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# Table of Contents

Foreword ............................................................................................................... 2  
Introduction ......................................................................................................... 3  
  The Landscape of Southwestern Alberta .......................................................... 4  
Seeking a Balance between Carnivores and Communities ......................... 10  
  Community Action ......................................................................................... 11  
How It All Started: Southwestern Alberta .................................................... 13  
  Large Carnivores: A New Approach .............................................................. 15  
  Growing Partnerships ................................................................................... 16  
  To the North: Ranchlands and Willow Creek ............................................. 18  
Waterton Biosphere Reserve ........................................................................... 19  
  The Carnivore Working Group ..................................................................... 19  
Farm and Ranch Projects: Attractant Management Strategies ..................... 21  
  Deadstock Pick-up Program ......................................................................... 21  
  Deadstock Composting .................................................................................. 23  
  Secured Attractants ...................................................................................... 24  
Producer Stories ............................................................................................... 26  
  Tony and Lorraine Bruder .......................................................................... 27  
  Darryl and Valerie Carlson .......................................................................... 31  
  George and Shelley Clark ............................................................................ 33  
  Clarence and Helen Cyr ............................................................................... 36  
  East Cardston Colony - Ben and Clara Hofer ........................................... 39  
  Kathy, Dustin and Niki Flundra ................................................................... 41  
  Dick and Stephanie Hardy, Suzanne and Murray Kirby ......................... 43  
  Dean and Tammy Kennedy ......................................................................... 46  
  Allan and Zela Kormos ............................................................................... 49  
  Mac and Wendy Main .................................................................................... 52  
  Clint and Cindy Marr .................................................................................... 56  
  Blaine and Mary Ann Marr .......................................................................... 59  
  Cal and Doris Wellman ............................................................................... 61  
  Sharon and Darryl Williams ........................................................................ 63  
  Bruno and Susan Yagos .............................................................................. 66  
Looking Forward ................................................................................................. 68  
Works Cited ......................................................................................................... 70
When large carnivore populations overlap with human activities, conflicts can occur between people and wildlife. How we decide to respond to the presence of carnivores like grizzly bears gives one insight into individual and community values and our conservation ethic. This report documents important work being done in southwestern Alberta by ranchers, landowners, and a host of partners who have decided to take proactive steps to reduce conflicts with large carnivores. Their decisions reflect a pragmatic response to the presence of carnivores and to an extent, societal norms that value having large carnivores on the land.

The work in southwest Alberta, launched by the Drywood Yarrow Conservation Partnership in 2009, reflects a community driven approach that seeks to balance agricultural livelihoods with wildlife conservation. In 2008 and 2010, we had the honor of hosting dozens of Alberta ranchers and their partners in the Blackfoot Valley of Montana to discuss community-based conservation with a focus on carnivore conflict reduction. This partnership has helped spread good ideas, changes in practices, and has spawned innovations north and south of our international border. This report aptly documents some of those changes that producers were willing to make—like Clarence and Helen Cyr who secured their grain storage bins to keep bears out and the dozens of producers who take part in a deadstock pick-up program across the municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston County. Livestock producers in southwest Alberta are stepping up to the challenge of providing leadership critical for long term success. Producer-to-producer exchange and communication is slowly spreading in both Montana and Alberta about ways to reduce conflicts with carnivores—this approach shows great promise for slowly changing the cultural fabric of agricultural communities to include a place for grizzly bears and wolves. The work that is emerging from southwest Alberta and discussed in this report is an inspiring example of this new shift.

Seth M. Wilson
April 30, 2013
This report focuses on the private agricultural lands in southwestern Alberta (see Figure 1) where conflicts with large carnivores are of foremost concern for local residents, livestock producers, and the provincial staff tasked with managing carnivore populations. Within this report, we summarize community-based large carnivore mitigation efforts from 2008 to 2012, and shed light on the history of conservation that has helped find local, attainable solutions to long standing issues. In profiling attractant management projects and documenting the successes and challenges along the way, we hope this document will help serve as a reference for future mitigation work and celebrate the collaborative efforts that have taken place to reduce large carnivore conflicts in southwestern Alberta.

Figure 1. Southwestern Alberta includes the municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston County.
The Landscape of Southwestern Alberta

People in southwestern Alberta inhabit a unique part of the province, where human settlements and working landscapes overlap considerably with the geographical ranges of several large carnivore species – including wolves, cougars, black bears, and grizzly bears. Here is where the mountains meet the prairies; native grasslands, rich riparian areas, forested mountain slopes, and agricultural crops provide habitat for large carnivores and their prey species on both public and private lands. The sharp transition from mountains to grasslands helps support healthy populations of mule deer, white-tailed deer, elk, and moose. It also helps support a working landscape of ranching and farming. As part of the larger Crown of the Continent ecosystem, southwestern Alberta represents a critical area for maintaining connectivity of Alberta wildlife populations to those in British Columbia (BC) and Montana.

This region of Alberta is a busy landscape with multiple land uses including agriculture, oil and gas development, logging, and recreational activities. These factors, coupled with a high degree of overlap between people and wildlife, means the potential for human-carnivore conflicts are higher here than elsewhere in the province (see Figure 2).

While there are multiple land uses in the region, the primary industry in southwestern Alberta is agriculture. Carnivore conflicts occur in rural agricultural areas, especially related to grain, silage, and livestock. This is particularly apparent in southwestern Alberta’s Bear Management Area (BMA6), which is sixty per cent private land. The propensity for conflicts in this area, particularly livestock depredation, is reflected in compensation payments – 37 per cent of all compensation payments occur on this 3 per cent of the provincial land base (Morehouse and Boyce 2011). Residential areas within the region also contain many carnivore attractants that can become sources of conflict, including garbage, gardens, and bird feeders.
Wolves

The gray wolf is a highly social animal, often found in packs of 2 to 20 individuals. Wolf territories can range in size from 250 to 750 square kilometers (97 to 282 square miles), depending on habitat quality and prey availability, among other factors. Wolves are primarily carnivores, following ungulates seasonally throughout their range. Pups are often born in spring, and by September, they are typically large enough to travel with the entire pack (Alberta Fish and Wildlife 2009). Wolves are listed as a secure species under the General Status of Alberta Wild Species. In most cases, they can be hunted from the beginning of the big game season in a particular Wildlife Management Unit (WMU) until May or June. Wolves may also be hunted without a licence year round on privately owned land by the owner or occupant or on public land by a lease holder authorized to keep livestock on that land. Wolves can be trapped from October 1 to the end of February or March depending on the WMU (ASRD 2013).
Cattle grazing season coincides with wolf pup-rearing season, which can often lead to livestock-carnivore conflicts and subsequent removal of offending individuals or packs. Between 2000 and 2010, 74 per cent of all Alberta predator compensations paid out were a result of wolf predation on cattle (Morehouse and Boyce 2011). Based on Fish and Wildlife occurrence records from 1999 to 2011, 97 per cent of all gray wolf incidents involved livestock issues in southwestern Alberta, primarily cattle; only 3 per cent were attractant based (Urmson and Morehouse 2012).

A wolf monitoring study is currently underway in southwestern Alberta. AESRD is collaborating with the University of Montana through Montana’s Cooperative Wildlife Research Unit in Missoula to develop a cost-effective monitoring approach for wolves throughout southwestern Alberta (visit http://umt.edu/mcwru/personnel/ausband).

**Cougars**

Cougars, also known as mountain lions, are listed as a secure species within Alberta. A licensed hunter can hunt in the fall (November 1 to November 30, without dogs) and winter (December 1 to the end of February, dogs permitted). A private land owner can hunt cougars year round (without dogs) on their property. Cougars are largely a solitary animal, and are found in a variety of habitat types. Cougars will mate and reproduce throughout the year, but young are most commonly born in May (Alberta Fish and Wildlife 2009). Litter size averages around 2.6 kittens (Murphy 1983). Based on Fish and Wildlife occurrence records from 1999 to 2011, 87 per cent of cougar incidents in southwestern Alberta were livestock related, primarily sheep, alpacas, horses, and pets. Only 8 per cent of incidents were attractant based, with garbage and deadstock being reported most often (Urmson and Morehouse 2012).

**Black Bears**

Black bears are currently listed as a secure species and can be hunted with a license in the fall (September 1 to November 30) and spring (April 1 to May/June 15 depending on the WMU). Black bears may also be hunted without a licence year round on privately owned land by the owner or occupant or on public land by a lease holder authorized to keep livestock on that land.
Black bears are more commonly associated with forested habitats, though their presence on open prairie landscapes has been increasing. Like grizzly bears, black bears are omnivores. Female black bears reach breeding maturity by two and a half to four years, and may have cubs every two to three years thereafter (Alberta Fish and Wildlife 2009). Based on data from producer and resident call-ins in southwestern Alberta from 1999 to 2011, Fish and Wildlife occurrence records indicated that 81 per cent of all black bear incidents were attractant based, mainly garbage, vegetation, and bird feed (Urmson and Morehouse 2012).

**Grizzly Bears**

Grizzly bears are a threatened species provincially and cannot be hunted. Grizzly bears are omnivores, and are known to graze and dig for a variety of plants. Like black bears, grizzly bears are active from spring to fall. Grizzly bear home ranges vary depending on habitat quality and other factors, but in the Swan Mountains, Montana, annual home ranges averaged 768 square kilometers for males and 125 square kilometers for females. Females will often first breed between the ages of four and a half to five and a half, and will reproduce every two to four years. Young will often remain with their mother through two winters (Alberta Fish and Wildlife 2009). An analysis of Alberta Fish and Wildlife occurrence records from producer and resident call-ins from 1999 to 2011 indicated that 62 per cent of grizzly bear incidents in southwestern Alberta were a result of attractants, mainly deadstock and grain (Urmson and Morehouse 2012).
Alberta Grizzly Bear Management and Recovery

Today, grizzly bears are listed provincially as a threatened species under Alberta’s Wildlife Act. Prior to 2006, spring grizzly bear hunting was allowed within Alberta. However, growing concern for the grizzly population size resulted in a hunting moratorium to allow for completion of a population estimate. Results of a 2004 to 2008 DNA based capture-mark-recapture population survey were released in 2010, and estimated the provincial grizzly bear population at 691 individuals (Alberta Sustainable Resource Development and Alberta Conservation Association 2010).

As part of the provincial population estimate, surveys completed in southern Alberta in 2007 estimated the population of grizzly bears within BMA6 at 51 individuals. When compared with population estimates from other parts of the province, this represented the highest bear density in Alberta at 18 bears/1,000 km² (Alberta Sustainable Resource Development and Alberta Conservation Association 2010). It should be noted that local confidence in the results of the 2007 grizzly bear survey was not high. Residents felt there were many bears missed by the sampling methods used, resulting in an underestimation of the population.

The goal of the Alberta government is to ensure grizzly bears survive and thrive on Alberta’s landscapes. In June of 2010, the grizzly bear was designated a threatened species under Alberta’s Wildlife Act. Management for grizzly bears includes numerous actions to address conservation needs of the species. As outlined in the Alberta Grizzly Bear Recovery Plan 2008-2013, Alberta Environment and Sustainable Resource Development (AESRD) is conducting and supporting education, research and management strategies concerning grizzly bears including reducing human-caused mortality. For more detailed information and reports visit: www.esrd.alberta.ca

Photo: Angela Carter
Southwest Alberta Grizzly Bear Monitoring Project

A new population study is currently being conducted in BMA6 and grizzly habitat beyond the management area’s eastern boundary. The Southwest Alberta Grizzly Bear Monitoring Project (www.esrd.alberta.ca) analyzes DNA extracted from bear hair samples collected from rub objects. The study began in 2011 and will continue to collect hair samples through the fall of 2014. It is coordinated by Andrea Morehouse and is a joint effort between Alberta Environment and Sustainable Resource Development; Parks Canada; Alberta Tourism, Parks, and Recreation – Parks Division; and the University of Alberta. This pilot project will monitor bear populations, relative density, and distribution over time. Rather than using attractants to lure bears into a hair snag, the study will take advantage of natural bear behaviour and rubbing to collect grizzly bear hair samples. This will allow hair to be collected from a variety of sources (e.g., trees, fence lines, sign posts) allowing for ranchlands to be surveyed more effectively than past research methods. Sixty per cent of BMA6 is privately owned and landowners have been highly engaged in identifying rub object locations and providing opportunistic collections of bear hair. It is anticipated that this study will result in an accurate and locally supported population estimate and a better understanding of grizzly bear distribution that will inform future management and conservation actions.

It is significant to note that southwestern Alberta’s grizzly bears are part of a larger transboundary population that includes high density grizzly bear populations in BC and Montana (Proctor et al. 2012). In BC’s Flathead Population Unit, grizzly bear density is estimated at 55 bears/1000 km² – one of the highest density grizzly populations in North America (Grizzly Bear Inventory Team 2008). Likewise, Montana’s Glacier National Park also has a high density of grizzly bears at 30 bears/1000 km² (Kendall et al. 2008). As part of the Grizzly Bear Monitoring Project, collaboration with Montana and BC will enable the movement of bears in and out of southwestern Alberta to be examined and better understood.
Seeking a Balance Between Carnivores and Communities

When conflicts occur between humans and large carnivores, the impacts on landowners are diverse and can include depredation of livestock or pets, consumption and spoilage of grain, silage and field crops, damage to beehives, grain bins and farm buildings, and concern for the safety of family and neighbours. A survey of local residents completed in 2010 indicated that most respondents felt the large carnivore numbers in the area, and the threat they posed to both human and livestock safety, was increasing (Quinn and Alexander 2011).

While all four large carnivore species have been culled or relocated due to conflicts with human land uses, the majority of conflicts in this region are attributed to wolves and grizzly bears, and the number of conflicts involving these species is increasing (Morehouse and Boyce 2011, Northrup and Boyce 2012). While initiatives such as the deadstock pickup program serve to reduce conflicts with all large carnivores, most of the projects presented in this report are facility-based and serve primarily to address ranch yard conflicts with bears, in particular grizzly bears.

Over the last decade, conflicts with grizzly bears have not only increased in number, but have expanded geographically as bears have moved further east, away from the public lands of the mountains and foothills onto private agricultural lands (Urmson and Morehouse 2012, Figure 3). The intensification of conflict on agricultural lands has led to a significant increase in grizzly bear management actions by Alberta Fish and Wildlife Officers.

Figure 3.

An incident is when carnivores obtain a food reward, cause property damage, are involved in a vehicle collision, or attempt to kill livestock or pets.
Conflicts with people may result in an individual carnivore being relocated or culled. The number of grizzly bear relocations by Fish and Wildlife Officers in BMA6 rose from six in 2009 to fifteen in 2012 (Alberta Sustainable Resource Development 2013). However, for grizzly bears in particular, the relocation of offending bears does not solve the primary drivers of conflicts. Bears may travel long distances to return to prior home ranges or be replaced at conflict sites by other individuals.

Historically, the elimination of large carnivore populations was seen as an appropriate solution to conflict. However, population declines and range reductions have been documented for a number of carnivore species (Dickman et al. 2011, García-Rangel and Pettorelli 2013), largely as a direct consequence of human activity (Laliberte and Ripple 2004, Nelson 2009, Estes et al. 2011). Conserving predators has become increasingly important because of the role large carnivores play in ecosystem structure, function, and processes (Estes et al. 2011), as well as their potential to serve as umbrella species for wider biodiversity (Dickman et al. 2011, García-Rangel and Pettorelli 2013). New information and education efforts have contributed to a shift in society now placing a greater value on maintaining large carnivore populations and promoting coexistence of people and predators. The threatened status of grizzly bears in Alberta has also increased pressure for reduction of human-grizzly bear conflicts. However, coexistence on multi-use landscapes remains a challenge and often comes at a cost borne disproportionately by rural populations living directly with carnivores.

**Community Action**

Community-based conservation initiatives are “bottom-up” and involve grassroots activities that bring individuals and organizations together to work towards achieving common environmental goals. These initiatives reflect the desires of local people to have a greater say or participation in issues and decision-making that affects them. This concept is in contrast to typical governing hierarchies in which policies, such as wildlife management plans, are implemented in a top-down fashion. The top down approach is slowly being replaced by community-based efforts, as seen with the Blackfoot Challenge (BFC) in Ovando, Montana.
The success of community-based conservation initiatives such as the BFC has been a source of inspiration for southwestern Alberta communities. Since 1993, the BFC has worked collaboratively within their watershed to build trust and partnerships to help solve conservation-based problems. To date, they have initiated projects with an integrative approach to manage noxious weeds, protect landscapes through conservation easements, restore streams, conserve water, improve fisheries and wildlife habitat, and reduce human conflicts between humans and wildlife, namely large carnivores. “I measure our collective success in the Blackfoot not just by the amount of habitat we have restored and conserved,” said Greg Neudecker, U.S. Fish and Wildlife Service, “but also by the diversity of partners with whom we work and the level of trust we have built in the community. Our approach considers people – and their interests and values – as well as wildlife” (U.S. Fish and Wildlife Service 2006).

Much of BFC’s work in reducing carnivore-ranching conflicts has focused on attractant management; restricting access to attractants has been shown to be a powerful tool for both conservation and management of carnivores (e.g. Bino et al. 2010). The BFC’s Seth Wilson worked with 64 livestock producers to complete electric fencing projects, deadstock removal, and deadstock composting. As a result of this and other mitigation work from 2003 to 2006, there was a 91 per cent reduction in verified human-grizzly bear conflicts (Wilson 2007).

Because of their integrative, ground-up approach to conservation, the BFC has received praise throughout the U.S. “I do believe [the Blackfoot Watershed] is the birthplace of the conservation concept for the 21st century,” says then U.S. Secretary of the Interior Ken Salazar. Seth Wilson has traveled through the world to present the BFC’s strategies towards reducing human-carnivore conflicts. Today, the mission of the BFC is to coordinate efforts that conserve and enhance the natural resources and the rural way of life in the Blackfoot River Valley. As you will see in the stories shared in this report, the BFC has been integral in the formation of community-based solutions to reduce carnivore conflicts in southwestern Alberta.
How It All Started: Southwestern Alberta

The history of community-based initiatives in this section is a result of discussions with individuals that are part of the Drywood Yarrow Conservation Partnership (Tony Bruder, Dick Hardy, Mac Main, Dean Kennedy, Dennis Lastuka, Jeff Porter), Cardston County (Tim Romanow, Stephan Bevans, Jeff Bectell), Chief Mountain Landowners Information Network (Jeff Bectell), local Fish and Wildlife Officers (Perry Abramenko - Pincher Creek; Lyle Lester – Cardston; Kirk Olchowy - Crowsnest Pass, retired), the MD of Ranchland (Carla Bick), the MD of Willow Creek (Ron MacKay), Nature Conservancy of Canada (Kim Pearson), and the Southwest Alberta Conservation Partnership (Jeff Porter). **Thank you to all who took the time to share your stories of large carnivore mitigation work in southwestern Alberta.**

The story of community-based partnerships in southwestern Alberta started in 2000 when community leader and rancher Dick Hardy, with support from MD of Pincher Creek Agricultural Fieldman Kelly Cooley, established the Drywood Watershed Group near Twin Butte. Like many watershed groups around North America, their focus was on monitoring riparian and upland health and collecting baseline watershed data. The landscape within the Drywood and Yarrow Creek watersheds is diverse; ranging in elevation from 1,180 m to 2,634 m (3,877 ft. - 8,643 ft.). The two watersheds also contain over fifty landowners and 160 km of stream length.

After three years of watershed work, the Drywood Watershed Group incorporated the Yarrow watershed to become what it is today, the Drywood Yarrow Conservation Partnership (DYCP) with the help of Dick Hardy, Jeff Porter (Southwest Alberta Conservation Partnership), and Dennis Lastuka (Rancher, and Technician with Agriculture Canada). The mission of the DYCP remains “To maintain and improve the riparian and upland health of the Drywood/Yarrow watershed through management and education” (DYCP 2007). “Our habitat is unique to the province; the transition from mountains to prairie is ten miles roughly, but further north the transition is hundreds of miles,” says Dick Hardy.

A field tour in 2012 with DYCP titled “Fish, Bears and Ranchers: Can They Coexist in a Watershed?” Photo: Jeff Porter
In neighbouring Cardston County, Tim Romanow, the Rural Extension Specialist, worked with farmers and ranchers to establish Lee Creek Watershed Group in 2005. “One of the main priorities of the rural extension program was to foster producer-driven stewardship initiatives, particularly around grazing and riparian management,” says Romanow. At the same time, producers like Jeff Bectell worked to establish the Chief Mountain Landowners Information Network (CMLIN). The CMLIN was formed by a group of local landowners with a desire to understand the implications of seismic work in their area and to help area residents obtain information about land use issues. “The CMLIN began as an organization because of concerns over oil and gas development, but was always intended to be a resource for the community, to get information and help people work together,” says Bectell.

In March 2006, Romanow and Lastuka heard a presentation by the Blackfoot Challenge of Montana. “Their story of collaborative, community-driven watershed stewardship reflected an approach that was of interest to the communities in which we were working and living,” says Romanow, “and would be worth exploring more with the Oldman Watershed Council Rural Team.” Romanow maintained contact with members of the BFC and worked to bring key members Jim Stone and Greg Neudecker to Alberta to speak at the annual “Holding the Reins” landowner forum sponsored by the Oldman Watershed Council (OWC) Rural Team in 2008.

For many ranchers, this was the same time period they noticed an increase in grizzly bear sightings on their properties. “My own experience with grizzly bears on my property began in August of 1993 when we had two grizzlies on the place,” says Cardston area rancher Jeff Bectell. “It was quite a novelty at the time, and their presence on our ranch was attributed to a poor berry crop in the mountains.” Since the 1990s, sightings have increased significantly and grizzly bears fast became a concern for area residents, ranchers, and wildlife managers. “In 1998, we moved our first multiple family unit of grizzly bears,” says Cardston Fish and Wildlife Officer Lyle Lester. “Bears really stopped being a novelty around 2003.”

In 2007, Fish and Wildlife hosted a community meeting in Mountain View, 15 km east of Waterton Lakes National Park, to address the rapidly growing concerns about grizzly bear populations. “There was a strong resentment among the community that the grizzlies were Fish and Wildlife’s bears and if they didn’t do something about them, the ranchers would be forced to manage them,” says Romanow, “Community members were further galvanized by recent low bear population estimates” that conflicted with their personal experience and knowledge of bears.
A community meeting the following year in neighbouring Twin Butte revealed similar sentiments among ranchers. “The big thing that brought [the ranchers] together at Twin Butte that day was not only concerns about large carnivores but also concerns with [Fish and Wildlife],” says DYCP's Tony Bruder. Many landowners felt a lack of trust and information sharing between themselves and the resource and wildlife managers. A new AESRD Wildlife Biologist out of Pincher Creek, Greg Hale, helped bring about change in the community in 2008. “When Greg came out to visit, he brought maps to show people and since then, the relationship between AESRD and landowners took a 180 degree turn with information sharing,” says Southwest Alberta Conservation Partnership’s (SACP) Jeff Porter.

**Large Carnivores: A New Approach**

“It seemed that a few people a year with bear incidents would start yelling and pointing fingers at community meetings. So after one meeting, I thought, this is crazy. We can take a better approach,” says Dick Hardy, local rancher and co-founder of DYCP. Tim Romanow agreed, “A new approach was needed, one driven by the community.”

The successes of the BFC were an inspiration for change among ranchers, and agricultural and wildlife specialists alike. Many producers heard Jim Stone, a Blackfoot Valley rancher, and Greg Neudecker, with U.S. Fish and Wildlife Services, speak at the 2008 Holding the Reins event. “Jim and Greg met with a few landowners and Oldman Watershed Council (OWC) Rural Team members after the meeting, and invited a group down from Alberta to better understand their committees, governance, and projects in the watershed,” says Romanow.

In August 2008, the OWC organized a watershed field tour for rural Alberta members to get a better sense of BFC’s on the ground projects. Thirty individuals including landowners, county and municipality representatives, and members of the OWC Rural Team saw first-hand the projects related to water quality improvement, weed control, and drought control. Although the field tour was not focused on carnivore issues, speakers from the BFC also highlighted large carnivore mitigation efforts that seemed to be working, such as deadstock removal. “After bovine spongiform encephalopathy [BSE] was discovered in Alberta, it was a huge upset to the agricultural community around here. We felt like we didn’t have any voice at all. On top of it all, because deadstock was out on the landscape, we started to have more problems with grizzly bears,” says Mac Main, local rancher and DYCP leader.
In 2008, members of the DYCP organized a large carnivore committee to direct large carnivore related work. “When we formed the large carnivore committee, we stretched the boundaries beyond original DYCP watershed boundaries to cover people who were having carnivore issues,” says Tony Bruder.

One of the first priority initiatives identified by DYCP was deadstock removal. In 2003, the detection of bovine spongiform encephalopathy (BSE), or “mad cow disease” in Canadian cattle, resulted in ranchers increasing their use of boneyards due to increases in rendering truck costs (Northrup and Boyce 2012, Morehouse and Boyce 2011, DYCP personal communication). Prior to BSE, rendering trucks removed dead stock free of charge for use in various products. However, changes in regulations by the Canadian Food Inspection Agency’s (CFIA) now prohibit the inclusion of tissues that are capable of transmitting BSE, or specified risk material (SRM) in livestock feed, pet food, and fertilizer (CFIA 2007). SRM must now be disposed of separately, through either burial or incineration.

After several rounds of discussion between DYCP and CFIA’s Dr. Hejazi regarding deadstock removal and handling requirements, DYCP built two bear-proof, steel bins, with funding from AESRD. Bin use and ranch yard pick-up began in the pilot project area in May 2009. Rancher and DYCP leader Dean Kennedy notes, “Deadstock pick-up has been a success on our place; we’ve seen a huge change in the number of bears that we see in the summer time because we’re not sticking animals in a dead pile anymore.”

**Growing Partnerships**

With large carnivore mitigation work off and running in the Twin Butte area, Cardston landowners and representatives from the County and AESRD were also discussing the growing carnivore concern. Chief Mountain Landowner Information Network (CMLIN) member Jeff Bectell, who had been heavily involved with the Chief Mountain Cumulative Effects Study from 2007 to 2008, says, “The number of people approaching me in the fall of 2009 persuaded me to initiate a large carnivore meeting, together with Tim Romanow. CMLIN and Cardston County had worked together on public meetings quite a bit, so we gathered a small group of people to host a public meeting which we hoped would be constructive.” Bectell, together with Romanow, Robert Wynder, Neil Leishman, Roger Gerard, Lyle Lester, Rick West, Shane Hansen, Brad Taylor, Greg Hale, Lance Leavitt, Egon Larsen, and Rod Foggin planned a public meeting for January 2010. Bectell was also elected to the board of the Waterton Biosphere Reserve (WBR) in the fall of 2009, first as Vice-Chair and moving on to board Chair in 2010 (to present).

As a result of the January meeting, Cardston County was successful in receiving seed money from AESRD for four deadstock bins similar to those in...
Twin Butte. The WBR provided funding as part of an Environment Canada grant to cover the cost of pick-up from the bins beginning in the spring of 2010. The Nature Conservancy of Canada (NCC) became a partner at this time in helping get deadstock bins out for use. “Individual community members were responsible for caretaking the bin sites,” says Romanow. Using incident reporting maps from AESRD, Cardston County established a pilot project area from the U.S. border to just north of Hillspring where deadstock pick-up would be free for producers. “Two months after the deadstock bins were installed, a devastating spring storm brought snow, wind, and cold temperatures to Cardston. Some ranchers lost up to 15 per cent of their cattle; particularly hard hit were young calves. As a result of the disaster, use of the deadstock program spiked and Romanow relates that “in the opinion of local Fish and Wildlife officers, the program saved the community from many potential conflicts.”

Foreseeing increasing costs to the deadstock pick-up program, Romanow and others began to discuss the carcass composting facility the BFC had been using in Montana since 2007 for deadstock disposal. A field tour with representatives from AESRD, municipalities, and stewardship groups visited the Montana composting facility in 2010. “The goal of this trip was to explore the logistics and economics of composting deadstock, as opposed to paying for rendering expenses,” says Romanow. In September of the same year, a compost facility proposal was approved by the Council of Cardston County, and coordinators submitted funding requests to construct a municipal composting facility for all domestic stock, including cattle.

A final field tour to Montana in September 2010 brought together 14 southwestern Alberta producers, 4 AESRD staff (Greg Hale, Travis Ripley, Jim Allen, Kim McAdam), and other coordinators (Porter, Romanow). “When we went to Montana, they showed us an integrated landscape approach. We saw that what happens to water was directly affected by carnivores, such as time of year cattle were in pastures,” says Porter. More importantly, producers and agency personnel saw first-hand how community-based programming can bring people together and inspired further work in southwestern Alberta.
To the North: Ranchlands and Willow Creek

The neighbouring municipalities of Ranchland and Willow Creek were also working to address the growing large carnivore concerns. Historically, mitigation work within the MD of Ranchland focused on reducing wolf conflicts in the Porcupine Hills and the foothills parklands of the Southern Rockies. Throughout 2008 to 2009, the community and provincial agencies worked together to develop a community-driven wolf management pilot project. In 2011, the municipality received an AESRD grant to develop a Community-Oriented Wolf Strategy (COWS). The objective of the COWS Program was to improve ranchers’ understanding of large carnivore biology and behaviour in relation to livestock as a mechanism for reducing conflicts. Part of the COWS plan was to modify grazing practices as strategies for reducing livestock risk, increase human attendance, and remove predictably located food sources on private lands that contribute to wolf and grizzly bear conflicts, such as winter pasture and calving areas.

In an effort to reduce deadstock on the landscape, the MD of Ranchland’s Agriculture Service Board initiated a pilot program in 2011 that covered 100 per cent of the cost of deadstock removal within the MD’s boundaries. A successful carnivore mitigation program in the area “needs to be viable to not only the livestock producers but also to government agencies and the general public,” says Carla Bick, Agricultural Fieldman for Ranchland. “Losing livestock is hard on the pocket book, but it’s hard on a person emotionally as well. The catch is figuring out how to maintain a balance for wildlife and domestic animals, as they all have a place and function.”

Over the hills to the east, carnivore conflicts in the MD of Willow Creek were increasing. “The MD of Willow Creek is unique from our neighbours [to the west and south] in that we have very few ranches deep in the timbered areas. But we were seeing cougar predation close to Claresholm and more black bears in open country. Having lived and worked in the area most of my life, I’ve also seen the increase in wolf predation,” says Ron MacKay, Agricultural Fieldman for the MD of Willow Creek. The municipality will be implementing a deadstock removal program in 2013 along the western edge where conflicts are increasing. “It took some time,” says Ron MacKay, “but we will initiate a deadstock removal program where we will rebate rendering costs to producers in a targeted area.”
Large Carnivore Attractant Management Projects in Southwestern Alberta 2008-2012

Since 2000 and the origins of the Drywood Watershed Group, community-based large carnivore mitigation efforts have grown in scope and size. Today, many ranch-based large carnivore mitigation projects are operating under the umbrella of Waterton Biosphere Reserve’s Carnivore Working Group.

The Waterton Biosphere Reserve (www.watertonbiosphere.com) has been working with landowners, land managers and other local partners in southwestern Alberta to seek a balance between conserving large carnivore populations and supporting sustainable local communities. In 2009, WBR initiated the Carnivores and Communities Program to help reduce human-carnivore conflicts in southwestern Alberta. The aim of the program is to decrease conflicts with carnivores, enhance public safety, reduce the economic impact to agricultural producers resulting from sharing their land with large carnivores, work toward improving tolerance towards large carnivores, and ultimately achieve a balance between large carnivore conservation and agriculture in southwestern Alberta.

The Carnivores and Communities Program began with a survey of landowners in the southwestern corner of the province. The survey identified carnivore issues important to the community and values pertaining to large carnivores and their management. WBR held two public meetings in June of 2010 to share the results of the survey. The results indicated that residents were concerned about growing carnivore populations, the increasing frequency of conflicts with large carnivores, and the impacts of carnivores on local livelihoods and community safety. The frustration of local landowners was clearly expressed at the meetings. However, the survey also indicated that the majority of residents agreed that it was important to them that carnivore populations persist in the region; more than 70 per cent agreed that people and large carnivores can successfully share a landscape if properly managed (Quinn and Alexander 2011).

THE CARNIVORE WORKING GROUP

The willingness to consider a landscape in southwestern Alberta shared with large carnivores is reflected in the actions of the local communities. Inspired by work done in Montana by the Blackfoot Challenge (Wilson 2007), landowners, municipalities, and AESRD in southwestern Alberta began in 2008 to undertake projects to reduce conflicts by managing carnivore attractants using site specific and local solutions.

The WBR was approached by AESRD in 2011 to coordinate and manage a grant to support “Community-Based, Landowner Driven Project Initiatives to Reduce Human-Carnivore Conflict Issues.” WBR established a Carnivore...
Working Group (CWG) which is composed primarily of livestock producers who represent the communities in the municipalities of Ranchland, Willow Creek, Pincher Creek and Cardston County, and also includes representation from AESRD. The work of the CWG is coordinated by Jeff Bectell, local rancher and current Chair of the Waterton Biosphere Reserve. The working group has been tasked with implementation of on-the-ground attractant management projects, development of community-shared goals for reducing human-carnivore conflict, and establishment of a long-term vision including cost-effective program policy or legislative recommendations.

The CWG builds on and enhances attractant management work that has been undertaken over the past four years by landowners and landowner groups, including Drywood Yarrow Conservation Partnership, Chief Mountain Landowners Information Network, Southwest Alberta Conservation Partnership, Nature Conservancy of Canada, Cardston County, and the MD of Ranchland.
Farm and Ranch Projects: Attractant Management Strategies

Over 20 ranchers and farmers have worked with local organizations to help reduce the economic impact of large carnivores to their operation and increase human safety through on the ground projects. Projects have been as simple as the installation of a bear-proof grain bin door, using a latch design similar to those used in bear-proof garbage cans, to electric fencing of a 305 linear meter (1,000 linear ft.) feed yard. “Our work is being noticed in the capital. That was not the case before,” says Dick Hardy, rancher and Drywood Yarrow Conservation Partnership Chairman from 2000 to 2008.

Restricting access to attractants on the landscape can significantly reduce carnivore-human conflicts. In southwestern Alberta, the primary attractants for bears and sometimes wolves are related to residential garbage and agricultural attractants including dead livestock (deadstock), granaries, bee yards, and calving areas. To reduce large carnivore conflicts, mitigation projects have focused on removing deadstock from the landscape and securing attractants. The sections that follow illustrate examples of specific steps taken to reduce large carnivore conflicts on the landscape.

Deadstock Pickup Program

In 2003, bovine spongiform encephalopathy (BSE) was discovered in Alberta. Prior to BSE discovery, rendering companies removed deadstock from livestock operations free of charge as the carcasses held commercial value to the rendering company (Northrup and Boyce 2012). Post-BSE, changes in regulations now prohibit the inclusion of specified risk material (SRM), tissues that are capable of transmitting BSE, in livestock feed, pet food, and fertilizer (CFIA 2007). SRM such as brains, eyes, spinal cord, and other organs must now be disposed of separately, either by burial or incineration. Consequently, rendering companies passed on the costs of dealing with new regulations to livestock producers. Rendering companies now charge a minimum $75 pickup fee, or if the carcass weighs over 830 pounds, there is a flat fee of 9 cents per pound. These costs are prohibitive to many producers, which has resulted in an increase in land disposal of deadstock (Bergeron and Gagnon 2006).

With the increased presence of large carnivores on the landscape, the practice of land disposal, particularly during the spring calving season, is a significant attractant to large carnivores. After spring emergence, black and grizzly bears will regularly visit calving locations, which can lead to
chronic livestock-grizzly bear problems (Wilson 2003). Based on a study in southwestern Alberta from 2008 to 2009, 85 per cent of all wolf scavenging events occurred at ranchers’ boneyards, where livestock carcasses are dumped (Morehouse and Boyce 2011). Fish and Wildlife Officer Perry Abramenko reports that at one ranch “bears were habituated to the dead pit - digging and digging at that one spot even if it hadn’t been used for a couple of years.” Bears, wolves, and cougars that are drawn to ranches because of deadstock piles (carcass dumps, bone-yards, etc.) may be tempted to kill livestock or find other food sources like grain or silage. Therefore removal of deadstock from the landscape has the potential to reduce human-carnivore conflicts.

The deadstock program began in 2009, initiated by Drywood Yarrow Creek Partnership, by the construction of two predator-proof deadstock bins. Today, 12 bins are located throughout Cardston County and the MD of Pincher Creek (see Figure 4). Deadstock bins are fabricated of 14 gauge steel sheeting with a hinged lid for easy carcass disposal, and a drop end for bin unloading. The bins are placed on private property and are maintained on a regular basis by volunteer landowners. Registered landowners place deadstock in the bins (in accordance with CFIA procedures) and the bins are emptied by a rendering company as required.

In addition to providing deadstock bins for rancher use, areas with a history of carnivore conflict have been delineated as deadstock pick-up zones. Within these areas, deadstock pick-up at the farm or ranch yard is provided free of charge for larger carcasses and for all carcasses in areas where there are no deadstock bins. The deadstock pick-up zone began with the DYCP pilot area in 2009 and expanded to include the western portion of Cardston County and Nature Conserancy of Canada (NCC) conserved lands in 2010. In 2011, the MD of Ranchland initiated a farmyard pick-up program for the entire municipality. In 2013, Willow Creek began farm and ranch yard pick-up.
Deadstock Composting

Composting of dead livestock has proven to be a cost effective way to dispose of carcasses. In 2005, the Montana Department of Transportation (MDT) piloted a road kill composting project and composted over 1,200 animals within two years of operation. “MDT reported that no scavengers had been attracted to the site, and [there were] no complaints of odours,” says Blackfoot Challenge’s (BFC) Seth Wilson (Wilson 2007). In 2007, the BFC began composting deadstock in MDT’s facility in the Blackfoot Valley project.
area. Between 2003 and 2007, the BFC removed 1,137 carcasses from project area ranches during calving season. Annually, the BFC removes an average of 227 carcasses from project area ranches (Wilson 2007).

In 2012, Cardston County partnered with AESRD and Growing Forward to build a similar composting facility; the first municipal deadstock composting facility in Canada. Modeled after BFC’s facility, deadstock are placed on a bed of compost and woodchips. Unlike BFC’s compost facility, the Cardston County composting site is enclosed in a 15 m x 37 m (50 ft. x 120 ft.) building. The carcasses are covered with wood chips, kept moist, and regularly turned over. Within two months of consistent optimal temperatures (54 to 60°C; 130 to 140°F), mature stock are almost completely decomposed. “We have 208 animals in the facility composting now and have moved 22 animals to the done pile. We reincorporate the done pile back into a fresh pile to run everything through the process again,” says Cardston County’s Stephan Bevans, municipal compost site operator, in spring 2013. Due to current CFIA regulations, all compost by-products must remain on site.

Deadstock from within Cardston County’s designated pick-up zone, both from deadstock bins and farmyards, are collected by the county rather than a rendering company. Operational costs for pick-up and composting are currently paid through the Carnivore Working Group similar to other designated deadstock pick-up areas.

**Secured Attractants**

When given the opportunity, grizzly and black bears will eat grain, silage, honey producing hives, and other livestock feed. Once bears learn where these foods can be obtained, they will rip apart silage bags, bee yards, and wooden buildings, dig through wooden bin floors, or rip the doors off of steel bins to gain access. Grain bin retrofits such as bear-proof doors, steel or concrete bin floors, and installation of hopper bottoms can eliminate bear access. Hantech Engineering (Lethbridge, AB) was contracted in April of 2010 to design a prototype bear-proof grain bin door. Construction specifics were based on AESRD and DYCP recommendations, and several doors were
fabricated by Haul-All Equipment of Lethbridge. While custom door modifications have been necessary, bear-proof doors have been successful at keeping bears out of grain bins to date and unlike factory doors; none have been bent or torn off. A special thanks to Haul-All, Hantech Engineering, Boulder Metal (Pincher Creek, AB) with technical design and assistance.

For some operations, electric fencing of grain, silage, and livestock feed storage areas as well as bee hives and calving areas, is a well-demonstrated deterrent to many large carnivores (Pettigrew et al. 2012). Depending on the attractant, fencing can be installed as a permanent or temporary measure. Solar chargers can provide flexibility with fence location and/or reduce annual electricity fees. Further details on electric fencing are described in the producer stories below. A special thanks to Margo Supplies for technical design and assistance.

While the mitigation efforts outlined above work towards a balance between humans and carnivores, it must be noted that not only do these projects come at a cost; they also require a new way of operating. For instance, many ranchers have historically moved calving grounds each year to avoid the spread of disease. With increased carnivore presence, producers are turning more to permanent fencing of calving pastures as a measure to reduce carnivore conflicts. While this would reduce the potential risk of depredation, it would also increase the risk of spreading disease and require a marked change in the family’s ranching operation. These types of considerations may make some carnivore solutions less viable from an agricultural perspective.

Bee yards are attractants for bears in southwestern Alberta, as seen here after a bear breached the fence and damaged the bee boxes. Photo: Perry Abramenko
Producer Stories

Ranch-based, large carnivore mitigation projects that have been completed through the dedication of landowners, volunteers, and non-profit and agency personnel. The projects presented are only those that were completed by the spring of 2013. Several related projects are currently in progress and are not reported on here.

For reporting purposes, all hourly rates were based on current industry standards. Tractor rates, for example, are listed as $85 per hour for a 100 horse power tractor. As noted in the producer stories, the projects have been funded primarily by Alberta Environment and Sustainable Resource Development, with Environment Canada, the Nature Conservancy of Canada, and producers also contributing funds. Approximately $70,000 was spent on capital costs to complete these projects. Projects have been coordinated and facilitated by Alberta Environment and Sustainable Resource Development (AESRD), Drywood Yarrow Conservation Partnership (DYCP), Southwest Alberta Conservation Partnership (SACP), Waterton Biosphere Reserve (WBR), and the Nature Conservancy of Canada (NCC) as noted.

All information included is from one-on-one interviews with producers and their families. This was a great opportunity to visit with producers, evaluate the project, and talk about future work on their farm or ranch.
History of Large Carnivore Activity

Twin Butte Simmentals, owned and operated by Tony and Lorraine Bruder, sits at the junction of Yarrow and Drywood Creeks, 4 km northeast of Twin Butte. The family ranch is in fescue grasslands, intersected by timbered river bottoms that serve as wildlife corridors for ungulates and large carnivores.

The Bruders are third generation ranchers in the Pincher Creek area. In 2014 Tony and his family will celebrate the centennial year of ranching on their land. “I grew up here; my dad is 92 and he also grew up here. He never saw a grizzly on his land until 1994. Since then, the numbers have gone through the roof,” says Tony. “We have wolves, cougars, and black bears in the area, too, but we have been lucky. But we do lose stock and they also do get chased. Weight loss is probably the biggest loss area for producers—producers with wolves especially experience 80 to 90 per cent of loss through weight loss rather than actual death.”

Tony and Lorraine also rent land near the forest reserve boundary, which sees more wolf activity. “We have about 65 head of cows up there. The property is pretty forested and sees a lot of wolf movement.” For Tony, grizzly bears pose the greatest risk to human safety “because they’re being habituated in barn and ranch yards. A problem grizzly bear is one that doesn’t respect personal space and there is a different level of carnivore tolerance based on the individual.”

Attractants and Conflict Risk

“We started raising papered Simmental cattle in 1988, and calve out around 110 head each year,” says Tony. Calving periods are in January and February, with weaning in the first week of September. “We calve about 200 m from the house, and move them to pens 900 m northeast of our house when they’re a day old.” The pens further from the house are permanent, electric fenced pens, which was a mitigation project through DYCP. “90 per cent of our pasture is within 3 miles of our house. Our operation is almost an intensive livestock operation, with cattle in small pens. Most neighbours have cattle on quarter sections during calving time and they’re affected more by the large carnivores like wolves.”

Tony used to creep feed his pure bred bulls until 2001. Creep feeding is the practice of supplying supplemental feed to calves before they are weaned. Feeders often have a height restriction to exclude mature stock, but access by bears is unrestricted. “I stopped creep feeding due to risk to my animals.
One day I went down to the feeder and there were six bears. The last year I creep fed, I was going through 36 pounds of feed per head per day. Realistically the bulls might eat three to four pounds a day."

The Bruder ranch has bee hives on their property, but they do not own or operate the small, electric fenced yard (six-strand, high tensile wire). “One year the Milk River bear (collared) came through and hit the bee yard. It was electric fenced, but the bear had the wire in a ball, broke off the posts, trashed the solar charger, and only five boxes were left intact.”

“In 2009, DYCP started the deadstock program, which is when we started hosting the bin just south of our house.” Tony not only ranches, but he is also the current President of DYCP. “The number one priority is getting deadstock off the land to help with disease control, keep carnivores away from livestock, and stop habituating animals.”

**Mitigation Projects**

Since 2001, black and grizzly bears have been getting into the Bruder’s silage bags. “The problem wasn’t when we were feeding cattle, but when bears were bulking out in the fall. It’s the worst time to have silage bags popped because you can’t seal them back up.” To properly ensile, silage needs to ferment for at least three weeks. Puncture holes from claws can allow oxygen to permeate the silage, producing mould near even the smallest pin prick. “One year, the bear tore a big chunk of plastic off so big I could have driven my truck into the hole.”

In 2010, Tony had two cows killed in the calving pasture. Together with AESRD and Trout Unlimited, Tony designed an amalgamated, electric fenced pen (five and three-wire high tensile fence) for spring calving and silage self-feeding (February to May), with a shallow well for off-stream watering. “With five-wire electric fence, you keep wolves and other large carnivores out of calving pens.”

Since 2001, Tony also had issues with bears gaining access to stored grain and pellets less than 200 m from their home. The storage bins were varied in age, and “we knew the wood bins needed replacement. We had 10,000 bushels of storage space that we used in a bumper crop year.”
In 2011, Tony worked with SACP's Jeff Porter to install a hopper bottom on an existing steel walled bin (2,000 bushels). They contracted UFA to lift and bolt the hopper cone (14' Westeel hopper cone) to the steel bin, and contracted Todd Vance to vibrate the pilings in. In 2012, the Bruders also received a bear-proof door for a different steel walled, wooden floor grain bin. “When we put the hopper bottom up, we took down five old wooden bins with 8000 bushels of storage. That is a big thing. This fall, we didn’t have enough storage and I had to sell barley off the combine at $4/bushel but now its $6.25/bushel. That’s a big expense for producers.” Cost-sharing expenses are detailed in Table 1 and Table 2.

For future projects, Twin Butte Simmentals anticipate needing to replace the wooden floor on the metal grain bin, as well as replace old wooden bins. “Sea-can containers might be an option for the future.”

For Tony and Lorraine, these mitigation projects have been a new way of thinking about their operation. “It’s big because we built new livestock pens and that required a lot of thought on where to situate them so they’re useful and convenient. We’re used to doing things a certain way because that’s the way my dad and grandpa did it. So it takes a lot of time to figure out the best way to change the system. Plus, taking care of the land with stewardship in mind results in wildlife coming on to the land.”

Table 1. Cost-shared expenses for Twin Butte Simmentals’ electric fencing project.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Fence</td>
<td>Planning ($35/h)</td>
<td>Construction 100 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment 5 d ($110/h)</td>
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<td></td>
<td>Follow-up / Maintenance ($35/h)</td>
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<tr>
<td>Landowner</td>
<td>30 h</td>
<td>1 h</td>
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<tr>
<td></td>
<td>$35 (electric service); $60 (insulators)</td>
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</tr>
<tr>
<td>AESRD</td>
<td>1 h</td>
<td>$4800 (fencing supplies)</td>
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<tr>
<td>SACP</td>
<td>6 h</td>
<td>8 h</td>
</tr>
<tr>
<td></td>
<td>$4,895</td>
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<td>Total</td>
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<td></td>
<td>$14,405</td>
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Table 2. Cost-shared expenses for two secured grain bins on the Twin Butte Simmental Ranch.

<table>
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<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
<th>Total</th>
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<td>Grain Bin</td>
<td>Planning ($35/h)</td>
<td>Maintenance ($35/h)</td>
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<td>Landowner</td>
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<td>$1248 (lift and bolt sectional bin); $300 (vibrate pilings in; ($150/h)</td>
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<tr>
<td></td>
<td>1 h (80/h);</td>
<td>$110/h)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.5h (site prep;</td>
<td>$105 (drill stems)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$110/h)</td>
<td>2.5h welding $80/h)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AESRD</td>
<td>1.5 h</td>
<td>$2499 (hopper cone); $360 (door); $5000 (bin - corrugated)</td>
<td>$7,912</td>
</tr>
<tr>
<td>SACP</td>
<td>4 h</td>
<td></td>
<td>$280</td>
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<tr>
<td>Total</td>
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<td></td>
<td>$10,250</td>
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</table>
History of Large Carnivore Activity

The Carlson ranch runs along the South Drywood Creek, a major wildlife corridor, 8 km west of Twin Butte in foothills parkland. The ranch owned and operated by the Carlsons is typified by open grassland and aspen communities, with scattered kettle ponds. In addition to the home site and adjacent grazing lands, Darryl runs cattle with Stonybar and Butcher Creek grazing cooperatives, and has allotments on the forest reserve, which is primarily mixed aspen/conifer forest.

Darryl sees most carnivore activity in the fall. “Black bears are around, but we don’t have many issues with them.” In the summer of 2012, the Carlsons saw an increase in grizzly bear activity. “Last summer I saw more bears than I have seen in a while. But lots of guys are having problems, we’re not unique in having bear problems,” says Darryl. In 2002 and 2011, there were two confirmed grizzly bear kills on the ranch. Wolf activity on the Carlson ranch is less than areas immediately north and south. “We’re fairly fortunate because we’re in between wolf areas; north and south of us have a lot of activity.” Cougar sign is not uncommon on the Carlson ranch. Carnivore activity is generally higher on Stonybar grazing lands. “It’s more bear and wolf country out there by Corner Mountain.”

The Carlsons became involved with DYCP’s bear mitigation projects because “over time we have had some bear issues. So if you have some issues, you have to figure out how to alleviate them.” Darryl’s involvement with carnivore conflicts goes deeper than a typical rancher story. “I sat on the recovery team created for grizzly bears. I was the only agricultural producer out of the 12 individuals on the committee. It’s through the Western Stock Growers Association that I got involved.”

Attractants and Conflict Risk

Darryl and Valerie run a cow/calf operation, with calving periods at the end of March and April. They typically wean calves in October. Darryl’s amalgamated feed storage area is less than 300 m from the house. Darryl is not a deadstock participant, though “I think the idea has some merits, it just didn’t work [for me].”

Darryl had a sheep operation until 1997, which was also a good year for Saskatoon berries in the area and on the Carlson ranch. “Half of the sheep were killed in the pen. The next night, the other half were locked up in the barn and were found dead in the morning. Fish and Wildlife Officers trapped six bears in ten days. I stopped doing sheep after that.”
When producers find a dead animal, they can call Fish and Wildlife Officers to investigate the scene. “We’ve been very fortunate; if we find an animal dead, sometimes all that is left is hide and bones. We have been very fortunate with [the Officers] like Perry. They’ll take the hide and examine it. They’re very willing to work with us and if there is an issue in the area, they’ve been very fair in my opinion.”

Mitigation Projects

Darryl worked with SACP’s Jeff Porter to install a bear-proof door on a steel walled, wooden floor grain bin that had several years of bear activity. “A couple years ago, a bear tore the granary door off. He ate some wheat in there. Since the door was installed, the bin hasn’t been touched.” The bin door has not required any maintenance since it was installed in 2010. For cost-sharing details, see Table 3.

“These projects are a step in the right direction,” says Darryl. “They work well, but it doesn’t approach the root problem, which is bringing the numbers down. When you start to increase bear numbers, then they start to search for more food sources. And we are developing a group of wildlife that has been trained and habituated to people. That’s going to create more problems.”

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
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<tr>
<td></td>
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<td>In-Kind</td>
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<td>Follow-up / Maintenance ($35/h)</td>
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<tr>
<td>Landowner</td>
<td>.5 h</td>
<td>$18</td>
</tr>
<tr>
<td>AESRD</td>
<td>$300 (installation)</td>
<td>$800</td>
</tr>
<tr>
<td>SACP</td>
<td>3 h 1 h</td>
<td>$140</td>
</tr>
<tr>
<td>Total</td>
<td>$123 $300 $35</td>
<td>$958</td>
</tr>
</tbody>
</table>

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Table 3. Cost-shared expenses for the Carlson’s grain bin bear door installation.
History of Large Carnivore Activity

George and Shelley Clark ranch along the Gladstone Creek in the upper Gladstone Valley, 8 km south of Beaver Mines. Their home site is 6 km north of the forest reserve boundary and 3 km southwest of Beauvais Provincial Park. The land they own and lease adjacent to their home site and in the Crowsnest Pass has significant forest cover, predominately aspen and conifers. Due to the high forest cover, proximity to forest reserve, and location along a wildlife corridor, the Clarks have had a significant wildlife presence on their ranch.

Shelley Clark grew up working the same ranch that she operates today with her husband, George. “As a kid, we saw bears only rarely,” Shelley says. In the last decade, large carnivores have become quite common on their property. The Clarks note that spring and fall are the seasons with highest black and grizzly bear activity on their property. “We see a lot of bear activity during calving time. We calve within 100 yards of the house.” In the fall, bears stick around the grain bins. “Before, our biggest problem was the little black bears in the grain bins. But little bears were in and out. With big bears, they want to be at the bin for a week.”

Cougar movements on the Clark ranch are not as heavily tied to seasons, and they often see cougar sign year round. Wolves, like bears, “we primarily see in calving time. We also see wolf kills and tracks once in a while.” To the Clark family, bears pose the greatest threat to human safety. “We live in bear country and accept the risks, and try to educate our kids, too. We take precautions to ensure we don’t create a problem. That doesn’t mean we won’t have an issue – we can’t change where we live and where they live.”

Neighbours of the Clark’s have similar issues, but primarily with bears. “There’s a big boar that lives here now, all the neighbours know him,” says George.

Attractants and Conflict Risk

George and Shelley run a cow/calf operation, with calving areas 100 m from the house. They also store grain and pellets in close proximity to the house. “We were buying oats by the sack and storing the bags in a wooden bin. There was a bear stealing oats by the sack.” They eventually stopped using the bin and burned it down to remove it from the landscape.
The Clarks used to have a small sheep operation, but phased them out. “We had a cougar that learned in the morning we took sheep to the electric netting and at night we put them in the corral. The cougar figured out that the fence was turned on during the day and turned off at night. So he came in to the electric pen at night and would hang out in the tree, waiting for morning.”

The Clarks keep five to six dogs on the ranch, including one Maremma sheepdog cross and one Pyrenees/Maremma/pit bull mix. “The dogs play an important role in keeping the yard safe. We have pictures of dogs keeping bears out of bins. But wolves are hard on dogs; we lost one dog to wolves two years ago.”

Many things not typically classified as attractants were damaged by bears on the Clark property. Such items included tractor tires and generators.

Before 2003, George hauled deadstock to the dump for free. Since BSE was discovered in Alberta, George has been burying deadstock on their property. “Our biggest problem is deadstock. We have a hole dug now and we’re burying the deadstock, but we need to deal with that differently,” says George. George and Shelley are keen on the new Pincher Creek deadstock removal program, which will haul mature deadstock off-site at no direct cost to the producer. In addition, the MD of Pincher Creek is looking to install a deadstock bin in the Gladstone Valley.

**Mitigation Projects**

For ten years, black and grizzly bears worked at gaining access to a steel wall grain bin that the Clarks bucket feed out of. “When we had the factory bin with a wooden floor, the bears had access to our bin.” In 2012, bears ripped the door off and calves got into the feed pellets. Prior to the carnivore mitigation project, the Clarks estimate they lost two to three tons of grain and $1,000 for destruction of the grain bin door.

To attempt to deter bears, Fish and Wildlife Officers installed temporary fencing around the grain bin. “The fencing worked, but it was a bit difficult to feed with sometimes.” Officers also trapped and removed bears from the property. In addition, the Clarks have trail cameras on the premises to monitor wildlife movements. It became clear, however, that a permanent measure was needed to mitigate carnivore damage.

The Clarks worked with Tony Bruder, Twin Butte rancher and President of DYCP, to install a bear-proof grain bin door. Since they have a welder in the family, George and Shelley didn’t have to contract someone to install the manufactured door. “For every ten times the bear tries to get in now,” says George, “he is not getting pellets. Unfortunately, the bear has
started to dig under the cement floor.” Future mitigation work may require a heavy duty, six-strand electric fence. George is interested in another metal grain bin, either a hopper bottom bin or a sea-can. Says Tony Bruder, “People like the sea-cans because they are easier to bucket feed out of, have less spillage, and are significantly cheaper.” For cost-sharing details, see Table 4.

Table 4. Cost-shared expenses for installing a bear-proof door on the Clark ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grain Bin</strong></td>
<td>Planning ($35/h)</td>
<td>Construction</td>
</tr>
<tr>
<td>Landowner</td>
<td>4 h</td>
<td>12 h (welding $125/h)</td>
</tr>
<tr>
<td>AESRD</td>
<td>.5 h</td>
<td>.5 h ($35/h)</td>
</tr>
<tr>
<td>DYCP</td>
<td>2 h</td>
<td>1 h</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$228</td>
<td>$1,518</td>
</tr>
</tbody>
</table>

The Clarks see this project as a boon for their operation, but it serves a greater purpose for reducing problems with bears. With these kinds of projects, “I think we’re on the right track; if we create a population that learns to live off grain bins, I don’t want any bears, but if we prevent access to feed areas, I can live with 50 bears.” These mitigation projects also connect ranchers with the general public. “As ranchers, our voice is being heard. The more education and advertising to the public we do, we are going to start to break down the misconceptions.”
History of Large Carnivore Activity

The Valley Blue Ranch sits between Pincher Creek and Twin Butte, east of the Pincher Creek headwaters and Fish Lake. Until 2012, the Cyrs also ran a bed and breakfast. The Valley Blue Ranch is characterized by aspen and grassland communities, with numerous creeks and small kettle ponds interspersed. As a result of the abundant forage, cover, and water availability, the Cyrs often see elk, deer, moose, and multiple carnivore species on their property.

In the last five years, Clarence and Helen have seen an increase in wolf, grizzly bear, black bear, and cougar activity on their ranch. Of all the predators, wolves and grizzly bears pose the greatest threat to their ranching operation and human safety. “We have two little grandkids that like to go out walking, but we don’t let them. It’s a whole lifestyle change from what we were doing the previous 41 years,” says Clarence. In 2013, a neighbour hunting on their property found a denning black bear. The Valley Blue Ranch used to have a sheep operation, but phased them out in 1991 due to heavy predation.

The Cyrs participate in the Southwest Alberta Grizzly Bear Monitoring Project and notice a significant increase in hair collection along their fence lines in the spring (May-June). “We’re seeing more hair on the fences than ever before,” says Helen. They also note a spike in bear activity again in the fall (September-November). Last year Helen and Clarence saw bears on twenty different occasions, and as a result they often carry a gun and bear spray while out checking on the cows, though Clarence notes that he wouldn’t feel safe carrying just bear spray.

Neighbours experience similar large carnivore issues as the Cyrs, with confirmed wolf, cougar, and grizzly bear predation. Clarence and Helen became involved with community-based conservation because things they had been doing in the past were not working anymore. “There had to be something different,” says Clarence.

Attractants and Conflict Risk

Clarence and Helen run a cow/calf operation and have feed grain, pellets, and wrapped bales on site. The Cyrs calve in May in a confined pen, and wean in December. “During the 2012 calving season, we had calves go missing, and their bones showed up later.”
The Cyrs dispose of deadstock in their manure pile; they haven’t had carnivore issues at that location nor has the manure pile been disturbed by carnivores in over two years. In the stack yard adjacent to the amalgamated grain bins, bears were regularly creating holes in the wrapped silage. In an attempt to mitigate bear access to the stack yard, “we put large straw bales around our wrapped silage to keep the elk out, but then put up an electric wire on top of the straw to keep bears out of the silage, too.” The temporary single-wire fence has stopped bears from accessing the silage bags.

Several years ago, a beaten down bear path led directly to a pair of wooden grain bins. From 2008 to 2011, Fish and Wildlife Officer PerryAbramenko worked with the Cyrs to install temporary fence and Critter Gitters to prevent bear access to the grain bins. Critter Gitters were placed on the outside and inside of a wooden bin. However, these measures worked only for the first few days. In the instance of the temporary electric fence, Clarence found the fence destroyed by bears and the solar charger thrown out in the field.

In 2011, Clarence moved the wooden grain bins closer together to prepare for a permanent fencing project. The amalgamated bins were temporarily fenced again while Clarence, Jeff Porter, and Greg Hale worked out the details of the permanent fence. In addition to temporary measures, Perry Abramenko installed motion activated trail cameras on the grain bin receiving the heaviest bear activity and recorded four different bears on site. “The cameras prove how many bears [were] on one grain bin and how often they are there; very often minutes before or after I’ve been there doing chores,” says Clarence.

**Mitigation Projects**

The Cyrs started experiencing significant infrastructure damage and grain loss in 2008. Clarence estimates he has lost over $500 in feed (corn, rolled grain, pellets) with over 20 hours in labour and $600 in materials to repair the storage bin and fencing prior to project installation. The fencing project consisted of a six-wire braided cable electric fence and gate powered by electric service. To install the fence, Clarence dug holes for the posts and gates, and trenched in the power cable. The gate has a moveable bottom wire to allow for snow drifting during fall and spring. For cost-sharing expenses, see Table 5.
Since project completion, the bear path to the grain bins has disappeared. Until spring 2013, trail camera monitoring has shown no bear breaches of the electric fence. However, there has been infrastructure damage due to bears at another granary closer to the house and outbuildings. The electric fence requires mowing and weed whipping twice a year to keep the lower wires visible to animals, to eliminate grounding, and to minimize snow drifting. In hindsight, Clarence would have fenced “a bigger area, maybe five feet further out all the way around for snow drifting. Then if you did want to let a cow in there to [mow] the grass, she could turn around.” Clarence would like to switch to a solar charger and is also thinking about a fencing project that could encompass a larger area, “These small projects confine you [and limit] where you can put things, whereas if you did a five acre pen” you would have more storage and operational options.

Table 5. Cost-shared expenses for the Cyr’s electric fence project.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electric Fence</td>
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</tr>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Cash</td>
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<tr>
<td></td>
<td>Construction ($35/h)</td>
<td>In-Kind</td>
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<tr>
<td></td>
<td>Equipment 2 d (truck ($220/d); 4h tractor ($85/h))</td>
<td>$546 (posts, conduit, gates)</td>
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<tr>
<td></td>
<td>Follow-up / Maintenance ($35/h)</td>
<td>$733 (cable; insulators)</td>
</tr>
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<td>Landowner</td>
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<tr>
<td>AESRD</td>
<td>3 h 7 h ($35/h)</td>
<td>$1,083</td>
</tr>
<tr>
<td>SACP</td>
<td>12 h 8 h</td>
<td>$700</td>
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<tr>
<td>WBRA</td>
<td>3 h 2 h</td>
<td>$175</td>
</tr>
<tr>
<td>DYCP</td>
<td>2 h 1 h</td>
<td>$105</td>
</tr>
<tr>
<td>Total</td>
<td>$1,260 $1,540 $780</td>
<td>$700 $733 $546 $5,599</td>
</tr>
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</table>
The East Cardston Colony straddles the St. Mary River, 5 km east of the town of Cardston and 3 km northwest of Woolford Park. The Hutterite colony is in grassland/fothills fescue, with a timbered river bottom that serves as a corridor for ungulates and carnivores. “Deer come right up to the house. It’s nice to watch wildlife but with bears and cougars around, you’re a little worried walking around,” says Paul Hofer, the colony’s bee boss. In addition to other colony tasks, Paul and his family maintain two bee yards with 60 hives.

Colony residents see grizzly and black bears and have “noticed a lot more bears in the last five to ten years; we see a lot of scat when we go fishing. Plus, the kids are seeing grizzlies on the river bank when they’re swimming,” says Paul. In the early 2000’s, a grizzly was trapped and relocated by Fish and Wildlife after it killed sheep. Black bear, wolf, and cougar sightings are not uncommon. “I have run into quite a few black bears, but am more worried about cougars. We saw a cougar one spring near the sheep barn on the hillside,” says Paul.

For Paul and the East Cardston Colony, keeping bees and producing honey is not a major economy within the colony. Yet, keeping bees is “a hobby, it’s a nice little income, but it’s disappointing when you see bears beating up the hives.”

Attractants and Conflict Risk

Like many Hutterite colonies, the East Cardston Colony has a large and varied operation with cattle, sheep, hogs, and field crops. The operation also includes land near the colony, and other locations, including Carway.

Paul and his family maintain two bee yards; one is 200 m northwest of family housing. The proximity of frequent bear movements to family housing was of great concern to the colony. The second is 2 km northwest of the colony, on the north side of the St. Mary River. “Bears were getting into both hives, one day right after the other. Fish and Wildlife Officers tried trapping the bear,” says Paul.

To keep bears out of the bee hives, Paul tried installing an eight foot high, mesh wire fence. “That was just a ladder for the bear - they climbed right over it.” Paul came to a public information meeting in Kimball Park and expressed interest to Jeff Bectell, area rancher and Waterton Biosphere Chair, about an electric fencing project.
Mitigation Projects

To monitor bear activity at the bee hives, Fish and Wildlife Officers set up trail cameras. Unfortunately the cameras didn’t capture any bears, “just grass, deer, and people looking at the camera.”

Paul and his son Curtis worked with WBR to install two solar powered, six-strand electric fences in the summer of 2012. The northern hive had an existing fence, “we put a good zapper on there because it was high tensile wire already.” For the hive close to housing, Paul installed heavy duty anchor poles for each corner and gate and used a Parmak Solar 6 charger. “It’s really simple; there is a gauge on the charger, so you can see it is charging.”

Before the hives were secured with electric fencing, Paul lost 15 hives in 2011 as a result of bears. He had to replace the destroyed hives, which cost about $128 per hive. “We lost the honey crop from that year. One hive averages about 250 pounds of honey.” The bear(s) damaged another 10 to 15 bee boxes, which cost $35 per box. “We still have a bunch of boxes that the bear scraped the wax off. We figured we would use them again, but the bees don’t go back in them. It cost us a pretty penny.” For cost-sharing expenses, see Table 6.

Maintenance for the fence projects requires tightening the steel cable with pliers and built in clips, and spraying the grass with Roundup to keep the wires visible to animals and minimize grounding. The fence can ground out with snow drifting. “The thing is, we all want bears out there, we want them to be safe and we want people to be safe.” Since the two electric fences were installed, no bears have gained access to the bee hives. “We had a bear in [to the colony] last year, but it didn’t get into the bees, so the fence has worked.”

Table 6. Cost-shared expenses for two electric fence projects on the East Cardston Colony.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning</td>
<td>Construction</td>
</tr>
<tr>
<td>Electric Fence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landowner</td>
<td>6 h</td>
<td>15 h ($35/h)</td>
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<td>AESRD</td>
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<td>WBRA</td>
<td>4 h</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$368</td>
<td>$525</td>
</tr>
</tbody>
</table>

A 6-strand electric fence surrounds a bee yard at the East Cardston Colony. Photo: Jeff Bectell
Kathy, Dustin and Niki Flundra  
Twin Butte, Alberta

History of Large Carnivore Conflict

The Flundra ranch is located along the Waterton River in foothills parkland with aspen forests and fescue grasslands. Kathy and Dustin, mother and son, ranch along with Dustin’s wife, Niki, 8 km southeast of Twin Butte. The Waterton River serves as a major corridor for ungulates and large carnivore species along the Front Range of the southern Rockies.

Carnivore activity on the Flundra ranch is year-round. “We get lots of cougars here, but haven’t had any trouble with cattle. Cougars have killed deer right on the fence line on the road,” says Kathy. Wolf sign is not uncommon, though it seems “they more often cross through the ranch.” Black and grizzly bears are commonly seen from spring through the fall and, of the large carnivores, they have the strongest presence on their ranch. “We are very lucky to have seen so many with no real problems. We were followed once by a grizzly when we were out riding, so we turned around and went home,” says Kathy.

Because the Flundras see so much elk and deer activity, “we removed a lot of barbed wire fences. We usually try to make the fences easy to jump over or crawl under.” Unlike all other projects described in this report, the Flundras designed and funded the bear-proof door independent of any community organization.

Attractants and Conflict Risk

The Flundras run a cow/calf operation, with calving beginning in April. Calving areas are within 400 m of house. “We see bears coming through mainly in May and June.” They typically wean in October and November. Feed and grain storage bins are within 800 m of the house. “Spring is when the bins are full; in the fall we try to empty them.”

In the spring, Dustin grows oats and barley. “We plant green feed and bale it. Because of the green feed, we have more black and grizzly bears; it’s a major attractant for everything.” Bears also chew on water troughs. “They chew the plastic pipe and big round tires. The reason we’re positive it’s a bear is there’s a big rub tree and the fence is lifted up in the summer where they crawl through. It’s also where the green feed used to be and there are berries there with good cover.”
Like many area ranchers, the Flundras keep several dogs on site. “The minute we had dogs in the yard, the animals moved out. The bigger dogs are good, too. Our dogs are all border collies, and at one point we had three dogs,” says Kathy. Fall is often the season most ranchers experience grain bin issues. “Number one, we try to keep the bin empty in the summer and fall when bears usually come around.”

Mitigation Projects

From 2007-2008, bears tried to gain access to a steel walled, wooden floor grain bin less than 400 m from the home site on the roadway. Niki often runs on the road, so a bear is presence was also considered a safety hazard. “In the fall, when the bins were mostly empty, the bear was pounding the grain bin walls in; he folded and ripped the door, and threw the buckets out and got in there and ate. There was Rumensin in the pellets, which is poisonous to non-ruminants. He never ate enough, I guess, to hurt himself.”

The bear returned. “We unfolded the door and bolted it back in place again. Fish and Wildlife tried trapping it in the fall of 2007.” In addition, Fish and Wildlife Officers put up a temporary electric fence, which the bear tore down. “In 2008, we bolted it again and the bear ripped it right off. Dustin is a welder, so we set up a new, bolted bear-proof door.” At that time, DYCP’s Tony Bruder came to look at Dustin’s custom bear-proof door as a possible prototype for future bear-proof doors. For detailed costs, see Table 7.

Since 2008, the Flundras make sure to empty the bins by fall, when most human-carnivore conflicts occur at grain bins. Bears have still tried to dig under the wooden floor. “We don’t fill the bin up high and we shovel the grain away from the seams. The seams are problematic. Now when bears visit the bin, they don’t get anything and can’t get in the door.”

### Table 7. Expenses paid by the Flundras to install a bear-proof door.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain Bin</td>
<td>Planning ($35/h)</td>
<td>Construction 4 h ($35/h)</td>
</tr>
<tr>
<td>Landowner</td>
<td>1 h</td>
<td>4 h ($35/h)</td>
</tr>
<tr>
<td>Total</td>
<td>$35</td>
<td>$140</td>
</tr>
</tbody>
</table>

Damage to the Flundra’s steel grain bin as a result of bears trying to gain access to stored feed. Photo: Andrea Morehouse

Dustin Flundra fabricated a 2 bolt bear-proof door for their steel corrugated bin. Photo: Nora Manners
History of Large Carnivore Activity

The Hardy and Kirby ranch is 9 km northwest of Twin Butte along the South Drywood Creek, which serves as a major wildlife corridor for ungulates and large carnivores alike. The ranch is 3 km east of the forest reserve boundary in foothills parkland, typified by aspen and open grass pastures. Dick, along with his daughter and son-in-law Suzanne and Murray Kirby, run cattle on the Butcher Creek Grazing Cooperative adjacent to the ranch. Until 2011, Dick and his family also ran cattle with the Stonybar Grazing Cooperative. Dick and his family have ranched their land for two generations. Currently, they have three generations living and working to raise cattle in the foothills of the Southern Rockies.

The Hardy and Kirby ranch typically see the full suite of large carnivores throughout the year. For grizzly bears, “we see them every month they are out. I would say there is a constant presence.” In 1995, 2002, 2010 and 2011, Dick had confirmed bear kills. Says Dick, “1995 was the first year we had grizzly bear issues with livestock predation on our sheep.” In 2011, Dick had 11 grizzly bear sightings on his home property. As for black bears, “we have never had a black bear incident, other than a torn tent.” Cougar and wolf sign is not uncommon on the ranch.

Attractants and Conflict Risk

Dick, along with Suzanne and Murray, run a cow/calf operation, with calving periods in March and April, and calving areas 400 m from the house. “We calve in two separate spots, one north and one south of ranch buildings. We don’t overwinter all of our calves, maybe one-third to one-half.” They typically wean in the third week of October. The Hardys used to run sheep on the home ranch, but stopped in 1998 due to extensive large carnivore conflicts.

The Hardys and Kirbys utilize deadstock bins and deadstock pick-up through DYCP. From 2009 until 2012, Dick hosted and managed a deadstock bin. “I probably spent 12 hours a year for record keeping, meeting with CFIA, and keeping a list of CFIA stock numbers that went through the bin.” Like all deadstock bin hosts, Dick volunteered his time to keep the bins operational for other ranchers.
Mitigation Projects

From 2002 to 2008, Dick was having problems keeping his cattle feed secure and away from grizzly bears. At that time, a grizzly bear had ripped the door and back corner of the wooden bin off. In 2004, Dick moved a corrugated steel wall, wooden floor granary to the ranch yard and decommissioned the wooden bin. In addition, he worked with Fish and Wildlife Officer Perry Abramenko to install a temporary electric fence around the pellet bin and set traps at Dick’s place, as well as the neighbours. “They caught the bear across the road at the neighbour’s granary. He did a fair bit of damage,” says Dick.

In 2010, Dick had experienced another depredation on his home quarter section. At this time, he started to work with SACP’s Jeff Porter to install a steel bottom on the existing steel walled grain bin and install a bear-proof door. “Steel and cement are the only answer once bears get into grain bins,” says Dick. “The steel bin floor was Dick’s idea from a similar set up he saw in Saskatchewan. Transport from there was expensive, so we had the floor custom made,” says Jeff Porter. To prepare the site for a steel bottom, Dick put a truck load of gravel down for the pad and ramp. They also contracted a crane to lift the bin up to bolt the steel bottom to the walls. Together with his son-in-law Murray, who is a welder, they installed the door and made custom drip protection lip above the door. For detailed expenses, see Table 8.

Because the steel floor raised the height of the door by 36 inches, “it was very awkward getting into it. We bucket feed out of it, so that’s 10 to 12 buckets a day. We worked with Jeff Porter to lower the whole door frame. When we lowered it, we cut a notch on the bottom and put siding above. If we bucketed more and had to auger out of it, that would have been awkward, too. After the improvements, it’s good for what we do.” Dick and his crew have to make sure to keep the site clean of spilled grain. “We have to be conscious with bucket feeding; you have to keep it clean because of spillage.”

Since the grain bin was installed, “we have no knowledge in the yard up there for bear activity.” Like many ranchers in southwestern Alberta, Dick enjoys seeing bears. “We’ve seen a lot more bears than we’ve had trouble. I like seeing them; everybody loves to see bears. It’s a different way of life to have them there. When it changes from them being on the landscape to being a problem, it’s just an issue towards the offending bear. I think projects like these are a big step forward and show some real ground work. It all has to do with awareness.”
Table 8. Cost-shared expenses for securing a steel grain bin on the Hardy ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
<th>Total</th>
</tr>
</thead>
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<td>Grain Bin</td>
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<td></td>
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<tr>
<td></td>
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<td>2 h (welding</td>
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<td>$100/h)</td>
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<td></td>
<td>4 h (tractor</td>
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<tr>
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<td>door height</td>
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<td>0.5 h ($35/h)</td>
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</tr>
<tr>
<td>WBRA</td>
<td>5 h</td>
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<td>3 h</td>
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Dean and Tammy Kennedy
Pincher Creek, Alberta

History of Large Carnivore Activity
The Kennedy Ranch lies about 8 kilometers southwest of Pincher Creek, in the Primeau Valley. The ranch owned and operated by Dean and Tammy Kennedy is characterized by mixed aspen/conifer forests and open grasslands, intersected with prominent, treed ridges that serve as animal corridors for ungulates and large carnivores.

The Kennedys moved to their current location in 1995. At that time, cougars, wolves, and grizzly bears were not a concern for Dean and Tammy, "We didn’t think about [large carnivores] much when we first got here; they weren’t a concern for anybody." In the last six to eight years, however, Dean and his family have seen an increase in carnivore activity, “particularly with young grizzly bears and big sows with cubs.” Says Dean, “When our eldest son was in Grade 1, he walked to the bus stop, but when [our younger daughter] started school, she couldn’t get to sleep at night because she was worried about bears on her walk to the bus stop. So we got in the habit of driving the kids to the stop.” The Kennedys have seen fresh bear scat and a grizzly sow with cubs walking in full daylight at the bus stop.

Most carnivore presence on the Kennedy ranch is grizzly bear activity during early summer (May to June) and fall (September to October), when bears regularly get into the stack yard and rip holes in silage bags. Dean has chased grizzlies off his property with his truck and had a confirmed grizzly kill on the quarter section north of his home. The Kennedy’s neighbours have experienced confirmed livestock predation by wolves, grizzlies, and cougars. “We like seeing bears and I think we can coexist. I wanted to get involved to be part of the solution,” says Dean.

Attractants and Conflict Risk
Dean and Tammy run a cow/calf operation, with calving periods in April to May and June to July. They typically wean the first round of calves in October and the second round in mid-December. Dean has an intensive livestock operation with a heavy human presence; his calving and feeding areas are less than 500 m from the house. Dean has amalgamated feed storage and steel, hopper bottom bins 500 m south of the house. These hopper bottom bins were installed without DYCP assistance. After the silage is bagged in the fall, Dean installs a temporary eight foot tall fence intended to exclude deer and elk. “We feed cereal crops in the spring, and will use it as cereal silage in the fall.”
Dean utilizes the deadstock farmyard pick-up and bins through DYCP. Prior to the pilot project, however, his deadstock pile was 200 m southwest of the house – the site of the bear mitigation project. “To me, the largest attractant on the landscape is deadstock,” says Dean. In 2012, the Kennedys had not seen bear sign on their property until the end of June. At that time, however, they lost a few calves and a mature cow on a Friday, so instead of waiting for the rendering truck pick up the following Thursday, they disposed of the deadstock on site. “Over the next week, we saw 8 different grizzly bears on the ranch,” says Dean, “They were there for the dead animals, and then they were gone. We have to get deadstock off the landscape.”

Mitigation Projects

The Kennedys purchased their ranch from Pincher Creek Ranches, and unlike many ranchers in the area, they didn’t have any old grain bins to remove. Rather, all infrastructure on site was built since 1995. “The Kennedy’s mitigation project was a proactive solution to increasing grizzly bear numbers and issues, and served as a pilot project to spur producer interest in mitigation measures,” says Jeff Porter of SACP.

The smooth walled hopper bottom grain bin was purchased and installed in the fall of 2010. The hopper bottom was installed on pilings rather than a concrete slab, which makes the bin more transportable. Feed pellets are gravity fed from the grain bin onto a steel and rubber trough, which significantly reduces pellet waste and potential attractants for bears. In addition to minimized pellet waste, there is no shovelling, no dust, and it is weather proof. Dean tries to empty the bin each summer to reduce waste and attractants. Dean saw a similar feeding system in Saskatchewan, and customized the design to fit his needs. For detailed expenses, see Table 9.

The hopper bottom grain bin project has mitigated, although not eliminated, large carnivore issues on the Kennedy ranch. Each year in the fall, Dean has had issues with bears walking on and ripping into silage bags, which ruins the ensiled feed. Taping bales can slow spoilage, but rarely stops oxygen from forming mould around even small pin holes. In 2012, Dean spent ten hours applying silage tape to ripped bags.
“My biggest fear is to go out at night or when calving and have a bear in the barn and be cornered. This project has made me aware of what can be done to be a better manager,” says Dean. In addition to an increased sense of safety on the ranch and in the home, he feels the feeding system has improved management efficiency in terms of pellet loss and wear on the body, “In ten minutes, I can the feed bulls, come back and feed 100 heifer calves without breaking a sweat.”

Table 9. Cost-shared expenses for a hopper bin installation on the Kennedy ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Construction</td>
<td>Equipment</td>
</tr>
<tr>
<td>Grain Bin</td>
<td>Landowner</td>
<td>48 h</td>
<td>120 h ($35/h)</td>
</tr>
<tr>
<td></td>
<td>SACP</td>
<td>8 h</td>
<td>4 h</td>
</tr>
<tr>
<td></td>
<td>AESRD</td>
<td>0.5 h</td>
<td>$8,080 (cost-shared grain bin)</td>
</tr>
<tr>
<td></td>
<td>DYCP</td>
<td>1 h</td>
<td>1 h</td>
</tr>
<tr>
<td>Total</td>
<td>$2,013</td>
<td>$4,200</td>
<td>$5,100</td>
</tr>
</tbody>
</table>
History of Large Carnivore Activity

The Kormos farm abuts the U.S. - Canada border, north of Duck Lake Ridge, a commonly used animal travel route. The farm is 4 km southeast of the St. Mary River, and about 8 km away from the hamlet of Kimball. Jillaroo farms is dotted with kettle ponds and is situated in mixed agricultural/grassland. Starting in 2010, Kimball experienced heavy grizzly activity around unsecured grain bins. The frequency and concentration of bears in the area pose a potential safety hazard to residents.

The Kormos family started seeing grizzly bears on their property about ten years ago. At that time, it was rare to see bears and exciting for the family. Bear sightings and incidents have since increased, with grizzlies eating spilled grain and breaking into old seed bins. In 2009-10, grizzly bears camped on the lawn while eating grain spilled from augering into/out of grain bins, about 100 m from the family house. In 2012, Zela startled a sow with cubs while walking up the hill behind the house, and since then, has not felt comfortable walking alone on the ridge. They feel the dog does a good job keeping deer and some bears out of the yard.

Most carnivore activity on the Kormos ranch is seen with grizzly bears in the fall. Typically, they will see grizzly bears moving through the area in spring and summer with little incident. Neighbours of the Kormos’ have carnivore issues, such as grizzly bears getting into crab apples trees, sheep operations, barley stored in easy access barns, and documented predation on cattle. The Kormos’ do see wolf and cougar sign, though their presence is not significant.

Attractants and Conflict Risk

Allan and Zela farm 2,000 acres of grain on site and another 1,000 acres near Woolford Park, a 30 minute drive northeast of the family house. Allan uses storage bins for seed grain and harvested grain. The Kormos’ do not run a livestock operation, but have chickens in the yard and rent pasture land to family, which is grazed by cattle. No predation incidents have been reported from rented property. Allan used to burn garbage on site, but due to some changes at the Cardston waste transfer station, they stopped burning trash. As a result, storing garbage at the farm is becoming an issue. They are interested in bear-proof garbage containers, but Allan said he could easily make one himself. In their own words, “we go to town, but we need to be organized so we don’t have smelly garbage just sitting around.”
The Kormos’ started experiencing significant infrastructure damage and grain loss as a result of bears in 2011. This was during the same time period that Kimball’s “bear herd” was recorded on camera. Fish and Wildlife Officer Lyle Lester installed a motion-sensor trail camera on Allan’s grain bins and found evidence of one or two grizzly bears getting into three wood floor, steel wall bins, located 700 m north of the house. At that time, most of the bear sign was concentrated in the vicinity of these grain bins. Two of the bins were functional; one was used in a pinch but lacked a weather proof roof. Combined storage capacity with the three bins was 3,000 bushels. With the three separate bins, however, Allan had the flexibility to store multiple grains without driving off site.

**Mitigation Projects**

Jeff Bectell, Cardston County rancher and Chair of Waterton Biosphere Reserve, contacted the Kormos family when he became aware of their grain bin issues. After some research, Allan opted out of retrofitting the old steel bins with concrete flooring, bear-proof doors, and new roofs due to the high costs. Instead, he contacted a neighbour that was interested in the scrap metal, who hauled them off-site. Allan replaced the steel bins with a single 1800 to 2000 bushel, smooth-walled hopper bottom bin (70 tons). Having a singular hopper bottom bin keeps the contents secure and dry, though he does have to drive 30 minutes off-site for different seed grains and fertilizer. During seeding, this adds one hour to each work day. He hopes to install another bin for additional storage.

Since Allan installed the hopper-bottom bin in summer 2012, grizzly bear activity has dropped significantly and they have not seen any grizzly bears in the yard. Last fall, an older bin 700 m north of the house had spoiled grain, so Allan cleaned out the bin and threw a few bushels of grain on the ground. Allan pointed out that he needs to get in the habit of not leaving any grain available, as he later found bear scat in the vicinity. Grizzly bears have not broken into the new, hopper-bottom grain bin.

Prior to instalment of the new grain bin, Allan and Zela estimate they incurred $1,280 in infrastructure damage and grain loss (160 bushels of barley $8/bushel; loss of storage space 50¢/bushel) since 2011. They ordered a Viterra bin from Saskatchewan and prepared the site for installation. To prepare the site, Allan hauled in gravel for the base. Once the bin arrived, he installed the lid and the bin is anchored with wires into the ground with bin anchors to withstand high winds. For detailed project expenses, see Table 10.
The Kormos’ think the carnivore mitigation project was positive and educational, particularly in understanding the options to prevent bears from eating easy-access grain. It was easy and timely, especially in understanding the cost-sharing. They are concerned, however, that if they make strides in securing their grain storage while their neighbours do not, they may not be accomplishing their mitigation goals. In addition, Allan would like to purchase another grain bin to increase storage and handling efficiency in the future.

Table 10. Cost-shared expenses for installing a hopper bin on Jillaroo Farms Ltd.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Cash $11,140</td>
</tr>
<tr>
<td>Grain Bin</td>
<td>Construction 10 h ($35/h, site prep and</td>
<td>In-Kind $150</td>
</tr>
<tr>
<td></td>
<td>anchoring)</td>
<td>Total $12,523</td>
</tr>
<tr>
<td></td>
<td>Equipment 4 h ($85/h, tractor, site</td>
<td></td>
</tr>
<tr>
<td></td>
<td>smoothing)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up / Maintenance 1 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cash $6,140</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-Kind $150</td>
<td></td>
</tr>
<tr>
<td>Landowner</td>
<td>4 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 h ($35/h, site prep and anchoring)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$7,155</td>
<td></td>
</tr>
<tr>
<td>AESRD</td>
<td>0.5 h</td>
<td>$2,500</td>
</tr>
<tr>
<td>Environment</td>
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</tr>
<tr>
<td>Canada</td>
<td></td>
<td>$2,500</td>
</tr>
<tr>
<td>WBRA</td>
<td>7 h</td>
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<tr>
<td></td>
<td>3 h</td>
<td>$350</td>
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<td>Total</td>
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<td>$11,140</td>
<td>$150</td>
</tr>
<tr>
<td></td>
<td>$12,523</td>
<td></td>
</tr>
</tbody>
</table>
Mac and Wendy Main
MX Ranch
Pincher Creek, Alberta

History of Large Carnivore Activity

Mac and Wendy Main ranch along Pincher Creek, in montane habitat with mixed aspen/conifer forest cover interspersed with open grasslands. Their home site is 14 km southwest of the town of Pincher Creek and 6 km north of the forest reserve boundary.

The Main family has ranched in the Pincher Creek area for four generations. In 1994, Mac and his family moved their ranch to its current location from lands bordering the Shell Waterton Gas Complex northwest of Twin Butte. The Main family filed suit against Shell in 2000. “The wells and springs were poisoned by sulfaline, a by-product of processing sour gas, and the plume of groundwater contamination stretched five miles,” says Mac, “We were fighting with Shell to put in a conservation easement to protect neighbours against industrial activities on the land we sold them.”

Due to MX Ranch’s location on Pincher Creek, a major wildlife corridor for ungulates and large carnivores, and proximity to the forest reserve, Mac and his family see abundant wildlife year round, particularly on parcels close to the forest reserve. “We worked with wolf researchers like Paul Paquet to fence off 80 acres with fladry, which works well with hot wires on the top and bottom, and fladry in between. But with high winds and snow drifting, it was extremely high maintenance. As soon as there was a hole in the fence, wolves went through it,” says Main. Mac has set up his own trail camera on the driveway, east of the house. “In 20 days, I got five black bears, four grizzly bears, and a wolf.”

In years past, Mac has had wolf packs den on their ranch property. Cougars, black and grizzly bears are also present. “Cougars and bears are on the increase. We get a blast of bear activity in the spring. It’s more in the fall though when we get hit hard, when they’re trying to bulk up,” says Main. Despite an increase in presence on the landscape, Mac says “I think bears are probably the easiest to manage.”

Neighbours experience similar levels of carnivore activity as MX Ranch. Of note, “A neighbour to the south has almost zero predator loss. They have a high human presence on the landscape because they’re moving daily, doing rotational grazing, and then sell calves in the fall and don’t over winter them. Not many people graze like that; it requires a lot of electric fencing and a big land base. Most guys are year round, versus a spring-fall operation.”
Attractants and Conflict Risk

MX Ranch is a cow/calf operation, with calving at the end of April and weaning in December. Mac will typically keep calves for a year. “I try to move the calving area’s to virgin ground every year; fresh, clean ground is very important in herd health.”

Mac and his family have two winter feed yards 6 km northeast of their home site. This site contains hay bales as well as feed pellets and grain storage. They started using ungulate fencing in 1996 to exclude elk and deer. The Mains utilize deadstock bins and ranch yard pick-up. “The [rendering] truck comes out and we get reimbursed for farmyard pick-up. The first few times they were slow, but once they came out and saw a grizzly on the carcass, they were prompt.”

“I like to see bears on the landscape but hope they don’t eat too much of my income, and the same with the wolves. I enjoy seeing all the animals here but there is a point where they hit that economic threshold.”

Mitigation Projects

Starting in 1998 elk and deer started pawing at the ungulate fence (8 ft.) to gain access to the stack yard. “Bears then entered the yard and began to dig underneath the grain bins and rip out the wooden floors to get at the grain,” says SACP’s Jeff Porter. Bears had also pounded on the grain bin walls from the outside to separate the metal seams, which let grain trickle out onto the ground.

In 2009, Fish and Wildlife Officer Jeff Zimmer installed a temporary electric fence and trail camera, which captured 6 individual bears in one photo. To prevent further loss of grain and damage to the grain bins, Mac poured concrete (5 inches thick) onto the existing wooden floor, with rebar, to secure the two steel bins. There was a loss of storage space in the bins, but “It was the cheapest and easiest way to put concrete in there. The bins were corrugated so it locked the concrete in, and won’t blow away now.” Mac also spent several hours pounding the bin walls back into place.

In October 2010, Mac completed a permanent electric fence surrounding the stack yard. The “Jurassic Park” fence aimed to eliminate human/bear conflicts and to protect livestock feed from predation, spoilage and loss. Mac, along with AESRD’s Greg Hale and SACP’s Jeff Porter, installed a seven-wire braided cable electric fence and gates powered by a solar powered fence energizer (Parmak 12). The gates have a moveable bottom outrigger wire...
Table 11. Cost-shared expenses for the Jurassic Park fence on the MX Ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Fence</td>
<td>Planning ($35/h)</td>
<td>22 h ($35/h) 16 h (tractor, $85/h) 19 h (mowing, weed whipping) $1,000 (patching wire, electric fencing, fence posts, gates)</td>
<td>$4,075</td>
</tr>
<tr>
<td>Landowner</td>
<td>8 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AESRD</td>
<td>1 h</td>
<td>$500 (fencing); $3,657 (fencing supplies)</td>
<td>$4,192</td>
</tr>
<tr>
<td>SACP</td>
<td>16 h</td>
<td>12 h 16 h</td>
<td>$1,540</td>
</tr>
<tr>
<td>DYCP</td>
<td>2 h</td>
<td>1 h</td>
<td>$105</td>
</tr>
<tr>
<td>Total</td>
<td>$945</td>
<td>$1,190 $1,360 $1,260 $5,157</td>
<td>$9,912</td>
</tr>
</tbody>
</table>

and dedicated lower wire power switches to allow for snow drifting in the winter. For detailed expenses, see Table 11 and Table 12.

With camera monitoring, there have been no wildlife breaches and no loss of feed or infrastructure damage since the Jurassic Park fence was installed. “This one project controlled most of the issues,” says Main. The fence requires maintenance, including mowing and weed whipping twice a year to keep the lower wires visible to animals, to eliminate grounding, and to minimize snow drifting. Mac’s suggestions for future improvement include “putting a power shut off switch on the east side of the fence, so I can safely open the gate from either side. Plus, I’d put the outriggers on the back gate for snow drifting and move the outrigger fiberglass posts up 2 inches around the whole fence.”

MX Ranch’s “Jurassic Park” fence secures the stackyard and grain bins with a 7-wire fence and solar charger. Photo: Annie Loosen
Table 12. Cost-shared expenses for pouring a concrete floor in two grain bins, on the MX Ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain Bin</td>
<td>Planning ($35/h) Construction</td>
<td>Maintenance ($35/h)</td>
<td>$1,900</td>
</tr>
<tr>
<td></td>
<td>6 h</td>
<td>2 h ($35/h)</td>
<td>$220</td>
</tr>
<tr>
<td></td>
<td>Landowner</td>
<td>($35/h) (concrete and rebar)</td>
<td>$1,400</td>
</tr>
<tr>
<td>AESRD</td>
<td>0.5 h</td>
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<td>$88</td>
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<td>2 h ($35/h)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$500 (cement truck)</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>$228</td>
<td>$640</td>
<td>$1,400</td>
</tr>
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History of Large Carnivore Activity

Clint and Cindy Marr’s Spearpoint Cattle Company lies 4 km south of Twin Butte along Dungarvan Creek. Spearpoint Cattle Co. land adjacent to the home site is in foothills parkland, with mixed aspen and open grassland. Forestry lease lands west of the Shell Waterton complex along Pincher Creek are similarly mixed aspen/conifer forests.

Clint has noticed a significant carnivore presence over the last decade. Black bears frequent their calving pens, which are less than 400 m from the house. “When bears take a calf, they may pack the calf off and eat it so there isn’t much left” for Fish and Wildlife to investigate, says Clint. Because private landowners are able to hunt black bears year-round, they are often seen as less of a management issue because “we can deal with them.” Cougar sign is common, and Clint suspects they spook his cattle in the pens and run them through fences. Wolves are “becoming more of a headache; we run cattle west of here and have wolves on all parcels.” Clint has had confirmed wolf kills on his western parcels. In addition, Clint uses his own trail cameras to monitor wildlife activity.

The Marrs have seen an increase in grizzly bears on Spearpoint Cattle Co. land. Last year, Clint saw bears on 20 to 30 occasions, but notes that he has seen an increase in younger bears in the spring. “It’s better now that we have three dogs, with only one dog, bears walked very close to the house.” Like many ranchers in the area, Clint carries a gun while working but notes that “it’s hard to fence when you’re deep in the bush and you’re carrying your fencing equipment. When you set the gun down and walk 50 yards to straighten the wire out, that gun is a long ways away.” Clint has found that dogs are good tools for detecting bears. “They give you good warning, but they can get you in trouble if they harass the bear and run back to you.”
**Attractants and Conflict Risk**

Spearpoint Cattle Company is a cow/calf operation, with calving areas in a half section to avoid overcrowding and associated disease. “I calve in a half section to avoid a scour situation.” Calving season typically starts around April 1st, with weaning at the end of October. “I usually don’t have a lot of bear problems with calving. I have cows that are very aware of bears.” Ranchers need to take many factors into account when timing calving and weaning, for instance timing of fall markets and grazing location. “We have to work with our environment to make sure the calves are old enough to survive on forestry. The timing of my calving and weaning works for me, but it happens to be when the bears are coming out.” Clint grazes six longhorn cattle with his beef cattle. “The longhorns protect the heifers and calves, and help the heifers become young mothers.”

Clint has been a deadstock participant in the past. “I don’t have a deadstock pile, but I had to put a horse down and dug a hole to bury it.”

Clint has a steel wall, wooden floor grain bin 300 m north of his house. In the spring, Clint stores feed pellets in the bin. “Every second year in the spring [the bears] pulled the factory door down like a sardine tin. They bent it so many times, I worried about cattle getting into the grain and bloating.” Fish and Wildlife Officers set up a culvert trap to capture the offending bear, without success. When the grain bin was empty, Clint also backed his truck up to the door to prevent bear access.

**Mitigation Project**

Tony Bruder, a Twin Butte rancher and President of DYCP, worked with Clint to install a bear-proof door in fall 2011. Before the door was welded into place, wildlife and domestic stock didn’t gain access to the grain, but there was estimated $1,000 in infrastructure damage. For detailed project costs, see Table 13.

Since it was installed, bears did “start to dig under the grain bin, and I was thinking I would have to put up an electric fence or pour a concrete floor. But they left and haven’t bothered me for a year or so. I do worry that if all the neighbours upgrade [to steel bins with concrete floors], then I’ll have to put in concrete, too.”

“The door was a really good thing.” It does not require any maintenance. “Small scale electric fencing is good, too. I also think a small, regulated targeted season would be good. The last open season for bears, only two to
three could be harvested so it was hard to get a tag and hunters were very dedicated. It also freed up Officer and Managers time, rancher time, and the hunter gets a nice trophy – it was a win-win situation. As a rancher you make lots of decisions with the tools available. The answer to living with large carnivores is having a number of tools to use."

Table 13. Cost-shared expenses for installing a bear-proof door on Clint Marr’s family ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Construction</td>
</tr>
<tr>
<td>Grain Bin</td>
<td>6 h</td>
<td>2 h ($35/h)</td>
</tr>
<tr>
<td>Landowner</td>
<td>.5 h</td>
<td>$190 (welding)</td>
</tr>
<tr>
<td>AESRD</td>
<td>1 h</td>
<td></td>
</tr>
<tr>
<td>DYCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$263</td>
<td>$260</td>
</tr>
</tbody>
</table>
History of Large Carnivore Activity

Blaine and Mary Ann Marr’s YU Cattle Company lies 4 km south and 3.5 km west of Twin Butte. Their home is midway between Dungarvan and Yarrow Creeks in foothills parkland. The mixed aspen and grassland is good forage for domestic stock, as well as ungulates.

In the past six to eight years, the Marrs have seen an increased grizzly presence on their land and leased land. In 2012, they had two confirmed grizzly bear kills, as well as a confirmed wolf kill. “Cougars often spook cattle in calving areas,” says Blaine. YU Cattle’s calving areas are all near the home site. Neighbours have also experienced livestock depredation, bear access to feed and grain, as well as standing oat crop damage. Blaine, as well as his neighbours, experience more grizzly depredations in the spring when their cattle are calving. Standing oat fields “are particularly badly hit after a dry summer like 2011, when bears are trying to bulk up for winter.” Wolf activity continues from late summer through winter, notes Blaine.

Attractants and Conflict Risk

YU Cattle Co. runs a cow/calf operation, with calving season starting in March and April. Calving grounds are on a half-section. Blaine typically begins weaning in mid-November. The Marrs recently signed up for the Pincher Creek deadstock removal program, which was initiated in April 2013.

In 2009, bears started digging at the wooden floor and tearing off the metal door of a steel walled grain bin. To temporarily reduce grizzly bear conflicts at Blaine’s steel grain bin, Fish and Wildlife Officer Perry Abramenko installed temporary electric fencing around the bin. “They worked to keep bears out, but they were difficult to feed through.” In addition, Perry installed trail cameras at the conflict site. Trail cameras help area residents better understand the species of wildlife visiting their ranches, farms, and acreages. “We found out there was more than one bear at the [grain bin] site,” says Blaine.
Table 14. Cost-shared expenses for Blaine Marr’s concrete floor and door installation.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain Bin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Construction</td>
</tr>
<tr>
<td>Landowner</td>
<td>2 h</td>
<td>6 h ($35/h)</td>
</tr>
<tr>
<td>AESRD</td>
<td>$125 (welding)</td>
<td></td>
</tr>
<tr>
<td>DYCP</td>
<td>1 h</td>
<td></td>
</tr>
<tr>
<td>WBRA</td>
<td>1 h</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$105</td>
<td>$335</td>
</tr>
</tbody>
</table>

**Mitigation Project**

Blaine applied for a mitigation project through WBR’s CWG. “The application process was easy. Once the project was complete, we received payment promptly.” Prior to the project, Blaine says, “I put off buying pellets for the heifers until after the bears denned, then tried to have them fed up when the bears come in the spring, but feed pellets usually cost more at that time of year. We’ll be saving money now that we can buy and store pellets when they are cheaper.”

Blaine worked with local rancher and President of DYCP Tony Bruder to install a bear-proof door and pour a concrete floor on the existing wood base. Prior to the project, Blaine estimates he experienced over $1,500 in building damage, and put in $700 of labour repairing the bin. For detailed project costs, see Table 14.

Since the project was completed, “[the bin] has worked great.” Blaine and Mary Ann are thinking about installing another grain bin at their feed lot. “We are very happy with project. Most importantly, it worked.”

Blaine and Mary Ann Marr’s secured grain bin, with a concrete floor and bear-proof door. Photo: Tony Bruder
Cal and Doris Wellman
Waterton, Alberta

History of Large Carnivore Activity

Cal Wellman has ranched in the Waterton Park Front since 1950; his family operated a dairy at the ranch headquarters in the 1930s and 1940s. The ranch is bisected by Highway 6, with Cottonwood Creek and Galway Brook on the northern and southern property boundaries, respectively. The Waterton River runs a few kilometers to the east. The Wellman home site is approximately 13 km north of the Waterton town site. The Wellman ranch is in foothills parkland, dominated by aspen and open grasslands. Their western quarters border Waterton Lakes National Park, and are typified by more montane systems.

For many years, Cal’s ranch has endured one of the heaviest presences of large carnivores on private property in southern Alberta. This is likely due to its location adjacent to Waterton Lakes National Park and the highly productive bear habitat provided by the ranch. Over the years, Cal has had significant black and grizzly bear presence throughout the year but numbers escalate in the spring and fall, particularly at his grain storage bins. Cal has never been comfortable with the significant presence of large carnivores on his ranch, and has relied extensively on lethal control as a method of decreasing conflict with large carnivores on his ranch.

Cal is concerned that by removing attractants such as feed grain and deadstock, bears will revert to killing live cattle. He thus does not take part in the deadstock removal program.

Bears have at times taken apart Cal’s wooden feed troughs in order to access grain stuck between the boards. Cal has rebuilt the troughs and continues to use them.

Attractants and Conflict Risk

Cal runs a cow-calf operation on the doorstep of Waterton Lakes National Park. The main bear attractants on the Wellman ranch have been stored grain, chop and pellets, and dead livestock.
Table 15. Cost-shared expenses for securing the Wellman’s grain bin.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Cash</td>
</tr>
<tr>
<td></td>
<td>Construction $35/h</td>
<td>$1050</td>
</tr>
<tr>
<td></td>
<td>Equipment $35/h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up / $35/h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintenance $35/h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landowner</td>
<td>10 h</td>
<td>$827 (bin modifications)</td>
</tr>
<tr>
<td></td>
<td>3 h ($35/h)</td>
<td>$1000 (bin setup)</td>
</tr>
<tr>
<td></td>
<td>2 h (tractor $85/h)</td>
<td>$500 (door)</td>
</tr>
<tr>
<td></td>
<td>3 h</td>
<td>$2500 (steel floor)</td>
</tr>
<tr>
<td>AESRD</td>
<td>1 h</td>
<td></td>
</tr>
<tr>
<td>NCC</td>
<td>40 h</td>
<td>$73 (cost shared bin setup)</td>
</tr>
<tr>
<td>Environment</td>
<td>5 h</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>15 h</td>
<td></td>
</tr>
<tr>
<td>SACP</td>
<td>22 h</td>
<td>$3700 (new bin)</td>
</tr>
<tr>
<td></td>
<td>5 h</td>
<td>$927 (ground anchoring)</td>
</tr>
<tr>
<td></td>
<td>4 h</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$2,555</td>
<td>$455</td>
</tr>
<tr>
<td></td>
<td>$1,085</td>
<td></td>
</tr>
</tbody>
</table>

Mitigation Projects

Since 2003, Fish and Wildlife Officers have worked with Cal to temporarily fence his wooden grain bins and encouraged him to upgrade his grain storage facility. After discussing the potential for grain storage upgrades a few times between 2005 and 2009, Kim Pearson of the Nature Conservancy of Canada approached Cal again in 2010; this time with funding available to support the project. In 2011, Cal partnered with the Nature Conservancy of Canada, Southwest Alberta Conservation Partnership, Waterton Biosphere Reserve Association, Alberta Fish and Wildlife, and Drywood Yarrow Conservation Partnership to install a new steel wall and floor bin with a bear-proof door. Cal removed the old grain bin and uses the new bin exclusively for grain storage. For detailed project costs, see Table 15.

The new bin has kept the grain dry and secure with no further issues reported regarding stored feed depredation. He continues to have bears visiting his yard site but this is expected to decrease as their memories of the previous bin fade.
History of Large Carnivore Activity

The Williams Ranch lies 7 km south of Mountain View along Tough Creek, a tributary to Lee Creek, which serves as a major wildlife corridor for ungulates and large carnivores. The Williams’ ranch is in foothills parkland, with mixed aspen/conifer forests and open grassland pastures.

Sharon and Darryl have had over ten years of bear, wolf, and cougar activity on their property. Grizzly bears cause him the most concern with regard to personal safety. “I work early morning and late evening, which are the most effective times to work, but that’s when the bears are most active,” says Darryl.

The Williams’ see grizzly bears mainly in spring, “But when dandelions emerge in mountains, they tend to go [west],” says Darryl. In 2006, there was a confirmed wolf attack on a calf less than 200 m from the barn. The Williams often see cougars and cougar sign, and suspect they are drawn to the area by the abundant deer and elk, which often calve on the western half of their property. The Williams had a confirmed calf attack by a lone male wolf in 2006. “The tail of the yearling was torn off and it dripped blood for about a week. But wolves getting into yearlings hasn’t been a regular thing,” says Darryl. Neighbours have documented predation on sheep, horses, and cattle by wolves, grizzly bears, and cougars.

Attractants and Conflict Risk

Sharon and Darryl run a cow/calf operation, with calving areas immediately adjacent to the barn off Tough Creek. Darryl has mules in a separate pasture near the calving pen. “If they are stomping or snorting, I know there is something there. Cougars have not killed any stock, but while hunting prey and during mating season, they have chased yearling cattle through the fence.”

Darryl sets up creep feeders for calves until mid-September and moves the feeder with the herd. Trail cameras on Darryl’s feeder have revealed regular bear presence. “Too many bears could restrict cattle movement into creep feeder,” says Darryl. Many ranchers in the Twin Butte area have phased out creep feeding, due to loss of grain and potential danger to livestock. Darryl and WBR Chair Jeff Bectell are currently working to engineer a trial bear-proof creep feeder. The Williams have been deadstock program participants for two years through Cardston County.
Mitigation Projects

Darryl and Sharon bucket feed pellets out of a steel walled, concrete floor grain bin in their ranch yard, 170 m from their home. Bucket feeding involves filling five gallon buckets with grain or pellets, and hauling buckets to the livestock. “We used to have a solid steel door, but the wind took it.” In its place, they covered the doorway with a tarp, which kept the grain dry.

However, the bears soon discovered the feed pellets behind the tarp. “[Fish and Wildlife Officer] Lyle Lester has photos of the incident that show grain scooped out and the tarp ripped to pieces. [It was] evident a bear had been there.” Darryl estimates he lost seven pounds of grain per day for 60 days. To temporarily restrict bear access, Lyle Lester gave Darryl a three-strand electric fence package to set up. Like many ranchers in the area, Darryl found the temporary fence cumbersome to work with on a daily basis. “It was too much work going in and out so often.”

In 2011, the Williams’ started working with area rancher and WBR Chair Jeff Bectell to install a bear-proof door on the grain bin. Of note, this was the first carnivore mitigation project with support from WBR. Unlike many bear-proof doors that have a latching mechanism, the Williams’ door has two bolts. “The standard doors would not work in this situation, so we had one custom made,” says Jeff Bectell. For detailed project expenses, see Table 16.

Since installment, the bear-proof door has kept the grain dry, but due to the tight fit of the door, snow melt from the roof collects at the base of the door and freezes. “When we put the bear-proof door on, it was so snug that ice built up at the base and prevented us from opening the door.” As a result, Darryl and Sharon chip ice away from the door each week.

“As long as bears are present in the area, they will continue to pass by the ranch due do its location along the creek,” says Jeff Bectell. In securing the grain bin, however, the Williams have reduced the amount of carnivore attractants in their farmyard. Since the project was installed, Darryl and Sharon have not had any bears gain access to their feed in this bin. The Williams’ agree, “The deadstock removal and grain bin retrofit [has been] very useful.”
Table 16. Cost-shared expenses for the Williams' bear-proof grain bin.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning ($35/h)</td>
<td>Construction</td>
<td></td>
</tr>
<tr>
<td>Grain Bin</td>
<td>Construction</td>
<td>Equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up /</td>
<td>Maintenance ($35/h)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td>(Cash In-Kind)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landowner</td>
<td>20 h</td>
<td>1 h ($35/h)</td>
<td>$770</td>
</tr>
<tr>
<td>AESRD</td>
<td>$808 (construction, installation)</td>
<td>$124 (door)</td>
<td>$932</td>
</tr>
<tr>
<td>WBRA</td>
<td>7 h</td>
<td>3 h</td>
<td>$350</td>
</tr>
<tr>
<td>Total</td>
<td>$945</td>
<td>$843</td>
<td>$140</td>
</tr>
<tr>
<td></td>
<td>$124</td>
<td></td>
<td>$2,052</td>
</tr>
</tbody>
</table>
**Bruno and Susan Yagos**
**Pincher Creek, Alberta**

**History of Large Carnivore Activity**

Bruno and Susan Yagos ranch along the Castle River, a major wildlife corridor within the front range of the southern Rockies. The Yagos ranch is in the open grasslands of foothills fescue, approximately 10 km west of Pincher Creek.

The Yagos’ have year-round carnivore presence on their ranch. “We had a couple of cougars around last year. They didn’t do any damage, but there were tracks at the [Castle River] where we have a corral for cattle.” Although the Yagos’ have not had any bear predation to date, their sign is increasing every year. “The bears come close to the house, passing through at night. Human safety is an issue, especially with the grandkids around.” Neighbours of the Yagos’ experience similar carnivore issues, particularly with cougars, grizzly bears, and wolves.

**Attractants and Conflict Risk**

Bruno farms cereal grains, and along with his wife Susan, runs a cow/calf operation. Calving times typically fall in March and weaning occurs in November. Bruno has 21 amalgamated feed and grain storage bins located 700 m from the home site.

To the Yagos’, the main attractant on their ranch is deadstock. Since BSE discovery in Alberta in 2003, the municipal landfill has not accepted dead cattle for disposal. In addition, the cost of pick-up by Southern Alberta Processers has been prohibitive for many producers. “We have issues with bears on deadstock, yes. We have no good place to dispose of the deadstock.” In spring 2013, the MD of Pincher Creek initiated a ranch yard pick-up program at no direct cost to the producer. “We will participate [in deadstock removal program] given the opportunity.”

**Mitigation Projects**

From 2008 to 2011, grizzly bears were gaining access to storage bins on the Yagos ranch. “At that time, one of the old grain bins was still functional. The bear used to just slap the door open with the latch, but the cubs couldn’t get in once and they made their own door around the back.” The Yagos’ worked with Fish and Wildlife Officers to utilize temporary bear deterrents, such as Critter Gitters. “They work by motion sensor and emit loud noise,” says SACP’s Jeff Porter, “It depends on how many times they challenge it, they might get used to it and then it doesn’t work as well.”
Table 17. Cost-shared expenses for installing a six-strand electric fence on the Yagos’ ranch.

<table>
<thead>
<tr>
<th>Project</th>
<th>Labour</th>
<th>Materials &amp; Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Fence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning ($35/h)</td>
<td>4 h</td>
<td>$16 (4 fence posts)</td>
</tr>
<tr>
<td>Construction</td>
<td>.5 h ($35/h)</td>
<td>$1761.45 (fencing supplies)</td>
</tr>
<tr>
<td>Equipment</td>
<td>.5 h (tractor $100/h)</td>
<td></td>
</tr>
<tr>
<td>Follow-up / Maintenance ($35/h)</td>
<td>2 h (weed whipping); 3 h (checking fence)</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$630</td>
<td>$1,744</td>
</tr>
<tr>
<td>In-Kind</td>
<td>$50</td>
<td>$560</td>
</tr>
<tr>
<td>Total</td>
<td>$1,777</td>
<td>$4,762</td>
</tr>
</tbody>
</table>

In 2011, Bruno worked with Jeff Porter and Officer Perry Abramenko to install a temporary fence around the 21 grain bins. Fish and Wildlife also set up two trail cameras to document the wildlife presence at the grain bin site. In 2012, a permanent six-strand fence was installed. Since the permanent fence was installed, the project “has worked to a certain extent. We have [trail camera] pictures of bears still getting in; they try and dig in the weak point of the fence. I am sure the fence is helping though.” During snowy times of the seasons bears are out, the second wire grounds out. “We never took the fence down during the winter, so the east end has snow drifting.” For detailed project costs, see Table 17.

To keep the electric fence operational, Bruno and Susan mow the grass inside the fence and weed whip twice a year. They are considering a one-time application of Roundup instead of weed whipping.
As evidenced by this report, community-based efforts to reduce conflicts with large carnivores in southwestern Alberta are well underway. However, ongoing work will be required as carnivores, particularly grizzly bears, continue to expand their use of habitat in the agricultural interface. Several conflict mitigation projects are in-progress or planned for 2013/2014. In addition to techniques described in this report, work will be focused on finding innovative solutions for complex attractant management issues. For example the use of “Sea-Can” containers and plastic bear-proof garbage cans is being explored to meet a range of feed and grain storage needs. Efforts will be ongoing to strengthen project documentation, monitoring of carnivore conflict sites, and evaluation of the efficacy of attractant management projects. With the addition of new carcass collection bins and expanded pick-up boundaries for 2013, subsidized deadstock pick-up will now be available for producers in large carnivore conflict areas of the MDs of Ranchland, Willow Creek, Pincher Creek, and Cardston County. Carcass composting at the Cardston County facility is underway and when the operational costs become more clearly defined, an analysis is planned to identify the most cost effective methods for the deadstock program across all municipalities.

The Waterton Biosphere Reserve Carnivore Working Group will continue to facilitate the completion of community-based, landowner driven attractant management projects. They will also pursue a number of other avenues to work towards finding a balance between large carnivores and people in southwestern Alberta. A communication strategy will be developed to broaden local awareness, engage additional landowners, transfer best practices for attractant management projects, and build effective working relationships with other key agencies, non-government organizations, and stakeholders. Efforts will be made to bring together information on husbandry and agricultural practice changes that have been shown to reduce the risk of carnivore conflicts. Opportunities to support existing husbandry and agricultural practice changes will be investigated.
To begin to address the economic impact of large carnivores on landowners, CWG developed a proposal for a pilot predator compensation program in 2013. The CWG will continue to seek support and funding for implementation of this predator compensation pilot in southwestern Alberta. The CWG will continue to support grizzly bear and wolf monitoring projects currently underway through collaborative fundraising, acting as a liaison between researchers and the community, and fostering active participation by individual landowners. The results of these studies will be used to develop long-term strategies that support conservation of grizzly bears and wolves while still respecting local landowner needs for economic security and personal safety.

The process of collecting the information required to complete this report revealed that the community-based effort to reduce conflicts with large carnivores in southwestern Alberta is complex and many-layered. Driven by community members, the progress made to date has been the result of the hard work and commitment of many individuals, groups, and government. Living with large carnivores is challenging, and a continuing commitment will be essential as we work to improve our knowledge and understanding related to large carnivore populations and identify strategies that can be employed to support the coexistence of large carnivores and ranching in southwestern Alberta.
Works Cited


Wilson, S. 2003. Landscape features and attractants that predispose grizzly bears to risk of conflicts with humans. Dissertation, University of Montana, Missoula, MT, USA.
