

**Carnivores and Conflict:  
A Community Approach to Carnivore  
Compensation in Southwestern Alberta**

**by**

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## Ethics Statement



The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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## **Abstract**

Human tolerance of large carnivores is shaped by the direct and indirect effects that carnivores have on human populations. Compensation programs reimburse farmers and livestock producers for losses or damages incurred due to carnivore activity. The Carnivore Working Group (CWG) of the Waterton Biosphere Reserve Association prepared recommendations for amendments to the Alberta Wildlife Predator Compensation Program with the aim of improving compensation in Alberta. I used the policy sciences and Brunner et al.'s (2002) tests for the common interest to evaluate the decision-making process behind the CWG's recommendations. While the group performed moderately well in the intelligence, promotion, and prescription activities, the remaining decision-making activities have been stalled, waiting for action by the Alberta government. Based on my analysis and the principles of community-based adaptive governance I make recommendations for the CWG and other community groups dealing with similar policy issues.

**Keywords:** Community-based initiative; adaptive governance; carnivore compensation; grizzly bears; wolves; Alberta

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## **List of Acronyms**

AEP	Alberta Environment and Parks
AESRD	Alberta Environment and Sustainable Resource Development
CWG	Carnivore Working Group
WBRA	Waterton Biosphere Reserve Association



# Chapter 1.

## Introduction

Successful conservation of large carnivores is dependent on human activity and human tolerance of carnivore activity. While bears, wolves, cougars, and other large carnivores may be charismatic animals that are perceived by many people as a natural part of the landscape, their large ranges, dietary needs, and intimidating nature create management challenges. These challenges are especially complex on lands adjacent to protected areas, where carnivores interact and sometimes clash with rural human populations.

Conservationists, landowners, scientists, hunters, and government agency staff are among the human interests involved in the management of carnivore populations outside of protected areas. These interests have diverse and often conflicting attitudes, perspectives, values, and beliefs. Determining what factors affect tolerance for carnivores, how to alleviate the burdens placed on rural populations by carnivore activity, and how to integrate community engagement in decision-making, are all key issues in developing and implementing effective and socially acceptable carnivore management policies.

Tolerance of large carnivores is shaped by the direct and indirect effects these animals have on human populations. Direct effects include safety hazards to people, and depredation resulting in the death or injury of livestock – impacting livelihoods. Indirect effects are not as easily documented, but may include the costs of repairing damaged fences, buildings, and other structures; the value of a landowner's time; and losses due to predator harassment of livestock, including reduced weight and decreased reproduction. These burdens arising from the presence of large carnivores are mainly borne by rural populations (Nyhus et al., 2005). For example, livestock producers in rural

areas are very concerned about the financial risks associated with carnivores (Kellert et al., 1996; Loosen et al., 2014; Pym et al., 2014).

In an effort to ameliorate the negative impacts of carnivore activity and reduce retaliatory killings of these animals, carnivore managers and conservationists in many places around the world have instituted programs that provide compensation for losses caused by large carnivores (Decker et al., 2006; Haber, 1996). Compensation programs reimburse farmers and livestock producers for damage or losses caused by carnivore activity. These programs use financial support to promote tolerance and conservation in regions where conflict is high (Treves et al., 2009). Further research is needed on the development and delivery of compensation programs, as well as the roles that governments and communities may play, in order to improve these programs and ensure that they are effective tools for mitigating carnivore human conflict.

My research examines a local community-based effort to develop an improved compensation program for carnivore activity in southwestern Alberta. This proposed compensation program was designed by a non-governmental association known as the Carnivore Working Group (CWG), consisting mainly of rural landowners and livestock producers in southwestern Alberta near Waterton Lakes National Park (WBRA, 2012). The purpose of my research is to learn from the practical experiences of the CWG in their efforts to address the problem of carnivore compensation, and to make recommendations to improve the decision-making processes of the CWG and support other community groups facing similar challenges.

In the remainder of this chapter I provide an introduction to carnivore compensation programs and describe the typical goals and challenges of these initiatives. I then briefly summarize the history of carnivore management, conflict, and compensation in Alberta. Next, I describe the origins and structure of the CWG, and review the main activities of that organization. This is followed by a discussion of the concept of “adaptive governance”, and the importance of community-based initiatives such as the CWG in this model of governance (Brunner et al., 2005; Brunner and Lynch, 2010). I conclude the chapter with a discussion of my standpoint and methods.

## **Carnivore Compensation Programs**

Compensation programs for losses arising from the presence and actions of large carnivores have been established in settings across North and South America, Europe, Africa, and Asia. The focus of these programs range from supporting wolves in North America, to lions in Africa, to elephants in India. I prepared a global inventory of all carnivore compensation programs on which I was able to find information in English, based on a review of academic literature, official program web pages, publicly available documents (government and private), and personal communications with program managers. I identified seven compensation programs in Canada, 12 in the United States, and 21 in other jurisdictions around the world. The full inventory is included as Appendix A to this report. Here, I briefly summarize the results of my review.

Compensation programs have been instituted by national governments, state and provincial governments, non-governmental conservation organizations, and community-based initiatives. These programs offer support for communities and individuals directly affected by carnivores in order to offset or reduce the impacts and costs of carnivore activity, including depredation. There are three main types of compensation programs. “Ex post schemes” reimburse livestock producers for livestock killed or injured by carnivores after the incident has occurred and has been investigated by officials associated with the program. “Performance payments” reward producers for specific conservation actions in relation to carnivore populations and habitat. Finally, “insurance-based schemes” are programs under which producers pay premiums to an insurance fund and are subsequently reimbursed from that fund when damages or losses occur (Nyhus et al., 2005). Within these three broad categories there is substantial variation, and individual programs may be tailored to fit the unique cultural and legal contexts of the regions in which they are implemented. As a result, programs of similar type may differ in their specific guidelines or requirements.

The goals of compensation programs include: shifting some of the costs of conservation from rural to urban populations; promoting good husbandry practices; reducing poaching and possibly the need for lethal control; improving attitudes and perceptions about carnivores; and increasing human tolerance of carnivore activity

(Nyhus et al., 2003; Nyhus et al., 2005). Nyhus et al. (2003) describe the most effective compensation programs as being those that maintain transparency, build trust, are fair, and are timely in their verification and administration processes.

Despite these goals, compensation programs have had varying success. Challenges include corruption, insufficient compensation levels, and lack of community support (Agarwala et al., 2010; Bulte and Rondeau, 2005; Nyhus et al., 2003; Nyhus et al., 2005). In some cases programs have experienced reduced husbandry activities or loss of natural wildlife habitat (e.g., when the existence of a compensation fund increases the appeal of a region for farming or ranching and leads to expansion of these activities) (Bulte and Rondeau, 2005). Delays in compensation payments, due to limited availability of field personnel to verify carnivore attacks or too few administrative staff to process claims quickly, have in some settings led to user frustration and distrust of the program and its personnel. In addition to these common challenges, the long term implementation of compensation programs have led to a sense of entitlement to receiving financial support, and the costs required may compromise the sustainability of these programs and their ability to continue regular timely payments (Dickman et al., 2011; Treves et al., 2009). Also, supporting a compensation program may reduce the amount of funding and resources available for other habitat or species conservation measures. For example, when compensation payments exceeded expectations in Wisconsin, subsequent budget cuts were made elsewhere in the government department responsible for the program (Treves et al., 2009).

## **Carnivore Management, Conflict, and Compensation in Alberta**

The Alberta Wildlife Predator Compensation Program is a provincial initiative established in 1974 that provides economic compensation to ranchers throughout Alberta for losses arising from carnivore presence and activity (AEP, 2014a; Fish and Wildlife Division, 1991; Gunson, 1992; Lee, 2011). The program covers losses caused by wolves, grizzly bears, black bears, cougars, and eagles. While black bears, wolves, and cougars are classified as “secure” under Alberta’s Wildlife Act, eagles are classified as sensitive (both bald and golden eagles) and the province’s grizzly bear population

has been listed as “at risk: threatened” since 2010 (AEP, 2011). In this section, I briefly review the management and range of wolves and grizzly bears in Alberta; the former being the carnivore species that triggered the establishment of compensation in the province, and the latter being the only species listed as threatened and covered by the program. I then discuss the history of conflict between carnivores and humans in southwestern Alberta, and describe the structure and historical reception of the Alberta Wildlife Predator Compensation Program.

Wolves in Alberta have experienced two major cycles of scarcity and abundance over the past century. In the early 1900’s and again in the 1960’s, wolves were systematically exterminated in much of the province as a result of management strategies, including provincially sanctioned poisoning campaigns, anti-rabies campaigns, bounties, and being classed as fur bearing carnivores for trapping and hunting in 1964 (Alberta Wilderness Association, 2014; Fish and Wildlife Division, 1991; Gunson, 1992). Low availability of prey species also likely contributed to these two major declines in wolf populations. In the 1940s, wolf populations increased substantially, possibly due to the withdrawal of bounties and increases in the abundance of prey. Wolf populations increased again in the 1970s during a period in which wolf protection was a primary management goal (Gunson, 1992). In 1991 Alberta adopted a Wolf Management Plan that established a winter population target of 4000 wolves in the province, with ongoing control of the population through hunting and trapping, and a general authorization for landowners to kill problem wolves on or near their properties (Fish and Wildlife Division, 1991). That management plan remains in force. In addition, in recent years the provincial government has authorized culls of large numbers of wolves in specific regions of the province under recovery strategies for woodland caribou populations (e.g., the Little Smokey population in west-central Alberta) (Alberta Wilderness Association, 2014; Hervieux et al., 2014). Historically, wolf habitat in Alberta included the grassland regions, but wolves are now largely restricted to forested areas (AEP, 2009).

Grizzly bears have been extirpated from much of their historic range in Alberta as a result of widespread killing, and habitat loss from industrial and infrastructure expansion, and extensive conversion of natural habitat to agricultural land (Alberta

Grizzly Bear Recovery Team, 2008; Gailus, 2010). Having once occupied much of Alberta, the current range of grizzly bears is restricted to areas in or near the Rocky Mountains, foothills, and boreal forests (AEP, 2014b). Population assessments for grizzly bears are difficult and expensive to conduct due to the animal's large range and elusiveness. In 1988 the provincial grizzly bear population was estimated to be approximately 790 animals with approximately 575 bears on provincial lands and approximately 215 in parks (e.g., Banff, Waterton Lakes, and Jasper National Parks) (Kansas, 2002). In 2010, the provincial status report estimated a total of 691 bears on lands under provincial jurisdiction plus parts of Waterton Lakes, Banff, and Jasper National Parks (Festa-bianchet, 2010).

In southwestern Alberta, grizzly bear habitat overlaps areas used by ranchers for livestock production. The Alberta Grizzly Bear Recovery Plan alluded to the eastward population expansion of the large carnivore into the Alberta prairies (Alberta Grizzly Bear Recovery Team, 2008). Urmson and Morehouse (2012)'s analysis of enforcement records for grizzly bears within Cardston, Pincher Creek, Blairmore, and Claresholm Fish and Wildlife Districts observed the expansion as locations of occurrence reports spread eastward over a 13 year time span (1999-2011). In 2010, the grizzly bear populations of the Livingstone and Waterton-Castle population units in southwestern Alberta (the area in which the CWG operated) were estimated to be approximately 90 and 51 bears respectively (Festa-bianchet, 2010). Since then the province initiated the Southwest Alberta Grizzly Bear Monitoring Project to provide an update on the density, abundance, and distribution of grizzly bears in southwestern Alberta ("Southwest Alberta Grizzly Bear Monitoring Project", 2011). The 2014 project update stated that sampling (e.g., hair samples from rub objects) over the three year project had identified a total of 177 individual grizzly bears through DNA analysis (Morehouse, 2014). However, until further analysis is completed this number is not meant as a population estimate ("Grizzly Bear Conservation in Alberta: 2013 Management Activities and Recovery Implementation", 2014).

Carnivore conflict and livestock depredation have intensified in recent years in southwestern Alberta. Large carnivore occurrence reports based on enforcement records for the Cardston, Pincher Creek, Blairmore, and Claresholm Fish and Wildlife

Districts have been prepared for the years 2012, 2013, and 2014 for the Waterton Biosphere Reserve Association (WBRA) (Urmson and Morehouse, 2012). These reports classify enforcement records into sightings, incidents (e.g., carnivore caused property damage, obtained food, attempted to kill or killed livestock, etc.), and human conflict (e.g., carnivore made contact with a person or was harmed or killed by a person) (Urmson and Morehouse, 2012). In 2014, 308 occurrences involved grizzly bears, 443 involved black bears, 66 involved gray wolves, 91 involved cougar, and 16 were determined to be unfounded with no carnivore actually involved (Rettler and Morehouse, 2015). The total number of reported grizzly bear occurrences in 2014 had increased by 57% since 2013, and was higher than any of the previous 16 years (Rettler and Morehouse, 2015).

Rural landowners and livestock producers occupy much of the land in the region around Waterton Lakes National Park (e.g., 60% of Bear Management Area 6/Waterton-Castle unit is privately owned) (Loosen et al., 2014). While wolves and other carnivores have had a variable presence on the landscape for decades, the eastward expansion and 2010 protection of grizzly bears has intensified management issues. Rural and ranching communities still recall times when mass culling and unrestricted hunting of wolves, and widespread hunting of grizzly bears, were normal practices (Alberta Wilderness Association, 2014; Gunson, 1992; Watters et al., 2014). Transitioning into an era in which conservation of carnivores is a socially valued management objective has been challenging for many people living in this region, as rural land use and livestock practices developed in a very different political, social, and environmental context.

The Alberta Wildlife Predator Compensation Program is the responsibility of Alberta Environment and Parks (AEP) (formerly Alberta Environment and Sustainable Resource Development (AESRD)), and is administered by a committee comprised of representatives from AEP, Alberta Beef Producers, Western Stockmen's Association, Alberta Department of Agriculture, and Alberta Veterinary Medical Association. The compensation program is financed by the sale of hunting and fishing licenses, and is an ex post compensation scheme under which livestock producers are compensated for cattle, sheep, bison, swine, or goats injured or killed by grizzly bears, black bears, wolves, cougars, or eagles (AEP, 2014a).

Incidents are reported to, and must be verified by, provincial Fish and Wildlife officers in order for claimants to be reimbursed full market value. If the verifying officer suspects that a carnivore may be responsible, but is unable to make a conclusive determination, it is labelled a “probable kill” and claimants may not receive full compensation, or may be denied any compensation, depending on the circumstances. Confirmed predator kills receive average commercial value for the type and class of animal on the day it was killed with a minimum payment of \$400. Probable kills receive 50% if a confirmed kill by the same carnivore species is found within 10 km and within 90 days before or after the initial claim (Wildlife Regulation, Alta Reg 143/1997).

Compensation throughout Alberta under the program has risen from a total of \$68,000 in 2001 to approximately \$274,000 in 2011 (Paterson, 2013). Payouts continue to rise as a result of increasing market prices for cattle and the frequency of depredation events, to the point that claims now exceed available funds (Paterson, 2013). The number of claims has been particularly high in southwestern Alberta. For example, the area of the Waterton-Castle population unit, which amounts to approximately 3% of the province, accounted for 37% of all compensation payments from 2000-2011 (Loosen, 2014; Morehouse and Boyce, 2011).

In 2007, the Alberta government hired a consultant to review the Alberta Wildlife Predator Compensation Program and develop a series of recommendations (Lee, 2011). The review concluded that the program appeared to be meeting its fundamental objectives and purpose, but that there were ways in which it could be improved (Lyster, 2008). The Fish and Wildlife Division of AESRD accepted the recommendations in principle, but asserted that implementation was not within their jurisdiction and would be subject to budget availability (Lyster, 2008). Following Fish and Wildlife’s response, the recommendations were reviewed through workshops, meetings, and interviews with AESRD Fish and Wildlife staff, Alberta Beef Producers, Alberta Agriculture and Rural Development, Alberta Conservation Association, and the wildlife sub-committee of the Alberta Government Affairs Committee. One recommendation that was adopted by the wildlife sub-committee was to increase the minimum amount compensated per animal from \$300 to \$400 (Lee, 2011).



In 2009, the WBRA and the Chinook Area Land Users Association, with the assistance of the Miistakis Institute, conducted a survey in southwestern Alberta that examined the attitudes and perceptions of residents towards carnivores in their region and towards the Alberta Wildlife Predator Compensation Program. The survey targeted residents within 20km of Waterton Lakes National Park. The results indicated that landowners were broadly dissatisfied with the compensation program. Over 76% of respondents said that they were not satisfied with the program, and 77% indicated that it was not fair (Lee, 2011). Three key issues were identified: respondents felt that the burden of proof was too high, compensation payments were too low, and there were issues concerning relationships and trust between Fish and Wildlife officers and landowners (Lee, 2011).

## **The Carnivore Working Group**

In 2011, the WBRA was asked by AESRD to coordinate and manage a grant from the province to support community-based, landowner driven projects designed to reduce conflicts between carnivores and people, with a specific focus on grizzly bears, black bears, and wolves (Loosen et al., 2014; WBRA, 2012). The WBRA was established in the early 1980s as a non-profit organization that focuses on linking biodiversity conservation to sustainable use of resources in the Waterton Biosphere Reserve area (WBRA, n.d.). With the AESRD grant, the WBRA formed the CWG. Membership of the CWG is composed primarily of livestock producers from Cardston County and the municipalities of Ranchland, Willow Creek, and Pincher Creek, and also includes representation from the four municipalities, the Nature Conservancy of Canada, AESRD, and Fish and Wildlife officers (Manners and Bectell, 2014). There is some overlap in these roles. At the time of my research, several of the livestock producers on the CWG were also councillors for local counties and municipal districts, or were chairs or coordinators of neighbouring conservation partnerships (e.g., the Drywood-Yarrow Conservation Partnership). In addition, the CWG occasionally invited selected community members as guests to its meetings. Table 1 sets out the members of the CWG in the summer of 2012, when I conducted my research.

**Table 1: CWG membership in 2012 (Jeff Bectell, personal communication, 2012).\***

<b>Member Name</b>	<b>Positions/Affiliation</b>
Jeff Bectell	Rancher in Cardston County; Chair of WBRA
Nora Manners	Rancher in the Municipal District of Pincher Creek; WBRA Coordinator
Tony Bruder	Rancher in Municipal District of Pincher Creek, also Chair of the Drywood Yarrow Conservation Partnership
Bill Cross	Rancher in Municipal District of Willow Creek
Ron Davis	Rancher in Municipal District of Ranchland; Municipal District Councillor for Ranchland
Shane Hansen	Rancher in Cardston County; County Councillor for Cardston; Director of WBRA
Harry Streeter	Rancher in Municipal District of Ranchland; Municipal District Councillor for Ranchland
Stephen Bevans	Assistant Agricultural Fieldman Cardston County
Glen Alm	Rancher in Municipal District of Willow Creek; Municipal District Councillor for Willow Creek
Helen Cyr	Rancher in Municipal District of Pincher Creek; Municipal District Councillor for Pincher Creek
Jeff Porter	Conservation Coordinator for southwestern Alberta Conservation Partnership. This is a partnership of the Municipal Districts of Pincher Creek, Willow Creek and Ranchland
Greg Hale	Senior Wildlife Biologist, Southern Rockies Area – Pincher Creek, AESRD

\*Note: Andrea Morehouse of AESRD also attended the meetings of the CWG during the summer of 2012 when the carnivore compensation program was discussed and recommendations for a revised program were developed. While at the time she was not considered an official member of the working group, she was an important resource person. Her official designation was Grizzly Bear Monitoring Project Coordinator, Southern Rockies Area – Pincher Creek, AESRD.

Since its formation, the CWG has led and coordinated projects to manage attractants for large carnivores on private lands and deter carnivores from areas with livestock or other human uses, with the goal of balancing agricultural livelihoods with wildlife conservation. All projects have been community-oriented initiatives involving ranchers, landowners, partner agencies, and the CWG. Projects have included retrofits of grain bins (e.g., bear-proof doors, steel or concrete floors); installation of electric fencing; funding and organizing the deadstock program which provides predator proof bins for dead livestock and arranges carcass pick-up in regions of high conflict; and the planning and construction of a composting facility for dead livestock - the first municipal deadstock facility in Canada (Loosen et al., 2014). Many of these projects have been undertaken in collaboration with non-governmental organizations such as the Nature

Conservancy of Canada, the Drywood Yarrow Conservation Partnership, and the Southwestern Alberta Conservation Partnership. In addition to collaborating with groups in Alberta, the CWG has worked with similar community initiatives in Montana, such as the Blackfoot Challenge, a non-profit organization working to reduce conflicts with carnivores in the Blackfoot River Watershed.

The CWG has not limited its activities to mitigating carnivore conflict. Additional projects conducted by the CWG with the WBRA include:

- the Pole Haven real time animal movement project which used active radio frequency identification tags to monitor cattle movement on the landscape and predation events;
- funding a seasonal Fish and Wildlife officer for the municipal district of Ranchland;
- a non-invasive Grizzly Bear Monitoring Project in which hair samples for DNA analysis were collected from rub objects located on public and private lands;
- the production of an educational film, *Sharing the Range*, that profiled work accomplished by ranchers living with grizzly bears in southwestern Alberta; and
- a review and analysis of carnivore conflict/activity in southwestern Alberta (Manners and Bectell, 2014; WBRA, 2015).

In summary, the CWG is a local community-based initiative that has attempted to alleviate conflict between carnivores and people and mitigate the impacts of carnivores on rural landowners and livestock producers in the region.

## **The CWG and Adaptive Governance**

Brunner (2002) argues that community-based governance initiatives have proliferated in recent years due to the increasing number of pluralist interests involved in public decision-making and the failures of established centralized structures of governance. He defines a “community-based” initiative as a collection of individuals who care about a problem, who have observed a policy deficiency, and who want to do

something about it together. Community-based initiatives provide opportunities for citizens to advance their own interests and balance them with the interests of others in the community, and to take a proactive role when conflict has stalled the search for solutions (Brunner et al., 2002; Brunner et al., 2005).

According to Brunner et al. (2005), the rise of community-based governance in natural resource management is part of a fundamental shift from the traditional “scientific management” approach—which is dominated by centralized government agencies and reductionist quantitative science—to more local, pluralistic and adaptive approaches that they call “adaptive governance”. Scientific management relies heavily on the legitimacy of scientific discovery, bureaucratic processes, and standardized, technical solutions (Brunner et al., 2005). The aspiration is to rise above politics by basing management on unambiguous facts delivered through a single authority with appropriate mandate, jurisdiction, and expert personnel (Brunner et al., 2005; Clark et al., 2014a). The management of large carnivores, like other areas of wildlife management, has historically been dominated by the doctrine of scientific management (Clark et al., 2014a). Scientific management of large carnivores is founded on faith that good scientific information will ensure that conservation of carnivores is a biological, ecological, and social success.

However, modern large carnivore management is a messy political process. Although good scientific information and expertise is integral to the design and implementation of effective carnivore policy, science alone cannot resolve value-based disputes. The scientific management approach is inadequate for complex, value-laden, “wicked” problems such as managing large carnivores outside of protected areas (Lackey, 2007). Non-scientific variables, such as changes and differences in the ways that humans value nature and resources, dynamics of interest groups, agency organizational cultures, and the symbolic power of large carnivores, must also be taken into account (Clark, 2002). For example, intolerance towards predators and challenges with gaining community approval for a carnivore compensation program are rarely due to lack of scientific information, but are often due to the ineffectiveness of the management policies adopted, their inability to integrate and balance valid and appropriate community

interests, and resulting failures in on-the-ground implementation (Brunner et al., 2005; Clark et al., 2014b).

Adaptive governance by community-based initiatives is an alternative approach that may address some of the deficiencies and rigidity of scientific management (Brunner et al., 2005). Ideally, adaptive governance offers an improved means of problem solving through the integration of knowledge and action, theory and practice, in an open decision-making process to provide tangible on-the-ground benefits (Clark and Milloy, 2014). Adaptive governance requires context-specific, meaningful input and involvement from public and community interests, as well as experts, to advance the common interest (Brunner et al., 2005). Changes in social conditions and environmental conditions are often unavoidable and unpredictable, and a key component of adaptive governance is its evolving nature and its emphasis on learning over time. This management approach experiments with policy options, monitors, evaluates, and selects what works, builds on observed success, and terminates policies that fail. According to proponents, adaptive governance has emerged as a means of advancing the common interest by integrating practical knowledge, community interests, and informal processes, while maintaining flexibility and adapting to new information and changing conditions (Brunner et al., 2005).

In my research I use Brunner et al.'s (2005) conception of adaptive governance to examine and evaluate the CWG as a community-based initiative. Ideally, a community-based governance initiative would include the full range of interests affected by a problem, and they would work together to clarify and advance their common interest. In practice, however, such initiatives come in a range of forms, varying in size, diversity of membership, and the extent to which members represent the broader community. The CWG is not as diverse as some community initiatives, since its membership consists primarily of livestock producers and rural landowners. However, to a large extent this membership reflects the demographics of the rural ranching communities in southwestern Alberta in which the CWG operates. In addition, the CWG's approach to decision-making, its inclusion of a representative from the provincial wildlife agency and guest participants, and the ways in which it has engaged with other groups, indicate that it represents more than a narrow special interest. Moreover, the

CWG is one of the only examples of a local community-based initiative that has engaged in the policy development of carnivore conflict management and compensation programs in Canada. As such, the experiences of the CWG offer an excellent opportunity to learn about community-based initiatives in this context and their potential to improve compensation programs.

## **My Standpoint and Methods**

My involvement with the CWG originated in 2012 when I was contracted by them to conduct research on the worldwide use of compensation programs for wildlife damage. The project built on the findings of a 2009 survey and report on compensation programs published by the Miistakis Institute in Alberta (Lee, 2011). I prepared an inventory of carnivore compensation programs from around the world (see Appendix A). This research was one resource the CWG used to develop its policy recommendations for revisions to the compensation program in Alberta. The CWG then retained me to write a second report describing the group's policy recommendations and provide a rationale for the proposed revisions to the compensation program. This second report was submitted to the Alberta government in the spring of 2013 (see Appendix B).

Prior to this project I had very limited experience or knowledge of the livestock industry or compensation programs. My primary biases in this research stem from my upbringing, past employment, and educational background. Carnivores were always a component of life for me growing up in a rural Yukon setting, and the charismatic carnivore species held a certain thrall for me. My education and work experience primarily involved biology, terrestrial ecology, resource management, and carnivore conservation. Past work included promoting bear awareness campaigns, studying bear habitat and forage requirements, and researching carnivore conflict data. While working with and researching the CWG and livestock producers in Alberta, I heard many stories of experiences with carnivores and compensation in the region, and I was abruptly introduced to a completely new perspective on carnivore management. This challenged my own values and priorities concerning conservation. Through this research I was educated as to the true complexity of managing and living with carnivores on the landscape. To counter my potential biases in the following analyses, I was alert for

instances when I was personally identifying with or overly sympathetic to the CWG and its activities. I also revised parts of my work when counselled by my project advisors to adopt a more critical and analytical perspective.

Evaluations in the following chapters are based on a combination of sources. I attended, in person, the two main CWG meetings in June and August 2012 that considered revisions to the carnivore compensation program. I also participated in several conference calls with the CWG during the fall of that same year. Evidence presented later is from my observations as a participant observer at those meetings. From May 2012 through January 2013, I regularly communicated with Jeff Bectell by email or phone as I drafted both reports for the CWG and our informal conversations directed my work. Additional resources for this study included a review of published and unpublished literature and websites on compensation programs and carnivore depredation, historical and current carnivore management in Alberta, community-based initiatives in natural resource management, and adaptive governance and scientific management.

## **The Remainder of this Report**

In the next chapter I describe the evolution and substantive content of the CWG's recommendations for changes to the compensation program in Alberta. Using a framework for analyzing and evaluating decision-making processes drawn from the policy sciences, I discuss the structure of the CWG and analyze the strengths and weaknesses of its decision-making process for the carnivore compensation problem. In Chapter Three I compare the CWG's structure and activities with principles of community-based adaptive governance and assess whether the CWG meets Brunner et al.'s (2002) tests for the common interest in community-based governance. This assessment helps to identify the CWG's strengths and weaknesses, and guides the development of recommendations. The balance of Chapter Three is devoted to these recommendations and a discussion of possibilities for further research.

## **Chapter 2.**

### **Decision Analysis**

In this chapter I describe and evaluate the decision-making process through which the Carnivore Working Group (CWG) developed its recommendations for changes to the Alberta carnivore compensation program. I use the policy sciences framework and criteria for decision analysis (Clark, 2002; Clark et al., 2014a; Lasswell, 1971).

### **Policy Sciences Approach to Decision Analysis**

The policy sciences approach to interdisciplinary research and policy analysis includes a set of intellectual tools used to identify, define, and analyze policy problems in order to develop more sensible, useful, and politically viable solutions (Clark, 2002; DeLeon and Steelman, 1999). At the core of this approach is a framework for analyzing and evaluating governance systems (i.e., public decision-making processes) and their context. This framework is used to organize inquiry to consider a comprehensive range of variables in the decision-making process and the ecological and socio-political context of that process (Clark et al., 2014a).

Good decision-making processes identify, clarify, secure, and advance the common interest (Lasswell, 1971; Lasswell and McDougal, 1992). The criteria, or standards, proposed by Lasswell (1971) for each function of the decision process and for the process as a whole were designed to include the most important attributes of a sound democratic process (Clark, 2002; Clark et al., 2014b). Lasswell's criteria can be used to assess malfunctions in decision-making and identify the factors that are responsible (e.g., participants, perspectives, situations, values, strategies). The analyst can then make an informed decision about how best to intervene to address the malfunctions. The decision-making process consists of seven different activities, or



functions, including: intelligence, promotion, prescription, invocation, application, appraisal, and termination (Lasswell, 1971). Table 2 provides a description of each decision-making activity along with its criteria/standards for evaluation.

**Table 2: Decision-making activities and criteria for evaluation (Clark, 2002; Clark et al., 2014a; Lasswell, 1971; Primm and Wilson, 2004).**

Activity	Description	Criteria/Standards
Intelligence	The initial identification of an issue or problem, as well as the gathering, processing, and dissemination of pertinent information.	Dependable Comprehensive Selective Creative Available/Open
Promotion	The investigative and debate phase wherein the nature of, and standards or guidelines for, new policies are determined. It involves recommending and garnering support for alternatives generated from open, productive discussion and argument.	Rational Integrative Comprehensive
Prescription	Choosing a plan to address the problem, establishing the rules, laws, or policies, and articulating and clarifying the basic goals and norms of communities. Good prescriptions specify the goals being pursued, establish norms, set out the contingencies in which the prescription will or will not apply, establish sanctions for compliance or non-compliance, and designate assets (resources) that will be devoted to the prescription.	Stability of Expectation/ Effective Rational Comprehensive
Invocation	Jointly referred to as “implementation.” The formal execution of new policies, their application through administrative activities, the allocation of people, resources, and facilities, and dispute resolution procedures.	Timely Rational/Dependable Non-provocative
Application		Rational/Realistic Uniform
Appraisal	Evaluates the performance of prescriptions (policies) as well as the decision processes through which they were developed and implemented. Appraisal should drive learning opportunities by determining whether policy goals were met and who is accountable.	Dependable/Rational Comprehensive/Selective Independent Continuing
Termination	Termination is the dissolution of policies that have accomplished their goals and no longer apply, or the modification or replacement of policies that have failed.	Timely Comprehensive/Dependable Balanced Ameliorative

# Decision Analysis of the CWG

## Intelligence

Intelligence activities for the CWG's development of compensation recommendations primarily took place during the research and drafting of Report 1 (see Appendix A). This first report outlined features, guidelines, assessments, and criticisms of carnivore compensation programs worldwide, and compiled information on seven programs in Canada, 12 in the United States, and 21 abroad. The purpose of the report was to showcase available options and possible strategies and approaches for CWG members to review, and from which they could select potential program features for southwestern Alberta. In addition to being a resource for brainstorming activities, the CWG used these program summaries as examples and precedents to support their policy recommendations. All information was collected from official program web pages (e.g., government and private pages), public documents, scientific literature, or personal communication with program managers. Due to the variety of sources used, not all summaries contained the same level of detail, as accuracy and reliability varied depending on the source. The members of the CWG were informed that these summaries should not be taken as a complete representation of the programs described.

Other analysts have published similar reports summarizing compensation options. In 2012, the Alberta Beef Producers issued "A Review of Wolf Predator Compensation Plans" that summarized compensation programs in several US states and Canadian provinces (Hays, 2012). The 2011 Miistakis Report on carnivore compensation briefly outlined and compared carnivore compensation programs in British Columbia, Saskatchewan, and Alberta (Lee, 2011). Report 1 for the CWG involved a similar research strategy, but summarized more examples of compensation programs and included evaluation information and recommendations, as well as where they were available in the sources consulted. Report 1 prioritized collecting information on programs in North America because of cultural, social, and political similarities to Alberta.

Initial discussions when the CWG first reviewed a draft of Report 1 in June 2012 centered on what aspects of the current compensation program the CWG was satisfied

with and what aspects they found inadequate. For data, the group relied mainly on their personal experiences with the program and the stories they had been told by neighbours and colleagues. Problem recognition and definition were unstructured, but eventually focused on two main recurring issues: missing livestock, and complications or deficiencies with the current verification process. The CWG found that the latter topic was consistently linked to lack of Alberta Fish and Wildlife personnel, timeliness of response to depredation reports, safety concerns when preserving attack sites, and suspected mislabelling of depredation incidents.

The CWG's assessment of the current compensation program aligned with the main issues identified in the Miistakis Report (e.g., burden of proof, compensation payment valuation, relationship issues with the Fish and Wildlife agency) (Lee, 2011). The Miistakis Report did not provide official government comments or an internal perspective from AESRD. Two AESRD employees were present at the CWG meetings, and two more participated in review activities for both reports on compensation prepared by the CWG. However, problem definition in those meetings was largely addressed from the perspective of landowners and livestock producers. Previous CWG research into carnivore conflict and population levels in the region also influenced the group's problem definition, and appeared to influence their discussions of future trends. Producers at these meetings frequently expressed frustration about having to defend themselves against assertions of wrongdoing relating to their claims for compensation. One CWG member stated that they were tired of the assumption that they are guilty of fraud unless proven otherwise.

All CWG members were invited to provide feedback on Report 1 during and after the June 2012 meeting, and even after the final version was submitted to the WBRA. Four individuals primarily provided feedback on Report 1: two provincial employees and two WRBA/CWG members. Most of this feedback pertained to the structure and organization of the information collected. Report 1 was only discussed during the June 2012 meeting. Once the CWG selected, through informal consensus, the program features they desired, additional research and subject development targeted those features in order to build the program proposal.

Report 2 summarized the specific recommendations selected by the CWG for changes to the compensation program (see Appendix B). The draft was first discussed

during an in-person meeting in August 2012, then in a conference call of the CWG in November 2012, and informal email communications until the report was submitted in January 2013. Unfortunately, only a few of the group members provided feedback during the drafting of the second report, although feedback was invited. Jeff Bectell was the primary source of feedback on the report between formal meetings of the CWG, while other members primarily provided comments during the meetings. Jeff Bectell had frequent conversations with CWG members in addition to the formal meetings, and also had conversations with other community members and provincial government employees; while he shared feedback from those conversations with me, there are no records of his discussions with members (e.g., CWG meeting minutes or emails). Aside from his activities, the extent to which members shared drafts with community members outside the CWG (e.g., gathering additional community input) is uncertain. Jeff Bectell, Nora Manners, and Greg Hale provided comprehensive feedback to me on the report in between meetings, while two other producers provided feedback specifically on issues involving values for purebred livestock. Comments that Jeff Bectell or I received between meetings that required group discussion were treated as anonymous during these discussions to encourage individuals to speak freely to us between meetings.

One notable problem during the intelligence activities was that the CWG had difficulty obtaining data from members, and other livestock owners, pertaining to numbers of missing livestock presumed to have been lost to carnivores. Members were asked to volunteer data and make the same request of other livestock producers in the community. These data would be used to validate the multiplier requested in the proposal, to provide partial compensation for missing livestock for which the cause of loss could not be proven. A larger data set for missing livestock would provide greater support for the multiplier. The reluctance of producers to disclose data concerning missing livestock and possible depredation events could be an indicator of personal or professional discomfort in sharing this information or that the request for data was not passed on to producers outside of the CWG. It is possible that some producers feel embarrassed about losses of livestock or about how those losses reflect on their ranching practices. It is also possible that some producers are concerned that there have been claims for losses that should not be covered by the compensation program. Data on missing livestock are likely to include livestock that have died from other causes, such as illness and injury, or weather, in addition to carnivore predation.

When Report 2 was near completion, Jeff Bectell shared drafts with the Alberta Beef Producers Wildlife Committee, seven AESRD staff (in addition to Greg Hale and Andrea Morehouse), the Blackfoot Challenge, two “Problem Wildlife Specialists” (i.e., Alberta government employees specializing in human-wildlife conflict), a President Emeritus of the World Wildlife Fund, and the Wildlife Research Unit of the University of Montana. Despite this attempt to encourage and receive feedback from a variety of sources and perspectives, few comments on Report 2 were forwarded back to Jeff Bectell or myself. While Jeff Bectell did make an effort to communicate with government employees and subject experts, recipients of the draft report were not obligated to provide feedback.

Both reports are currently available at the WBRA projects page online and copies are attached as Appendix A and Appendix B.

**Table 3: Assessment of Intelligence**

<b>Activity: Intelligence</b>	
<b>Standards</b>	<b>Assessment</b>
Dependable (accurate, reliable, factual information and how it is transmitted to recipients)	High dependability of legislation, scientific peer-reviewed literature, and official program web pages. Dependability decreased for programs translated from foreign languages and reviewed/summarized by private organizations.
Comprehensive (obtained for all components i.e. goals/conditions of the problem, from all appropriate sources)	Completeness of program descriptions, including program strengths and weaknesses, and recommendations when available, enabled CWG to benefit from lessons learned elsewhere when considering alternatives. Broad range of information resources used (multiple resources).
Selective (intelligence activities target key aspects of the problem, problems perceived by insiders or by other people affected/interested)	Additional research and proposal development concentrated on issues selected by the CWG as priorities (tailored to the issues being addressed).
Creative (new strategies adopted to gather info, are they better?)	Similar strategy as previous reports published that summarized compensation programs and options (e.g., report by Alberta Cattlemen’s Association), but included evaluations and assessments.
Available/Open (to whom is intelligence communicated, is anyone excluded?)	All drafts of Report 1 and 2 were shared with CWG members throughout the drafting process. Information sources were made available to WBRA as an information package. Draft and final version of Report 2 was shared with external reviewers. Both reports are available online to the public.

The CWG performed well in the intelligence function. The breadth of information collected for Report 1, and its dissemination, along with that of Report 2, to the CWG and interests outside the group throughout drafting contribute to meeting standards for this activity. While little feedback was provided by those interests, effort was made to gather feedback and reach beyond the CWG. The main shortfall was in CWG members and community members providing data on missing livestock and depredation.

## **Promotion**

The CWG decided not to propose recommendations that would fundamentally redesign the structure of the compensation program in Alberta (e.g., compensation in advance or an insurance based scheme). While members agreed these strategies had

merit, the challenge of delivering an entirely new program to the community was considered to be too overwhelming. The group decided that a strong foundation was already in place and that by working with the current program they could show their appreciation of the efforts of those involved to date with its implementation and day-to-day operations. While this was the path selected by the CWG, there were other reasonable options that they could have chosen (see breadth of compensation examples and schemes listed in Report 1). Compensation in advance or performance payments could have been further explored by the CWG as an alternative to the current ex post scheme. At the initial June meeting, the CWG appeared to limit their opportunity to explore wider compensation options, and narrowed their options to fixing or repairing the current program. Narrow problem definition prevents exploring and integrating knowledge from various disciplines and backgrounds and fostering innovative solutions (DeLeon and Steelman, 1999). The current program has been in place since the 1970s and has received mixed reviews. The CWG could have taken advantage of this project as an opportunity to explore more options and overhaul the system, but they did not do so, possibly because they perceived that the task of a more comprehensive overhaul would be formidable, or perhaps because of their bounded vision of the possibilities for innovation.

The basic structure of the proposal they supported incorporated a multiplier on confirmed kills to cover losses from missing livestock, as well as indirect costs of conflict; an increase in the amount of compensation paid for probable kills; increased compensation for purebred livestock to account for the higher value of purebred animals (but the multiplier would not apply); and compensation for losses of guard animals. The CWG decided against enforcing husbandry measures as a prerequisite to be eligible for compensation. Such measures could differ by ranching operations especially between those on public lands and those on private lands. The CWG felt that it would be burdensome to enforce the same husbandry measures or standard of practices for livestock producers across both public and private lands, and preferred to rely on peer pressure to promote good husbandry. The CWG had the opportunity and ultimately passed on tying mitigation techniques to compensation, and subsequently integrating into the provincial program a component that could reduce the likelihood of depredation events or reduce livestock losses. The group also discussed whether the multiplier

should be higher on public ranch lands (i.e., where ranchers experience higher losses) than on private lands. They decided it would be the same across both types of ranching operations, and that there might be opportunities in the future to propose additional changes.

The main components were decided during the preliminary meeting of the CWG on the compensation program that took place in June 2012, when they reviewed and discussed Report 1. Over the following months, the terms and details of each component were discussed during conference calls, in-person meetings, and emails involving the entire group. Throughout this time Jeff Bectell was integral to relaying information and keeping members up to date. This included providing examples of how a multiplier could be applied, and collecting data on missing livestock from those who were willing to provide the information.

The drafting process for Report 2 involved incorporating feedback from CWG members and compiling final decisions of the group on program recommendations. The majority of decisions were made by informal consensus agreement of CWG members at meetings, with some issues requiring a question to the group and more formal vote (e.g., deciding that the multiplier would be the same for private and public lands, not addressing coyotes). I observed that discussions and decision-making were respectful and offered opportunities for those in attendance to provide comments. Members appeared to be comfortable raising their concerns and contributing to the debate by presenting alternative arguments or strategies. At times, specific individuals were asked to explain their reasoning behind a suggestion or their opposition, while others were asked if they were comfortable that the proposal may not address issues specific to their circumstance (e.g., in spite of higher losses on public lands, there would not be higher multipliers for those lands; no multiplier on the increased payments for purebred animals).

The efficiency of the CWG's meetings and the apparent respect of members for each other's opinions and time may have been due in part to the history of this group and the ongoing professional relationships among its members. In addition to the members being active community members and participating in the same industry, the



CWG was established in the fall of 2011 and had already been operating for approximately eight months before this project started. Efficiency could also be attributed to the extended period of time in which members and the community have dealt with carnivore conflict in the region and the challenges with the compensation program. It was clear that members had been discussing these issues and considering alternatives for some time, and were prepared to be productive and take advantage of this new project. Jeff Bectell chaired the meetings, and was mindful of the use of time and maintaining productivity. When further debate was required or when a decision could not be made without additional information, he postponed the issue to be considered again at a later meeting. Members acknowledged that the proposal for amendments to the compensation program could not address all compensation and conflict issues discussed at the table. Jeff Bectell, as well as other attendees, occasionally reminded the group that there was no such thing as a perfect solution, and that not all parties would be satisfied with the final components of the proposal. In order to retain the opportunity to address additional issues in the future, if necessary and possible, the CWG built evaluation guidelines into its proposal to promote effectiveness and adaptation. Proposed annual evaluations would solicit user input and officially provide a strategy for measuring program effectiveness and levels of tolerance towards carnivores, and also create opportunities for informed revisions to the program.

Promotion includes evaluating the inclusivity of a decision-making process, and whether additional interests are represented or considered in the discussion. Clearly, the CWG membership mainly represented landowners and livestock producers in and around the WBRA, and those were the interests that the group primarily addressed. However, membership of the CWG reflected the dominance of ranching and livestock production in this region of Alberta. Several members of the CWG were also County or Municipal District Councillors, which indicates a level of authority and responsibility for representing the interests of these counties or municipal districts. Several members were also in leadership roles with conservation partnerships in the region, and one member was an AESRD biologist. Another AESRD employee participated in CWG meetings, but was not an official member of the group. Occasionally the CWG invited representatives of other interests to attend meetings as guests. Although the CWG did not comprehensively represent all interests in the region, at times they did consider

alternatives and make decisions based on how they perceived that other interests would view their proposal. Participants appeared to be conscious of whether their proposal was asking for too much and if it should be adjusted to appease outside interests. However the decisions of the CWG did prioritize their own needs. For example, the group discussed, but ultimately decided against, implementing husbandry requirements as either a prerequisite to receive additional compensation or an avenue to garner political and financial support.

As detailed in the intelligence section above, Jeff Bectell shared Report 2 with a variety of individuals and groups outside of the CWG membership. Reaching out to a broad range of interests both within and outside of Alberta provided an opportunity to collect a variety of perspectives and recommendations on the development of the proposal. However, many of these interests did not provide feedback. CWG members were the only ones more or less obligated to provide feedback, and to maintain an active and engaged role in the drafting process.

**Table 4: Assessment of Promotion.**

<b>Activity: Promotion</b>	
<b>Standards</b>	<b>Assessment</b>
Rational (all reasonable alternatives brought to attention, assessed and justified)	Considered other forms of compensation, but continued with the current model. Members acknowledged that the recommendations could not address all compensation and conflict issues at once. Built in evaluation guidelines to promote effectiveness and adaptation, and retain the opportunity to address additional issues in the future. These evaluations would establish processes to receive and integrate user input, and facilitate ongoing promotion activities. Did not address funding or personnel limitations – two main challenges to date.
Integrative (are proposed alternatives broadly supported, is the debate bipolar, is there coercion that needs to be eliminated)	Debate was respectful and open. When further debate or information was required the decision was postponed to a later meeting.
Comprehensive (holistic, do proposed alternatives reflect the full range of community interests, are some views neglected, is there thorough debate before proposals are adopted)	CWG members were representatives of landowners and livestock producers, and some were also members of the councils of local Counties and Municipal Districts, but they did not comprehensively represent all interests in the region. The views of all members (i.e., with different types of ranching operations) were discussed while weighing and designing options. Jeff Bectell shared the proposal with parties/interests within Alberta and outside

The CWG performed well in their promotion activities. In addition to collecting and being receptive to new information and options, members were knowledgeable of the issue from practical experience and considered a range of alternative compensation strategies and options. Debate activities throughout the drafting process of Report 2 were respectful, productive, and open to the members of the group and to those they invited to provide feedback. The main shortfall in the CWG’s promotion activities were the limited variety of interests directly represented in their membership.

## **Prescription**

The content of a prescription or policy should include goals, norms, contingencies, sanctions, and assets (i.e., resources). At the time of the CWG’s deliberations, the existing compensation program in Alberta did not explicitly articulate

program goals. The CWG selected seven goals for a compensation program in the region:

- Distributing the burden of conservation costs more fairly between rural and urban populations
- Providing fair and comprehensive compensation to those who have suffered damages from carnivore activity
- Increasing education (e.g., promoting good husbandry practices, increasing research into conflict levels)
- Increasing public safety
- Increasing landowner tolerance of carnivore activity
- Reducing deaths of livestock
- Reducing the motivation for ranchers and farmers to implement unauthorized lethal carnivore control measures

These goals, and the recommendations based on them, address carnivore-human conflict as a whole in the region, rather than just the compensation scheme. Defining program goals facilitates the development of effective evaluation processes, and the CWG included the latter in their recommendations. The CWG's proposal also included guidelines for the recommendations (e.g., norms), and described the situations in which they would apply (e.g., contingencies). However, the proposal did not sufficiently incorporate sanctions and assets. For example, the proposal did not address the funding and resource issues (e.g., staffing) that had undermined the existing program. As well, the CWG chose not to include mandatory activities or standards (e.g., husbandry requirements) for livestock producers to meet in order to be entitled to participate and collect from upgraded compensation levels. Rather their proposal recommended prioritizing education for ranchers regarding best management practices for their area and operations.

Ultimately the CWG prepared five broad recommendations for changes to the compensation program, and recommended that the government of Alberta consider establishing a pilot program incorporating these changes in southwestern Alberta. The foremost recommendation was the application of a multiplier to the amount of

compensation paid on confirmed livestock losses. Other recommendations included: additional compensation for probable kills, breeding livestock, guard animals, and purebred livestock; a review of the criteria employed for identifying probable kills; the development and delivery of a verification course for livestock producers; and an annual evaluation of the compensation program. Verification courses and annual evaluations have the potential to promote community and user education, community involvement in the development of compensation policy, and could also improve relationships between Fish and Wildlife officers and program users. For example, the CWG recommended that evaluations of the compensation program be organized by the WBRA in partnership with AESRD staff. All of the recommendations were linked to the CWG's initial problem definition and program goals. Recommendations were selected and designed to be compatible with current policies and activities, to build off existing administrative procedures, to fit into provincial laws and regulations, and, therefore, to be transferable to other regions in the province.

**Table 5: Assessment of Prescription.**

<b>Activity: Prescription</b>	
<b>Standards</b>	<b>Assessment</b>
Stability of Expectation/ Effective (decisions should be lawful and enforceable, decisions for which there is general support should be made and implemented promptly, prescriptions should specify goals, norms, sanctions, contingencies, assets)	The recommendations appeared to be lawful and enforceable. While potentially new to Alberta they had been implemented elsewhere and could integrate into provincial policies. Recommendations were supported by the CWG, unknown level of support for the proposal from other interests. Once proposal was submitted to the government, further decision-making was at the discretion of the provincial government. Submitted Jan 2013 and no government decision had been announced as of October 2015
Rational (balanced, further common interest)	Recommendations furthered the interests of livestock producers. Administration issues (funding and personnel limitations) not considered or balanced with recommendations. All additional interests not included in CWG membership or otherwise represented, and may not have been sufficiently considered in decisions.
Comprehensive (are decisions appropriate for all situations, do sanctions exist)	Recommendations broadened the scope/breadth of the program; increasing financial coverage for a larger variety of losses associated with carnivore conflict (e.g., compensation for guard animals, purebred livestock) and reviewing probable kill criteria. No sanctions built in, and the proposal did not address challenges with resources.

The CWG performed moderately well in the prescription function. The CWG's recommendations broadened the potential scope of compensation and were designed to integrate and build on the current program. The group's proposal provided rationales and examples for each of the recommendations and developed program goals and an evaluation framework, neither of which were established for the current program. However, the recommendations did not address important limitations on funding and personnel, they lacked sanctions, and they lacked more balanced representation of community and provincial interests in addition to those reflected in CWG membership.

### **Implementation, Appraisal, and Termination**

The CWG's capacity to change the Alberta carnivore compensation program was limited by the group's lack of authority and control at the provincial decision-making level. Compensation policy and administration is within the jurisdiction of the provincial government, and therefore subject to provincial constraints and priorities (e.g., funding, other resources). When the CWG proposal was submitted to the Alberta government the proposal moved into a higher-level decision-making process at the provincial level. The decision-making process at the CWG level then stalled and remained incomplete, waiting for a response from the provincial government. The CWG could still elect to develop its own compensation program, but the decision to do so would involve new intelligence, promotion, and prescription activities to decide on an appropriate program, identify funding and other resources, and deal with other considerations under these different circumstances. Unless the CWG decides to do this, or to adopt some other course of action, the implementation (e.g., invocation and application), appraisal, and termination activities of the CWG for the compensation program depend on the provincial government's decision with regards to the CWG's recommendations.

## **Chapter 3.**

### **Discussion**

The previous chapter described and evaluated the decision-making process through which the Carnivore Working Group (CWG) developed its recommendations for changes to the compensation program in Alberta. In this chapter, I begin by assessing whether the CWG meets Brunner et al.'s (2002) strategic, higher level tests for determining whether a community-based initiative is serving the common interest. Then I consider whether and how the decision-making process and other activities of the CWG correspond with the adaptive governance model as outlined by Brunner et al. (2005). I also summarize the strengths and weaknesses of the CWG's approach to the carnivore compensation problem and I make suggestions for improvement.

### **Common Interest Tests**

The procedural test assesses whether the decision-making process is inclusive and whether those involved take responsibility for considering the greater community and those not directly involved (Brunner et al., 2002). Further, it asks whether those making the decisions are held accountable. The CWG partially satisfied the procedural test. The group itself consisted mostly of livestock producers and landowners, and within their communities they were accountable to those interests as they worked together and carried out day-to-day activities. The inclusion of other outside interests to CWG meetings appeared to be discretionary. Some of these interests were invited on occasion as guests to meetings, or took on an advisory role when members reached out on a project basis (e.g., sharing drafts of Report 2). However, guests were not obligated to participate or to represent a constituency, whereas there was some internal social pressure on members of the CWG to do so. Additionally, individuals that saw themselves as guests may have felt that they had less influence or less right to participate in the

decision-making. For example, at one CWG meeting regional biologist Greg Hale commented on what he believed would be attractive recommendations for the provincial government, but acknowledged his unique and partially separate role in the process by stating that it was the CWG's program they were designing.

There are a range of interests within southwestern Alberta. Those not directly represented in regular CWG membership included conservationists, recreationists, hunting interests (e.g., Alberta Fish and Game Association), and First Nations. The CWG may not comprehensively represent the regional community, but rather a community of interest (Brunner et al., 2005). They represent a group or collection of individuals (e.g., landowners and livestock producers) acting on their perceived interests, and those shared with likeminded individuals, and forming a community around an issue (Brunner, 2002). If the CWG involved a wider range of interests, the group might discover opportunities for additional funding and resources, as well as establishing a broader base of support for the proposal and future CWG projects. Carnivore management and conservation are broad policy concerns that impact a range of interests and stakeholders. However, the CWG narrowed the scope of its focus to compensation policies. It could be argued that the CWG involved the parties necessary and most informed on the issue to directly participate in the decision-making process, because the primary interests are those implementing and enforcing compensation, along with program users. The CWG did take responsibility for considering other interests (e.g., those not in attendance), and they attempted to do so during their discussion on husbandry requirements and when considering the entirety of their proposal. One potential driver for broader stakeholder involvement may be funding. The existing compensation program is funded through hunting and fishing licenses. If the recommendations of the CWG were implemented, program costs would rise. Those financial demands would have to be met through some mechanism within the provincial system (e.g., raising license prices and/or reallocating funds). The CWG did not account for this in their proposal.

The substantive test asks whether the CWG's expectations of what would be accomplished were reasonable, whether the decision-making process considered all valid concerns, and whether the outcome solved the problem and was supported by the participants. The CWG partially satisfied the substantive test. The expectations and



long-term goals of the CWG to establish fair carnivore compensation were reasonable. The CWG's decision process was mainly by consensus, and occasionally by majority vote, and the final recommendations were developed with the goal of addressing a portion of everyone's needs whilst recognizing that not all deficiencies and demands could be addressed at once. Due to the CWG's level of community engagement in other project activities their recommendations were built from a thorough understanding of local opinions and context. However, the values and perspectives represented by the CWG were limited by the nature of their membership, and while recommendations were fair in the opinion of the CWG, what constitutes fair compensation in Alberta is subjective. For example, efforts to increase compensation levels may align with the CWG's goals, but may not align with broader provincial goals and capacity (e.g., funding and resources).

The Alberta Wildlife Predator Compensation Program has been criticized for not having enough personnel available to verify depredation events, and as of 2012 the program was not able to make all payments claimed under the program as claims outstripped available funds (Paterson, 2013). Policies, whether devised by the government or the CWG, may be undermined if the responsible agency does not have sufficient resources. The CWG's recommendations did not tackle funding. If any of the recommendations are implemented and demands on the program increase, issues pertaining to availability of Fish and Wildlife officers (i.e., verification duties), administrative processes, and funding (e.g., reallocation of funds, budget cuts) will need to be addressed. The implementation of a verification course was the only recommendation that addressed personnel limitations. However, the benefits of such a course will depend on whether or not the provincial government allows individuals beyond Fish and Wildlife officers to verify depredation events.

The members of the CWG supported the outcomes of their decision-making process, but the group may not have had sufficient support from senior levels of government despite the participation of a provincial regional biologist in CWG meetings. There was limited discussion as to what the CWG's course of action would be if the recommendations were declined and changes were not made to the compensation program. The group briefly discussed the possibility of applying for funding and partially implementing the recommendations themselves. It is uncertain at this point whether the

CWG's recommendations will be implemented, and if implemented, whether they would solve the problem.

The pragmatic test asks if the recommendations are practical, and if they can adapt and change with time in order to meet the expectations of participants. On the basis of the evidence available at the time of writing this report, the CWG satisfied this test. Building their proposal on the existing compensation program was sensible and practical. The group's experience with the current compensation program prepared them to comment on the current program and its implementation, and to assess options for improvement. Additionally, the recommendations submitted by the CWG are based on components of compensation programs already implemented within Canada and the United States. Thus, the CWG was able to make informed decisions from lessons learned elsewhere and collected from academic and official program literature. The CWG decided the boundaries or scale of the proposal should be limited to the four municipal districts they represented, and recommended that pilot projects should start small and expand following assessment and evaluation. The assessment framework proposed is designed to ensure that the program is flexible in the future to dynamic ecological, social, and economic changes. Annual evaluations should help the policy to be responsive to community and individual input and needs concerning carnivores and compensation policy.

## **Encouraging Community Level Adaptive Governance**

There are distinct patterns and characteristics that distinguish adaptive governance from scientific management (Brunner et al., 2005). Adaptive governance recognizes that relationships evolve and that both scientific and local knowledge are relevant to problem definition and problem solving. Adaptive governance values open participation, and the evaluation, diffusion, and adaptation of successful policies.

The following section draws from the evidence provided in the decision analysis and common interest tests to compare the CWG's decision-making process and overall activities with the model of adaptive governance. This comparison highlights strengths and weaknesses of the CWG as a community-based initiative. Identifying strengths will

enable the CWG to continue pursuing activities and methods that support their goals, as well as educate and inform other community groups dealing with similar policy issues. On the other hand, perceived weaknesses can be corrected and the CWG provided guidance for moving forward. I frame the discussion of strengths and weaknesses within Brunner et al. (2005)'s framework for adaptive governance.

## **Producer and Landowner Involvement in Scientific Research**

Carnivore conservation and management is still often framed as a technical and scientific issue rather than an issue of communities, individuals, and livelihoods. In many settings, government and conservation interests have politicized scientific management despite the promise of impartiality, resulting in community and individual distrust of research (Brunner et al., 2005; DeLeon and Steelman, 1999). Science needs to be applied in a manner that emphasizes the links between social and ecological systems, rebuilds trust within communities, and alleviates its politicized nature (Hughes et al., 2007). An adaptive governance framework offers the promise of a renewed role for science that facilitates and supports collaborations among scientists, government agencies, communities, and stakeholders (Hughes et al., 2007).

The CWG is an unusual example of a community-based initiative comprised of livestock owners, landowners, and community representatives that have spearheaded and participated in joint scientific research into grizzly bear population statistics and carnivore conflict. It is rare for livestock producers and landowners to take an active and engaged role in scientific research. By combining knowledge from scientific research and personal experiences, the CWG has become better equipped to provide advice to local landowners and producers on attractant management and mitigation techniques, and to strategize project activities for the future. Also, by participating in this research the CWG has demonstrated its support for scientific research in the community. The potential benefits include community involvement in research activities, retention of regional data, and up-to-date information related to compensation and carnivore activity. In addition, taking an active role in research has the potential to encourage additional support from conservation or government interests.

## **Initiating Program Evaluations and Adaptation Mechanisms**

While the Alberta compensation program has been evaluated in the past, there is no formal, unbiased, or regularly scheduled appraisal process that combines the feedback of policy makers, administrators (i.e., Fish and Wildlife officers), and program users. Between 2007 and 2008 the provincial government hired a contractor to review the program (Lyster, 2008), and since then several non-governmental entities have conducted evaluations (e.g., the Miistakis Report and an informal CWG review).

Adaptive governance includes mechanisms to learn from experience in order to adapt to changing circumstances (Brunner, 2002; Brunner et al., 2005). The CWG incorporated evaluation, learning, and adaptation into its proposal, by first drafting program goals and recommendations, and then recommending a process for appraisal and revision if necessary. The group proposed annual evaluations that would integrate user input in order to create opportunities for informed program improvement, and to measure the effectiveness of compensation and the effects on tolerance for carnivores on the landscape. By combining formal surveys and community meetings, the proposed evaluation process should enable the collection of dependable data, and facilitate continued inclusion of input from both program users and managers. Program evaluations can help decision makers to identify where policies are falling short of meeting goals and objectives, and identify the potential sources of those errors, deficiencies, or successes (Howlett, 2012). The CWG could even chose to prioritize this recommendation and follow through with it without the provincial government. By following its own proposal for annual evaluations it could continue to learn about the implementation of compensation policies in the region.

A common criticism of compensation programs is that they cannot objectively quantify the impact they have on people's attitudes and tolerance (Nyhus et al. 2005). Annual evaluations are one tool for mapping the progress and effectiveness of compensation, including the CWG's recommendations. However, determining what costs or losses livestock producers and others are willing to accept, or risk, is key to measuring the effectiveness and efficiency of any compensation program. Establishing acceptable levels of risk will be an extremely challenging task for livestock producers,

and one that should involve the views of Fish and Wildlife officers, as well as other stakeholders, as it feeds into defining and establishing evaluation criteria.

## **Benefits of Community Partnerships and Communication**

The CWG has successfully collaborated on several occasions with organizations and agencies within and outside its region. Through such collaborations and other forms of communication, community-based initiatives can learn from the experiences of others. The experimental philosophy of adaptive governance promotes learning and diffusion of innovation at the community level. Communities must decide whether new practices are or are not suitable within their own contexts, and should understand that strict replication may not be possible (Bardach, 2004; Brunner et al., 2005). The goal is to borrow wisdom and practices from other communities, learn from their experiences, and adapt, customize, and localize the lessons, either by accident or by design. Innovation is no longer the sole responsibility of government personnel or central experts, nor is the only direction for diffusion of alternative policy options top down. Adaptive governance is contingent on learning from practice-based experiences, and the horizontal diffusion of innovative practices is increasingly common between community-based initiatives (Edwards, 2005). Open and regular communication is critical to this diffusion. In the case of the CWG, they delivered presentations to community members and partner organizations, published their project activities, and produced the *Sharing the Range* film – a communication piece made to garner support and promote innovation among producers and the public.

The CWG has particularly benefited from the experiences of the Blackfoot Challenge in Montana. While the Blackfoot Challenge and the CWG are not identical - they vary in scope, interests/members represented, structure, and project activities - they share a concern about conflicts between large carnivores and rural landowners, and this shared concern has inspired and established an ongoing association and partnership. As management issues and conflicts arose in their respective regions, it became increasingly apparent to both groups that a single agency could not solve the problem, and that significant decision-making power would have to be in the hands of those landowners confronting problems on a daily basis (Wilson et al., 2014). Both

community groups have been advocates and driving forces in their regions for the use, installation, and upgrade of mitigation techniques to reduce the impact of carnivore activity. In 2008 and 2010, the CWG hosted Blackfoot Valley partners in a series of meetings and community tours to discuss community-based conservation activities and to exchange ideas. Reciprocal meetings and tours have been offered in Montana (Loosen et al., 2014). This relationship is a resource for both the Blackfoot Challenge and the CWG.

## **Limitations of Authority**

The decision analysis of Chapter Three, especially the latter decision-making activities, shows that the CWG is susceptible to challenges and limitations with regards to authority and control. Pym et al. (2014) conducted a similar decision analysis for the Oldman Basin Carnivore Advisory Group. This advisory group, established in 2003 by the Alberta Government, was instructed to provide input and advice to the provincial government on matters of large carnivore management in the Oldman Basin area (in southwestern Alberta). The advisory group discussed protocols for wolf conflict management, including alternative ranching practices and even suggested changes to the compensation program. However, the province was under no obligation to implement the group's recommendations. As a community-based initiative, the Oldman Basin Carnivore Advisory Group could not enforce their recommendations, were unable to secure sufficient long-term funding/resources to ensure their own survival, and struggled with communicating beyond their own constituents. The CWG experienced some similar challenges in getting the province to implement the group's recommendations.

The decision analysis conducted by Pym et al. (2014) found that the Oldman Basin Carnivore Advisory Group lacked authority to implement its own decisions, and that if the provincial AESRD chose not to follow or implement the group's recommendations, the group lacked the resources to implement the recommendations themselves or effectively pressure the government to take action. In the case of the CWG, how the recommendations proposed by the CWG will be received and acted upon is also within the control of the provincial government. While livestock producers rely on compensation to offset the burden of carnivores, compensation policy and administration

is under the jurisdiction and authority of the provincial government and subject to funding availability.

While the CWG is comparable to an advisory group, they likely improved their position compared to past groups due to their communication strategy, research activities and partnerships, and multi-pronged proactive approach to conflict. At the individual and community level the CWG has had influence and an ability to impact on-the-ground operations. The CWG can enforce funding and project requirements when working with individual landowners and producers on conflict mitigation projects (e.g., matching funds for projects or making agreements on labour). However, there is no obligation for the provincial government to act and implement the changes recommended in the CWG's compensation proposal. Limited authority and lack of jurisdiction hampers any influence the CWG may have on a provincially run program as they contend with political interests at the regional and provincial level. This is particularly relevant when considering recommendations submitted by the CWG that may be low-cost (e.g., program evaluations and the verification course). Unwillingness to implement these recommendations may reflect a lack of trust by the province and a reluctance to concede authority and control (e.g., through the verification course third parties could be authorized to verify kills).

### **Improving Relations with Government Staff**

Brunner et al. (2005) emphasize the importance of agency field officers, and their capacity to make a difference in local governance. These officials are often the focus of increasing demands and criticism concerning carnivore management in rural areas (Mattson et al., 2006). In Alberta, Fish and Wildlife officers are responsible on a day-to-day basis for deciding how compensation policy is implemented on the ground across a wide variety of localized problems. Fish and Wildlife officers have the capacity to block, hinder, or facilitate the implementation of decisions such as the recommendations of the CWG. The CWG has sought to build partnerships that bridge historic divisions between producers and government personnel and that benefit CWG activities. Improving relationships and having increased government support may enable the working group to attract more funding opportunities, have greater influence, and be more effective in

the region (Brunner et al., 2005). Furthermore, positive results at a regional or local scale may facilitate recruitment of additional personnel and resources in order to continue building on observed successes.

The CWG is developing improved relationships with community members and AESRD staff by participating in joint research projects and including government staff in CWG meetings and the drafting of their recommendations. In their problem definition for carnivore compensation, the CWG emphasized the necessity for increased Fish and Wildlife officers in order to meet verification demands. The group also recommended the delivery of a verification course to educate and train producers, as well as build relationships. Building and maintaining a positive working relationship with AESRD staff benefits individual project activities and the CWG's role/presence in the region. The group recently acknowledged that Greg Hale, regional biologist for the AESRD, has helped improve relations and relieve tensions between ranchers and AESRD staff (Loosen et al., 2014). Hale offered important insights during the drafting process, and continues to be a valuable member of the CWG. Cooperating and working with the right people matters and is integral to improving carnivore conflict and compensation policies in southwestern Alberta.

## **Inclusivity in Membership**

Regional projects funded and administered by the CWG (e.g., fencing, bone yards, etc.) have benefited from the group's membership structure and the identification and practical experiences of members with the problems faced by livestock producers. However, at the provincial level, standards for inclusivity are more onerous, and there is greater responsibility on the part of decision makers to consider the broader common interest. In order for the CWG to clarify and secure the common interest of the full community in which it operates, the group will have to find ways or mechanisms to integrate more interests into their meetings and project activities. Broader membership and representation could also increase support for future initiatives, as well as provide opportunities for additional funding. Broadening CWG membership might also encourage other interests to participate in its deliberations. While the inclusion of additional individuals with different interests could impact the dynamics of the group, it



would be a step towards pursuing and better representing the common interest of the region.

## **Comprehensive Approach to Problem Solving**

The majority of the CWG's recommendations pertain to reimbursing losses due to carnivore activity. This dictates that the loss and damage must occur before a remedy is applied, and the group's recommendations did not include any mechanisms or components to reduce the occurrence of depredation or other conflicts. The CWG decided not to include husbandry requirements in its recommendations, a strategy that would have tied compensation directly to measures capable of reducing losses. One participant commented that government and funding agencies would probably expect that landowners receiving payments for losses would be required to implement husbandry measures and other management strategies (e.g., accepted industry standards) to reduce their risk. Receiving payments without an incentive to reduce risk or conflict may not encourage long-term change. In some of their other initiatives, such as conflict mitigation projects, the CWG has required that producers adopt specific management practices as a condition for receiving support (e.g., matching funds or agreements on labour). For example, the CWG requires that producers who receive support for preventative measures (e.g., electric fencing) undertake ongoing maintenance, participate in dead stock removal, and ensure that other attractants are managed.

The CWG's recommendations could be criticized for not including components designed to reduce conflict. The group's decision process and policy recommendations clearly focused on compensation rather than conflict as a whole in the region. Looking beyond the proposal, however, and including the rest of the CWG's regional activities, the group has applied a holistic approach to carnivore conflict through on-the-ground attractant management, development of community shared goals for reducing conflict, community education (e.g., the *Sharing the Range* film), scientific research into carnivore populations and activity, and recommendations for changes to the compensation policies.

## **Summary Remarks**

The CWG is a community-based initiative leading a multi-pronged, proactive approach to carnivore conflict and compensation in southwestern Alberta. A major challenge that wildlife managers face is the development of publicly accepted carnivore management and compensation policies. Programs are more likely to be successful, effective, and promote environmental stewardship when they enable users to contribute to the design of policies that directly impact their lives (Jackson and Wangchuk, 2004; Nyhus et al., 2003). The Waterton Biosphere Reserve Association and CWG built on the Miistakis Report, previous project activities, and past regional discussions with landowners. They reviewed available compensation options to select recommendations that they determined would most likely improve local attitudes towards carnivores, improve relationships between ranchers and Fish and Wildlife officers, and contribute to sustainable co-existence between ranchers and carnivore populations.

The purpose of this case study was to derive insights from the practical experiences of the CWG in order to improve their own decision-making processes, as well as to support other communities facing similar policy challenges. The policy sciences and adaptive governance framework described by Brunner et al. (2005) were applied to evaluate the CWG's decision-making process and identify strengths and weaknesses. The recommendations can potentially guide the CWG's future activities, and contribute to the diffusion of this innovation in community involvement in compensation for carnivore conflict.

## **Status of the Recommendations in Report 2**

To date, no official response from the government of Alberta or explicit policy changes have occurred as a result of the CWG's recommendations submitted January 2013. Internal delays in the provincial decision-making process could be due to personnel changes and restructuring in AESRD over the 2013-2015 calendar years, as well as shifting government priorities and the election of a new NDP provincial government in May 2015. However, these delays may also be due to unwillingness or inability on the part of the provincial government to make the recommended changes.

April 2013, Alberta signed the Growing Forward 2 Framework Agreement (i.e., funding to invest in Alberta's agriculture sector) with the federal government for which Agriculture Financial Services Corporation is responsible for managing. This funding may provide an opportunity to finance the recommendations submitted by the CWG.

The March 2014 Waterton Biosphere Reserve Association Report to AESRD stated in the section regarding predator compensation: "While the CWG initially focused on predator compensation in an effort to address the economic burden faced by producers coexisting with large carnivores, it is recognized that there may be additional financial impacts. Future efforts will include investigating the feasibility of implementing ecosystem services models to address these impacts."

The committee administering the Alberta Wildlife Compensation Program Compensation invited Jeff Bectell to their meetings in February and June 2015 to discuss, among other issues and agenda permitting, the CWG proposal, however no decisions were made pertaining to the CWG's recommendations.

On March 16, 2015 the Minister of AESRD was questioned regarding conflict in southern Alberta and when Waterton's (i.e., the CWG's) recommendations would be implemented. The Minister responded that the recommendations had been discussed at the recent February meeting of the compensation committee, and that some recommendations would be implemented once a draft policy and program were defined later in the year. Approximately two months later a new NDP government was elected in Alberta. The new government's position on the changes to the carnivore compensation program proposed by the CWG remains to be seen.

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## **Appendix A.**

### **Report 1: Summary of Carnivore Compensation Programs**

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# **CARNIVORES AND CONFLICT: A COMMUNITY APPROACH TO CARNIVORE COMPENSATION**

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## **REPORT 1**

### **SUMMARY OF CARNIVORE COMPENSATION PROGRAMS**

**JULY 2012**

Prepared for:

**Waterton Biosphere Reserve Association  
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## Introduction

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In 2009, the Waterton Biosphere Reserve Association and the Chinook Area Land Users Association, with the assistance of the Miistakis Institute, conducted a survey in southwestern Alberta that examined the attitudes and perceptions of residents towards carnivores in their region, and towards the Alberta Wildlife Predator Compensation Program. The survey targeted residents within a 20km buffer zone of Waterton Lakes National Park. The southwestern corner of Alberta, which includes the buffer zone in which the survey was conducted, is of particular interest because it accounts for 37% of all compensation claims paid for by the Alberta Wildlife Predator Compensation Program between 2000 and 2010 (Lee, 2011; Morehouse and Boyce, 2011).

The 2011 Miistakis Report prepared by Tracy Lee briefly summarized and compared carnivore compensation programs in British Columbia, Saskatchewan, and Alberta, and discussed the three main approaches to carnivore compensation, as well as the challenges and criticisms for ex-post and “compensation in advance” schemes.

The three main approaches to compensation are as follows:

1. Ex-post compensation
  - a. Livestock producers are reimbursed the value of lost or injured livestock after the damage has occurred.
2. Compensation in advance
  - a. Livestock producers are provided partial or complete financial support for preventative measures (*i.e.* assistance schemes), or awarded payments tied to a pre-negotiated level of “ecosystem services” (*i.e.* performance payments).
3. Insurance based schemes
  - a. Livestock producers pay premiums to be considered eligible for compensation.

Assessment and comparison of compensation programs has become common practice worldwide (Agarwala et al., 2010; Maclellan et al., 2009; Wagner et al., 1997). Conservation initiatives are culturally and legally sensitive to the regions in which they are implemented, and as a result, differ vastly. While many programs have struggled to provide empirical evidence of their success or progress, it is possible by defining and analyzing the goals of compensation to identify some core elements associated with success in achieving those goals (Nyhus et al., 2003). Through the analysis and comparison of compensation programs, lessons learned in one setting can advance progress in other regions and countries.

Information and insights from compensation programs in Canada, the United States, and internationally have been compiled into a list of possible options and approaches for community stakeholders to review, discuss, and evaluate. These options have been summarized in the following report to build and expand on the compensation options

discussed in the 2009 Miistakis Report. While the Miistakis Report was clear and informative, it was not an exhaustive representation of all compensation programs. The objective of this report is to create a more complete picture of carnivore compensation programs in existence, inform community stakeholders about current options available, and serve as a possible foundation for creative brainstorming and problem solving. Additionally, this report will serve as a source from which community stakeholders can select options or develop alternatives to build a new compensation program for Southwestern Alberta.

### ***Common Goals and Challenges for Carnivore Compensation Programs***

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In an effort to reduce the deaths of carnivores, mitigate the negative impacts of carnivore activity, and respond to the negative perceptions associated with lethal control, managers and conservationists have begun experimenting with compensation schemes (Decker et al., 2006; Haber, 1996). Compensation programs are a means of reimbursing private landowners for damages caused by carnivores, while at the same time promoting the conservation of these animals.

Common goals of carnivore compensation programs include:

- Distributing the burden of conservation costs more fairly between rural and urban populations
- Providing restitution to those who have suffered damages from carnivore-human conflict
- Promoting good husbandry practices
- Reducing poaching
- Improving attitudes and perceptions towards carnivores
- Increasing human tolerance of carnivore activity
- Reducing deaths of carnivore and livestock species  
(Nyhus, et al. 2005; Nyhus et al., 2003)

Common challenges of compensation programs include:

- System corruption
- Difficulty in proving/verifying claims
- Costly payments
- Lack of compensation
- Lack of community support
- Reduced husbandry levels
  - Compensation may result in less pressure for ranchers to protect their livestock or take preventative measures against predators when they are guaranteed compensation for lost livestock.
- In the long-term, potential loss of natural wildlife habitat
  - Compensation for lost livestock may result in increased financial stability for ranchers, and result in an increased conversion of natural habitat to ranching/farming lands as the ranching industry becomes more

financially secure.

(Agarwala et al., 2010; Bulte and Rondeau, 2005; Nyhus et al., 2003)

These lists of broad goals and challenges have been synthesized from academic reviews and evaluations of a variety of compensation programs in different settings. The specific goals for any particular compensation program should be developed by the participants to suit the unique features of the setting in which the program will be instituted. Goals for a compensation program may be nested in broader objectives meant to address issues such as land management practices and/or carnivore population levels and activity (Jackson and Wangchuk, 2004). Establishing goals for a compensation program can be challenging, but is a critical step in deciding the type and operation that will work best for any developing compensation program. Finding agreement between program managers and users, and determining how to go about achieving those goals may also be challenging.

#### ***Breakdown for Carnivore Compensation Program Summaries***

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For the following program summaries all information was collected from official program web pages (government and private), public documents, scientific literature, and/or personal communication with program managers. Due to limited resources, it was not possible to collect identical information across compensation programs. While each summary has the same basic format, not all summaries contain the same level of detail. Additionally, summaries should not be taken as a complete representation of the programs described. For more detailed information, refer to the references listed at the end of each summary and the end of this report, or contact representations of the program.

Each program summary is identified by its type of compensation, and includes a brief summary of the program's administration and funding organization. Eligible livestock species, eligible carnivores or damage-causing species, and eligibility requirements for livestock producers are listed. If available, each summary states whether husbandry requirements are necessary for compensation, as well as a brief explanation of those requirements. The level and category of compensation is described. Whether or not an investigation is required to verify a depredation event is stated, along with additional details about program operation. Finally, if available, information is provided regarding program strengths, weaknesses, and recommendations. This information was collected from evaluations conducted by government organizations, private organizations, and/or academic/scientific review, and reported in the documentation and websites reviewed for this report.

## **Appendix B.**

### **Report 2: Proposed Amendments to Alberta Wildlife Predator Compensation Program**



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# **CARNIVORES AND CONFLICT: A COMMUNITY APPROACH TO CARNIVORE COMPENSATION**

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## **REPORT 2**

### **PROPOSED AMENDMENTS TO ALBERTA WILDLIFE PREDATOR COMPENSATION PROGRAM**

**JANUARY 2013**

Prepared for:

**Waterton Biosphere Reserve Association  
Carnivore Working Group**

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Many people contributed to the preparation of this report. First and foremost I must acknowledge the patience and dedication of the ranching communities, members of the Waterton Biosphere Reserve Association and Carnivore Working Group for their discussions, suggestions, edits, and long hours of involvement, all of which were crucial contributions to the development of this report. I also thank the Nature Conservancy of Canada for its support and involvement. Additionally, Murray Rutherford, Mike Gibeau, Greg Hale, and Andrea Morehouse for their advice and contributions throughout the drafting process.

## Executive Summary

For several years community groups have been discussing issues pertaining to carnivore-human conflict in and around the municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston, in southwestern Alberta. The following report discusses a series of recommendations developed by the Waterton Biosphere Reserve Association Carnivore Working Group (CWG) for changes to the provincial predator compensation program in the region. The members of the CWG believe that these changes would lead to improved local attitudes towards carnivores, improved relationships between ranchers and Fish and Wildlife Officers, and more sustainable co-existence between ranchers and carnivore populations.

Within their own community the CWG and landowners have worked independently, and in conjunction with the Department of Alberta Environment and Sustainable Resource Development (AESRD), to deliver programs, and provide assistance where needed, to landowners to reduce the risk and impacts of carnivore-human conflict in the area. Such programs demonstrate the ability, willingness, and dedication of landowners to find better solutions and mitigation strategies to deal with carnivore conflict. The following report is an extension of this work. These recommendations are designed to address concerns expressed by community members, promote an increased level of tolerance for carnivore activity, and work towards improving the effectiveness, efficiency, and fairness of the Alberta Wildlife Predator Compensation Program.

While alternative program designs were considered (*i.e.* insurance programs and/or performance payments), the CWG agreed that the current Alberta Wildlife Predator Compensation Program is a strong foundation to build on and improve upon. Each program design has its own strengths and weaknesses, but the ex-post program currently in place provides a base that is seen by the CWG as being more easily understood and transparent to both users and funders than other alternatives that are available. The CWG aims to combine proposed amendments to the compensation program with a program to educate landowners concerning husbandry practices, and to continue to provide funds and support for measures that reduce and prevent conflict.

The CWG has prepared five broad recommendations for the Government of Alberta to consider as components of a pilot program in southwestern Alberta. The foremost recommendation is the application of a multiplier to the amount of compensation paid on confirmed livestock losses. Other recommendations include: additional compensation for probable kills, breeding livestock, guard animals, and purebred livestock; a review of the criteria employed for identifying probable kills; the development and delivery of a verification course for livestock producers; and an annual evaluation of any pilot and/or compensation program. These recommendations are intended to ensure that livestock producers receive fair compensation for killed or missing animals. The delivery of a verification course

and annual program evaluation will develop capacity among community members to better assess and understand their losses, build better rapport with the program managers and Fish and Wildlife Officers, and increase community involvement in the future development of compensation policy in southwestern Alberta.

## **Introduction**

Human tolerance of large carnivores is shaped by the direct and indirect effects that carnivores have on human populations. The costs and burdens of carnivore conservation are often borne disproportionately by rural populations living directly with carnivores (Nyhus et al., 2003). Compensation programs attempt to balance these costs by reimbursing private landowners for losses or damages incurred from carnivore activity. However, there are many facets to the costs borne by livestock producers, and when a compensation program does not sufficiently support producers, the program will not be effective until it grows to meet their needs.

The goal of this report is to make recommendations to improve the Alberta Wildlife Predator Compensation Program. The Carnivore Working Group of the Waterton Biosphere Reserve Association has prepared the following document to propose a pilot compensation program to the Alberta Department of Environment and Sustainable Resource Development (AESRD). The aims of the compensation measures presented in this report are to improve the effectiveness, efficiency, and fairness of the compensation program, increase tolerance of livestock producers towards carnivores, and improve producer satisfaction with the Alberta Wildlife Predator Compensation Program. This report has been developed by working with community members to determine in what ways the current program could be better adapted to satisfy their needs. Providing sufficient support for livestock producers enables them to better tolerate the activity of carnivores.

The report begins by summarizing the current Alberta Wildlife Predator Compensation Program, findings of a landowner survey in the Waterton Biosphere Reserve from 2009-2010, and a subsequent literature review and workshop report by the Miistakis Institute that, together with the survey, revealed the perceptions of ranchers, and other residents, in southwestern Alberta. The following report then outlines the amendments to the current program that community representatives have determined to be desirable and viable within their communities. Although the Alberta Government has not made a commitment to revise the Alberta Wildlife Predator Compensation Program, this report explores ways to improve the compensation program in southwestern Alberta, so that it will be more effective and better serve local communities. The goal of these recommendations, supported by the affected municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston, is to encourage the province to make changes to the existing program and/or endorse a pilot program in southwestern Alberta to test alternatives. If a pilot program is initiated, changes implemented in the pilot region should be monitored and evaluated so that successful practices can be transferred to other municipalities of Alberta and act as a potential model for provincial compensation.

**Waterton Biosphere Reserve Association: Carnivore Working Group**

The Waterton Biosphere Reserve Association (WBRA) is a non-profit organization focused on linking biodiversity conservation to sustainable human use of resources in the region of the Waterton Biosphere Reserve. Established in the early 1980s, the association has worked closely with local people for over 30 years to integrate conservation values with traditional livelihoods.

**WBRA objectives:**

- To encourage a sustainable, community-based regional economy, with high quality biodiversity, landscape and social values.
- To promote public awareness of resource management concerns facing residents of the Waterton Biosphere Reserve area.
- To participate with area residents in developing projects to address local concerns.
- To encourage cooperative resource management practices between private landowners and governments by providing a forum for the exchange of information.

**Carnivore Working Group**

The Carnivore Working Group (CWG) is a community-based, landowner driven working group associated with the Waterton Biosphere Reserve Association. The CWG oversees project initiatives concerning carnivore-human conflict within the municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston. The CWG was directly involved in the discussion and design process of the compensation features outlined in the following report, and was a key player in the formulation of a proposed pilot for an alternative compensation program.

*Note: The CWG Terms of Reference can be found in Appendix II.*

### **Carnivore Compensation**

In an effort to reduce the deaths of carnivores, the negative impacts of carnivore activity, and the negative perceptions associated with lethal control, managers and conservationists have begun using compensation schemes (Decker et al., 2006; Haber, 1996). Compensation programs are a means of reimbursing private landowners for damages and losses caused by carnivores, while at the same time promoting the conservation of these animals. The goals of such programs typically include: equalizing the burden of conservation costs between rural and urban populations; promoting good husbandry practices; reducing poaching; improving attitudes and perceptions towards carnivores; and increasing human tolerance of carnivore activity (Nyhus et al., 2003). However, compensation programs have had varying success as they struggle to address system corruption, costly payments, lack of compensation and community support, reduced husbandry levels, and, in the long-term, potential loss of natural wildlife habitat (Agarwala et al., 2010; Bulte and Rondeau, 2005; Nyhus et al., 2003).

Compensation programs differ greatly. There are ex post schemes that reimburse livestock producers for livestock killed or injured by carnivores, performance payments that reward producers for specific conservation actions, and insurance based schemes. Even programs of a similar type may vary in their specific guidelines or requirements. There is no general Canadian, American, or worldwide agreement on the protocols for compensation programs, or guidelines to how or if compensation should be paid in specific situations. Due to the wide variety of compensation programs instituted in North America, and elsewhere around the world, there are numerous programs to assess and use as inspiration for designing and implementing improvements to local compensation programs.



### **Alberta Wildlife Predator Compensation Program**

The Alberta Wildlife Predator Compensation Program has been providing economic compensation to ranchers throughout Alberta since the 1970s (AESRD, 2011; Gunson, 1992; Lee, 2011). It is an ex post compensation scheme where livestock producers are reimbursed the value of lost or injured livestock after the damage has occurred, and currently offers compensation for cattle, sheep, bison, swine and goats injured or killed by grizzly bears, black bears, wolves, cougars, and eagles (See Appendix IV).

Incidents are reported to and must be verified by provincial Fish and Wildlife Officers in order for claimants to be reimbursed full market value. However, if the officer suspects that a carnivore may be responsible, but is unable to confirm, it is labeled a "probable kill" and claimants do not receive compensation unless a confirmed kill is reported within 10km either 90 days before or after the incident in question.

Compensation is based on the average commercial value (Canfax in the case of beef, and auction yard averages for sheep and goats) for the type and class of animal on the day it was killed. Confirmed predator kills receive 100% of the market value, probable kills receive 50% if verified as described above, and veterinary costs and medication associated with the incident or loss are covered up to the value of the animal. Currently, the program does not compensate livestock producers for indirect costs associated with predation incidents, missing livestock, or situations where carcasses are found with evidence of carnivore feeding but officers were unable to report as confirmed or probable due to insufficient evidence. Additionally, the program at this time does not require specific husbandry practices in order for livestock producers to receive compensation.

The Alberta Conservation Association acts as the fiscal agent for the Alberta Wildlife Predator Compensation Program, which is currently financed by sales of hunting and fishing licenses. The program operates under the Alberta Environment and Sustainable Resource Development (AESRD) Department of the Government of Alberta, and is administered by a committee comprised of representatives from Alberta Sustainable Resource Development, Alberta Beef Producers, Western Stock Growers Association, Alberta Department of Agriculture, and Alberta Veterinary Medical Association.

### **Landowner Survey and Miistakis Literature/Workshop Review**

In 2009, the Waterton Biosphere Reserve Association and the Chinook Area Land Users Association, with the assistance of the Miistakis Institute, conducted a survey in southwestern Alberta that examined the attitudes and perceptions of residents towards carnivores in their region, and towards the Alberta Wildlife Predator Compensation Program. The survey targeted residents within 20km of Waterton Lakes National Park. The southwestern corner of Alberta, which includes the zone in which the survey was conducted, is of particular interest because it accounts for 37% of all compensation claims paid for by the Alberta Wildlife Predator Compensation Program between 2000 and 2010 (Lee, 2011; Morehouse and Boyce, 2011). Neither the landowner survey nor the subsequent Miistakis Report was commissioned or requested by Alberta Environment and Sustainable Resource Development, however these community driven projects, and the information they collected, were meant to identify concerns and recommendations for the Wildlife Predator Compensation Program from the perspective of the landowners.

The 2011 Miistakis Report prepared by Tracy Lee briefly outlines and compares carnivore compensation programs in British Columbia, Saskatchewan, and Alberta, and discusses the three main approaches to carnivore compensation (*i.e.* ex post, performance payments, and insurance based schemes), as well as challenges and criticisms of ex-post and “compensation in advance” schemes. The report also summarizes the survey’s final results, and identifies five key issues on which respondents most wanted to see improvement (Lee, 2011).

#### **Key Issues Identified by Respondents:**

1. Residents desired compensation for types of claims not currently supported
  - a. All types of livestock
  - b. Probable kills
  - c. Coyote kills
  - d. Stress on livestock
  - e. Time involved
  - f. Damage to structures
  - g. Damage caused by herbivores
2. Changes to the compensation process
  - a. Reducing burden of proof
  - b. Simplified user-friendly process
  - c. Reduce program costs
  - d. Prompt delivery of compensation payments to landowners
  - e. Prompt response
  - f. Increased flexibility of Fish and Wildlife Officers during the investigation of depredation incidents, and increased flexibility to award compensation when predators are the likely cause of death.
3. Changes to payment level
  - a. Pay fair market value

- b. Increase payment amount
- c. Increase payout for purebred livestock
- 4. Improved relationships between community members and verification officers
  - a. Perception that Fish and Wildlife officers do not trust landowners ability to identify a depredation event
  - b. Landowners lack of faith in Fish and Wildlife Officers to accurately identify a depredation event
  - c. More consultation between landowners and Fish and Wildlife Officers
  - d. Increased rancher involvement when dealing with carnivores
- 5. Willingness to experiment with alternative approaches to compensation
  - a. Design reward program for producers who increase good husbandry and stewardship practices
  - b. Introduce hunting season
  - c. Create insurance program
  - d. Institute mechanisms to prevent system abuse

(Lee, 2011)

*Note: More comprehensive findings of the landowner survey can be found in the "Final Survey Report: Carnivores and Communities in the Waterton Biosphere Reserve" published in 2011 by the Miistakis Institute and prepared by Michael S. Quinn, Ph.D. and Shelley M. Alexander, Ph.D. Furthermore, it is important to remember that not all survey participants necessarily agreed on every strength, weakness, and recommendation.*

The survey findings indicated broad dissatisfaction of landowners with the Wildlife Predator Compensation Program. Three key issues that landowners strongly agreed upon were that the burden of proof is too high, compensation payments are too low, and that relationship and trust issues exists between Fish and Wildlife Officers and landowners.

Additional results from the survey:

- 76% of survey respondents reported that they were not satisfied with the current compensation program.
- 77% of survey respondents reported that they did not think that the current program was fair.
- 88% of survey respondents supported the notion that landowners should be fully compensated for livestock losses due to livestock depredation by carnivores.
- 80% wanted to provide information/assistance to AESRD Fish and Wildlife Officers.
- 77% of respondents did not trust AESRD Fish and Wildlife Officers to make good decisions without their input.
- There was a definite polarity in the respondents' tolerance to losing livestock to carnivores

- 45% agreed that losing livestock to depredation is part of ranching in the region, while 48% disagreed.
- 66% felt that the current rate of livestock depredation events occurring on the landscape was unacceptable.
- Of the survey respondents that answered an open-ended question regarding how they would change the current program, 90% made recommendations for improvements.

The Miistakis Report by Lee also included a section pertaining to the Large Carnivore Communication Committee (LCCC) Workshop that took place in which the results of the survey were presented and a discussion took place regarding possible improvements to the existing livestock compensation program. The report concludes with recommendations derived from both the LCCC workshop and the survey for the purpose of improving carnivore compensation in southwestern Alberta from the landowner's perspective. The LCCC was the precursor to the CWG, and operated from fall 2010 to the fall of 2011.

### **Strengths and Weaknesses of the Current Program and Recommendations for Improvement:**

The following strengths, weakness, and recommendations for the Alberta Wildlife Predator Compensation Program were derived from the landowner survey, the LCCC workshop, and multiple discussions held during past CWG meetings.

#### *Strengths:*

- The ranchers want to build off of the current program indicating that a strong foundation exists.
- Current government contributions to managing and mitigating carnivore activity
  - Relocation of bears, aversion of bears, etc.
- Use of Canfax averages (beef industry) in establishing livestock values is a positive feature of the current program, especially in the case of commercial animals under one year of age.
- Current program takes the highest D1/D2 of the week before, during, and after the kill, and multiplies it by 1.75 to compensate for cows or bred heifers to more accurately reflect the value of a breeding animal.
- Giving producers the option (for animals under 1 yr) of taking payment on value at time of death or on value in October when calves are often sold.
- Officers are relatively prompt in responding to and investigating livestock predation incidents.
- Payment for the treatment of injured livestock.
- Probable claims receive at least some payment (50% of market value).

#### *Weaknesses:*

- Burden of proof too high.
  - Landowners are frustrated when livestock are heavily consumed by carnivores by the time Fish and Wildlife Officers are able to attend the scene. In such circumstances, it is difficult for Officers to assess the scene and confirm whether the animal was in fact killed by a carnivore or instead died from other causes and was subsequently scavenged by carnivores. This may result in the carcass being classified as a probable kill, and reduce the livestock owner's chances of being reimbursed. Furthermore, the remains of some animals are never located. These animals are classified as missing, and livestock owners receive no compensation at all for these losses. For each confirmed event there are likely more not discovered or not reported (Bangs and Fritts, 1998; Morehouse and Boyce, 2011; Nyhus et al., 2005).
- No compensation for missing/unconfirmed animals.
- Payment for compensation is too low.
  - No additional compensation for purebred animals.

- Feeder yearlings cannot be valued at Canfax average in the fall when they would likely have been marketed, but are only valued at time of death.
- Compensation does not address the indirect losses, or non-consumptive effects, that are a result of ranchers sharing the landscape with carnivores. Indirect costs may include the costs of repairing broken fences when livestock are chased by carnivores, costs to damaged buildings/structures, costs of silage and grain losses, and most importantly the value of a landowner's time (e.g. working with Fish and Wildlife Officers, doing repairs, cleaning up damaged property or silage/grain spills, rounding up frightened and dispersed livestock, etc.). This type and level of conflict has been increasing (See Appendix III). Non-consumptive effects on livestock include weight loss, injuries caused by predator harassment, and reduced reproduction, all of which are hard to quantify but have been associated with livestock living in carnivore ranges (Laporte et al., 2010).
- No compensation for time spent taking animals to and from the vet or administering drugs and treatment. Compensation for direct veterinary costs is helpful, but these costs are often far less than the costs the producer incurs caring for the injured animal, which may or may not recover sufficiently to be productive.
- Trust issues between Fish and Wildlife Officers and livestock producers exist. These detract from the ability of Fish and Wildlife Officers to act as educators. Better communication about the compensation program, and community projects seeking to reduce carnivore conflict (e.g. husbandry practices), would address trust issues.
- Livestock predation in certain seasons can take a lot of time for Fish and Wildlife Officers and increase administration costs.
- Current program lacks incentives for livestock producers to reduce the risk of carnivore depredation and fails to reward landowners for investing in equipment/preventative measures.
- Compensation is currently being financed solely through the sales of hunting and fishing licenses. No other demographic groups are being targeted and no provincial governmental departments are contributing to compensation funds.

*Recommendations:*

- Changes to the types of damages for which the program compensates and the value (e.g. missing livestock)
- Changes to the compensation process such as reducing the burden of proof, a simplified process, reduced program costs, and/or prompt payments
- Continue to improve relationships between livestock producers and Fish and Wildlife Officers
- Increase incentives to reduce risk
- Consider full compensation for probable kills
- Increase the minimum amount compensated per animal

- Compensate for economic losses associated with non-consumptive effects on livestock
- Possible alternative approaches to compensation
  - Rewarding livestock producers who have employed/invested in risk reduction strategies or show good husbandry practices
- Suggested alternative means of financing compensation
  - Other demographic groups should be targeted for funding in addition to hunters. The provincial government should consider other sources of funding within their operating budgets.
    - Tourism, Alberta Parks, AESRD, Department of Agriculture and Rural Development, General Revenue
  - An auction for hunting licenses for problem grizzly bears/Re-instating a grizzly bear hunt
  - Instating an insurance program
- Recommended that AESRD continue to build on successful collaborations (such as support for assistance schemes).

### **Common Goals, Objectives and Core Elements of Compensation Programs**

While establishing goals for a compensation program can be challenging, it is a critical step in deciding the type and operation that will work best for any developing compensation program. Compensation programs vary worldwide, and provide numerous sources of inspiration and education when designing and implementing new compensation programs, or program changes.

To this end the WBRA and the CWG issued a report that summarized 38 carnivore compensation programs (Morrison, 2012). This report included information regarding the type of compensation, brief summary of a program's administration and funding organization, eligible livestock species and carnivore/damage-causing species, eligibility requirements for livestock producers, level and category of compensation, as well as additional information regarding specific program design. The information of this report was collected from evaluations conducted by government organizations, private organizations, and/or academic/scientific review. With this information the CWG reviewed and selected features of compensation programs used in other regions to extract features they believe would improve the existing compensation program in Alberta, fairly compensate producers for their costs associated with large carnivores (e.g. death loss), and maintain large carnivores on the landscape.

The core elements of any compensation program should be collectively determined and agreed upon by program managers and program users, and should be tied to the specific goals of the program.

Common goals of carnivore compensation programs world-wide include:

- Distributing the burden of conservation costs more fairly between rural and urban populations
- Providing restitution to those who have suffered damages from carnivore-human conflict
- Promoting good husbandry practices
- Reducing poaching
- Improving attitudes and perceptions towards carnivores
- Increasing human tolerance of carnivore activity
- Reducing deaths of carnivore and livestock species

(Nyhus et al., 2005; Nyhus et al., 2003)

Common challenges of compensation programs include:

- System corruption
- Difficulty in proving/verifying claims
- Costly payments
- Lack of compensation
- Lack of community support
- Reduced husbandry levels



- Compensation may result in less pressure for ranchers to protect their livestock or take preventative measures against predators when they are guaranteed compensation for lost livestock.
- In the long-term, potential loss of natural wildlife habitat
  - Compensation for lost livestock may result in increased financial stability for ranchers, and result in an increased conversion of natural habitat to ranching/farming lands as the ranching industry becomes more financially secure (not a challenge pertinent to our subject area). (Agarwala et al., 2010; Bulte and Rondeau, 2005; Nyhus et al., 2003)

These lists of broad goals and challenges have been synthesized from academic reviews and evaluations of a variety of compensation programs in different settings. The specific goals for any particular compensation program should be developed by the participants to suit the unique features of the setting in which the program will be instituted.

#### *Prioritized Program Goals for Southwestern Alberta*

From the broader goals outlined above the CWG has selected specific program goals that they believe should be prioritized within their region:

- Distributing the burden of conservation costs more fairly between rural and urban populations
- Providing fair and comprehensive compensation to those who have suffered damages from carnivore activity
- Increasing education (e.g. promoting good husbandry practices, increasing research into conflict levels)
- Increasing public safety
- Increasing landowner tolerance of carnivore activity
- Reducing deaths of livestock
- Reduce motivation for ranchers and farmers to implement unauthorized lethal carnivore control measures

Furthermore, research on existing compensation programs has identified the following factors as core elements of successful compensation schemes:

- Quick, accurate verification of damage.
  - Improving the verification/investigation process requires training, adequate tools, and a mechanism for establishing trust between program users and administrators/enforcers to ensure a fair and honest process.
- Prompt and fair payment.
  - Timely payments can reduce frustration directed at carnivores and/or conservation authorities.
  - The process needs to be transparent, to protect against abuse, to account for unverifiable losses (*i.e.*, when it is difficult to determine how livestock were killed or how many), and to be capable of

- o evaluating differences in the market value of various livestock species.
- Sufficient and sustainable funds.
  - o An inadequately funded scheme may cause problems (e.g. frustration among program users).
  - o Wildlife damage will likely vary considerably from year to year, and it is necessary for wildlife managers to plan for contingencies, for long-term sustainability, and/or for an exit strategy.
  - o Solid baseline information (e.g., records demonstrating the full impact of carnivore depredation incidents on the livestock industry) is necessary to accurately predict future levels of compensation claims.
- Site specificity.
  - o Some general guidelines are available to assist wildlife managers in designing and implementing effective compensation schemes, however, it is important to be sensitive to site, species, and culture-specific issues.
  - o Shared program ownership between local users and institutions running the compensation schemes may reduce the potential for future conflict and abuse.
- Clear rules and guidelines.
  - o Successful programs tend to have strong institutional support and clear guidelines.
  - o Linked to sound management practices.
  - o Efforts should not be ad hoc.
- Measures of success.
  - o Is the compensation scheme achieving its intended outcomes? For example, is there increased tolerance of carnivore populations, are fewer livestock or carnivores being killed, is the information collected able to forecast future carnivore population and future claim levels?
  - o Defining measures of success enables a program to be evaluated, and provides an opportunity for making improvements

(Nyhus et al., 2003)

### **Community Driven Projects To Mitigate Carnivore Activity**

The implementation of mitigation/prevention projects reduces the level and intensity of conflict incidents, and subsequently has the capacity to reduce the number of claims submitted to the compensation program. Below is a list of past and current prevention projects undertaken by the WBRA, the Nature Conservancy of Canada, the Drywood Yarrow Conservation Partnership, and the Southwestern Alberta Conservation Partnership. Additionally, some projects have been funded in whole, or in part, by AESRD/Bearsmart.

The following projects display steps that community organizations/groups and individual landowners have taken to actively reduce the risk, and impact of conflict with carnivores in their area. These projects demonstrate the ability, willingness, and dedication of landowners as they work to find better solutions and mitigation strategies to deal with carnivore conflict.

It is important to take note that landowners themselves have initiated many of these projects. While the WBRA does financially assist some projects (*i.e.* fencing and upgrading grain bins), landowners are expected to partially match donated funds. This may be through monetary or in-kind contributions (e.g. labour). Additionally, some landowners have carried out mitigation projects with no additional funding.

#### *Approximate Summary of Ranch/Farm Projects*

- 1 grain bin upgraded from old wooden floor to new hopper bottom bin
- 7 grain bin doors upgraded to bear proof doors
- 2 old wooden bins removed
- 3 bins replaced with steel bottom bin
- 2 grain bins upgraded with cement floor
- 2 bee yards with electric fences
- 21 grain bins protected by an electric fence
- Electric fencing of a pair of wooden feed bins
- Electric fencing of silage bags
- Electric fence around calving yard
- Electric fence around hay bales/grain bins to exclude bears/wolves/deer/elk
- Deadstock pick-up
  - Since 2010, deadstock programs in the municipalities have removed approximately 800 carcasses from the landscape

#### *Additional Projects with WBRA*

- Pole Haven Real Time Animal Movement project using active RFID tags
- Helped fund a seasonal Fish and Wildlife Officer in M.D. of Ranchland
- Non-invasive Grizzly Bear Monitoring Project (DNA)
- Conflict review and analysis of carnivore activity in southwestern Alberta

*A brief one-page introduction to the report on this study of carnivore conflicts and activity can be found in Appendix III. For the full report with detailed findings, please contact the Waterton Biosphere Reserve Association or Andrea Morehouse, Grizzly Bear Monitoring Project Coordinator.*

- A review of international carnivore compensation programs

*Available Preventative Measures to Reduce Conflict with Carnivores*

There are a variety of proactive measures available to livestock producers to reduce conflicts between carnivores and livestock. However, the implementation and maintenance of such measures can be costly to producers. While there are provincial and community driven programs that help to subsidize some of these costs, many livestock producers take it upon themselves to invest in measures that may reduce future risk of conflicts with carnivores and subsequent economic costs.

Viable preventative measures:

- Employing guard animals
- Hazing with non-lethal munitions
- Predator resistant or electric fencing
- Frequent checks/survey of livestock
- Bear proof garbage bins at home sites
- Carcass removal/carcass bins
- Range riders
- Light and noise scare devices
- Moving sick/injured livestock
- Night penning/Use of Lamb sheds
- Public access for hunting
- Fladry

The CWG believes that husbandry practices are important. However, it is difficult to apply the same husbandry practices across ranches on both private and public lands. The CWG recognizes that husbandry requirements may be necessary for acquiring funding from outside sources, warranting the additional benefit of increased compensation, and decreasing the risk of conflict and thereby improving public safety. To this end, the CWG recommends prioritizing education amongst ranchers regarding best management practices for their area, and continued support with assistance schemes to reduce costs. In this way, livestock producers will be able to implement accepted best management practices for their specific area.

No matter the delivery, intensity, or combination of proactive measures or husbandry practices, such deterrents are not usually considered a permanent and/or complete solution. By combining proactive measures with a fair and effective compensation program it is possible to reduce conflicts and limit the loss of livestock, while compensating producers for unavoidable losses, thereby increasing landowner tolerance of carnivores and improving public safety.

Additionally, the work of Fish and Wildlife Officers on these issues should not be overlooked. Their important contributions include:

- Carnivore hazing
- Aversion training of carnivores
- Relocation and/or removal of problem carnivores
- Education of ranchers regarding carnivore behaviour and mitigation strategies
- Investigative services when addressing carnivore depredation events

These measures are a key component towards reducing the negative impacts of carnivores on the landscape, and the burden that carnivores may have on local livestock producers.

### **Proposed Amendments to Current Program**

While the impact of carnivore predation on the entire livestock industry of Alberta is accepted to be relatively small, the impact on the individual landowner can be devastating and frustrating. The objective of the following amendments is to try to design a program that better reflects the true economic costs associated with livestock loss, and ranchers sharing the landscape with carnivores. The amendments below address the main issues raised in the landowner survey that the CWG has identified as important, and currently practical in developing a program that reduces the risk of human wildlife conflict. Furthermore, these amendments are meant to increase the tolerance of landowners towards carnivores.

The CWG proposes that initially the following five amendments/recommendations be applied as a pilot program spanning the four municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston. The intention is that this pilot program will be reviewed annually, for the duration of its term, to determine if it is meeting the needs of the rural communities and the livestock producers. The CWG proposes that this project run for a duration of 5 years in order to first effectively implement the program's changes, subsequently refine program operations should obstacles arise, and enable adequate time to evaluate the program's effectiveness.

#### *(1) Implementation of a Multiplier:*

A multiplier is a factor by which the compensation a livestock producer receives can be increased to reflect other losses they may be incurring. In most situations a multiplier is used to reflect missing livestock or livestock losses that were not found and inspected.

The detection rate is often defined as the number of livestock killed by predators, found by a producer, verified by the governing body, and classified correctly as killed by a predator. The detection rate is generally lower than the levels of livestock that actually go missing from a rancher's herd due to carnivore activity (Sommers et al., 2010). The detection rate of missing livestock is affected by a number of factors such as terrain, weather, vegetation type, grazing practices, livestock monitoring/husbandry practices, as well as the type and density of both predators and livestock.

Determining the ratio of estimated total losses to confirmed/detected kills continues to be difficult. These ratios likely vary considerably according to the characteristics described above. Loss ratios as high as 8:1 and 6.3:1, down to as low as 2:1 for cattle have been reported in past studies dependent on how forested or rugged the terrain (Oakleaf et al., 2003).

The CWG proposes applying a multiplier to designated confirmed kills under the Alberta Wildlife Predator Compensation Program guidelines. This multiplier would

be the same between private/rented and public lands, and determined from local data voluntarily submitted by livestock producers.

The multiplier would be applied to every confirmed kill, and could be applied multiple times per ranch if there is more than one confirmed kill in an incident or more than once incident. The multiplier will not be applied to probable kills. Compensation through the multiplier must not exceed the number of livestock a rancher owns, but may exceed the number of cattle known to be missing. Lastly, to limit expenditures, the multiplier will not be applied to bulls. While cattle are the prevalent livestock, and the animal most commonly depredated, other types of free-ranging livestock currently supported by the program (e.g. sheep, goats, bison) should be included in the application of a multiplier; recognizing that these conditions may not apply to swine.

#### *Application of Multipliers in Other Jurisdictions*

Idaho applies a multiplier on a case-by-case basis, dependent on available funds. In cases where there is insufficient evidence to determine the cause of livestock losses, above those expected from other causes, a multiplier is applied. Multipliers are applied to instances where livestock kills are not verified as either confirmed or probable, but that livestock are missing and carnivores were observed in the area.

Washington uses a two-tiered plan for their compensation strategy. Livestock producers are compensated twice the value of a confirmed kill on grazing allotments of 100 acres or more. The agency determined that on larger allotments it is more difficult to survey the entire acreage, and therefore harder to find and report carcasses. For each confirmed kill the rancher receives the market value for two animals, or twice the value, and a probable kill receives half the current market value for two animals. This additional compensation does not apply if there are no additional animals missing beyond the confirmed or probable kill. On grazing allotments not meeting the above criteria (less than 100 acres), livestock producers only receive the full market value for each animal confirmed and half the value if documented as a probable kill. The assumption is that on small acreages, livestock producers should be able to more closely supervise their stock and find carcasses more readily.

Compared to previous examples, the state of Wyoming has the most comprehensive application of a multiplier. While the program compensates for confirmed livestock kills, it also compensates for missing losses. Legislation currently states: “established through rule making methods, factors and formulas to be used for determining the amount to compensate any landowner, lessee or agent for livestock damaged as a result of, missing as a result of, or killed by trophy game animals”. To qualify under this rule, the livestock producer must have at least one verified claim with evidence of a predator attack. Compensation is 7 times the market value of the livestock for wolf depredations, and 4.2 times the market value for grizzly depredations. The multipliers only apply within the designated Endangered Species Area (*i.e.* land adjacent to Yellowstone Park), and are designed to accommodate for

higher than average predations taking place that cannot be verified in this region. The multiplier only applies for calves and sheep, and can be applied multiple times, for multiple confirmed claims, only up to the total number of missing livestock. Claims for missing livestock must include a total known death loss, including missing animals and the known loss of sheep or calves to causes other than carnivores.

The multiplier values for Wyoming were determined through a combination of unpublished data from Departmental studies and considerable historical loss data from a local grazing organization. These sources indicated a range of detected to non-detected losses due to grizzly bears and wolves. Program managers chose a value that was reasonable within that data range, taking into account the socio-political situation, and recognizing that multiple variables affect loss rates including livestock behavior. A whole suite of considerations were necessary, but the ultimate goal was to determine a value that livestock producers felt fairly represented their losses, and a compensation rate that they could live with.

#### *Benefits of Application*

The additional compensation livestock producers receive when a multiplier is in effect covers financial losses that might not otherwise be covered. Not only does the multiplier provide compensation for the value of lost animals where cause cannot be confirmed, but it may also cover other financial hardships associated with carnivores (commonly referred to as indirect effects), some of which are not easily documented.

Landowners in southwestern Alberta currently feel that direct and indirect losses are greater than what is being compensated for. A multiplier is seen as being a fair, transparent, and easily administered way of addressing this issue. For the most part, the multiplier will primarily help cover previously uncompensated direct losses, and only secondarily cover the indirect losses below.

The multiplier would help compensate for unconfirmed direct losses. As additional justification for this compensation, it is important to note the indirect losses associated with carnivore activity that are currently not supported by the Alberta Wildlife Compensation Program. The items listed below are a sample of these indirect costs:

- Indirect Costs
  - Costs of repairing broken fences, costs to damaged buildings/structures, costs of silage and grain losses.
  - Value of a landowner's time (e.g. working with Fish and Wildlife Officers, doing repairs, cleaning up damaged property or silage/grain spills, rounding up frightened and dispersed livestock, etc.).
  - Increased vigilance is required when carnivores are recorded in the area
  - Changes required for livestock management practices when carnivore incidents occur



- Non-consumptive effects
  - Weight loss, injuries caused by predator harassment, and reduced reproduction.
- Time spent monitoring/caring for injured animals over prolonged treatments, and loss of production/use of the animal.

Applying a multiplier to the Alberta Wildlife Predator Compensation Program would help compensate livestock producers for direct losses associated with unconfirmed/missing cattle and calves, as well as those issues listed above. It is for this reason that the CWG proposes that the compensation value of the multiplier be allowed to exceed the number of missing cattle. While the multiplier does not completely cover the costs of sharing the landscape with carnivores, it does help reduce the burden. Another benefit to the application of a multiplier is that this compensation strategy will automatically adjust to changing market conditions. Additionally, the application of a multiplier reduces the burden of proof demanded of livestock producers by the current compensation program. The strict burden of proof is one contributing factor to the negative relationship between livestock producers and Fish and Wildlife Officers, and producers' poor acceptance of the program itself. While there may occasionally be instances of over-compensation and under-compensation, the major goal here is to provide fair compensation.

#### *Detected vs. Non-detected Ratio for Southwestern Alberta*

The proposed multiplier for the pilot program is (2.5). This value represents the average ratio of missing livestock to confirmed carnivore kills, and is a rough approximation derived from community data received to date. As data continues to be volunteered by livestock owners, this value may be adjusted. Table 1 displays the estimated increase in confirmed claim values and total program costs due to the implementation of this multiplier. However, these values are province wide, and for the proposed project area, these costs would be further reduced.

#### *(2) Additional Compensation:*

##### *Increased Compensation for Probable Kills*

The CWG proposes that probable kills be compensated at full price; increased from 50% compensation of fair market value to 100%. To reiterate, the proposed multiplier above will not be applied to probable kills. Detecting animal carcasses is difficult enough, but when a carcass is found and able to be investigated by Fish and Wildlife Officers, being compensated less, or nothing at all, is disheartening and considered unfair. If there is a reasonable possibility that a predator was involved in the incident, the CWG desires that producers be fully compensated for these losses to alleviate the burden of proof which many ranchers view as unfair. If enough evidence indicates that the livestock died as a result of non-carnivore causes (e.g. sickness or weather) then it is not labeled as a probable kill and not compensated in any way.

Both Oregon and Wisconsin compensate 100% of market value for probable kills, so there is a precedent for this practice in other compensation programs. In addition, Washington's program has a two-tiered payment system wherein on ranches over 100 acres, for each animal documented as a probable wolf kill, owners receive half the current market value for two animals. For this program, the higher payments account for undetected carcasses that are harder to find on larger sites.

The CWG was able to acquire data on the amount of compensation provided province wide through the Alberta Wildlife Predator Compensation Program, as well as the number of compensation claims designated confirmed, probable, or denied. From these data it was possible to roughly estimate the average amount compensated per confirmed claim and probable claim in the province (Refer to Table 1).

Table 1 shows the estimated increase in compensation that would have been paid out if probable kills were compensated at 100% market value. These values are province wide, and would be further reduced in the proposed project area.

Compensating Probable claims at 100% market value is one means of compensating landowners for livestock losses that are not currently being covered, such as instances where livestock have been found dead, but the investigator was unable to confirm carnivores were responsible. While this recommendation would increase program costs, that increase is still less than the costs landowners must absorb when they experience losses that are not compensated in denied claims (Refer to Table 1). For a relatively small increase in compensation paid out, there would likely be a very substantial increase in landowners' satisfaction with the program.

Table 1: Comparison of current program costs province wide (2007-2012) with proposed changes.

Year	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
<b>Current Program</b>					
Total Compensation Paid Out	\$98,268.85	\$130,764.37	\$140,547.24	\$199,298.32	\$264,266.24
Total Claims Received	200	265	199	257	254
Confirmed Claims	162	186	157	192	192
Probable Claims	22	27	17	23	34
Denied Claims	16	52	25	42	28
Average Confirmed Claim Value	\$568.03	\$655.46	\$849.23	\$979.35	\$1,264.43
Average Probable Claim Value (Paid at 50%)	\$284.01	\$327.73	\$424.61	\$489.68	\$632.22
Approximate Value of All Denied Claims	\$9,088.49	\$34,083.95	\$21,230.70	\$41,132.82	\$35,404.09
<b>Probable Kills Recommendation</b>					
Total Compensation if Probable Claims were Paid at 100%	\$104,517.16	\$139,613.09	\$147,765.68	\$210,560.88	\$285,761.58
Resulting Increase	\$6,248.31	\$8,848.72	\$7,218.44	\$11,262.56	\$21,495.34
<b>Multiplier Recommendation</b>					
Average Confirmed Claim Value if 2.5x Multiplier were Added	\$1,420.08	\$1,638.65	\$2,123.08	\$2,448.38	\$3,161.08
Total Compensation if 2.5x Multiplier were Added	\$236,300.14	\$313,637.71	\$340,540.91	\$481,351.12	\$628,422.08
Resulting Increase	\$138,031.29	\$182,873.34	\$199,993.67	\$282,052.80	\$364,155.84
<b>Combined Probable Kill and Multiplier Recommendations</b>					
Total Compensation for both Recommendations	\$242,548.45	\$322,486.43	\$347,759.35	\$492,613.68	\$649,917.42
Resulting Increase	\$144,279.60	\$191,722.06	\$207,212.11	\$293,315.36	\$385,651.18

*Note: Individual claims vary in the number of livestock per claim, as well as livestock species and type. This influences average confirmed claim value, as does market price (which has trended upward for cattle since 2007). Total compensation paid out includes the value of probable claims paid at 50% unless otherwise stated. Additionally, total compensation paid out does not include veterinary bills.*

*Adjustment factor for breeding livestock and slaughter yearlings*

The current compensation program acknowledges that a bred female is more valuable than a cull animal by applying a 1.75x multiplier to the D1/D2 cow price if the animal in question is a breeding female. The CWG proposes that this multiplier be extended to all breeding stock, including breeding males (of livestock species currently supported by the program). In addition, in the case of cattle, the CWG proposes that cows and heifers, part of the breeding herd, be treated the same. This would be accomplished by selecting one average set weight (1400 lbs. suggested) on which to base the payment. This would make the process for breeding cows and heifers very simple:

$$1400 \text{ lb.} \times \text{D1/D2 price (Week before, of, and after kill)} \times 1.75 = \text{Base Value.}$$

If the animal in question were expected to be in calf, this formula would be applied.

For Bulls, the formula would be:

$$\text{Estimated Weight} \times \text{Cull Bull Price} \times 1.75 = \text{Base Value.}$$

Secondly, give producers the option on slaughter yearlings of receiving compensation value at time of death (*i.e.* Canfax like current program) or Canfax average price for the last week of August and the first week of September at a weight of 950 lbs. This would be fairly consistent with the current price option on calves.

*Compensation for Guard Animals*

The CWG recommends that guard animals be added to the list of animals eligible for compensation. This would include guard dogs (excluding hunting dogs), and any other animal used for the express purpose of guarding/protecting livestock from carnivore activity. Guard animals may be necessary for responsible husbandry, and an investment that livestock producers may choose to make in order to responsibly care for their herds and reduce the risk of carnivores. Assistance through subsidies or reimbursing the value of guard animals is a common practice for many compensation programs in North America (e.g. Idaho, Montana, Wyoming, and Saskatchewan). The CWG believes that the Alberta compensation program should compensate the current market value of guard animals following an investigation to confirm that it was carnivores that killed the guard animal. While this does not compensate for the emotional attachment to the animal or the time and investment in its training, it does encourage livestock owners to invest in this practice knowing the program will help alleviate some of the lost investment if a guard animal is killed. By encouraging livestock owners to invest in guard animals, this measure could lead to fewer depredation events.

#### *Additional Compensation for Purebred Livestock*

Livestock producers have shown interest in receiving increased compensation for purebred livestock. While cattle are the prevalent livestock, and the animal most commonly depredated, other types of free-ranging livestock currently supported by the program (e.g. sheep and goats) should be included in the application of a purebred premium; recognizing that these conditions do not apply to swine and bison. This would follow the practice of compensation programs in both Manitoba and Saskatchewan that provide additional compensation to ranchers for registered purebred animals.

In Manitoba, to claim additional compensation the livestock producer must produce a verified registration document at the time of death of the animal (*i.e.* papers showing the animal is already registered or that the registration process has begun). Manitoba has a maximum compensation value of \$2,000.00, which places a cap on the level of additional value awarded to a livestock producer. However, with young animals there is a definite benefit to a producer for purebred claims, and so long as the value of a mature animal is less than the maximum there are benefits to this practice. In Saskatchewan, producers are compensated one and a half times the commercial value for an average animal if it is a registered purebred. To qualify the producer must produce proof (*i.e.* paper documentation) that the animal is a registered purebred. Both of the programs mentioned above use purebred premiums to compensate for the additional value of a purebred animal. However, even with the addition of these premiums, the value compensated to livestock owners is still lower than the actual commercial value of most purebred livestock. The goal, in these cases, is not to necessarily match the cost of lost purebred livestock, as that could be cost prohibitive to any compensation program, but to acknowledge, and partially compensate, the additional financial losses that landowners incur when carnivores kill purebred livestock.

Implementing a protocol to distinguish purebred livestock, by which Alberta livestock producers present valid registration documents (or show that registration is in progress for calves) for their livestock, would improve the program's ability to more accurately reimburse the costs of carnivore predation. If this recommendation were to be adopted, the CWG suggests a purebred premium similar to that of Saskatchewan, where producers are compensated one and a half times the average value of a similar commercial animal, for the loss of a registered purebred. This premium would apply to verifiable purebred calves and breeding stock.

#### *(3) Removal of Criteria from Current Probable Kill Definition:*

Under the current program, in order for a depredation incident to be categorized as a probable kill, there must be a confirmed kill by the same carnivore species within 10km and within either 90 days before or 90 days after the incident in question. Landowners would like to see the removal of these spatial and temporal criteria.

There are many examples of compensation programs that do not have these temporal or spatial requirements in order to be classified as probable kills.

In Manitoba, if death cannot be confirmed as predation, but sufficient evidence exists that predation was the likely cause of death then it is labeled probable. Manitoba's compensation program compensates for similar carnivore species as the current program in Alberta (*i.e.* wolves, black bears, cougars, coyotes, and foxes). In the United States, when carnivore compensation was under the auspices of the Defenders of Wildlife, probable kills were defined according to the USDA Wildlife Services *Criteria for Classification of Reported Depredation Incidents*:

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

*(USDA Wildlife Services)*

In addition, the program[s] specified criteria for possible kills:

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

*(USDA Wildlife Services)*

Since the U.S. federal government has created a wolf predation compensation program that provides funds for state governments, Defenders is phasing out its compensation programs in Idaho, Montana, Wyoming, Washington, Oregon, Arizona and New Mexico. It is now up to the discretion of state operated compensation programs to define what constitutes a probable kill. Under the Washington program, to qualify as probable wolf depredation, there must be sufficient evidence that the cause of death was depredation, but not enough to clearly confirm that a wolf was the cause of death. Additionally, an unconfirmed depredation is any depredation where the predator responsible cannot be determined. In the case of Washington, this differentiation between wolf and non-wolf (*i.e.* cougars and bears) is due to the fact that the Washington program provides additional compensation

when wolves have been identified as the depredating carnivore. However, activities by all three carnivores activities are compensated for, just at different levels. An additional definition of a probable depredation from the state compensation program of Wisconsin is when the carcass is missing or the investigation is inconclusive but there is the presence of good evidence.

The goal of this CWG recommendation is to reduce the burden of proof imposed upon landowners. Under the current program landowners must find and preserve any remains left of their livestock for an incident to be investigated. Preserving evidence may directly put livestock owners in harms way, and still, if the evidence is inconclusive, they can only hope that a confirmed kill by a similar carnivore species occurs in the area in order for them to receive half the worth of the lost animal. Landowners would like to see a program where they are "innocent until proven guilty", instead of "guilty until proven innocent" as the current Alberta Wildlife Predator Compensation Program treats them.

*(4) Delivery of a Verification Course and Significance of Educational Initiatives:*

In 2010-2011 the Wildlife Predation Loss and Prevention Pilot Project in British Columbia designed and implemented a Verification Course. This course was led by Conservation Officers and its objective was to teach livestock producers how to identify kills and verify depredation events. This course was meant to facilitate the transfer of knowledge and skills from Conservation Officers to livestock producers, and thereby enable livestock producers to take the basic steps of a depredation investigation and be better informed about what evidence qualifies for compensation. Following the completion of this course, with all the necessary tools, trained livestock producers then had the ability to help/assist their neighbors. This course and the skills that it offers livestock producers has the capacity to decrease the overall process time from finding a kill to it being compensated.

*Benefits*

- If employed in southwestern Alberta this course has the potential to improve relations between Fish and Wildlife Officers and livestock producers.
- Provide range riders and producers with the necessary skills to assess predation events during a critical time when livestock carcasses are fresh and more easily assessed to determine if the cause of death was due to carnivores.
- Reduce administration costs of the program.

*Immediate Application*

- To certify range riders and producers on public lands to carry out an investigation that would be valid under the program, while Fish and Wildlife Officers maintain their role as the main verification officers.
  - Enable range riders and producers to independently carry out verification investigations, and submit their claim with evidence to

the AESRD at first opportunity.

#### *Future Application*

- To certify livestock owners to conduct their own independent investigation.
  - A graduated training system wherein livestock owners take the course, have their initial cases supervised by the Fish and Wildlife Officers, and, as their experience increases, the requirement for departmental supervision would decrease. Following an agreed upon number of supervised cases (similar to the number of cases a Fish and Wildlife Officer would be supervised on before being qualified for independent investigations), certified livestock producers would conduct their own independent investigations with a random audit to deter abuse. Fish and Wildlife Officers would conduct random audits at a rate to be determined by both AESRD and CWG.
  - One goal of this certification process is to decrease administration costs of the Alberta compensation program and increase accurate confirmation of kills. The intention is to create an investigative system that costs less but that is more timely and effective than what is currently in place.

Following some initial discussions with the past compensation program manager in BC, there are strong indications that the verification course could be delivered in Alberta, and be applicable recognizing that there are some Wildlife Act differences between the provinces that would have to be addressed (*i.e.* actions individuals can or can not take as they move towards mitigation) (D. Carmichael, pers. comm). For this course to be offered in the target districts of this report, Alberta Fish and Wildlife Officers would have to be trained by a qualified CO from British Columbia with experience in delivering this course. Keep in mind that there are several options in which this course could be implemented: having COs from B.C. come and teach the course; have Alberta Fish and Wildlife Officers receive materials and training from B.C. and teach the course themselves; or Alberta Fish and Wildlife Officers teach a course which they develop.

Education is a critical component when addressing carnivore activity. Programs in Canada, the U.S. and worldwide all have or strive to include educational components. These components include devising best management practices, better understanding carnivore activity and behavior through regional research projects, or educating landowners of regional or community organizations, already in place, that support them either with labour, material, or financial support. This recommendation is meant to build off of the current educational campaigns in place in the municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston, and to build capacity in livestock owners to better enable them to be more involved in the process of carnivore activity and compensation where there is interest.



*(5) Program Evaluation and Flexibility:*

It is essential that a pilot program employing the previous recommendations be assessed annually and be capable of adapting to changing circumstances. A major feature of the pilot program being devised by the CWG is the continuous flexibility of the program to adapt and implement changes over time. An annual evaluation of the program will enable stakeholders to actively assess the effectiveness and acceptability of the options they've devised and determine how, or if, they should be changed. The program's annual evaluation will be organized by WBRA in conjunction with AESRD. Also any additional program funders may be able to provide recommendations for the evaluation process and criteria.

The pilot will likely be evaluated through public surveys and public meetings. This process will enable the continued incorporation of concerns and input from local stakeholders. Both program users and administrators will be encouraged to take part in this process. Those landowners receiving compensation through the pilot program will be given the opportunity to participate in the survey and public meetings of the evaluation process. While the initial year's assessment may be somewhat limited, it will be useful in determining the effectiveness of the initial changes to the Alberta compensation program, and contribute to a map of the pilot's progress over the duration of its employment. Every effort will be made to streamline this process, so as not to complicate the evaluation or burden the participants. In addition to the evaluation process, landowners will have to work on defining how they would measure their tolerance of carnivores on the landscape. Currently, "tolerance" is not well defined. Determining what costs or losses (*i.e.* synonymous to an industry standard) they are willing to accept, and/or risk, is key to measuring the effectiveness and efficiency of any future compensation program. This is a challenging endeavor that landowners must tackle, likely in agreement with Fish and Wildlife Officers, as well as other interested stakeholders.

## Conclusion

The future of carnivore survival is dependent on human activity and human tolerance of carnivore activity. A major challenge that wildlife managers face is the development of publicly accepted carnivore management policies. The hope is that through public engagement in the design and implementation of policies this obstacle will be diminished (Decker et al., 2006). Programs with increased community participation are more likely to be successful, effective, and promote environmental stewardship because they enable users to contribute to designing policies that directly impact their lives (Jackson and Wangchuk, 2004; Nyhus et al., 2003). It is with those principles in mind that the Waterton Biosphere Reserve Association and Carnivore Working Group built off of the response to the 2009-2010 landowner survey, as well as previous work and discussions with landowners. Following an initial report issued by the WBRA and CWG summarizing 38 compensation programs, the CWG reviewed available compensation options/strategies and selected the recommendations described above as items they feel will most likely improve local attitudes towards carnivores, improve relationships between ranchers and Fish and Wildlife Officers, and contribute to sustainable co-existence between ranchers and carnivore populations.

The application of a multiplier and additional compensation for probable kills, guard animals, and purebred livestock will enable livestock producers to receive compensation for missing animals, as well as acknowledging some of the considerable indirect costs they incur as a result of carnivore activity. The delivery of a verification course will build capacity within community members to better assess and understand their losses, and also build better rapport with the program managers and Fish and Wildlife Officers. Most importantly, increased community involvement in the future development of compensation regulations in southwestern Alberta and program flexibility will enable community members to contribute to the policies directly impacting their livelihoods, and will foster trust and a more sustainable community. The increased financial support and shared responsibilities (*i.e.* verification responsibilities) outlined in the proposed changes to the Alberta Wildlife Predator Compensation Program acknowledge the concerns expressed by community members and promote an increased level of tolerance for carnivore activity.

The amendments above address concerns expressed by landowners, and attempt to build off of the current regulations of the Alberta Wildlife Predator Compensation Program. By building off of the current program, landowners are acknowledging the strong foundations for carnivore compensation already in place in southwestern Alberta, and striving to develop changes that could be more easily transferable to other regions of Alberta.

The recommendations presented by the Carnivore Working Group are intended to create a compensation program for southwestern Alberta that is more socially

acceptable to the community. Livestock producers acknowledge that it is difficult to design a program that satisfies every party involved, but increasing the range of the program's support better enables producers to live with and tolerate carnivores. It is through the consideration and employment of these recommendations that livestock producers can see their input being acknowledged, respected, and applied.

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### **Personal Communication**

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**APPENDIX**

### Appendix I: Carnivore Working Group Members

#### Carnivore Working Group Members:

Member Name	Positions/Affiliation
Jeff Bectell	Coordinator and Rancher in Cardston County, and Chair of WBRA
Nora Manners	WBRA Coordinator, and Rancher in the M.D. of Pincher Creek
Tony Bruder	Rancher in M.D. of Pincher Creek, also Chair of the Drywood Yarrow Conservation Partnership
Bill Cross	Rancher in M.D. of Willow Creek
Ron Davis	Rancher in M.D. of Ranchland. County Councillor.
Shane Hansen	Rancher in Cardston County, a County Councillor, and Director of WBRA
Harry Streeter	Rancher in M.D. of Ranchland and an M.D. Councillor
Stephen Bevens	Assistant Ag-fieldman Cardston County
Glen Alm	Rancher in M.D. of Willow Creek and an M.D. Councillor
Helen Cyr	Rancher in M.D. of Pincher Creek and an M.D. Councillor
Jeff Porter	Conservation Coordinator for Southwestern Alberta Conservation Partnership this is a partnership of the M.D.'s of Pincher Creek, Willow Creek and Ranchland
Greg Hale	Senior Wildlife Biologist, Southern Rockies Area – Pincher Creek, AESRD

Andrea Morehouse also attended the meetings during which the content of this report was discussed and developed. While she is currently not considered an official member of the working group, she is a resource person. Her official designation is Grizzly Bear Monitoring Project Coordinator, Southern Rockies Area – Pincher Creek, AESRD.

## **Appendix II: Carnivore Working Group Terms of Reference**

### **Waterton Biosphere Reserve Carnivore Working Group Terms of Reference January 3, 2012**

#### **Introduction and Background**

In the fall of 2011 the Waterton Biosphere Reserve Association (WBRA) became the recipient of a grant from Alberta Environment and Sustainable Resource Development (AESRD). This funding supports community-based, landowner driven, project initiatives to reduce human-carnivore conflict issues in Southwestern Alberta, with a specific focus on grizzly bears, black bears, and wolves. One of the requirements of the grant is that a community-based, landowner driven, working group be established. This document outlines the role of the WBRA, the role of the working group (CWG), and how they operate together to achieve the desired outcomes.

#### **Vision**

The purpose of this section is not to lay out the specifics of how issues with large carnivores are to be solved, but to provide a guiding statement which reminds people what the desired outcome is. The ideal outcome may not ever be fully achieved, but the vision statement gives us something against which to measure our plans, and results; it can keep us from drifting away from the mandate of the Carnivore Working Group (CWG) and the grant. Ideally, we would like to see the following outcomes:

- People and large carnivores can both have a place on the landscape in southwest Alberta.
- Economic losses to the ranchers and farmers of the area are prevented through cooperative projects.
- When economic losses occur, due to large carnivores, the individuals are fairly compensated.
- Projects improve public safety and prevent bears and wolves from becoming problem animals.
- Accurate bear and wolf population numbers are determined, and these numbers are instrumental in managing the populations at levels that are appropriate and sustainable, both biologically, and within the context of keeping human-carnivore conflicts to minimum.

#### **Role of WBRA**

The WBRA is the grant recipient and is accountable to AESRD for completion of the project deliverables. The WBRA provides project administration, and appoints and oversees the work of the CWG Coordinator. The WBRA establishes and maintains the CWG, and receives direction and guidance from it, regarding use of grant funds, to achieve the deliverables listed below.



### **Role of CWG**

The CWG will be composed of producers who represent the community, and also AESRD representation. CWG members bring concerns, knowledge, and ideas to the table and help relay information back to the community and AESRD with the vision in mind. The CWG provides direction and guidance to the WBRA regarding use of grant funds to achieve the deliverables listed below, including specific advice regarding projects to be completed.

### **Deliverables**

The mandate of the CWG is to achieve the project deliverables of the AESRD grant as summarized below:

1. Establish a community-based, landowner driven, working group including local representatives of SRD-FWD, and other agencies/NGO/stakeholders to develop a 3-year strategic and operation plan for a community-based large carnivore program (e.g. MT's Blackfoot Challenge); including an annual operating budget (including allocations for this grant funding) for the duration of this agreement, that is approved by SRD representatives and meets the intent/terms and conditions of this grant agreement. In addition, develop a long-term vision, goals and long-term plan beyond the next three years.
2. Develop community-shared goals that continue to support existing landowner-driven projects and efforts that reduce human-carnivore conflicts (risk management) with a focus on attractant management including electrical fencing projects, grain bin conversions, bone-yard clean-up, dead stock removal and composting, residential garbage disposal, and additional agricultural practice change that strive/is known to reduce risk of conflict, etc. Part of this goal, is to take into consideration/review the economic burden landowners are currently facing, and where possible, determine cost-effective program, policy or legislative recommendations, to find workable long-term solutions that balance social and biological interests on both private and public land.
3. Facilitate, create, support workshops, tours, field days and other forums that provide the necessary tools and information for rural and urban communities in the area, to make better decisions related to living with large carnivores; while providing a process to actively engage with wildlife management and other relevant agencies/partners to provide feedback/input (gathered and communicated during the process) on large carnivore management and local program need.
4. Put in place a communication strategy that continues to build on the trust and commitment from all parties to collaborate on commonly shared issues, goals and resources, that encourages a strong understanding of the issues while openly communicating past and current success at finding solutions (what's worked, what's hasn't and what's needed); in doing so, create an environment of sharing and transparency related to large carnivore issues. If successful, key messages generated will allow for better decisions to be made

by the appropriate decision makers, benefiting landowners, community members and large carnivores in the process.

5. Provide coordination and support to local existing landowner groups related to their local project/program efforts and to generate/establish others to follow suit, specifically in the form of financial support to projects, including securing additional funding resources (public and private) to support local and long-term large carnivore program needs.
6. Work with partners and working group members to assess and evaluate the progress and overall success of program efforts annually and over the three-year MOU period. Annual progress reports will be required and submitted by January 30th each year, as well as an overall final report at the end of the term of this MOU.
7. Timelines related to these deliverables are expected to be outlined in the three-year planning documents indicated in Item 1.

#### **Guiding Principles**

The CWG will operate on a consensus model which will be guided by the following principles:

- The working relationship of the CWG will be cooperative, in that all members will strive to reach the best possible conclusion for the group and all of its members.
- CWG members will actively participate in discussion and in the formulation of recommendations and advice to the WBRA.
- The CWG will be solution-oriented, in that members will strive to emphasize areas of agreement rather than differences, and reach effective conclusions using compromise and cooperation.
- CWG members will conduct themselves with courtesy and respect of each other's opinions and beliefs at all times.
- CWG members will effectively exchange information and engage their community members in a manner that is supportive of the other members of the CWG and the overall vision of the group.

#### **Meetings**

Meetings of the CWG will be held at a minimum three times a year. Meetings will be held either in person or by teleconference to minimize costs. The location of in person meetings can be rotated within the project area. An agenda for each meeting will be sent in advance. A written summary of meeting discussions will be kept and submitted for approval at a future meeting. The CWG Coordinator as identified by the WBRA will serve as chair of the CWG.

### **Appendix III: Introduction of Conflict Review and Analysis of Carnivore Activity in Southwestern Alberta**

Southwestern Alberta is a unique part of the province; it is where the prairies meet the mountains. The human population abuts public forestry lands; homes and ranches lie on the edge of the mountains, and within the geographical ranges of several large carnivore species. This high degree of overlap allows for more human wildlife conflict here than elsewhere in the province. Understanding the patterns of carnivore conflicts is critical to developing effective mitigation directives. By understanding the factors influencing conflicts and the spatial and temporal patterning of those conflicts, mitigation efforts and resources can be most appropriately allocated.

The conflict analysis report represents a collaborative effort between Alberta Environment and Sustainable Resource Development (ESRD), and the Waterton Biosphere Reserve Carnivore Working Group to identify and understand the patterns underlying large carnivore conflicts in southwestern Alberta. The specific objectives were to:

- 1) Analyze enforcement records for grizzly bears, black bears, wolves, and cougars in southwestern Alberta to determine the number and types of conflicts for each species;
- 2) Map all conflicts for each species to identify areas on the landscape with the greatest number of conflicts historically; and
- 3) Map conflicts by species/year to understand how conflict distribution has changed over time.

The past 13 years of enforcement (ENFOR) records for grizzly bears, black bears, wolves, and cougars from Cardston, Pincher Creek, Blairmore, and Claresholm Fish and Wildlife Districts were summarized and mapped to understand the spatial and temporal patterns of carnivore conflicts in this region of Alberta. Each occurrence was classified as either a sighting, incident, or human conflict. We then subdivide the aforementioned categories to provide more insight into the factors potentially driving the event. Occurrence records were mapped to illustrate the changing spatial distribution of carnivore conflicts since 1999. Additionally, we created maps indicating the areas on the landscape with the highest number of conflicts for each species. Because the quarter section scale was the finest resolution available for many of the occurrence records, this is the scale at which "hotspots" were mapped.

From 1999 to 2011 there were 5073 ENFOR occurrence records for the large carnivores in southwestern Alberta. Of those 5073 occurrences, 1265 were grizzly bear occurrences, 1962 were black bear occurrences, 709 were wolf occurrences, 880 were cougar occurrences, and 257 were occurrences that were unfounded (meaning there was not actually a carnivore involved). In general, the number of

occurrences for all species increased from 1999 to 2011. Patterns and trends, however, tended to be species specific.

It should be noted that occurrence records only capture information about large carnivores that is reported by the public to Fish and Wildlife District Offices. Certainly, there are other sightings, incidents, and/or human conflicts that are not captured by this dataset because they are not reported. We recognize this as a gap in the data set. It is our hope that the information contained in this report will help guide future work on carnivore conflicts, and provide a baseline framework against which the efficacy of new mitigation programs can be measured.

Full copies of the report can be obtained by contacting:

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Grizzly Bear Monitoring Project Coordinator  
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403-627-1143

## **Appendix IV Summary of Alberta Wildlife Predator Compensation Program**

### *Program Type:*

Ex post

### *Administration:*

Operates under the Alberta Environment and Sustainable Resource Development (AESRD) Department of the Government of Alberta. The Wildlife Predator Compensation Program is administered by a compensation committee comprised of representatives from Alberta Sustainable Resource Development, Alberta Beef Producers, Western Stockmen's Association, Department of Agriculture, and Alberta Veterinary Medical Association.

### *Funding:*

Financed through hunting and fishing licenses. The Alberta Conservation Association acts as the fiscal agent for the program. There are no federal funds attached to this program.

### *Eligible Livestock:*

Cattle, bison, sheep, swine, and goats.

### *Eligible Predators:*

Wolves, grizzly bears, black bears, cougars, and eagles. Not coyotes or any other predator.

### *Husbandry Requirements:*

No.

### *Compensation:*

- Compensation is based on the average commercial value for the type and class of animal on the day it was killed.
- Confirmed predator kills receive 100% of the market value
- For potentially bred females (bred heifers and cows) a 1.75 multiplier is applied to the D1/D2 cow price
- If the livestock killed is cattle of less than one year of age, the producer has the following options:
  - To accept compensation at the time of loss
  - Choose to wait until the end of October and receive compensation based on the Canfax average for the month of October, based on an average weight of 550 pounds
- The minimum payment on a confirmed kill is \$400.
- Probable kills receive 50% of the compensation value.
  - However, a confirmed kill by the same carnivore species must be found within 10 km either 90 days before or after the incident in

question

- No compensation for missing livestock
- Veterinary costs and medication associated with the incident or loss are covered up to the value of the animal
- Incidents of feeding on livestock that had already died of disease or other causes not related to wildlife predation are not compensated.
- Compensation is reduced by any amount realized from the sale or salvage of a dead or injured animal

*Investigation/Verification Required:*

Yes.

*Program Operation:*

- Within 3 days of learning about a livestock injury or death livestock producers must report the incident.
- Contact the nearest ASRD Fish and Wildlife office as soon as possible. The Fish and Wildlife Officer may request that you move or cover the carcass to prevent the evidence from being lost to scavengers.
- The officer will examine the livestock and evidence from the area to confirm whether a predator killed or injured the animal.
- An investigation may be conducted by an appointed officer, a veterinarian, or, if such an officer is not readily available, a problem wildlife specialist employed by the Department of Agriculture and Rural Development.
- If the evidence confirms that predators killed the livestock or that a predator kill was likely, the officer will file the claim on behalf of the producer.

*Losses or Amounts Paid Out for 2010:*

The total amount paid out in 2010 for livestock damage for predators considered under the program was approximately \$195,000. Included within these payouts were claims for 220 cattle. Of all claims submitted, 79% were confirmed, 9% were probable, and 13% were rejected.

Table 1: Alberta Wildlife Predator Compensation Claims Paid for 2010.

Predator	Claim	Compensation
Eagle	0	\$0
Cougar	21	\$8,515.66
Grizzly Bear	10	\$8,878.08
Black Bear	12	\$9,556.19
Wolf	162	\$165,111.43
Unknown Predator	3	\$2,286.48
TOTAL	209	\$195,326.29

*Strengths:*

- The ranchers want to build off of the current program indicating that a strong foundation exists.

- Use of Canfax averages in establishing livestock values is a positive feature of the current program, especially in the case of commercial animals under one year of age.
- Giving producers the option (for animals under 1 yr) of taking payment on value at time of death or on value in October when calves are often sold.
- Officers are relatively prompt in responding to and investigating livestock predation incidents.
- Payment for the treatment of injured livestock.
- Probable claims receive at least some payment (50% of market value).

*Weaknesses:*

- No compensation for missing/unconfirmed animals
- Burden of proof is too high
- Payment for compensation is too low
  - No Additional compensation for purebred animals.
  - Yearlings cannot be valued at Canfax average in the fall when they would likely have been marketed, but are only valued at time of death.
  - Bred Cattle cannot be valued at Canfax average in the fall when they may have been marketed, but are only valued at D1/D2 average at time of death
  - Compensation does not address the non-consumptive losses (land owner's time, weight loss, and reproductive loss to livestock)
- Trust issues between Fish and Wildlife Officers and livestock producers
- Livestock predation in certain seasons can take a lot of F&W Officer time and increase administration costs.
- Current program lacks incentive to reduce the risk of carnivore depredation and fails to reward landowners investing in such equipment/preventative measures

*Recommendations:*

- Changes to the types of damages that program users are compensated for (e.g. missing livestock and coyote kills)
- Changes to the compensation process such as reducing the burden of proof, a simplified process, reduced program costs, and/or prompt payments
- Changes to the compensation value
- Improve relationships between livestock producers and Fish and Wildlife Officers
- Program users are interested in experimenting with other approaches to compensation
- Increase incentives to reduce risk

*Source for Strengths, Weaknesses, and Recommendations:*

Collected from an academic review by the Miistakis Institute.

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