experimental, non-essential populations of endangered species are treated as threatened species on public land and as species proposed for listing on private land, for consultation purposes. This enables landowners and livestock producers to harass listed animals at any time in a non-lethal manner and "take" listed species when they are in the act of wounding, biting, or killing livestock. All incidents must be reported (USFWS 50 CFR Part 17). This designation is most often used as a reintroduction technique for particularly controversial recovery efforts. Additionally, Congress has also modified recovery plan provisions to provide for public comment. This is a profound addition to the legislation and reflects federal efforts to acknowledge state and local interests. While the Endangered Species Act falls under federal jurisdiction, many states have instituted endangered species legislation that augments federal policy.

## British Columbia

Wolves are not covered by any endangered species legislation in Canada or British Columbia. In fact, no such legislation exists in Canada. But even endangered species legislation existing the wolf would not be covered because wolf numbers are healthy throughout many regions in British Columbia. The David Suzuki Foundation in Canada has dubbed British Columbia “that last place on earth without an endangered species law.” Some legislation aimed at protecting wildlife does exist, but many organizations characterize it as marginal and inconsistent and is summarized below:

At the national level there exists the Canada Wildlife Act, 1985 and the Species at Risk Act, 2002. The Species at Risk Act (SARA) is the most influential of wildlife conservation and management legislation and is implemented at both the national and provincial levels. The purposes of the Act are to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, and encourage the management of other species to prevent them from becoming at risk. The Act establishes the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk; requires that the best available knowledge be used to define long and short-term objectives in a recovery strategy and action plan; creates prohibitions to protect listed threatened and endangered species and their critical habitat; recognizes that compensation may be needed to ensure fairness following the imposition of the critical habitat prohibitions; creates a public registry to assist in making documents under the Act more accessible to the public; and to be consistent with Aboriginal and treaty rights and respect the authority of other federal ministers and provincial governments. SARA is a result of the implementation of the Canadian Biodiversity Strategy, which is in response to the United Nations Convention on Biological Diversity. The Act provides federal legislation to prevent wildlife species from becoming extinct and to provide for their recovery. The listing process begins with a species assessment that is conducted by the

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Based on a status report, species specialist subcommittees assess and assign the status of a wildlife species believed to be at some degree of risk. When COSEWIC completes its assessment, they must provide the Minister with a copy of the assessment and its reasons for the status designation. Upon receiving an assessment, the Governor in Council, may on the recommendation of the Minister, amend the List and add a wildlife species; reclassify a listed wildlife species; or remove a listed wildlife species. When the Governor in Council has not taken a course of action within nine months of receiving the assessment, the Minister shall amend the List in accordance with COSEWIC's assessment. Currently, extirpated terrestrial mammals on the list include the prairie population of the Grizzly Bear and Black-footed Ferret. Endangered species include the Banks Island and High Arctic populations of the Caribou and the eastern population of the wolverine. Listed terrestrial mammalian species of special concern include the northwestern population of the Grizzly Bear, the Polar Bear, the Gray Fox, and the western population of the Wolverine (SARA website).

At the British Columbia provincial level there exists the Forest and Range Practices Act, 2004, which is responsible for protecting forest values including watersheds and wildlife habitat, and creates efficiencies for both government and industry through streamlined planning processes. There is also the Wildlife Act, 1996. The Wildlife Act is administered by the Fish and Wildlife Branch of the Ministry of the Environment and is the main provincial law for protecting wildlife, endangered species and wildlife habitat. The Act has a number of provisions for protecting, managing, and purchasing habitat areas as well as protecting endangered and threatened species. The Act employs two primary vehicles for managing wildlife: managing wildlife takings through licensing schemes and particular species protection measures; and managing habitat areas. Several amendments are underway, one of which would provide park rangers with increased authority to monitor hunting and fishing activities to ensure those activities are being done in accordance with the Wildlife Act. The legislation also authorizes the environment minister to make regulations that restrict the feeding and attracting of certain wildlife in specific areas.

This will make it easier for the ministry to deal with wildlife feeding problems where and when they arise, and to enhance public safety ([www.env.gov.bc.ca](http://www.env.gov.bc.ca)). Lastly there is the Conservation Data Centre, which was established in 1991 as a joint project of the Ministry of Environment, the Nature Trust of B.C., the Nature Conservancy of Canada and The Nature Conservancy (US). Initial funding came from a variety of sponsors including BC Parks, the BC Telephone Company, BC Hydro, Canadian Wildlife Service, Cariboo Lumber Manufacturers Association, UBC, the Council of Forest Industries, the Hamber Foundation and the Vancouver Foundation. Once identified, species and ecological communities at risk are 'tracked' in the CDC's computerized database. Information on their biology, conservation status, and individual locations or 'occurrences' is systematically collected ([www.env.gov.bc.ca](http://www.env.gov.bc.ca)). However, the Conservation Data Centre is not legislatively enforced, it is merely a tool.

#### **4.5 REGULATORY PROSPECTS**

Wildlife conservation and habitat management in Canada and the U.S. are markedly different. In Canada, while there is national legislation aimed at protecting wildlife, it does so only on federal lands. British Columbia has not yet implemented provincial legislation to compensate for the inadequacies of the national SARA legislation. However, British Columbia is in a unique position in that it has no previous wildlife conservation legislation to amend or conform to. BC has the opportunity to examine wildlife conservation policy from many states and nations and craft innovative and pertinent legislation. Special interest groups in British Columbia such as the David Suzuki Foundation, Western Canada Wilderness Committee, and Ecojustice, among others, are currently collaborating to push for provincial endangered species legislation.

The United States is in a different and potentially more challenging situation. While national and state legislation does exist to protect and conserve endangered wildlife and their habitat, the listing process has become too cumbersome and adversarial to continue to be effective at the federal level.

Several possibilities exist for improvement within the current legislation. Some scholars have suggested glocalization and/or a shift away from compliance to performance as possibilities for evolution in environmental governance (Swyngedouw, 2004; Klyza and Sousa, 2008; Fiorino, 2006; Potoski and Prakash, 2004). Performance based environmental management currently exists with regards to pollution, but could be adapted to function with wildlife conservation and habitat management as well.

## CHAPTER FIVE: INTERVIEW AND SURVEY RESEARCH RESULTS

### 5.1 SEMI-STRUCTURED INTERVIEWS

#### Results

The purpose of the semi-structured interviews was to gain an understanding of how regional managers felt about the current wolf management governance, where more attention was needed with respect to wolf management, and if they felt there was an opportunity for a more polycentric approach to wolf management. The results were used to (1) develop the public perception survey and (2) to gain an understanding of the role of the Border with respect to wolf management.

The semi-structured interviews were conducted over a four month period from October 2010 to January 2011, immediately following the 2010 Wild Links Conference. Interview requests were sent out to twelve WA wolf managers and ten B.C. wildlife managers that dealt with some wolf issues. Interviews were conducted on five federal/Washington state wolf managers and one Washington State guide outfitter. Two interviews were conducted on British Columbia wildlife managers that dealt with wolves. Several respondents noted throughout the interview process that due to the controversial nature of the wolf topic, wolf/wildlife managers might be apprehensive about participating in the interviews despite the anonymity of the process. To address this issue, the interview questions were setup in a questionnaire format using Survey Gizmo and an additional round of interview requests were sent out with the option of responding online through the questionnaire. From this, four more Canadian (3 British Columbians and 1 Albertan) responses and three more Washington responses were received. This resulted in a total of eight interviews from WA wolf managers, one interview from a WA sportsman leader, and six interviews from B.C. wolf/wildlife manager interviews.

Each of the questions is discussed below with corresponding Canadian and U.S. comments:

**Question: What/Where are some opportunities for wolf management in your area?**

Overwhelmingly, B.C. managers responded that wolf hunting and trapping were the primary opportunities for management. In each of the interviews, respondents indicated that wolves are not really managed in British Columbia other than the presence of an open hunting and trapping season. They are not a species of concern and for the most part, are just left alone as far as management goes. However, one British Columbian did remark that there is *“virtually no public dialogue regarding wolf management currently or public outreach to inform them...this is an issue worthy of attention.”*

Washington interview respondents had mixed responses ranging from there being no wolves present to allow for opportunities to be present to recovery of wolves being the objective. The semi-structured interviews produced a similar range of responses. One respondent felt there were no opportunities, only obstacles and another respondent felt that developing a management plan was the only opportunity in wolf management. The remaining five respondents felt the biggest opportunities for wolf management were *“hunting, ecotourism, and healthier ungulate populations.”* One of these five respondents elaborated that the two biggest reasons that people want wolves back are, (1) to right a historical wrong and (2) ecosystem balance and biodiversity.

From one WA respondent, *“You have some level of sale of hunting licenses....also I think wolves make game herds much healthier....and you’ll get some ecotourism.”*

And from another U.S. manager, *“The two biggest reasons people want wolves back is the thought that it would right a historical wrong and the second thing is regarding the balancing of the ecosystem.”*

**Question: What are the biggest challenges for wolf management in your area?**

B.C. respondent’s identification of wolf management challenges varied. Answers ranged from First Nations, biological research, public pressure, inability to manage through hunting, and caribou and livestock depredation. Caribou and livestock depredation concerns were mentioned most frequently with respondents again reiterating that wolves are generally not managed in British Columbia from a

conservation standpoint. According to one B.C. respondent, “ *So the challenge is that we’re not managing them. They’re just coming over the Border as the population increases. So I guess the challenge is that I have not been able to address them as a game or legally trapped animal.*” Another B.C. respondent noted that in addition to caribou recovery conflict being a challenge for wolf management, that the “*differing perceptions of wolf management and conservation across the 49<sup>th</sup> parallel could be problematic.*”

Washington responses varied as well. In the list below, challenges #1-5 were acknowledged by 4 out of 8 respondents and the rest by one respondent:

1. Perception (anti-sentiment, symbolism, creation stories)
2. Managing the people, not the wolves
3. Tracking wolves
4. Misinformation to public
5. Competition with hunters
6. Actual role wolves will play in biodiversity – unrealistic expectations
7. Keeping wolf mortality down from human interactions
8. Communication between agencies – essential because of large home ranges
9. Reduced ungulate populations
10. Failure of agencies to make good decisions about how to deal with misinformation

One respondent stated that, “*The whole issue really is about people, it’s not really about wolves so much. Wolves are just another animal...they are really not that big of a deal one way or another, but people’s reactions to wolves probably makes them the most controversial, expensive, and polarized wildlife management issue that I know of and that’s pretty much the same all over the world...not just here.*”

Another respondent remarked, “*First, it is the misinformation going to the public which is inciting a lot of false angst and the second is the failure of the agencies to make good decisions about how to deal the the public misinformation campaign.*”

And another respondent noted, “ (1) Convincing a misinformed and fearful public that wolf recovery can occur without major impacts to specific issues that people are interested in, (2) political interference with wolf recovery based on fears of a misinformed public, (3) finding adequate funding for wolf conservation and management as wolf numbers increase, and (4) achieving recovery in Washington when current or future management policies in neighboring Idaho and B.C. reduces likelihood of wolf dispersal into Washington.”

**Question: Which groups present the largest challenge for wolf conservation or management in your area?**

There were again varied responses from B.C. respondents. Sportsman and livestock owners were discussed most frequently, with the public and politicians following. One interviewee discussed the relevance of resident and non-resident sportsman competing over hunting licenses, but how each is in agreement of the need to control the wolf population out of fear that wolves will further infringe on their ability to acquire hunting licenses. It was generally acknowledged that there will always be a group opposed to the management of the wolf or lack thereof. There was sentiment that, “*the overall attitude about wolves in British Columbia is less extreme than that of the United States, because wolves have occupied a major portion of British Columbia where they have been absent in the United States for the last 100 years. Consequently, people have different perceptions of the wolf when they have been gone a long time.*”

Most Washington respondents provided varied responses as well for the groups challenging wolf management in their regions. In the list below, group #1 was acknowledged 4 out of 8 times and the rest once:

1. Hunters/ranchers
2. No specific group, different pockets of people
3. Urban demographic - rural/urban conflict; ranchers don't want them, urbanites want them and don't have to live with them
4. Natural resource agency managers

5. Large agriculture/extractive industries
6. Environmental groups – *“Their constant lawsuits create extreme frustration from local landowners and sportsmen. Building local support for wolves, which will be the only way they are successful in the long run, requires some adaptive management. If management activities are legally forbidden, local support falters rapidly.”*

**Question: Are wolf hunts a controversy in your area?**

Overall, B.C. respondents agreed that wolf hunts were not controversial and that recreational wolf hunting did not affect the wolf population. However, government led wolf control programs seem to be a source of great controversy to a degree that public becomes involved. One B.C. respondent did however comment that, *“Yes, they are, in all of North America. Long relatively liberal seasons are the main source of controversy even though very low harvest rates actually occur. The ‘potential’ to overharvest is a significant source of angst among the general public.”*

All WA respondents agreed that while wolf hunts may be controversial, they are necessary, and don’t generally affect the wolf population they way poison, trapping, and aerial hunting does. One respondent noted that *“wolf hunts may increase livestock depredations because wolf hunts can disrupt pack structure.”*

**Question: Is livestock depredation an issue?**

Respondents agreed overall that livestock depredation was not yet an issue in the south where there are fewer numbers of wolves. Most respondents did however acknowledge that as the wolf numbers increase in the southern portion of B.C. conflict will occur wherever wolf and livestock ranges overlap. For instance, one respondent remarked *“livestock depredation by wolves is an issue wherever wolves and livestock overlap.”*

WA respondents overall agreed that livestock depredation was not an issue yet, but could become an issue. One respondent remarked that it would *“always be an issue”* and another respondent commented that, *“Yes. Washington has had only 2 possible depredation reports in the past decade, but both generated controversy within the livestock community. Oregon has experienced substantial depredation given the small size of its new wolf population and this has spilled over into Washington and caused fear among livestock owners here.”* Another respondent elaborated that, *“It could become an issue, and I expect it to become an issue down the line, but I also know that the stockmen are not as concerned about depredation, as they feel it will create more controversy and help them in the public’s eye....they are looking forward to livestock losses....they will not accept compensation because they want the public angry about the wolves.”* And another respondent commented that, *“The overall level of loss to wolves is absolutely insignificant to the livestock industry...it doesn’t really make any difference. Most cattle and sheep aren’t around wolves at all. But if it is your cows and sheep being killed, it’s a big deal.”*

**Question: Is there a fund to compensate ranchers for livestock losses in your region?**

Interestingly, 3 of the 5 B.C. (Alberta response omitted for this summary) respondents acknowledged that there was no compensation program and if there was one, they didn’t know how it operated. There is in fact a livestock depredation compensation program in B.C. – the BC Wild Predator Loss Control and Compensation Program. The pilot program was initiated in 2002 and will run through December 2011. The program compensates up to 75% the value of the animal with the burden of prove it was a wolf depredation. From one Canadian respondent, *“Yes, a compensation program is in place. It is generally supported by the public, however the program does include a burden of proof to ensure that the livestock was actually killed by wolves. In many cases it is difficult to prove that the livestock was killed by wolves, so no compensation is paid.”*

Two of the eight WA respondents were unclear if a compensation funds still exists. Most acknowledged that a fund did exist, but were unsure if the fund still existed. Those that did have

knowledge of the fund were unsure of its success, *“Compensation makes the people that think other people should live with wolves really happy...however, we know that compensation doesn’t fully compensate ranchers for their losses...that kind of stuff helps to improve tolerance of wolves because it helps reduce damages...what it comes down to is urban people wanting rural people to live with wolves....and what the question will be is if the people of Washington will be able to come to a compromise, whether there is room for any wolves and if there are, where those places are and how will the cost of having wolves be distributed in our society.”* Another respondent remarked, *“Yes, a funding mechanism does exist, but locals are mostly ignorant of the details at this stage.”*

**Question: Is public safety an issue?**

Overwhelmingly, the response was that public safety was not an issue by both B.C. and WA respondents, but two B.C. respondents did acknowledge that some wolves are now becoming habituated to the presence of humans which could lead to future problems. One WA respondent noted, *“Public safety isn’t a major concern yet, although it is used by wolf opponents as another excuse for opposing wolf recovery. Public comments received to date suggest that a modest number of residents are concerned about their own safety in areas occupied by wolves.”* One WA respondent also acknowledged that while it is not an issue yet, that *“the public agencies should be going out and doing education about this now, not after it becomes a problem.”*

**Question: Do you feel the public have adequate opportunity for participation in the decision making process regarding wolf management?**

Four of the six B.C. respondents acknowledged that there is either not adequate public participation due to governance structures, or there is a lack of public participation because wolves are not managed. One respondent felt the public did have adequate opportunity because *“Any management program quickly becomes viral due to the highly emotional reactions associated with such*

*programs.*” Another respondent acknowledged that while the public make not be consulted as a whole, stakeholder opinions are generally involved in the consultation process surrounding management planning.

WA respondents had varied responses to this question, most of them fairly detailed as well. Most respondents felt that the public did have adequate opportunity for participation, but disagreed on the level and type of participation. Some respondents felt public comment periods were sufficient for participation and others felt there should be more avenues for participation. Comments were as follows:

*“Yes, too much. Way too many groups involved.”*

*“The public has considerable opportunity to comment on wolf conservation and management in Washington. Because many of their comments are extreme or unfounded, these have not been widely incorporated into specific wolf management. However, the strong, pro-, and anti-wolf feeling among wolf proponents and opponents suggests that a moderate and balanced approach to wolf management is the best path to follow in Washington.”*

The several respondents who felt the public did not have adequate opportunity for participation commented that, (1) *“it was being decided in the judicial system”* and (2) *“It is being driven by the federal government and certain special nature groups that are very funded and the average person is not being heard.”* The third respondent felt that *“they’re not getting adequate opportunity because they’re not getting adequate information.”* Similarly, one respondent who felt there was adequate public participation also remarked that *“accurate information gives people the chance to make better decisions and that doesn’t happen often.”*

**Question: Are some groups more interested in participation than others?**

Across the board, respondents felt that sportsman, ranchers, and Environmental Non-Governmental Organizations (ENGO’s) are the predominant groups interested in participating in wolf management decision making. British Columbian respondents were very specific with regards to which groups were most interested:

*“ENGOS, hunters are interested. ENGOS want healthy wolf populations and a proper management strategy. Hunters want few-if any-wolves.”*

*“Yes, recreational hunting groups are interested as are livestock producers. Both of these groups feel they have lost opportunities due to the lack of adequate wolf management programs.”*

Washington respondents agreed, but most respondents were less specific in their descriptions:

*“Yes, level of interest probably depends on what each group perceives as the extent of risk to their own economic well-being (ranchers) or favored activities (hunters). Some conservation groups are also deeply involved because they see considerable opportunity for at last achieving wolf recovery in Washington.”*

**Question: Is there a need for more wolf education for the general public? What would be the best way to disseminate this information? Which groups/ages should be targeted?**

Five of the six B.C. respondents acknowledged that more education would be useful and that targeting school age children would be most valuable. One respondent suggested that newspapers were a useful tool to disseminate information and another respondent suggested targeting city and rural populations with different education programs. This respondent also discussed a difference in perception between rural and urban populations where the urban populations want to conserve wolf populations but don't have to live with the wolves. One respondent in particular commented, *“There can always be more public education about wolves and other wildlife species. The most effective way to disseminate this information is to school-aged children through formal segments of the school curriculum. Targeting adults is also important, but may be less effective.”* Another respondent noted that, *“Yes, school programs are required to de-Disney wolves.”*

Six of the 8 Washington respondents agreed that there was a need for more education and expressed varied response as to which groups should be targeted. One suggested youth, another suggested hunters. Most responses were supportive of more education about wolves across the board, but there was also a sentiment that people had *“a pretty good knowledge of wolves”* already:

*“The best way to disseminate information...go out to the public and meet with the public in small groups. Not in great big public meetings with 400 people where somebody gets to stand up and scream into a microphone, that counterproductive and it spreads bad information. Educational workshops where you layout the life history of wolves, say*

*here's what they do, here's what they don't do, and this is how you deal with them...and only use documentable information."*

Contrastingly, one WA respondent commented that *"they can either vote at the ballot box or with their rifle out the window of their truck....I think there was over 600,000 comments on the latest rule. You can't keep people from being involved."*

**Question: Do you work with other agencies on wolf management issues? How so?**

Five of the six B.C. respondents acknowledged working with other agencies, typically through emails and phone calls, but not under any formal governance. One of these respondents discussed working specifically with state agencies on the endangered species aspect of wolf management and the transborder nature of the wolf, with collared wolves spending time on both sides of the Border. One respondent had no interaction with other agencies.

All WA respondents claimed to work with other agencies on wolf management issues. Most contacts were made via email or telephone.

*"We partner with the state wildlife agencies, the tribes, NGO's, NPS, we cooperate with universities on research papers and studies. We have grant programs to pay compensation, do preventative work...we work with everybody."*

*"There's a lot of overlap among the agencies, however there is a tendency of the federal agencies to try to avoid getting to intimately involved in the development of state wolf management plans...state legislators will start screaming about federal interference. And so a lot of coordination is either very subtle and behind the scenes, peer to peer stuff, or it is after the fact."*

*"We regularly with all of the land management and animal management agencies and with universities that try to do research so our conservation goals and our management recommendations are science based."*

**Question: Is the International Border a concern for wolf management?**

Four out of 6 B.C. respondents felt that the International Border was a concern. One of the respondents felt the Border was not a concern, but felt it should be and another respondent worked predominately in northern B.C. where the transborder nature of the wolf was not predominant. Two of

those four respondents felt that the Border is a concern because the wolf is an endangered species south of the Border and not actively managed north of the Border. Several respondents expressed concern that wolves would travel north from their U.S. range into Canada and create wolf problems in Canada. The Albertan respondent commented that, *“Yes, we strive to maintain a viable population of wolves in SW Alberta despite intense predation on livestock, in order to allow connectivity to the lower 48.”*

Five out of eight Washington respondents felt the Border was of concern for wolf management.

*“Yes, wolves do not recognize the Canadian border. Any wolf ‘population’ in Washington will be dependent on wolves from Canada and other states.”*

*“Yes, wolf harvest policies in BC are a big issue in limiting dispersal of wolves into Washington and hence overall recovery in the state.”*

*“Wolves, or any species of animal that has a fairly decent home range, they don’t pay attention to borders....so how BC manages their wolf populations or these same wolves on their side of the Border definitely has an impact on wolf recovery in the state of Washington.”*

Three of the eight respondents commented that it was not an issue. One reason was the geographical scale they worked with and the other respondent commented that the Border was not an issue because *“wolves are so fluid. All of the wolves in Washington have come from Canada....As long as Canada isn’t poisoning the wolves it won’t have much effect on wolf populations down around the Border.”*

*“It’s more than likely the wolves in Okanagan County came from British Columbia, and I don’t think there’s a problem because our Border on the eastern part of Washington is mostly wilderness. There’s no way of preventing anything from coming across the Border or going into Canada. And I don’t think there’s a real management problem when it comes to wolves.”*

**Question: Do you work with agencies across the Border? In what capacity? If not, what would help facilitate this interaction?**

Four of the six B.C. respondents acknowledged working with agencies across the Border. These interactions seemed centered on the continued presences of wolf packs along the Border that may have future implications for livestock and other species of concern in Canada, such as caribou. Two of the respondents felt no transborder interactions were necessary, and felt time would be better spent on a species other than the wolf. The one Albertan respondent commented that, *“Our Area Wildlife Biologist in Southwest Alberta works closely with staff in Montana and other states on wolf management issues.”*

Two Washington respondents admitted that they did not work with agencies across the Border. One respondent commented that most of the interactions were centered on enforcement, rather than management however. Two respondents admitted that the interactions were infrequent, *“Minimally, and usually only to obtain background information on wolf status and management in southern B.C. Washington and B.C. have entirely different management goals-recovery in WA and limitation of population in B.C.-which will interfere with meaningful collaboration.”*

Two respondents did acknowledge working regularly with agencies across the Border in conversations about wolf populations and review of the Alberta wolf management plan. *“We have actually reviewed the provincial plan for wolf management in Alberta. The first speaker that we ever had for the interagency wolf working group was a carnivore biologist out of Alberta.”*

Another respondent noted that while they do collaborate across the Border whenever possible, the biggest constraint is the lack of funding to do so.

**Question: Do you feel there is a need to pursue more transborder collaboration in the future?**

Five of the six B.C. respondents agreed that more transborder collaboration would be useful, with the focus being on the growing transborder pack of wolves and concern for those populations migrating north into Canada and causing problems with caribou and other ungulates.

*“Yes. I think there will be. Certainly regarding caribou and wolves. Washington is the last of the northern states that has very few wolves and I think we are going to see a change in the next ten years or so because we have a bunch of packs that just established along the Border.”*

*From another Canadian manager, “The Border has no significance for me right now. However, there were some wolves that were released in Twisp a couple of years ago now and I think they had radio collars on them and the home range of that pack hit the Border. So they at least came that far north, so there are potential cross-Border packs.”*

Seven of the eight Washington/U.S. respondents acknowledged that there was a need to pursue more transborder collaboration in the future. Funding and time (time for meeting and traveling times across the Border) were cited as the current barriers.

*“Yes, this could be important in the future, especially on working to preserve habitat connectivity for large carnivores between WA and B.C. Not sure about other benefits unless B.C. would be willing to offer more protection for wolves in area along the WA border, thereby helping with recovery in WA.”*

*“Yes. We have two things that hold us back and the big thing is budget al.so both sides have severe restrictions on international travel....so the biggest issue is being able to meet. The other thing is the Canadian legal system is different and they can have very very sudden shifts in government.”*

*“Yes, but I don’t have a lot of time.”*

*“Yes, but our funding systems don’t necessarily match up.”*

**Question: In 1-2 sentences, what would be your message about wolves?**

All B.C. respondents felt that wolves were an important part of the ecosystem, but that they should be managed as other large carnivores are. Several respondents indicated that wolves are a resilient species and will do well as long as they are not persecuted.

*“They are a wildlife species like any other that occasionally requires human intervention for successful management of all species. The boom and bust of both predators and prey that occurs in the absence of any kind of management program is not necessarily ‘natural’ or desirable.”*

*“Like all wildlife, wolves are an important indicator of the overall health of our environment and have a role in maintaining a healthy ‘balance’ on the land.”*

Washington responses were more varied in the positive to negative spectrum:

*“Wolves need to be managed. They need to be managed on the local level, not at the federal level. There’s a carrying capacity in any area where the wolves start to decimate the population of wildlife and/or domestic stock and your numbers need to be reduced.”*  
– Association Interview Respondent

*“We are failing in our duty to both the public and the wolves by not devoting more agency resources and developing a more strategic communications plan....All they are lacking in the U.S. is human tolerance and the reason for that is that we have failed, the agencies have failed in our mission to get good information to the public in a timely fashion about wolves and other carnivores and this is not something that is going to change until the public demands it of the agencies.”*

*“They have to be managed...allow the states to manage them and allow public input.”*

*“If we manage people well and we keep mortality down, wolves are going to recover and we’re going to have viable populations in this state. If we don’t do that, we are always going to be in ‘recovery’ mode.”*

Questionnaire respondents were asked two additional questions:

**Question 1: Please tell me how important each of these issues is to wolf management in your region:**

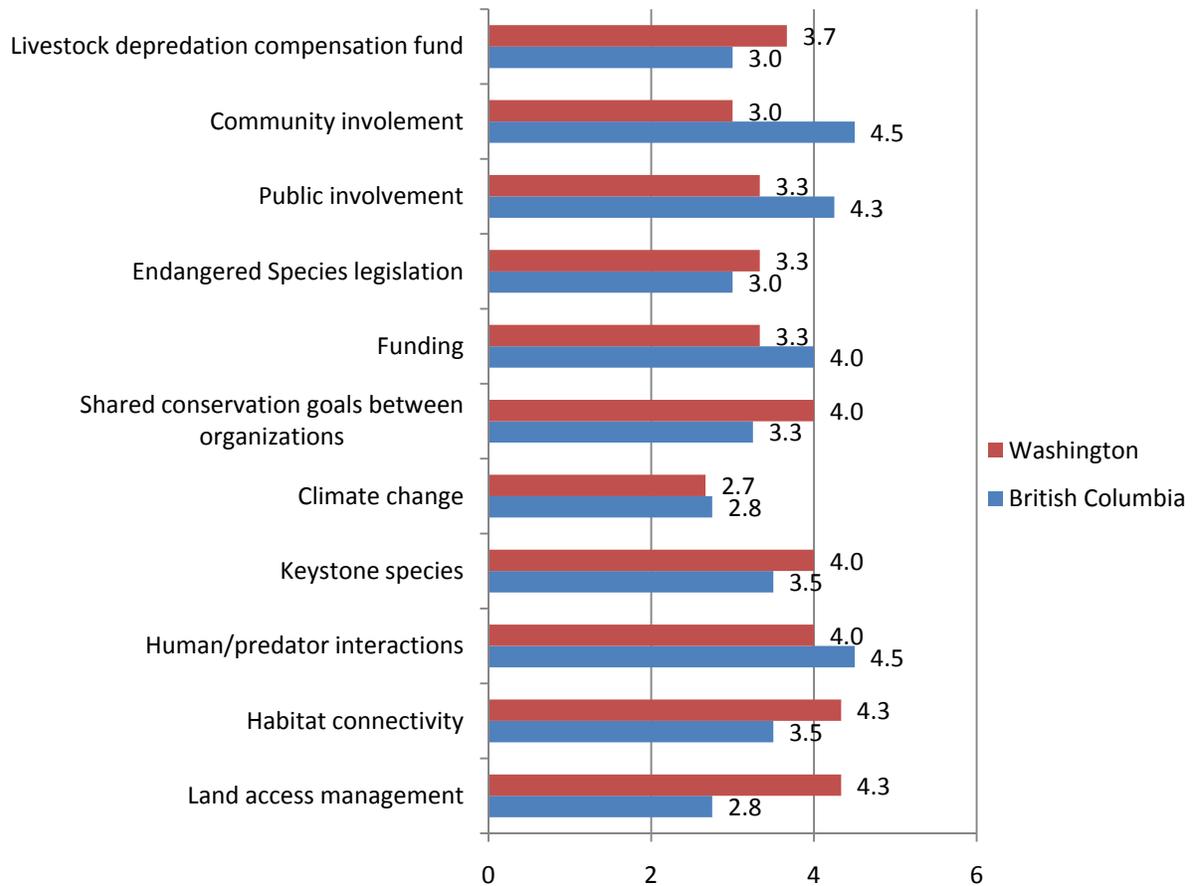
For Washington respondents, habitat connectivity and land access management were identified as the most important factors contributing to wolf management throughout the region with climate change being the least important factor. For B.C. respondents, community involvement and human/predator interactions ranked the highest, with climate change and land access management ranking the lowest.

**Table 2. Responses from four B.C. managers**

	Unimportant	Not important	Neither	Important	Extremely important
Land access management	1	1	0	2	0
Habitat connectivity	0	1	0	3	0
Human/predator interactions	0	0	0	2	2
Keystone species	0	0	2	2	0
Climate change	0	1	3	0	0
Shared conservation goals between organizations	1	0	0	3	0
Funding	0	0	0	4	0
Endangered Species legislation	0	1	2	1	0
Public involvement	0	0	0	3	0
Community involvement	0	0	0	2	2
Livestock depredation compensation fund	0	0	0	3	0

**Table 3. Responses from three WA managers**

	Unimportant	Not important	Neither	Important	Extremely important
Land access management	0	0	0	2	1
Habitat connectivity	0	0	0	1	1
Human/predator interactions	0	0	1	1	1
Keystone species	0	0	0	3	0
Climate change	1	0	1	1	0
Shared conservation goals between organizations	0	0	0	3	0
Funding	1	0	0	1	1
Endangered Species legislation	1	0	0	1	1
Public involvement	1	0	0	1	1
Community involvement	1	0	0	2	0
Livestock depredation compensation fund	1	0	0	0	2



**Figure 1. Comparison between B.C. and WA managers for question: Please tell me how important each of these issues is to wolf management in your region; comparison of B.C. and WA manager responses. Each statement was coded and averaged on an interval scale of 1-5; 1 for strongly disagree and 5 for strongly disagree and results were averaged for each question.**

**Question 2: Please tell indicate your level of agreement with the following statements:**

Each statement was coded and averaged on an interval scale of 1-5; 1 for strongly disagree and 5 for strongly disagree and results were averaged for each question. All respondents agreed that community involvement does play a role in wolf management with a need for more public education programs about living with wolves being the second most agreed with statement. Both B.C. and WA

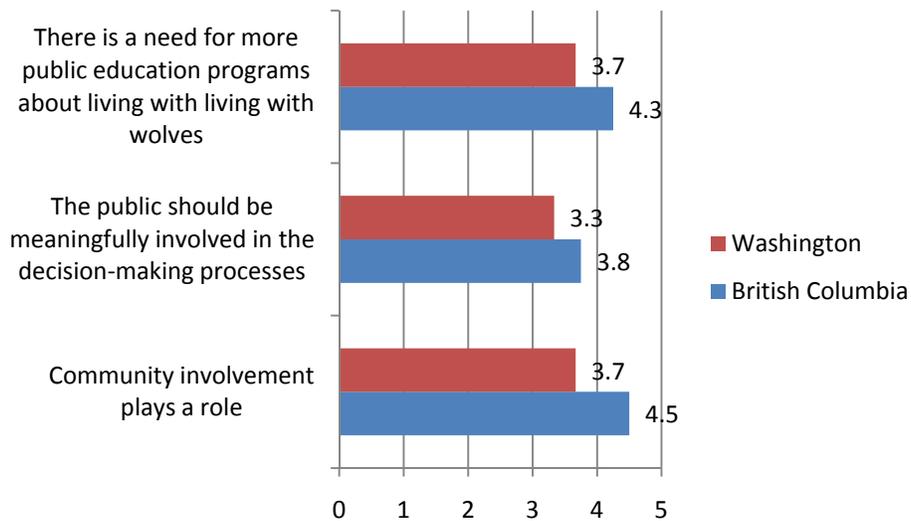
respondents agreed the least with the statement “the public should be meaningfully involved in the decision-making process.”

**Table 4. Responses from four B.C. managers**

	Unimportant	Not important	Neither	Important	Extremely important
Community involvement plays a role.	0	0	0	2	2
The public should be meaningfully involved in the decision-making processes.	0	0	1	3	0
There is a need for more public education programs about living with living with wolves.	0	0	1	1	2

**Table 5. Responses from three WA managers**

	Unimportant	Not important	Neither	Important	Extremely important
Community involvement plays a role.	0	1	0	1	1
The public should be meaningfully involved in the decision-making processes.	1	0	0	1	1
There is a need for more public education programs about living with living with wolves.	1	0	0	0	2



**Figure 2. Comparison between B.C. and WA managers for question: Please indicate your level of agreement with the following statements; a comparison of United States and Canadian Average Responses. Each statement was coded and averaged on an interval scale of 1-5; 1 for strongly disagree and 5 for strongly disagree and results were averaged for each question.**

Summary

Several major themes kept occurring throughout the interviews as show in Table 5 below. The two major issues identified by both B.C. respondents and WA respondents was a need for more transborder collaboration and a need to manage the wolves. All B.C. and WA respondents emphasized numerous times throughout the interviews and questionnaires, the need to manage wolf populations. British Columbia and Washington respondents tended to disagree most on the issues of managing people, in addition to the wolf, and the problem of misinformation being provided to the public. British Columbia respondents did not feel either of these was an issue and in WA four out of eight WA interview and questionnaire respondents did.

For the questions asked only in the questionnaire, differences were observed between B.C. and WA respondents with regards to the role of community involvement, the level of citizen engagement in the wolf management process, and land access management. Washington questionnaire respondents

strongly agreed that community involvement should play a role in the wolf management process, where B.C. respondents, on average, did not agree or disagree. Washington respondents also agreed that citizens should be involved in the wolf management process and that land access management was an issue, while B.C. responded neither agreed or disagreed. Neither WA or B.C. respondents disagreed or strongly disagreed with any of the statements.

**Table 6. Major Issues Identified by B.C. and WA Interview Respondents Regarding Wolf Management**

Major Issues	B.C.	WA
	<i>6 respondents</i>	<i>8 respondents</i>
Perception of Wolf	1	4
Managing People	-	4
Misinformation to Public	-	4
Level of Public Participation	4	3
International Border a Concern	4	5
More Transborder Collaboration	4	7
Wolves Needs to be Managed	6	8
	<b>Questionnaire Responses*</b>	
	<i>4 respondents</i>	<i>3 respondents</i>
Community Involvement Plays a Role	3	5
Citizens Should be Involved in the Process	3	4
Land Access Management	3	4
*Each statement was coded and averaged on an interval scale of 1-5; 1 for strongly disagree and 5 for strongly disagree and results were averaged for each question.		

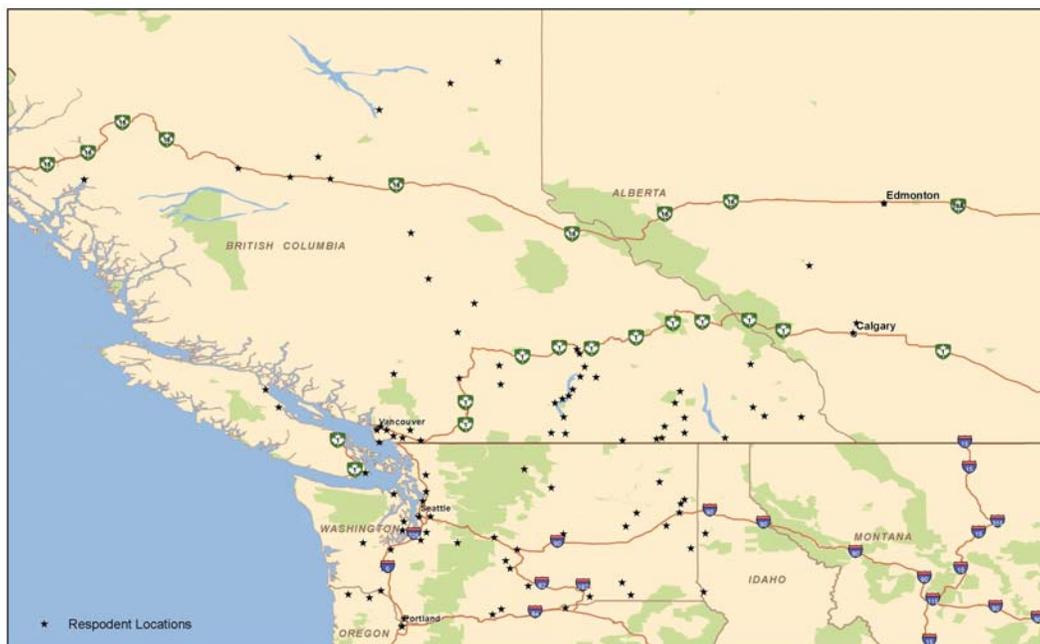
## 5.2 PUBLIC PERCEPTION SURVEY

### Results

The public perception survey was developed using the results gathered from the semi-structured interviews and was administered during the month of March 2011 using the online survey software, Survey Gizmo. The survey was initially distributed to 103 Washington ranchers and sportsman, and ten Canadian sportsman and ranchers whose emails were obtained from the internet, requesting

them to forward the survey to potentially interested respondents. Additionally, the Washington Outfitters and Guides Association, Washington Cattleman’s Association, and several associations in British Columbia distributed the link to the survey directly through their list serv., again requesting respondents to forward the survey to others. While this sampling procedure did not allow us to know how many potential respondents the survey had reached for statistical purposes, it greatly increased the response rate.

A total of 517 people viewed the survey online, with 287 (56% response rate) surveys completed by British Columbians and 82 surveys completed by Washingtonians (16% response rate) for a total of 369 completed surveys (71% overall response rate). See Figure 3 for a map of respondent locations. Of the total completed survey, 108 were only partially completed. The partial responses were used in the analysis and to accommodate for the different number of responses per question, the number of respondents for each question is identified throughout the results. There was one respondent from Italy that was not included in the analysis. Figure 3 below shows the geographic range of the respondents.

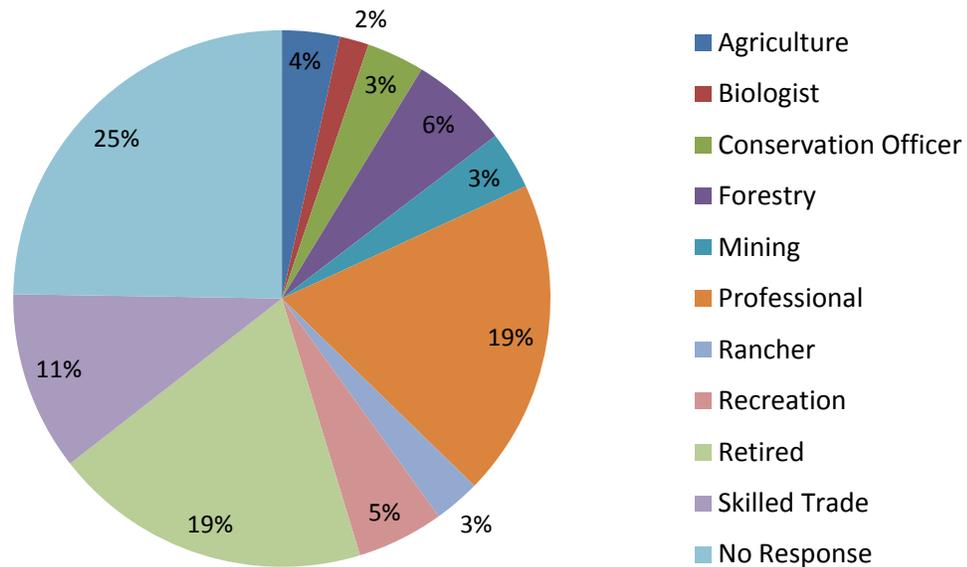


**Figure 3. Map of survey respondent locations.**

Each of the questions is discussed below with corresponding Canadian and U.S. comments:

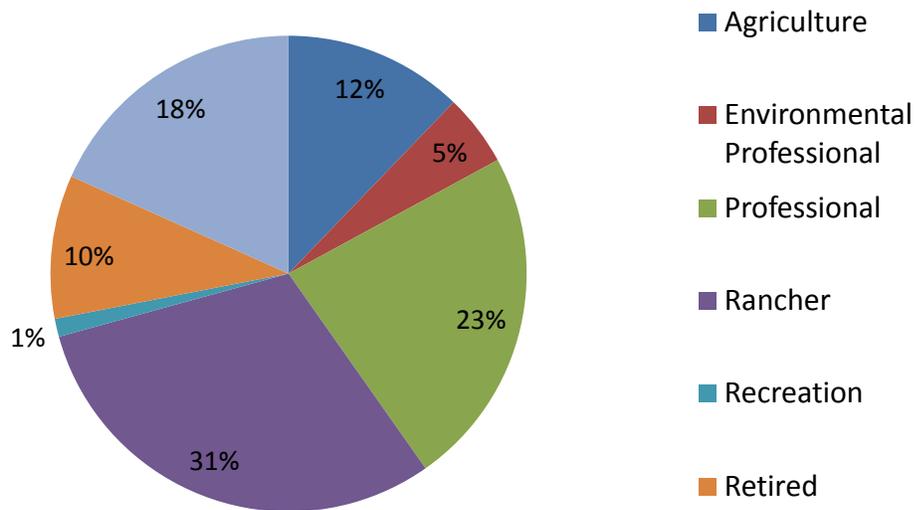
**Question 1: What kind of work do you do?**

This question was asked to verify the sample population. While ranchers and sportsman were the primary target audience, the use of the snowball sampling technique enabled inclusion of a variety of respondents. Understanding the respondent’s primary occupation was useful for establishing a background for the respondents.



**Figure 4. B.C. respondents categorized by type of work.**

Professionals and Retirees represented the largest portion of respondents at 19% (54 respondents) each with respondents in the skilled trades field at 11% (31 respondents) and all other categories at less than 10% each. Ranchers comprised 3% (8 respondents) of the sample population. However, because this question was fill-in-the-blank, it is possible that ranchers may have listed themselves as professionals or retired as well.

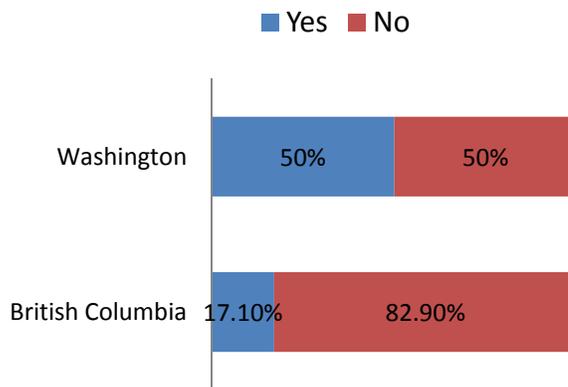


**Figure 5. Washington respondents categorized by type of work.**

Ranchers represented the majority of the respondents at 31% (25 respondents), with professionals and agriculture following at 23% (18 respondents) and 12% (9 respondents), respectively. All other fields were less than 10%.

**Question 2: Do you own or lease more than 50 acres of land?**

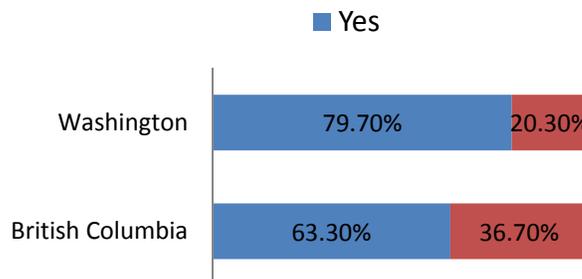
Fifty percent of Washington respondents responded that they own more than 50 acres of land, however only 41% of WA respondents answered this question. The majority of B.C. respondents did not own more than 50 acres of land, with a 76% response rate. This could be a result of the vast majority of B.C. respondents not being ranchers or farmers.



**Figure 6. Do you own or lease more than 50 acres of land?**

**Question 3: Have you ever camped, hunted, or participated in any other outdoor recreation activities in the North Cascades?**

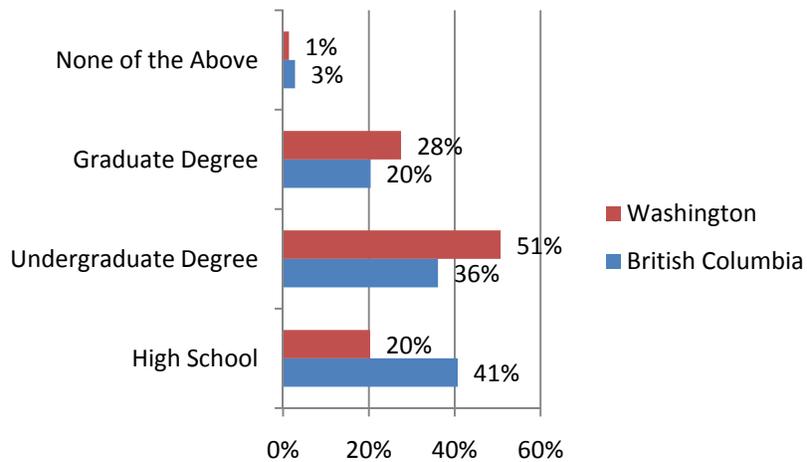
This was a demographics question that aimed to establish if the respondent had the potential for interaction with wolves and if respondents were more rural or urban in their lifestyles. For both B.C. and WA, respectively, 63% and 80% of respondents claimed to have camped, hunted, or participated in other outdoor recreation activities. British Columbia respondent’s response rate was 75% and the WA response rate for this question was 84%.



**Figure 7. Have you ever camped, hunted, or participated in any other outdoor recreation activities in the North Cascades?**

**Question 4: What is the highest grade level you have completed in high school?**

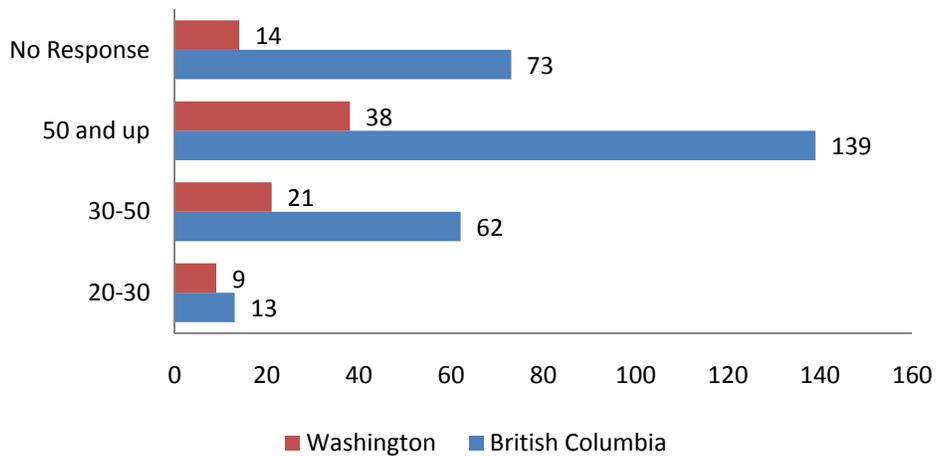
The B.C. response rate for this question was 75% and 84% for Washington. The majority of Washington respondents had earned an undergraduate degree while the majority of B.C. respondents almost equally earned either a high school diploma (40%) or undergraduate degree (36%).



**Figure 8. What is the highest grade level you have completed in high school?**

**Question 5: What is your age?**

The majority of both B.C. (48%) and WA (46%) respondents were 50 and older.



**Figure 9. What is your age?**

**Question 6: What is your gender?**

British Columbia respondents were primarily male (70%, 200 respondents) while Washington respondents were split male and female at 51% (41 respondents) and 32% (26 respondents), respectively.

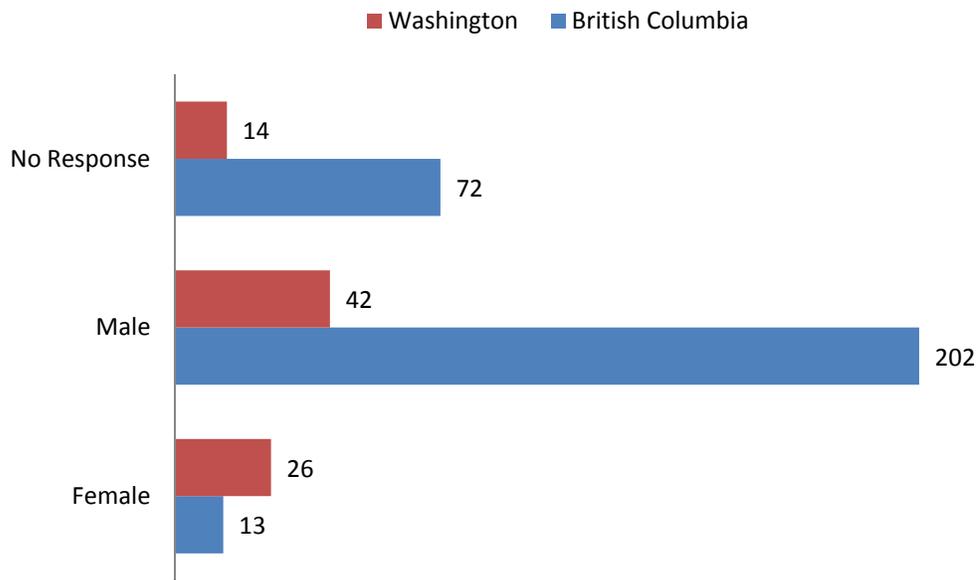


Figure 10. What is your gender?

**Question 7: How much information have you heard about wolves?**

The response rate for B.C. respondents was 67% and 76% for Washington respondents. Over 50% of both B.C. (166 respondents) and Washington (43 respondents) respondents had heard a “great deal of information” about wolves.

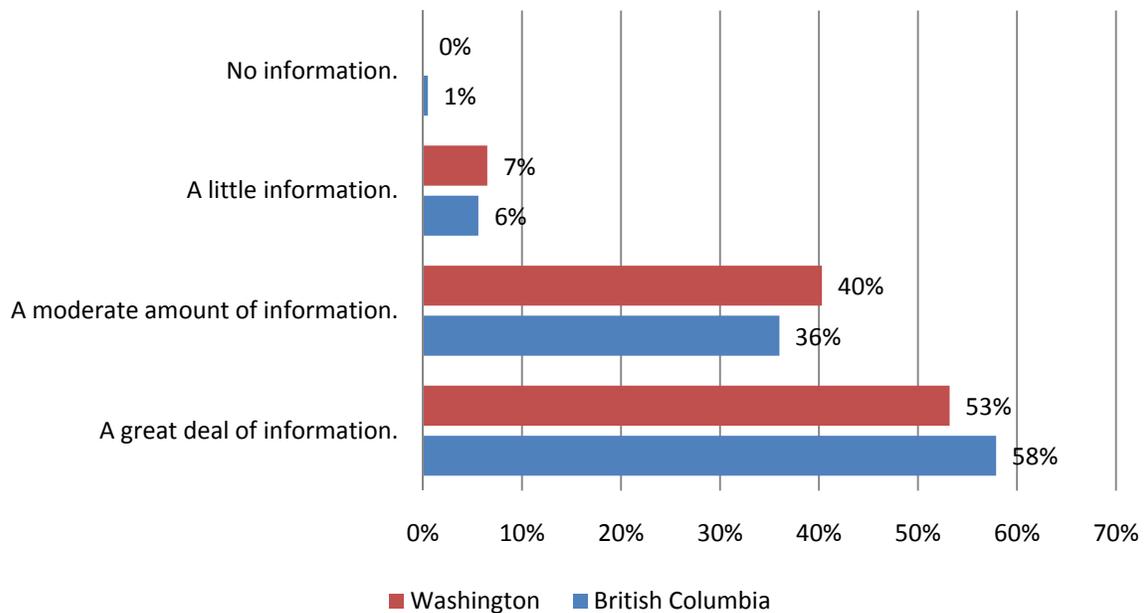


Figure 11. How much information have you heard about wolves?

### Question 8: Do you support or oppose the presence of wolves in your area? Why?

This was an open-ended question that aimed to gain a general understand of respondents perception of wolves in their respective regions. Response rate for B.C. was 66% and for Washington, 71%. The majority of WA respondents opposed the presence of wolves (69%, 56 respondents) while the majority of B.C. respondents supported the presence of wolves (66%, 189 respondents). There were two distinct types of comments in support of the presence of wolves; those that supported wolves from a biodiversity standpoint solely and those that supported wolves, but thought they should be managed.

*“Support—in a holistic sustainable system in which we raise pastured livestock, wolves teach me to be a better manager. Wolves have their place in the ecosystem as does our pastured livestock operations.”* –Washington respondent

*“I support the presence of wolves in my area because I believe they help to keep the wildlife population in balance and healthy. This in turn helps to keep my livestock healthier die to the fact that any sick deer, elk, moose, coyotes, etc are killed before they have a chance to infect my sheep or cows.”* –Washington respondent

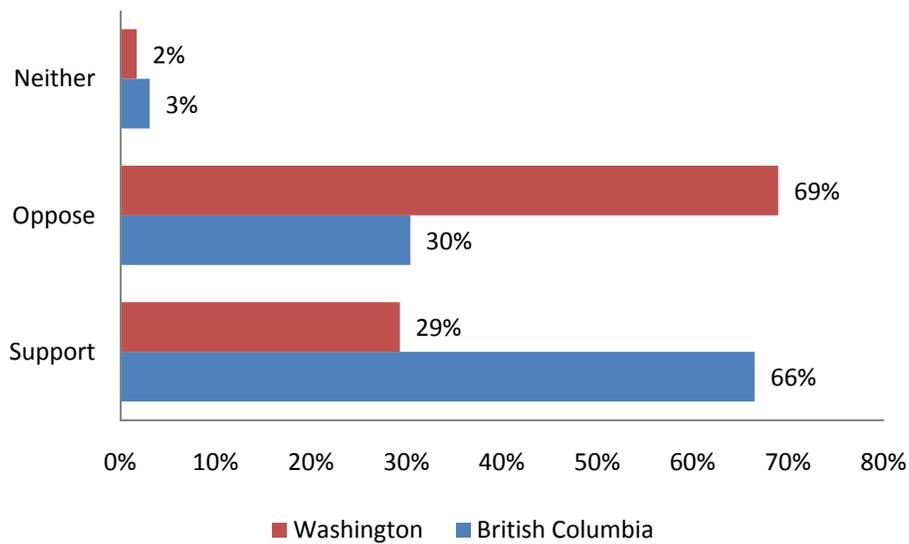
*“I support the presence of wolves as long as their numbers are managed through sport hunting/trapping to provide a balance ecosystem.”* –B.C. respondent

*“I support wolves in my area but they must be managed properly. I believe if you are going to manage even one species of the food chain, which we do, we are then responsible to manage them all. I believe wolves are as important as deer and elk and domestic livestock, but at tolerable levels.”* –B.C. respondent

Those that opposed the presence of wolves most often cited livestock and ungulate depredation.

*“I oppose the presence of wolves in my area. There are too many livestock producers and having been deeply involved in the wolf plan’s creation, and following the lawsuits on a national level, I don’t see management and delisting occurring as promised by government and environmental groups. The end result is conflict with producers and no resolution of the conflicts while making producers bear the costs of wolf presence. I am also seeing significant impacts on big game populations in area with large numbers of wolves and don’t believe these impacts will be addressed in a timely manner. Lawsuits seem to be the management choice of wolf advocates and this doesn’t promote wise wildlife management plans.”* – Washington respondent

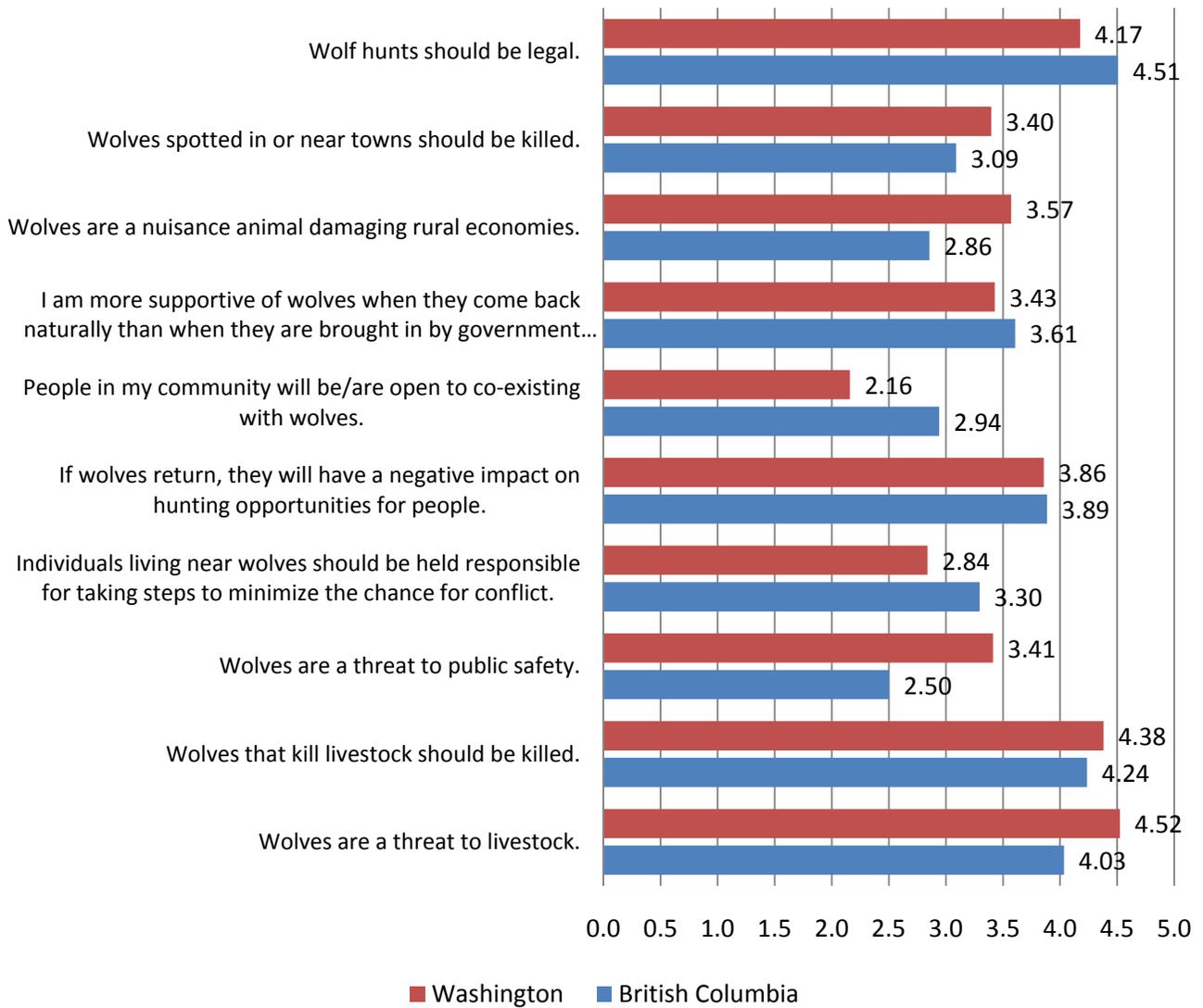
*“Oppose. They would devastate the ungulate populations we have in this very sensitive area of British Columbia. The wolf population would explode to uncontrollable numbers due to the fact that the South Okanagan is a wintering ground for many of the ungulates. Many cattle ranchers could not afford such cunning predators around their herds.”* –B.C. respondent



**Figure 12. Do you support or oppose the presence of wolves in your area?**

**Question 9: Please indicate whether you strongly agree, agree, are neutral, disagree, or strongly disagree with each of the following statements:**

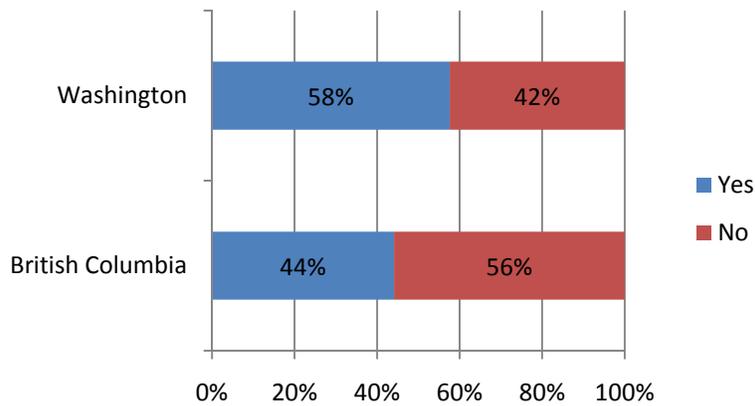
Response rate was 70% and 77% for B.C. and Washington respectively. Each statement was coded and averaged on an interval scale of 1-5; 1 for strongly disagree and 5 for strongly agree. Both B.C. and WA agreed that wolf hunts should be legal, wolves are a threat to livestock, and wolves that kill livestock should be killed. WA respondents, on average, disagreed that people in their community will be/open to co-existing with wolves. B.C. respondents, on average, did not disagree with any of the statements.



**Figure 13. Comparison of B.C. and WA average responses regarding perception of wolf.**

**Question 10: Would you support non-lethal wolf control?**

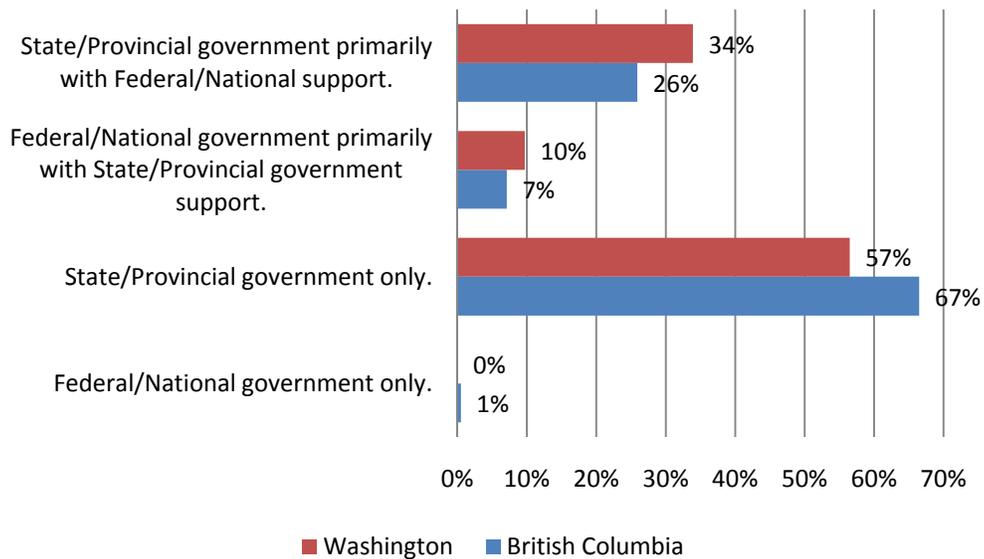
Response rates were 67% and 72% for B.C. and Washington respectively. WA respondents supported non-lethal wolf control (58%, 47 respondents) more than B.C. respondents (44%, 126 respondents).



**Figure 14. Would you support non-lethal wolf control?**

**Question 11: What level of government should be in charge of wolf management?**

Response rates were 69% and 76% for B.C. and WA respondents, respectively. Both B.C. and WA respondents agreed that state/provincial government should be in charge of wolf management (192 respondents and 46 respondents, respectively) with virtually no support (0.5% for B.C. respondents) for national-led management.



**Figure 15. What level of government should be in charge of wolf management?**

**Question 12: From where have you received most of your information about wolves?**

Response rates were 70% and 77% for B.C. and WA, respectively. B.C. respondents obtained most of their information about wolves from personal experiences (80% of respondents) with environmental organizations and friends being the second and third most chosen at 57% and 49%, respectively. WA respondents cited production organizations (stockmen and sportsmen associations) as their primary source of information about wolves at 61% with newspapers and magazines at second and third (52% and 49%, respectively).

**Question 13: How would you prefer to be informed about wolves? Check all that apply.**

Response rates were 68% and 76% for B.C. and WA respondents, respectively. The majority of B.C. respondents indicated they would like to receive information about wolves from the internet (50%) with environmental organization and federal and state agencies as second and third choices (46% and 42%, respectively). Sixty-one percent of WA respondents agreed that they would like to receive information about wolves from newspapers with production organizations and the internet coming in second and third at 54% and 51%, respectively.

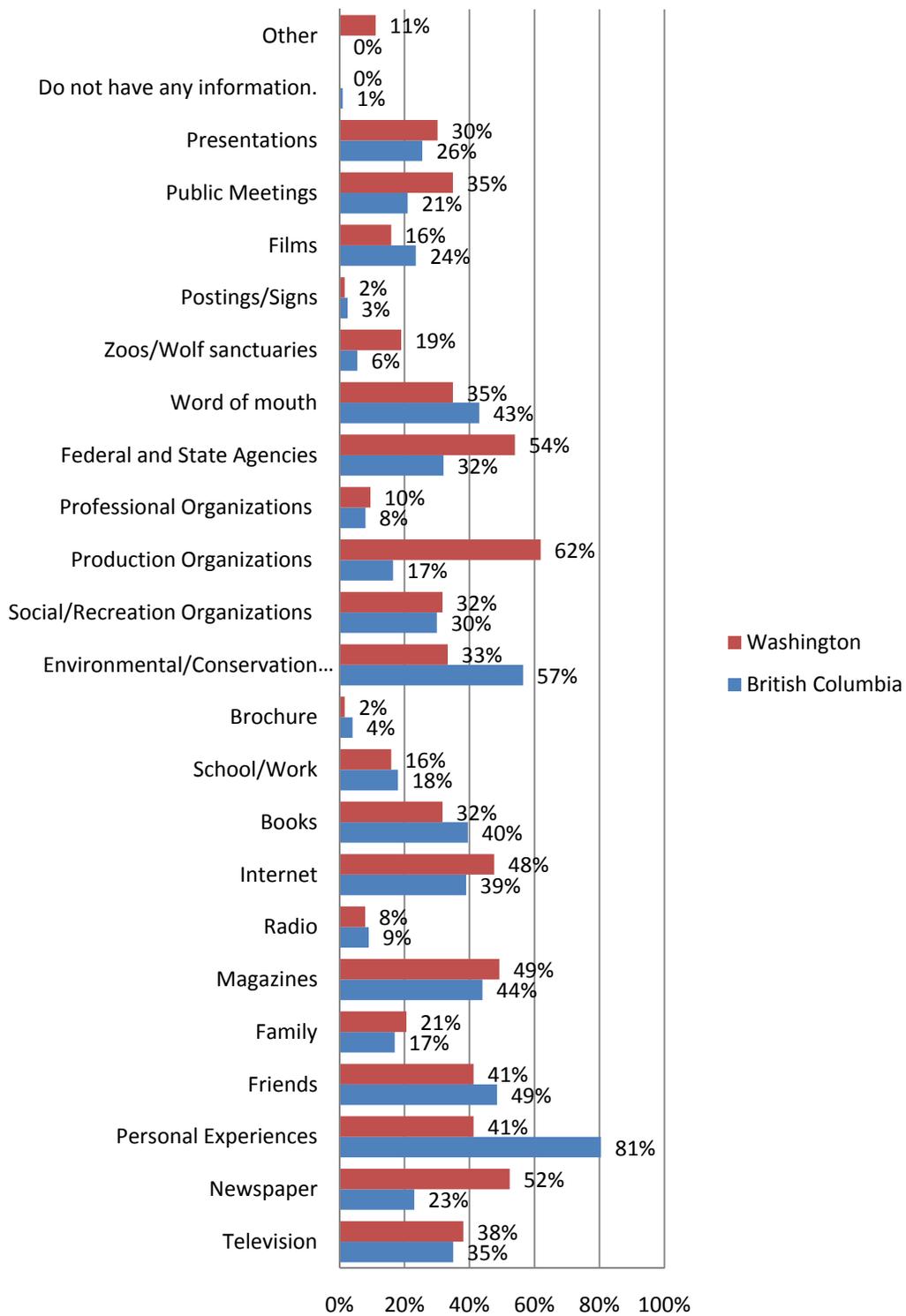


Figure 16. From where have you received most of your information about wolves?

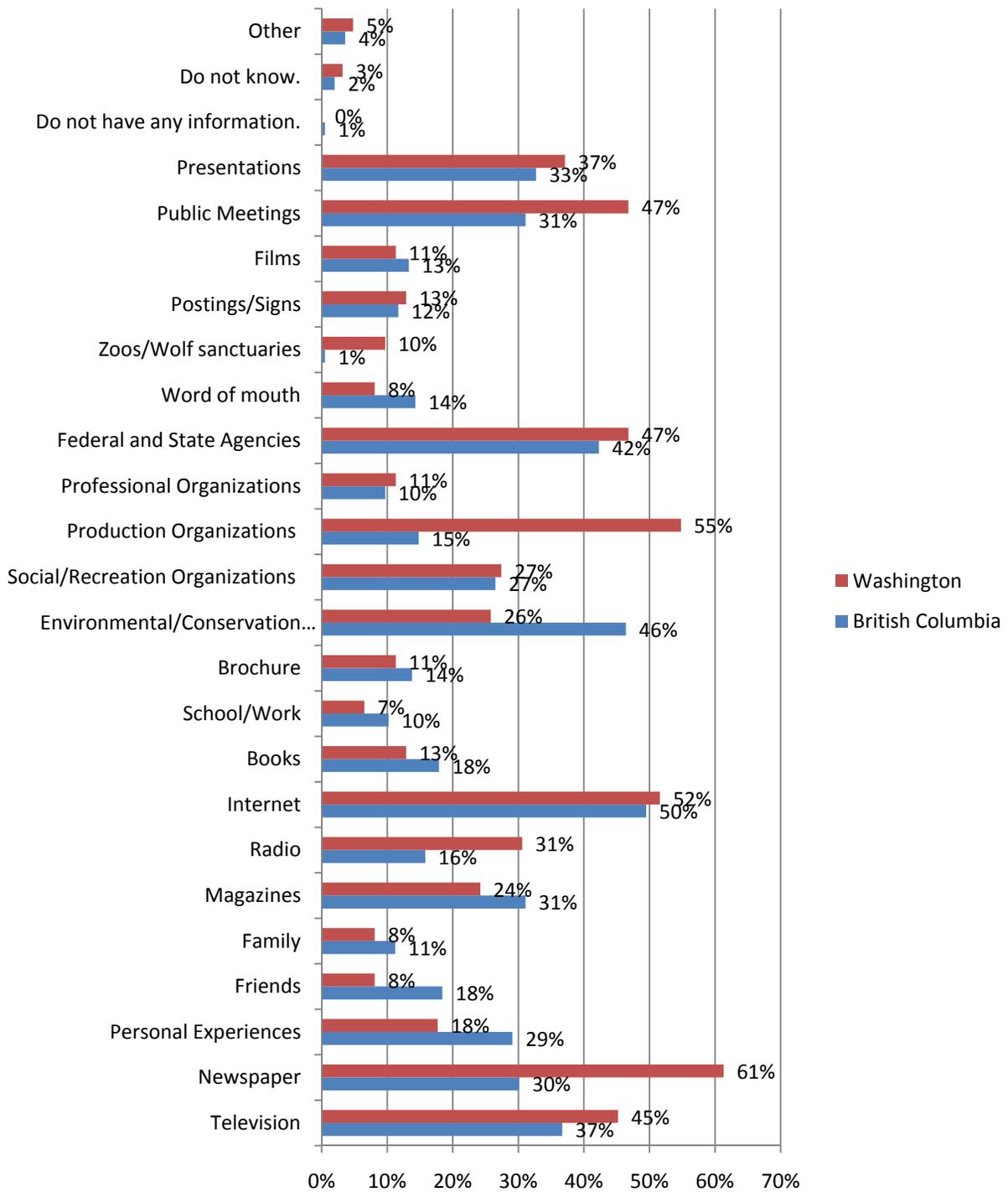
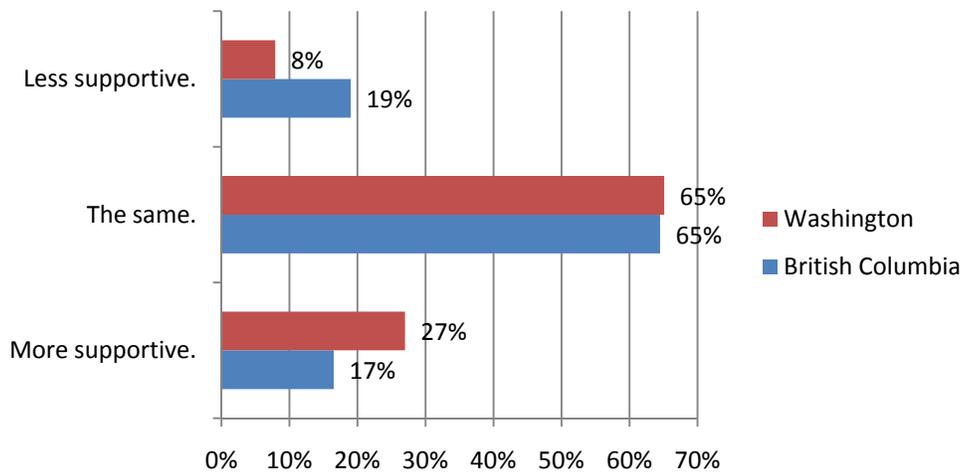


Figure 17. How would you prefer to be informed about wolves?

**Question 14. Would your opinion of wolf recovery be more supportive, the same, or less supportive if funds were available to compensate ranchers for livestock losses?**

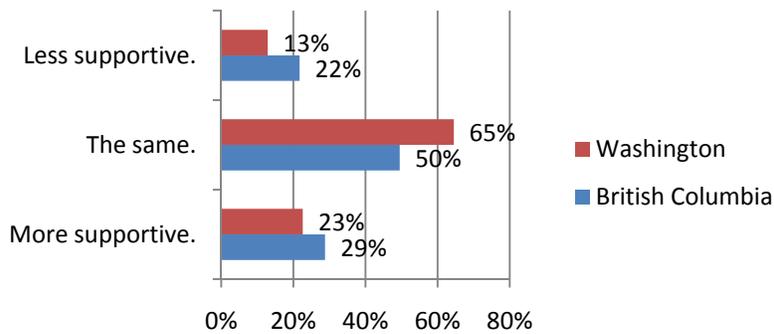
Response rates were 70% and 77% for B.C. and WA respondents, respectively. Both 65% B.C. and WA respondents agreed (186 respondents and 53 respondents, respectively) that their opinion of wolf recovery would not change if there was a fund to compensate ranchers for livestock losses.



**Figure 18. Would your opinion of wolf recovery be more supportive, the same, or less supportive if funds were available to compensate ranchers for livestock losses?**

**Question 15. Would your opinion of wolf recovery be more supportive, the same, or less supportive if citizens were able to influence agency managers on wolf recovery decisions and collaborate regularly? If desired, please explain response.**

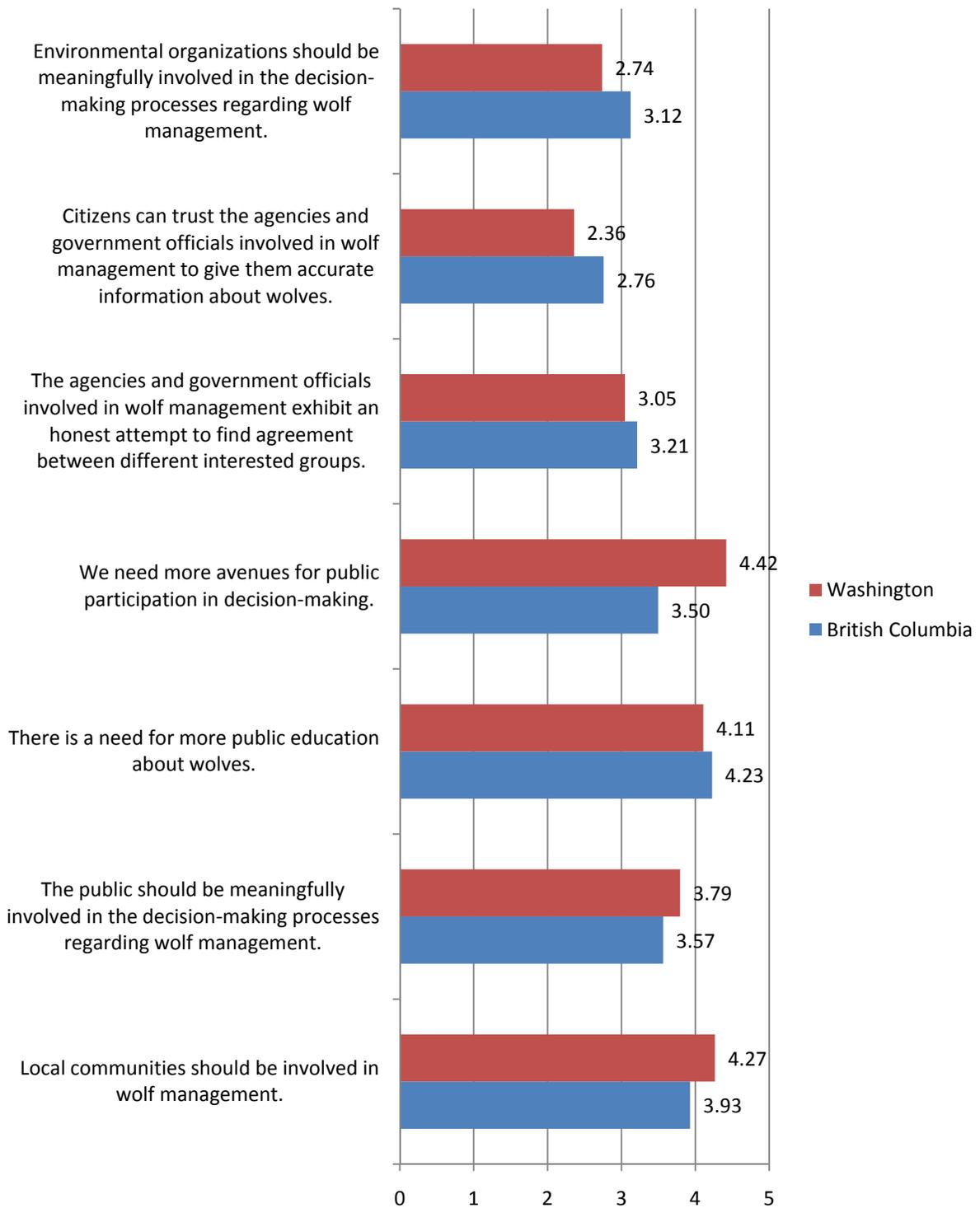
Response rates for B.C. and WA respondents were 67% and 76%, respectively. Both B.C. and WA respondents agreed that their opinion of wolf recovery would remain the same.



**Figure 19. Would your opinion of wolf recovery be more supportive, the same, or less supportive if citizens were able to influence agency managers on wolf recovery decisions and collaborate regularly?**

**Question 16. Please indicate your agreement with the following statements:**

Response rates for B.C. and WA respondents were 70% and 77%, respectively. Each statement was coded and averaged on an interval scale of 1-5; 1 for strongly disagree and 5 for strongly disagree. Both B.C. and WA respondents agreed that local communities should be involved in wolf management, the public should be meaningfully involved in the decision-making processes regarding wolf management, and there is a need for more public education about wolves. Respondents from WA indicated that they did not feel they could trust the agencies and government officials involved in wolf management to give them accurate information about wolves.



**Figure 20. Comparison of average B.C. and WA responses regarding civic wolf governance.**

### Summary

Several differences between B.C. and WA responses were observed throughout the survey results. When asked whether they opposed or supported the presence of wolves, 69% (56 respondents) of WA respondents opposed the presence of wolves, while 66% (189 respondents) of B.C. respondents supported the presence of wolves. Similar results were observed when respondents were asked if they felt people in their community would be/are open to coexisting with wolves. Washington respondents disagreed and B.C. respondents neither supported or opposed the statement. However, when respondents were asked if they felt wolves were a threat to public safety, WA respondents agreed that they were and B.C. respondents neither agreed or disagreed. As noted in the section on semi-structured interviews, managers did not feel public safety was an issue across the board.

When respondents were asked what level of government should be in charge of wolf management, both B.C. and WA respondents overwhelmingly agreed (57% and 67%, respectively) that the state/provincial government should be in charge of wolf management. There was negligible support from both B.C. and WA respondents for national led wolf management. There was lesser support for state led management with national support as well (34% and 26% for WA and B.C., respectively). When respondents were asked if they felt they could trust agencies and government officials to provide them with accurate information about wolves, both B.C. and WA respondents agreed that they did not trust agencies or government officials to provide them with accurate information about wolves. Both WA and B.C. respondents also agreed that there needed to be more avenues for public participation in the decision making process regarding wolf management.

Respondents were asked about where they received most of their information about wolves and how they would like to receive information about wolves in the future. The majority of B.C. respondents (81%) receive information about wolves from personal experiences, whereas the majority of WA

respondents (62%) receive information about wolves from production organizations such as ranching and sportsmen associations. There was also a large difference in the amount of information regarding wolves respondents received from government agencies. Fifty-four percent of WA respondents received information about wolves from government agencies, where only 32% of B.C. respondents received information about wolves from government agencies. When asked how respondents wanted to receive information about wolves in the future, 61% of B.C. respondents wanted to receive information from newspapers while 55% of WA respondents still wanted to receive information about wolves from production organizations. However, about 50% of both B.C. and WA respondents indicated they would like to receive information from the internet as well. Two other categories provided divergent responses as well. Forty-seven percent of WA respondents indicated they wanted information regarding wolves from public hearings, where only 31% of B.C. respondents wanted information from public meetings. Additionally, 26% of WA respondents acknowledged wanting information about wolves from environmental/conservation groups where 46% of B.C. respondents felt they wanted information about wolves from environmental/conservation groups.

## CHAPTER 6: DISCUSSION AND CONCLUSIONS

The coupled semi-structured interviews and public perception survey offered a unique opportunity to explore the relationship between citizens and managers with respect to wolf governance in Cascadia. Results indicated that while managers exhibited more tolerance for the presence of wolves, both managers and citizen perceptions of wolf governance varied widely within and across the Border. The subsequent sections will explore the research results with respect to the potential for collective action and polycentric wolf governance throughout the Cascadia ecoregion.

### 6.1 POLYCENTRISM NORTH AND SOUTH OF THE BORDER

In British Columbia, natural resource (and wildlife) management in Canada is highly decentralized with regulatory authority directed primarily at the provincial level. Wolves are not managed for the most part, except for hunting. There exists no institutional or legislative framework for wolf management. They are not listed as a species of concern and as such receive no protection under what little endangered species legislation B.C. does have. According to one respondent in a study done by Abel et al. (2010) *“If Canada had a piece of legislation as powerful as the Endangered Species Act it might encourage more collaboration. The pressure is not on Canada to take things as far as it should.”* However, in neighboring Alberta, conservation officials are working to develop a wolf management plan that could serve as a framework for B.C. in the future. Whereas in Washington, there does exist a framework for polycentric wolf governance. Wolves in the U.S. and WA are managed through the USFWS federally, and the WDFW locally. Currently, as an endangered species, wolf management rests solely in the hands of the federal government in the U.S. and WA. WDFW is working to develop a management plan for when wolves return to WA and are delisted. Opportunities and obstacles to this polycentric framework will be explored in the subsequent sections.

## 6.11 Governance Opportunities

According to CPR theory, a resource must have several characteristics to be suitable for polycentric governance with several smaller jurisdictions. First, the improvement of the resource must be feasible. Second, reliable and valid indicators of the resource conditions must be available at low cost. The predictability of resource flows is a third condition, and fourth, the spatial extent of the resource must be amenable to defining its borders and its internal microenvironments. If we examine the case of the wolf in the Washington, these conditions are met as a requirement of endangered species legislation. However, north of the Border, these characteristics are more challenging to define because according to research done by Abel et al. (2010), *"...in a nutshell, wolves are regarded with higher conservation value south of the Border, while on our side of the Border people view wolves as evil carnivores. We don't put a lot of resource into wolf research because we have found they have incredible resilience. We have wiped them out in areas and they have reestablished themselves so there is just not much concern for conserving them. You will have a hard time convincing Canadians to conserve wolves. We are not actively doing anything to conserve wolves."* However, respondents in the public perception survey indicated that this conclusion may not be so black and white. The majority of WA respondents opposed the presence of wolves (69%) while the majority of B.C. respondents supported the presence of wolves (66%). There were two distinct types of comments in support of the presence of wolves; those that supported wolves from a biodiversity standpoint solely and those that supported wolves, but thought they should be managed.

The wolf situation becomes convoluted when examining non-local, larger scale commons, such as the gray wolf. According to Dietz et al. (2003), effective governance requires not only factual information about the state of environment and human actions but also information about uncertainty and values. Scientific understanding of coupled human-biophysical systems will always be uncertain because of inherent unpredictability in the systems and because the science is never complete (Dietz et

al., 2003). Dietz et al. offers these three strategies for adaptive governance of non-local, larger scale commons, such as the gray wolf in Cascadia:

1. Analytic deliberation-well structured dialogue involving scientists, resource users, and interested publics, and informed by analysis.
2. Nesting-institutional arrangements must be complex, redundant, and nested in many layers.
3. Institutional variety-governance should employ mixtures of institutional types

### *Analytic Deliberation*

In Washington specifically, there one formal venue for discussions between scientists, policy makers, and stakeholders: the Wolf Working Group. The Washington Wolf Working Group provides the only example of analytic deliberation with respect to wolf management in the Cascadia ecoregion. British Columbia does not currently have a framework in place for this type of analytic deliberation. However, five of the six B.C. interview respondents and seven of the eight WA interview respondents concurred that there is a need for more dialogue across the Border in the future.

The Washington Wolf Working Group was created by the Director of WDFW to guide the Department in developing a plan for gray wolves. The goal of the plan is to establish the framework and process for wolf recovery, state delisting, and management of wolves if they are delisted in Washington from the Federal Endangered Species Act. Eighteen survey respondents (from WDFW survey) were selected as members the Working Group. Ten of the working group members are from eastern Washington, and eight are from the west side of the state. They represent livestock ranching and agriculture, local government, conservation groups, biologists, the timber industry, hunters and other outdoor enthusiasts. The Working Group will develop recommendations for the Department to consider as the first draft Wolf Conservation and Management Plan is developed. They are informed by a technical advisor group and all meetings are open to the public. All Working Group products will be

conveyed to the Department; however, this does not mean that all recommendations will necessarily be incorporated in the draft or final Wolf Conservation and Management Plan. The Working Group is currently in the process of reviewing all the comments from the Draft Environmental Impact Statement for gray wolves in Washington State. To date, over 600,000 comments were received.

### *Institutional Nesting and Variety*

Analytic deliberation is a precursor to the emergence of nesting and intuitional variety. Without discourse between stakeholders, institutions will not likely form and if they do form, their chances of successful governance will be diminished (Dietz et al., 2003; Ostrom, 2000). Throughout Cascadia, there are few formal examples of analytic deliberation with respect to wolf and even wildlife management. The annual Wild Links Conference hosted by Conservation Northwest, offers an example of a venue where managers, scientists, and other stakeholders gather to discuss transborder wildlife and land management issues. The first Wild Links conference occurred in 2007 and the venue annually switches locations between Washington and British Columbia. This conference is perhaps the first of its kind throughout the Cascadia ecoregion and is an example of why wolf management is still in its infancy; stakeholders across the Border are just beginning to share a common discourse, let alone form institutions to support that discourse.

Canadian environmental governance is highly decentralized compared to that of the U.S., however, they lack institutional variety with respect to wolf and wildlife management. Conversely, in the U.S. wolf management is nested between the federal and state government (in some cases) with some more opportunities for wolf and wildlife management within the states themselves. Washington's Wolf Working Group even offers a potential bridge into local communities. The Western Governors Association (WGA) offers an institutional venue for polycentric wildlife management in WA and potentially across the Border. It is an organization of 22 state governors from the Western region of the

United States and a non-partisan forum to address regional policy and governance issues on natural resources, economic development, and international relations. On the latter, the WGA may be most recognized for their support of the Western Climate Initiative (WCI); a Greenhouse Gas (GHG) reduction effort that includes several Canadian Provinces. And in 2008, the WGA established the Western Wildlife Habitat Council (WWHC) to coordinate and manage implementation of the recommendations from the WGA Wildlife Corridors Initiative Report.

In the next two years, this council has coordinated the development of a habitat database and wildlife assessment for Alberta and British Columbia Canada, and Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. Habitat maps for each state include the categories of highly sensitive areas, sensitive, and insufficient data. However, the initial maps were created to support decisions about the development of renewable energy infrastructure in the western region. Consequently, the Washington data includes no assessment of wildlife habitat in the North Cascades. But the initial strategy does recognize the importance of the Border and transboundary wildlife corridors.

### **6.11 Governance Barriers**

Managers and survey respondents across the Border did not agree on the level of acceptable civic governance with respect to the wolf. When survey respondents were asked in the public perception survey about civic governance in wolf management, most respondents agreed that process has room for improvement. Washington and B.C. survey respondents agreed across the board that local communities and the public should be more involved in the wolf management process and while B.C. respondents were neutral about having more avenues for public participation in decision-making, this could have been due to the mixed sample of respondent types in B.C. compared to WA. Interestingly, both B.C. and WA respondents also agreed overwhelmingly (67% and 57%, respectively) that the

states/provinces should be in charge of wolf management with no support from the federal government. Survey respondents again alluded to this when asked if they felt the agencies and government officials involved in wolf management exhibit an honest attempt to find agreement between different interested groups. Both B.C. and WA survey respondents responded neutrally, indicating at least a possibility for improvement.

In more recent research, scholars found Canada's environmental efforts lacking clout and robustness. Olewiler (2006) concluded that while provincial governments were not racing to attract investors with lower pollution standards, they also weren't racing to be leaders in environmental protection. They had become "stuck at the status quo" (p. 142) or even worse, "stuck at the bottom" (p. 137) as the provinces have converged or harmonized their environmental policies to a lower common denominator than the U.S. states. For example, in a comparison of rainforest protection between Alaska and British Columbia, Brooks and Hoberg (2007) found a significant disparity across the border. U.S. policies led to protection of eighty percent of the Tongass rainforest while only thirty-three percent of the Great Bear Rainforest in B.C. was protected. Finally, Illical and Harrison (2006) described how Canadian businesses successfully lobbied for not emulating the American Endangered Species Act in the 2002 Species at Risk Act (SARA). The SARA is the antithesis of ESA's command-and-control style because of its reliance not on regulation, but on public expenditures to support stewardship programs.

A potential additional obstacle for Canada is that their legal system is less geared for civic engagement. One WA manager remarked, *"...the Canadian legal system is different than ours...They can have very very sudden shifts in their government....And the other thing is that Canadian's don't do public outreach, or at least it's not required as part of their legal system. That's how it was for natural resources in this country in the 50s and 60s and that's really where Canada is environmentally right now."* This statement is referring to the recent British Columbia government shake-up that occurred in October 2010, just prior to the Wild Links Conference. As a result of this reorganization, sixteen new

ministers were brought on and many of the ministries were re-organized with responsibilities being shifted and reassigned. The Forest, Land, and Natural Resource Ministry (which houses many of the wildlife biologists) were among one of the ministries that was re-structured (Harnett, 2010). Several of the Canadian Wildlinks participants noted that many provincial workers still didn't know what their new job was or who they would report to.

In sum, while Canada's version of federalism may be more decentralized, the policymaking is currently less accessible to external groups than the centralized U.S. version. I found the development of local polycentric governance to be in its infancy and facing institutional barriers north of the border. Moreover, American state government structures follow the national model of dividing political power among many branches. Thus, the U.S. system, and the states in particular, have been a more fertile institutional system for environmental policy innovation than Canada's provinces. Not surprisingly then, the states have become the home to several promising examples of polycentric wolf management programs. However while there exists some form of institutional polycentrism in WA, it isn't functioning effectively or collaboratively and is also still in its infancy. However, Canada's legal system is less adversarial compared to the U.S. and may consequently overcome these institutional and legislative barriers with greater ease.

***Conclusion #1: Polycentric governance, with respect to wolves, is in its infancy throughout the Cascadia ecoregion. The lack of institutional history north of the border is a major barrier to polycentric wolf management in Cascadia and the lack of institutional diversity is a barrier south of the Border.***

## **6.2 TRANSBORDER COLLECTIVE ACTION**

The semi-structured interviews proved invaluable for establishing a baseline for current wolf governance in both British Columbia and Washington. From a strictly methodological standpoint, the interviews offered an opportunity for managers to express their opinions beyond the basic structure of

the interview question. This interaction provided valuable insight from wolf managers working in different levels of governance across a variety of institutions. The interviews revealed that perceptions regarding the effectiveness of current wolf management vary within institutions and across the Border.

Environmental policy scholars have explored the ways in which collaborative institutions overcome the collective action dilemma. Trust, institutional mechanisms, and political leadership have all been theorized as key factors in encouraging collective action. Trust is often connected to social capital (Putnam 1995; Fukuyama 1995). In experimental settings, researchers have found that positive interactions in collective action simulations result in players learning to trust one another and tend to be reinforcing (Lubell and Scholz, 2001; Ostrom, 2000). Others have found greater collaboration among individuals who have experienced a history of cooperation in various institutional settings (Lubell et al., 2002, Schneider et al., 2003, Weber, 1998). In theory then, the success of a transborder wildlife conservation framework will depend on a history of stakeholders interacting in cross-national networks that foster reciprocal trust.

## 6.21 Trust

The level of trust between citizens and wolf managers has significant implications for wolves in the Border region. Babbie (2001) notes that the *“postmodern view in science represents a critical dilemma for scientists. We are all human, and as such, bring along personal orientations that will impact what they observe and how they explain it.”* When dealing with a controversial topic such as wolves, if survey respondents are not getting congruent, and factual, information from agency and government managers, trust is difficult to establish. Throughout Ostrom’s (2000) and Norman and Bakker’s (2005) research they discuss trust as one of the key factors for encouraging collective action. Trust is not necessary or sufficient for collective action of common resources, but Schlager (2004) argues that (1) trust along with (2) salience-dependency on the resource in some form, (3) common understanding of

how the resource operates, (4) low discount rate for future benefits, (5) autonomy to determine access and harvest with external authorities counteracting, and (5) prior organizational experience and local leadership are positively related to the emergence of collective action.

When survey respondents were asked about their level of trust of their respective governments regarding wolf management, both WA and B.C. survey respondents agreed that they did not trust the government to provide them with accurate information regarding wolves and that agencies and government officials do not exhibit an honest attempt to find agreement between different interested groups. This was again emulated in the question asked in the public perception survey regarding where survey respondents receive most of their information about wolves; 80% of B.C. respondents received information from personal experiences and 57% of respondents received information from environmental organizations, whereas in WA, most respondents (62%) received information about wolves from production organizations such as the cattlemen and sportsman associations. This difference again could, however, be a reflection of the sample demographics. Interestingly, when asked how survey respondents would like to receive information about wolves though, 50% of B.C. respondents acknowledging that they wanted to receive information on the internet and 61% of WA respondents wanted to receive information via newspapers. Only a minority of the survey population acknowledged wanting to receive information from government, government agencies or environmental organizations. Such discord is a frequent reason that regulation by a single agency is often preferred over governance by many organizations.

***Conclusion #2: A lack of trust is a major barrier between citizens and government agencies regarding wolf management.***

## 6.22 Drivers for Cooperation

If we examine Norman and Bakker's (2005) list of drivers for cooperation in commons we can see that some drivers do exist with respect to wolf management in Cascadia: specific issues, informal contacts, and legal obligations.

Legal obligations are most visible south of the Border. As discussed in Chapter 4, under the Endangered Species requirements, the U.S. is legally required under federal law to recover the wolf as a species. If the wolf were to be delisted, it would then be up to the states to manage wolf populations within their jurisdictions. Neither Canada or B.C. has any legal framework for wolf management or recovery. Informal contacts are quite robust both with WA and B.C. and across the Border. Stockmen and sportsmen associations and environmental organizations regularly communicate about wolves with each other and across the Border. The annual Wild Links Conference offers an example of this type of informal contact where managers can meet and talk about issues pertaining to large carnivores. Yellowstone to Yukon is another example of an organization that collaboratively works with agencies and landowners on both side of the Border to provide landscape connectivity.

There are also specific issues in common across the Border with respect to wolf management. Survey respondents from both B.C. and WA agreed that wolves will have a negative impact on hunting opportunities for people, that wolf hunts should be legal, that wolves that kill livestock should be killed, and that wolves are a threat to livestock. Survey respondents from WA and B.C. did disagree that people in their communities would be open to coexisting with wolves. B.C. respondents supported this statement, while WA survey respondents did not. Focusing on specific issues identified by survey respondents on either side of the Border may engage a dialogue for more collective management of the wolf.

However, managers across the Border did not agree on specific issues related to wolf management. WA interviewees were asked what some challenges facing wolf management in the

region were, 4 out of 8 responded that the negative perception of the wolf, tracking the wolves, misinformation to the public, competition with hunters, and managing the people and not the wolves were problematic. However, across the Border in B.C. there was no consistency in responses. Responses range from caribou and livestock depredation to public pressure and no management framework. The lack of consistency in identification of specific issues between managers and citizens makes dialogue and trust difficult to establish.

### 6.23 Barriers for Cooperation

Norman and Bakker's (2005) list of barriers for cooperation in commons are far more numerous in the wolf case: mismatched government structures, lack of institutional capacity, lack of leadership, lack of data, lack of financial resource, mistrust (discussed above), different government cultures and mandates, lack of intrajurisdictional integration, and federal jurisdiction tempering regional action. Many of these barriers are a direct result of the different governance regimes at work on either side of the Border are a reflection of the lack of polycentrism north of the Border discussed in the previous sections. Funding was, however, identified by both WA and B.C. interview respondents as important to wolf management and was lacking regionally.

The semi-structured interviews also indicated that there was a lack of understanding *between* managers, *and across* the Border, pertaining to both to compensation programs for wolf depredations the role the public should play in wolf management. Of the B.C. managers interviewed 60% commented that there was no compensation program and if there was one, they didn't know how it operated. There is in fact a livestock depredation compensation program in B.C. – the BC Wild Predator Loss Control and Compensation Program. The pilot program was initiated in 2002 and will run through December 2011. The program compensates up to 75% the value of the animal with the burden of prove it was a wolf depredation. Most WA respondents were unclear if a compensation funds still existed. Most

acknowledged that a fund did exist, but were unsure if the fund still existed. Those that did have knowledge of the fund were unsure of its success.

Managers in both B.C. and WA also disagreed on the appropriate level of civic involvement for wolf management. Four of the six B.C. managers acknowledged that there is either not adequate public participation due to governance structures, or there is a lack of public participation because wolves are not managed. According to Ostrom (2000), Schlager (2004) and Dietz et al. (2003), civic involvement is a component of collective action and a layer of polycentric governance. Ostrom's most influential work in the collective governance field was on water delivery service in California. She found "that multiple public and private agencies had searched out productive ways of organizing water resources at multiple scales contrary to the view that the presence of multiple governmental units without a clear hierarchy is chaotic" (Ostrom, 2009, p.3). Ostrom conducted case studies of common pool resource (CPR) management in both inshore fisheries and irrigation governance systems. In these case studies, Ostrom found that only 40% of the cases with government management achieved high performance, while 70% of the farmer-managed water systems performed well. In the fishery case studies, 83% had developed their own regulatory rules managing access and harvest without government coordination. This compilation of case studies demonstrated that there could be successful commons governance without relying on either markets or government imposed regulation. However, one of the key conditions in these cases was the ability of citizens to participate and influence resource management strategies. "What we have ignored is what citizens can do and the importance of real involvement for the people involved instead of having someone in Washington or in a far far distance make a rule" (Ostrom's Nobel Lecture, Oct. 12, 2009).

***Conclusion #3: there are some drivers for cooperation in Cascadian wolf management, more barriers than drivers, and the drivers and barriers with respect to wolf management vary across the Border.***

## 6.24 Opportunities for Cooperation

Despite their being more barriers than drivers for cooperation in Cascadian wolf management, both the semi-structured interviews and public perception survey indicate that there are still opportunities for cooperation on either side of the Border and across the Border.

While support did not appear to be malleable for a common management policy or strategy across the Border, Ostrom (2000) argued that if a group of users can successfully change the rules of a regime for the good of the collective action, it is possible that the resilience of the collective action could be improved. British Columbia survey respondents indicated that they would be more supportive (29%) of wolf recovery if they were able to influence agency managers and collaborate with them regularly, rather than if funds were available to compensate ranchers for livestock losses (17%). In fact, 19% of British Columbia respondents agreed they would be less supportive of wolf recovery if a compensation fund existed. Washington respondents did not exhibit a noticeable difference between either scenario. There are a couple of explanations for this, (1) the British Columbia survey sample contained a more cross-sectional sample population, and (2) according to Illical and Harrison (2006) endangered species legislation in Canada relies primarily on public expenditures to support stewardship programs whereas in the U.S. the imposing costs are placed on the private sector. Regardless, it is worth noting and worth further exploration that opportunities for engagement in the management process rather than a compensation fund would create more support for wolf recovery.

Additionally, Ostrom (2000) discuss the role of users having the ability to not only modify the collective action regime, but participating in making the collective action regime as well. Washington respondents agreed that both community and public involvement should play a role in the management process and British Columbian citizens responded neutrally. However, when managers were asked in the semi-structured interviews about the role and level of community and public involvement, the majority of managers responded that the public should be less involved in the development of the management

process. This mismatch in opinion between managers and citizens is currently an obstacle, but more importantly, is a potential opportunity for wolf management that would engage citizens rather than manage them throughout the management process.

***Conclusion #4: Citizens in both Washington and British Columbia want to participate and be engaged in the wolf management process.***

## 6.3 LIMITATIONS

Fowler (1988) and Dillman (2000) discuss at length the limitations of survey research. The quality of the sample, the quality of the questions, and the mode of data collection each offer a trade-off between rigor and cost. The semi-structured interviews and public perception survey will each be examined below.

### 6.3.1 Semi-Structured Interviews

The interview sample population proved difficult to obtain. While in WA and the U.S. there are numerous managers who specialize in wolf management, this was not the case in British Columbia. In fact, there is no one person in the B.C. government who specialized in wolf management and with the government restructuring happen amidst the interviews, B.C. interviews were hard to track down. Consequently, the sample population includes managers across of variety of local, state, and federal wolf management which could account for some of the varied responses from the managers. Snowball sampling seemed to be the best technique for tracking down participants in British Columbia. For future survey studies in B.C. it would be prudent to start early in tracking down respondents to ensure an adequate sample population is achieved.

Conducting each of the interviews in person would have been the ideal mode of delivery, but budget constraints did not allow for that, as interviewees were spread throughout the State of Washington and British Columbia. Google chat was used whenever possible, but the call quality was low

and several interviews suffered. Ultimately, a telephone with recording equipment was used to record the majority of the interviews. However, some interviewees did acknowledge that phone interviews were probably better because they provided more anonymity.

Lastly, interview consistency proved challenging. The same interviewer and standard set of questions was used for each interview to improve consistency, but upon reviewing interview transcripts it was evident that some questions were inadvertently probed and emphasized more than others. This is the trade-off of semi-structured interviews. They provide flexibility in encouraging discourse where interviewees are most engaged, but some questions were not addressed in as much detail as they could have been. Practicing the interviews before hand and perhaps having two interviewers to ensure consistency and completeness of the questions would be useful for conducting future interview research.

### **6.32 Public Perception Survey**

The survey sample reflected some of the same challenges of the interview sample. Respondents in WA were easy to track down through internet searches, production organizations such as the stockmens and sportsman associations, and through agency direction. This was not the case for British Columbia. Despite continued probing of B.C. contacts, it was difficult to directly track down B.C. respondents. The snowball sample ultimately worked in B.C. and began with only three contacts and resulted in 265 respondents. However, not all of these respondents were sportsmen and ranchers which made comparison of the results to the WA population less valid. In accommodating for this in the future, it would be possible to separate out demographic populations with a specific question that asked if the respondent was a rancher or sportsman.

Question style and development proved the most challenging aspect of the survey. Resource Media was consulted to help address positive messaging in the question design. However, even after

multiple reviews of the questions and pre-testing the questions on an unbiased group, some questions were still faulty and are discussed below:

*Question 2. What city and state or province do you currently live in?* This question was created as a fill in the blank question. We should have provided a range of responses that respondents could select from to make analysis easier.

*Question 3. What kind of work do you do?* This question was created as a fill in the blank question. We should have provided a range of responses that respondents could select from to make analysis easier.

*Question 8. What is your age?* This question was created as a fill in the blank question. We should have provided a range of responses that respondents could select from to make analysis easier.

*Question 15. Would your opinion of wolf recovery be more supportive, the same, or less supportive if citizens were able to influence agency managers on wolf recovery decisions and collaborate regularly? If desired, please explain response.*

The wording of this question is poor. The idea of regular collaboration could be interpreted differently by different people. Neither the word recovery or influence should have been used as they instill negative images in people's mind according to Resource Media. Lastly, the phrase 'influence agency managers' is inappropriate and could be interpreted as such. Comments left by respondents indicated that this question was misinterpreted across the board.

*Question 16. Would your opinion of wolf recovery be more supportive, the same, or less supportive if funds were available to compensate ranchers for livestock losses?*

Recovery was not a good word choice. According to several of the managers, people tend to negatively associate recovery with government reintroduction of wolves.

*Question 17. Would your opinion of wolf recovery be more supportive, the same, or less supportive if citizens were able to influence agency managers on wolf recovery decisions and collaborate regularly?*

This question was not used in the analysis because it was not pre-tested prior to survey administration. In addition to recovery not being a good word choice, use of the phrase 'influence agency managers' provoked angst amongst many respondents. So much so, that I'm not sure responses to this question were valid.

## 6.4 CONCLUSIONS

At the writing of the thesis, the endangered species status for gray wolves in the United States is again changing for the second time since I began this project in 2009. In April 2009, the gray wolf was removed from the endangered species list in Idaho and Montana and the legal wolf hunts began for the first time since the wolf was listed in 1974. By early 2010, the gray wolf was again listed as an endangered species after litigation spurred by environmental groups in the U.S. Several western U.S. states have been contesting this decision have been working to reinstate the 2009 decision by the U.S. Fish and Wildlife Service to delist the gray wolf in Idaho and Montana. Wolves would still remain an endangered species in portions of Washington State.

This type of adversarial governance is counterproductive to collective action, but to date it is oftentimes the most effective tool against command-and-control governance. So while wolf management north of the Border is limited to the establishment of a hunting season, the robustness of the endangered species legislation makes wolf management south of the Border convoluted and inconsistent. All is not lost though. The province of Alberta has been working with agencies on the U.S. side of the Border to develop a wolf management plan that would address U.S. wolf populations as well and allow for continued movements across the Border. One Alberta manager commented, *"We strive to maintain a viable population of wolves in SW Alberta despite intense predation on livestock, in order to allow connectivity to the lower 48. Our Area Wildlife Biologist in Southwest Alberta works closely with staff in Montana and other states on wolf management issues."* And in the U.S., a move to state-led

management of wolves may in fact encourage a more polycentric form of governance where the federal government plays less of a role, and local citizens play more of a role. Schlager (2004) offers, *“A central animating purpose for environmental governance when common-pool resources are involved is knowing when and how to help catalyze, maintain, and nurture these types of self-governing institutions.”* It is important to note that polycentric governance offers only one of many solutions to successful wildlife management. There are many factors, both human and physical that contribute to successful management of a commons and polycentrism may offer a framework for working more collaboratively across the Border in the future as climate change and urban expansion become more prevalent.

The late 20<sup>th</sup> century has been witness to another shift in public attitudes about wildlife that has created a divide between the rural and the urban. This divide exists on both sides of the International Border, but in the U.S. is fueled by the power of the litigious landscape of wildlife conservation. So in a sense, while no legislation exists in British Columbia to protect the wolf, none is yet needed despite people seeing the wolf differently, which is ironic given that they are still persecuted. To most Canadians, the wolf is just another creature on the landscape. And ironically, British Columbia may ecologically be more suitable for wolves than Washington. Eastern Washington’s economic landscape is dominated by agriculture and ranching whereas British Columbia is dominated by an extractive economy that draws from forestry and mining (Hayter and Barnes, 2001; Loo, 2006). The result is a more uninhabited land base in British Columbia compared to Washington. There are still rancher/wolf conflicts in British Columbia, but most of these to date have occurred in the northern part of the province (Gunson, 1983). It would be useful to conduct similar research as in Alberta, as they are in the process of developing a wolf management plan and have a large population of wolves overlapping with human space. Which leads to the final conclusion and is supported by Girordano (2003): the temporal and sociopolitical scale of wolf management depends on the geographic nature of the wolf and should be governed dynamically through a variety of nested layers of environmental governance.

Consequently, *Cascadia needs more dynamic collective choice arrangements to achieve more polycentric governance.*

Wildlife and habitat conservation in the northwest remains as contentious as it was in the early nineties. According to environmental discourse theory, conflict arises from the communicative dissonance among stakeholders' assumptions, judgments, and contentions over the causes and remedies for wildlife and habitat degradation. An environmental discourse is a group's "shared way of looking at the world," according to Dryzek (1997, p. 8), and the differences across discourses have political consequences. Different groups hold divergent assumptions that frame their perceptions about environmental problems and their policy preferences. Management of the gray wolf in Cascadia presents a case of what Singleton (2002) refers to as 'the good, the bad, and the ugly' and for the gray wolf it is a case of 'the bad' with the potential to get ugly. The large range of the gray wolf calls for larger scale management where linkage and asymmetry problems arise. Singleton's (2002) *'The Good, the Bad, and the Ugly'* offers three case studies where collaborative processes varied in effectiveness indicating that the solution to managing large scale commons, such as the gray wolf, may not be black and white. Wolf management across Cascadia may require several forms of nested governance techniques that work across institutions and jurisdictions. However, in the case of the gray wolf, a common ground for working across the Border still needs to be established.

It is futile to evaluate the collective governance of wolves in Cascadia without collaborative citizens and managers to support the institutions that manage wolves and in the case of the wolf management in the Cascadia region, governance has not progressed past the first strategy of analytic deliberation on either side of the Border, let alone across the Border. Washingtonians seems to be talking at each other, British Columbians are just now talking to each other, and rarely are people talking across the Border about wolves. So in short, the Border does matter. While perceptions between ranchers and sportsman across the Border are similar, the politics are not. However, perhaps the similar

perceptions between ranchers and sportsman across the Border can provide fertile ground for more collaborative wolf management in the future. So where do we go from here? Wolves have persisted in Minnesota and those borderlands for centuries. A case study comparison with another region that has successfully managed populations of wolves where human interactions were likely would be useful. The collective action framework offers a path for examining commons situations, but perhaps the better question for wolf management in Cascadia is how do we get on a path where collective action can be supported? And if we can, what would that look like?

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## APPENDIX I: INTERVIEW AND SURVEY QUESTIONS

### Semi-Structured Interview Questions

1. **I would like to ask you some questions about your role as a wildlife manager.....**
  - How long have you been working in wolf management?
  - What regions have you focused on in the last year/six months?
  - What is your role as a manager? (i.e. do you focus on policy, implementation, are you in the field, do you work with residents, etc)
  
2. **I would like to ask you some questions about wolf management in your region.....**
  - What are the biggest challenges for Wolf management in your region or nearby regions?
  - Which groups present the largest challenge for wolf management? How so? What about regional or local groups?
  - What are the most controversial issues surrounding wolf recovery in the US? (e.g. livestock depredation, human encounters, wolf hunts) Can you rank in order of importance?  
In different regions?
  - What do you believe are the most successful techniques for dealing with these issues?  
Could you rank those in order of importance?  
Do you think wolf management benefits from public involvement? How so? (meetings, policy, email, phone calls, conferences....how often?)  
Is there a need for more wolf education for the general public? If so, in your opinion, what is the best way to disseminate this information? Are there specific groups/ages that should be targeted?
  - Do you work with other agencies on wolf management issues? How so? (meetings, policy, email, phone calls, conferences....how often?)
  - Do you work with agencies across the Border? In what capacity? If not, is this something you would like to do more of in the future? What would help facilitate this interaction?
  
3. **Are there questions we should be asking that weren't covered in our interview?**
  
4. **Can you suggest some key contacts we should include in our interviews?**

## Public Perception Survey Questions

1. I am 18 years old and consent to participating in this survey.
2. What city and state or province do you currently live in?
3. What kind of work do you do?
4. Do you own or lease more than 50 acres of land?
5. If you are a wildlife manager, please indicate what type of organization you work for. 6. Have you ever camped, hunted, or participated in any outdoor recreation activities in the North Cascades?
7. What is the highest grade level you have completed in school?
8. What is your age?
9. How much information have you heard about wolves in your area?
10. Do you support or oppose the presence of wolves in your area? Why?
11. Please indicate whether you strongly agree, agree, are neutral, disagree, or strongly disagree with each of the following statements:
  - Wolves are a threat to livestock
  - Wolves that kill livestock should be killed
  - Wolves are a threat to public safety
  - Individuals living near wolves should be held responsible for taking steps to minimize the chance for conflict
  - If wolves return, they will have a negative impact on hunting opportunities for people
  - People in my community will be/are open to co-existing with wolves
  - I am more supportive of wolves when they come back naturally than when they are brought in by government wildlife agencies
  - Wolves are a nuisance animal damaging rural economies
  - Wolves spotted in or near towns should be killed
  - Wolf hunts should be legal
12. Would you support non-lethal wolf control?
13. What level of government should be in charge of wolf management?
14. From where have you received most of your information about wolves in Washington State/British Columbia?
15. How would you prefer to be informed about wolves in Washington State and British Columbia in the future?
16. Would your opinion of wolf recovery be more supportive, the same, or less supportive if funds were available to compensate ranchers for livestock losses? If desired, please explain response.
17. Would your opinion of wolf recovery be more supportive, the same, or less supportive if citizens were able to influence agency managers on wolf recovery decisions and collaborate regularly? If desired, please explain response.
18. Please indicate whether you strongly agree, agree, are neutral, disagree, or strongly disagree with each of the following statements:

- Local communities should be involved in wolf management
- The public should be more meaningfully involved in the decision-making process regarding wolf management (don't like wording)
- There is a need for more public education about wolves
- We need more avenues for public participation in decision-making regarding wolves
- The agencies and government officials involved in wolf management exhibit an honest attempt to find agreement between different interested groups (good question)
- Citizens can trust the agencies and government officials involved in wolf management to give them accurate information about wolves (good question)
- Environmental organizations should be meaningfully involved in the decision-making process regarding wolf management (don't like "meaningfully")

**19. What comes to mind when you think of wolves?**

