2017-2020 Carnivores and Communities Program

As Per Grant Agreement 18GROSS01
between
Alberta Environment & Parks (AEP)
and
Waterton Biosphere Reserve Association (WBRA)

Interim Progress Report II

March 2018
Introduction

In August 2017 the Waterton Biosphere Reserve Association (WBRA) received a grant of $125,000 from Alberta Environment and Parks (AEP) to support the work of WBR’s Carnivores and Communities Program (CACP) for the 2017-2018 project year, including its Carnivore Working Group (CWG). Note that this payment was the first annual payment for a three year - $375,000 grant (18GROSS01) to support WBR’s CACP from April 1, 2017 to March 31, 2020.

The CACP works with landowners and other partners in the municipalities of Ranchland, Willow Creek, Pincher Creek, and Cardston to reduce conflicts between people and large carnivores, a benefit to both human and large carnivore populations. The CACP is a multi-faceted program and targets reducing attractants for large carnivores, reducing the economic impact on landowners coexisting with large carnivores, and enhancing the safety of all residents. Please visit the WBRA website at http://www.watertonbiosphere.com/projects/carnivores-communities/ for further background information about the CACP and the CWG.

This document, Interim Progress Report II, reports on progress made for the first year of the grant, covering the period between April 1, 2017 and March 22, 2018 and includes three main sections as follows:

Activities and Accomplishments – This section presents results achieved for each of the key activities identified by the workplan.
Financial Update – This section outlines funds spent from this grant from April 1, 2017 to March 22, 2018. It also highlights other funding leveraged to complete CACP related projects.
Workplan Update – This section contains the updated workplan for the 2018-2019 project year.

Activities and Accomplishments

<table>
<thead>
<tr>
<th>GOAL#1: To maintain an effective carnivore working group with strong collaborative partnerships.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Activities</strong></td>
</tr>
<tr>
<td>&gt;Maintain and strengthen the CWG with regular communication via email and meetings as required (at least 3 per year).</td>
</tr>
<tr>
<td>&gt;Review the CWG membership and Terms of Reference annually and modify if required.</td>
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<td>&gt;Actively engage other agencies / NGOs / stakeholders as appropriate to meet program needs.</td>
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</table>
GOAL#2: To support the completion of landowner-driven projects & other agricultural practice change efforts that reduce human carnivore conflicts.

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>April 1, 2017 to March 22, 2018</th>
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</table>
| >Solicit and implement attractant management projects at conflict sites. | >Eight projects to restrict large carnivores, primarily grizzly bears, from accessing grain, livestock and other attractants were completed at 7 locations with 5 landowners. An additional project is approved with materials being obtained:  
✓ One sea can has been installed for grain storage.  
✓ Five grain bin projects have been completed.  
✓ Two electric fence projects have been completed. |
| >Distribute remaining stock of bear-resistant garbage bins. | >To date 25 bear-resistant garbage bins have been distributed (8 remaining in stock). |
| >Continue to support the deadstock pickup program in high carnivore conflict areas within the municipalities of Ranchland, Willow Creek, Pincher Creek and Cardston. | >WBR’s Deadstock Removal Program successfully operated during the period of this report in an area which includes over 500,000 hectares within the municipalities of Cardston, Pincher Creek, Ranchland and Willow Creek. A summary for the deadstock program for the 2017 calendar year shows the following statistics:  
✓ 11 deadstock bins were in use in the MD of Pincher Creek and Cardston County in 2017  
✓ West Coast Reductions emptied the deadstock bins in Pincher Creek and Cardston and provided on-farm pickup in all four municipalities  
✓ At least 579 carcasses were collected in 2017 and 92 producers participated in the program. The number of carcasses removed is up 11% from 2016. The number of producers participating in the program has remained relatively constant.  
✓ The cash cost for the 2017 calendar year was $60,121.55 with the municipalities and landowners contributing additional in-kind maintenance and administration not accounted for in our cash costs.  
✓ Average cost per head was $103.84. |
| >Bring together involved parties to resume local deadstock pickup and composting in Cardston County, including development of a transferable model. | >Efforts are ongoing to resume local pickup and composting in Cardston County. Jeff Bectell, Andrea Morehouse, and Mark Heckbert met with the board of the Pincher Creek landfill to discuss deadstock removal and composting on September 20, 2017.  
>Discussions with municipal representatives occur regularly as all partners work together to ensure that the program continues to function safely and effectively within the regulatory framework. |
| >Explore the merits of on farm composting of deadstock where appropriate, including public meetings, guidelines and a pilot project. | >In progress. This continues to be something that some producers (in the CACP area, and in the rest of the province) show some interest in. |
> Identify, promote and support new and existing husbandry and agricultural practice change to reduce carnivore conflicts.

> The CWG continues to discuss new alternatives. Topics such as the applicability of livestock guardian dogs with cattle and range riding continue to be discussed. The CACP community meetings in December 2017 featured a speaker on the use of livestock guardian dogs as a tool to prevent predation (see below).

**GOAL#3: To develop a common knowledge base and effective communication strategies related to large carnivore issues.**

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<th>Key Activities</th>
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<tr>
<td>&gt; Continue with distribution of 2008-2012 and 2013-2014 summaries of attractant management projects.</td>
<td>&gt;The 2013-2014 and 2008-2012 reports continue to be made available at presentation and events. To date we have distributed 373 hard copies of the 2008-2012 report and 170 copies of the 2013-2014 report. The reports can also be found online at <a href="http://www.watertonbiosphere.com/resources/carnivores/">http://www.watertonbiosphere.com/resources/carnivores/</a>.</td>
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<tr>
<td>&gt; Initiate project to gather information, conduct producer interviews, and prepare a summary of 2015-2016 attractant management projects (including bear-resistant garbage bins).</td>
<td>&gt; We are seeking funding for a new report describing projects completed in 2015-2016 but have not yet been successful.</td>
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<td>&gt; Continue to distribute the WBRA Carnivores and Communities Program technical guides.</td>
<td>&gt; To date, more than 235 technical guides have been distributed to landowners and other interested parties. The Deadstock Removal guide was updated in November 2017. The three technical guides are also available on the WBRA website <a href="http://www.watertonbiosphere.com/resources/carnivores/">http://www.watertonbiosphere.com/resources/carnivores/</a>.</td>
</tr>
<tr>
<td>&gt; Host at least one producer seminar on agricultural practices that may reduce conflict, this might include information on livestock guardian dogs, or range riding techniques.</td>
<td>&gt; We hosted Cat Urbigkit (<a href="http://paradisesheep.com/index.html">http://paradisesheep.com/index.html</a>) at our CACP community meetings in December 2017. A Wyoming rancher and writer knowledgeable in the use of livestock guardian dogs, Cat shared her expertise in the use of dogs to protect livestock from carnivore depredation.</td>
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<td>&gt; Host at least one bear safety training workshop annually to raise awareness, increase the safety of ranch families, and encourage the adoption of best practices to reduce conflict with large carnivores.</td>
<td>&gt; A bear safety workshop was held June 23, 2017 in Cardston, AB with the assistance of Jay Honeyman (AEP, Bear Conflict Solutions) and Mike Gibeau (Southern Alberta Land Trust Society). Annie Loosen presented the Bear Discovery Trail for youth who attended. There were 23 people in attendance.</td>
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<td>&gt; In cooperation with AEP, ensure that conflict data are made available to the community in a timely fashion.</td>
<td>&gt; Conflict reporting and mapping for 2017 is currently being completed by AEP staff. Occurrence reports and conflict mapping continue to be viewed by WBRA and the community as important ways to evaluate progress and communicate reported conflict levels. We are pleased that this reporting has continued.</td>
</tr>
<tr>
<td>&gt; Support, design and deliver education and outreach activities including website, e-newsletter, social media, workshops, tours, training, and field days to meet community needs and share information and experience with other</td>
<td>&gt; Outreach and education continue to be delivered via the WBRA website, Facebook page, e-newsletters, and the <a href="http://www.sharingtherange.com">Sharing the Range video</a>.</td>
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<td></td>
<td>&gt; The WBR website continues to be a source of information about the CACP. During this project year 2315 website views were related to the CACP. The CACP project page (1292 views) and the CACP Resources page (312 views) were visited most often. The GBMP study results (137 views), grizzly bear related news page items (98 views)</td>
</tr>
</tbody>
</table>
communities, this will include continued distribution of the Sharing The Range video and promotion of its message.

and the 2017 bear safety workshop (74 views) webpages also were popular.

>Our Facebook page and e-newsletter often feature large carnivore related materials. Top viewed CACP related posts for 2017/2018 were the deadstock article we submitted to the Pincher Creek Voice in August reaching 1136 people and a reminder about our large carnivore movie Sharing the Range reaching 692.

>Email is still a good communication tool, utilized to reach the local and regional audience (more than 600 contacts).

>WBR’s Sharing the Range movie received 433 visits on the website this year and there have been 2072 views on You Tube to date, with 428 views for the Sharing the Range trailer.

>In addition, a number of presentations, community meetings, and tours have been held as follows:

✓ Jeff Bectell presented to the Leavitt Scouts and Venturers on April 11, 2017 and the Father and Sons Camp in Magrath on May 12, 2017.

✓ Annie Loosen, Andrea Morehouse and other WBRA volunteers presented the Bear Discovery Trail on May 24th, 2017 as part of the Day on the Creek event held in Pincher Creek with more than 600 students and teachers attending.

✓ Jeff Bectell, Andrea Morehouse, Tony Bruder and several other landowners and CWG members hosted a field tour for a group visiting from Slovenia on May 25th, 2017. Seth Wilson with the Blackfoot Challenge brought colleagues from Slovenia to Alberta where we discussed CACP projects and some of the challenges associated with sharing the landscape with large carnivores.

✓ Andrea Morehouse presented on grizzly bears and CACP mitigation work to a group of NCC volunteers in the Crowsnest Pass on July 27th, 2017.

✓ To further share information about our deadstock removal program, we wrote an article that appeared in the Pincher Creek voice (Aug 9, 2017):


✓ Andrea Morehouse, CWG member Shane Hansen, and Mike Bruised Head from the Blood Tribe hosted a tour on August 25, 2017 for students from the University of Guelph. Part of the day focussed on grizzly bear population and distribution, large carnivore conflicts with agriculture, and the CACP work.

✓ Andrea Morehouse and Annie Loosen presented the Bear Discovery Trail to 93 students from Cardston Elementary School along with their teachers and parent volunteers at the Wetland Field Day event in Police Outpost Provincial Park on September 28, 2017.

✓ Andrea Morehouse presented in Kalispell, MT at a Heart of the Rockies meeting on October 2, 2017. She shared information about the CACP, the mitigation work, and how carnivore research has been integrated into those efforts.

✓ Jeff Bectell, Andrea Morehouse, and some of the CACP mitigation projects were featured in a CTV documentary on grizzly bear recovery in the province. This aired on October 7, 2017 (view at http://calgary.ctvnews.ca/video?clipId=1226844&binId=1.1201926 &playlistPageNum=1).

✓ Andrea Morehouse presented information on the CACP to an audience of 120 people as part of the MD of Bighorn’s annual
Living in the Environment event. The event took place in Cochrane on February 2, 2018.

- Several members of the WBRA board and Staff attended the NCC Eat and Greet in Twin Butte on March 1, 2018. We set up the WBR display, including handouts and information on the CACP.
- Tony Bruder and Jeff Bectell attended the Ag Service Board meeting of the M.D. of Pincher Creek on March 1, 2018. This was a good opportunity to build the partnership on the deadstock program.
- Tony Bruder presented at a producer meeting sponsored by the Pincher Creep Co-op on March 2, 2018. The Co-op anticipates holding this event annually and has requested that WBR present again next year.

> Conduct community meetings as required, but at least once every 18 months (at Chain Lakes, Pincher Creek, and Cardston).

> Community meetings were held in Cardston on December 6, 2017 and in Chain Lakes and Pincher Creek on December 7, 2017. Program updates were provided and featured speakers included Annie Loosen (Southwest Alberta Black Bear Monitoring Project) and Cat Urbigkit (ranching with livestock guardian dogs). More than 75 people attending these meetings.

**GOAL#4: To encourage development of a long-term strategy for balancing coexistence of large carnivores and humans in Southwestern Alberta that recognizes the need for conflict reduction, predation compensation, and wildlife management.**

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<tr>
<td>&gt; Continue to support implementation of a modified/enhanced predator compensation program.</td>
<td>&gt; Enhancements to the predator compensation program continue to be highlighted within the community as a pressing need. The recommendations contained in the WBRA report (<a href="http://watertonbiosphere.com/uploads/biosphere-resources_36_3809318697.pdf">http://watertonbiosphere.com/uploads/biosphere-resources_36_3809318697.pdf</a>), which were presented to the government in February 2013, remain the basis for discussion of these enhancements. &gt; Scheduling of meaningful meetings with government to move these recommendations forward has been a challenge. In spite of a number of meetings as highlighted in previous reports, and direct discussion of the issue with Minister Phillips (Oct 2015) and Minister Carlier (Oct 2016), there has been no progress yet with respect to implementing recommendations. &gt; Tony Bruder, Jeff Bectell, Andrea Morehouse and other representatives from the community met with Greg Hale and Mark Heckbert on June 28, 2017 to discuss the above issues. &gt; Ongoing dialogue between WBRA and Alberta Beef Producers is occurring in order to find effective ways to resolve concerns.</td>
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<td>&gt; Work to improve the community dynamics around livestock mortality investigations by facilitating communication between Fish &amp; Wildlife Officers and the community and exploring potential collaborative initiatives such as a livestock mortality investigation workshop for landowners, veterinary-led (or supported) autopsies for mortalities where the cause of</td>
<td>&gt; In progress</td>
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death is unknown, and training of community members for mortality investigation.

> In partnership with government and other groups and agencies, identify and begin to quantify economic impacts/funding needs beyond those addressed by the predator compensation program, this could include discussions on the merits of ecosystem services models.

> Information on WBRA and the CACP program has been posted on the Ecosystem Services and Biodiversity Network website at https://ecoservicesnetwork.ca/toolkit/sharing-the-range-with-bears-and-wolves-in-southwe/

> Alberta Beef Producers has also recently listed the CACP program on their directory of Ecosystem Services Programs in Alberta at https://www.albertabeef.org/uploads/ABESprogramspdf-756.pdf

> Continue to build relationships with government departments, NGOs, foundations, and others in an effort to secure ongoing and future support for coexistence of large carnivores and communities; must include program security, staff support, and financial resources.

> Receiving a three year, $325,000 grant from AEP will not only support the CACP program but will allow long-term planning, staff retention, and effective leveraging of other funds.

> The municipalities of Pincher Creek, Ranchland, Willow Creek and Cardston County continue to work with us and provide administrative support to the deadstock pickup program.

> CACP also continues to receive critical in-kind support from landowners, AEP, Alberta Fish and Wildlife Officers, Canadian Food & Inspection Agency, and others

> Provide a conduit for information and a voice for the community as the new Grizzly Bear Recovery Plan is delivered.

> The draft Grizzly Bear Recovery Plan (released June 2016) has not yet been finalized. WBRA anticipates that when the finalized plan is released we will continue to aid in disseminating the Plan, and providing a conduit for community feedback.

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**GOAL#5: To ensure effective project management and evaluation**

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<tr>
<th>Key Activities</th>
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<tr>
<td>&gt; Update workplan annually with CWG.</td>
<td>&gt; An updated workplan for 2018/2019 is included in this report.</td>
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<tr>
<td>&gt; Complete progress reports / final reporting for funders and partners as required.</td>
<td>&gt; Interim and final reports have been submitted to AEP and other funders as required.</td>
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<tr>
<td>&gt; Develop a plan for evaluation of the CACP including the effectiveness of past conflict reduction efforts (deadstock removal and attractant management projects) and the level of producer engagement and/or barriers to engagement in attractant management projects and agricultural practice/lifestyle changes. These activities will be undertaken in the 2017-18 fiscal year to allow for completion of program evaluation efforts beginning in 2018-2019.</td>
<td>&gt; An evaluation framework has been completed (see attached) and to date we have completed the following: ✓ Reviewed and consolidated information related to the costs of the deadstock pick up program. This includes information regarding the use of deadstock bins, on-farm pickup, and composting costs. The average cost per head for composting in Cardston County was $36.89. This is approximately half the cost of non-composting deadstock pickup in the other municipalities in 2013 and 2014 ($98.50/head). Deadstock removal pickup fees increased in February 2015, and the average cost per head of deadstock removal across all municipalities from 2013 through 2017 was $110.73 (excludes 2013-14 composting costs from Cardston). Thus, our available data suggest that composting is a cost-efficient removal option. ✓ Since 2009, over 3500 dead livestock have been removed from the deadstock removal zone. Between 2013 and 2017, an average</td>
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✓ Document the number and location of deadstock removals, the number of people participating in the program, the percentage of dead livestock within each municipality that are being removed.

✓ Review and consolidate financial information in preparation for comparison of costs for various options for removal of deadstock from the landscape (i.e. pick-up program, removal by West Coast Reductions, centralized composting, on-site composting and electric fencing etc.)

✓ Develop a GIS database of attractant management projects (including deadstock removal) in preparation for development of a risk model to evaluate spatial and temporal patterns of grizzly bear agricultural conflicts prior to and after the establishment of the CACP.

> Develop a mail out/mail back (or online) questionnaire to evaluate producer awareness of and use of available programs (e.g. carcass disposal bins, electric fencing, bear-proof grain bins), any barriers to participation they may experience, and whether or not they perceive conflicts with large carnivores to have decreased in response to their participation in these programs (for delivery in 2018-2019).

> Ongoing: We have secured funding for this objective from the Kenneth Molson Foundation and the Christine Stevens Wildlife Award. We have worked with Courtney Hughes, a social scientist with Alberta Environment and Parks to develop a social survey. Ranchers and producers within our program area are the target audience for this survey. The primary goal of the survey is to evaluate the effectiveness of the CACP. Additionally, we have included some questions to follow up on the 2011 social survey completed by the Miistakis Institute. We currently have an online draft survey that we have distributed to the Carnivore Working Group as well as the WBRA board of directors for feedback. We will continue to refine the survey based on the feedback that we receive and are targeting early April for the distribution of a “live” online survey. We will then follow up with a mail out/mail back version of the survey as needed depending on response rate.

> Continue to seek resources to fully fund ongoing program.

> In addition to the AEP grant, we applied for six grants for the 2017/2018 year but were only successful in receiving two to support evaluation of the CACP program, the Christine Stevens Wildlife Award ($12,461) and Kenneth M. Molson Foundation grant ($24,000). We continue to seek additional funds from a variety of sources.

of 600 animals were removed each year. During that same time frame, an average of 94 producers participated in the program each year. We have estimated that 36.81% of the total private land base within the MDs of Pincher Creek, Ranchlands, Willow Creek, and Cardston County is within the CACP deadstock zone boundary. Applying this percent (36.81) to data from Alberta Agriculture, we estimate that within the deadstock zone there are approximately 430 farms and 139,563 head of cattle. If we assume an average death rate of 2.92%, we estimate that there are approximately 4,075 cattle deaths per year. Thus, the CACP deadstock removal program is removing approximately 15% of the dead livestock in our program area. This information is preliminary and we are currently working to refine these estimates.

✓ Since the program began in 2009, 73 attractant management projects have been completed. We are in the process of developing a GIS database.
Financial Update

A statement of revenue and expenses for the WBRA Carnivores and Communities Program from April 1, 2017 to March 22, 2018 is presented in Table 1. All funds from AEP plus interest earned ($450.63) and other leveraged funding is included. Over the 11.5 months covered by this report, a total of $142,194.61 AEP fund were spent ($38488.35 carried over from AEP 2016/2017 plus $103706.26 from the current grant). A total of $4791.32 from other sources was also spent on the Carnivores and Communities Program bringing the total annual program for 2017/2018 to date to $146985.93. AEP funds therefore provided 97% of the program funding for 2017/18. The highest program costs are for contract staff (43%) and the deadstock pickup program (34%).

It should be noted that these numbers do not represent the full extent of resources directed towards human-carnivore conflict reduction initiatives in southwestern Alberta during the project period. In-kind resources provided by landowners, AEP, municipalities, and others to the initiatives completed during this project were not fully tracked, but were significant.

Waterston Biosphere Reserve Association

Carnivores & Communities Program Statement of Operations

For the Period from April 1, 2017 to March 22, 2018

<table>
<thead>
<tr>
<th>Financial Update</th>
<th>AEP Grant</th>
<th>Christine Stevens Award</th>
<th>Kenneth M Molson (2017/18)</th>
<th>Other CACP (non-grant)</th>
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<tbody>
<tr>
<td><strong>WBRA Grant Revenue</strong></td>
<td>$148,481.00</td>
<td>$125,000.00</td>
<td>$12,481.00</td>
<td>$12,000.00</td>
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<tr>
<td><strong>Interest Earned</strong></td>
<td>$450.63</td>
<td>$450.63</td>
<td></td>
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<tr>
<td><strong>Other Revenue</strong></td>
<td>$1,720.16</td>
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<td>$1,720.16</td>
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<tr>
<td><strong>Total Revenue</strong></td>
<td>$151,651.79</td>
<td>$125,450.63</td>
<td>$12,481.00</td>
<td>$12,000.00</td>
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**EXPENSES**

| Executive Director Contract | $19,259.46 | $17,456.02 | $1,803.44 |
| CACP Coordinator Contract | $11,261.28 | $11,261.28 | | |
| CWG PC Area Coord Contract | $5,344.78 | $3,344.78 | | |
| Comm Coordinator Contract | $2,023.22 | $2,023.22 | | |
| Sci/Stewardsnship Coord Contract | $25,403.80 | $25,515.92 | $249.71 | $538.17 |
| Other WBRA Contract Services | $537.60 | $537.60 | | |
| Communication | $1,391.34 | $1,391.34 | | |
| Material & Supplies | | | | |
| Food & Beverages | $469.26 | $469.26 | | |
| Office Supplies (incl Postage) | $71.70 | $71.70 | | |
| Attractant Mgmt Project M&S | $7,661.65 | $7,661.65 | | |
| Other Materials & Supplies | $1,193.24 | $1,193.24 | | |
| Travel | $4,695.40 | $4,695.40 | | |
| Other Expenses | | | | |
| Bank Charges and Interest Paid | $7.50 | $7.50 | | |
| Deadstock Pickup | $50,000.00 | $50,000.00 | | |
| Project Mgmt Cost Recov - Expense | $15,000.00 | $15,000.00 | | |
| Venue Rental | $415.00 | $415.00 | | |
| Other Expenses | $2,750.70 | $2,750.70 | | $2,100.00 |
| **Total Expenses** | $148,985.93 | $142,194.51 | $249.71 | $2,441.61 | $2,100.00 |
| **SURPLUS/(DEFICIT), Current Period** | $4,655.86 | $-16,743.98 | $12,211.29 | $9,558.39 | $-370.84 |
| **SURPLUS/(DEFICIT), Previous Year** | $44,516.05 | $35,486.35 | $0.00 | $0.00 | $6,027.70 |
| **SURPLUS/(DEFICIT), TOTAL** | $49,161.91 | $21,744.37 | $12,211.29 | $9,558.39 | $5,647.86 |

*Table 1. Statement of Operations – Carnivores and Communities Program (Apr 1, 2017 to Mar 22, 2018)*
Workplan Update

Waterton Biosphere Reserve Carnivores and Communities Program
Work Plan 2018-2019
March 2018

GOAL#1: To maintain an effective community-based carnivore working group with strong collaborative partnerships.

Key Activities
- Maintain and strengthen the Carnivore Working Group (CWG) with regular communication via email and meetings as required (at least 3 per year).
- Review the CWG membership and Terms of Reference annually and modify if required.
- Actively engage other agencies / NGOs / stakeholders as appropriate to meet program needs.

GOAL#2: To support the completion of landowner-driven projects & other agricultural practice change efforts that reduce human carnivore conflicts.

Key Activities
- Solicit and implement attractant management projects at conflict sites.
- Distribute remaining stock of bear-resistant garbage bins and evaluate program.
- Continue to support the deadstock pickup program in high carnivore conflict areas within the municipalities of Ranchland, Willow Creek, Pincher Creek and Cardston.
- Continue to work with involved parties to resume local deadstock pick-up and composting in Cardston County, including possible establishment of a pad, berm and catch basin for outside composting and development of a transferable model.
- Explore the merits of on farm composting of deadstock where appropriate, including public meetings, guidelines and a pilot project.
- Identify, promote and support new and existing husbandry and agricultural practice change to reduce carnivore conflicts including the addition of information on the WBR website with links to successful conflict reduction techniques that have been tried elsewhere.

GOAL#3: To develop a common knowledge base and effective communication strategies related to large carnivore issues.

Key Activities
- Complete project documentation, conduct producer interviews, and prepare a summary of 2015-2018 attractant management projects (including bear-resistant garbage bins).
- Continue to distribute the WBRA Carnivores and Communities Program technical guides.
- Host at least one producer seminar on agricultural practices that may reduce conflict, this might include information on range riding or electric fencing techniques.
- Host at least one bear safety training workshop annually to raise awareness, increase the safety of ranch families, and encourage the adoption of best practices to reduce conflict with large carnivores.
- In cooperation with AEP, ensure that conflict data are made available to the community in a timely fashion.
- Support, design and deliver education and outreach activities including website, e-newsletter, social media, workshops, tours, training, and field days to meet community needs and share information and experience with other communities, this will include continued distribution of the Sharing The Range video and promotion of its message.
- Attend and present information on the CACP at relevant conferences to reach a broader audience.
and learn from other biologists, managers, communities, and NGOs working on similar issues in other areas.
- Conduct community meetings as required, but at least once every 18 months

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<td>- Continue to support implementation of a modified/enhanced predator compensation program.</td>
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<td>- In partnership with government and other groups and agencies, identify and begin to quantify economic impacts/funding needs beyond those addressed by the predator compensation program, this could include discussions on the merits of ecosystem services models.</td>
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<td>- Provide a conduit for information and a voice for the community as the new Grizzly Bear Recovery Plan is delivered.</td>
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<tr>
<th>GOAL#5: To ensure effective project management and evaluation</th>
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<tr>
<td><strong>Key Activities</strong></td>
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<tr>
<td>- Review workplan annually with CWG.</td>
</tr>
<tr>
<td>- Complete progress reports / final reporting for funders and partners as required.</td>
</tr>
<tr>
<td>- Continue to implement the CACP Evaluation Plan. The following activities will be undertaken in the 2018-19 fiscal year.</td>
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<tr>
<td>- further refine the estimate of the number and location of deadstock removals, the number of people participating in the program, and the percentage of dead livestock within each municipality that are being removed as part of the CACP deadstock removal program</td>
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<tr>
<td>- refine the consolidation of financial information related to the deadstock removal program as needed</td>
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<tr>
<td>- finalize a GIS database of attractant management projects</td>
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<td>- evaluate spatial and temporal trends in grizzly bear agricultural conflicts before vs. after the establishment of the CACP</td>
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<td>- refine and then deliver a mail out/mail back (or online) questionnaire drafted in March 2018 to evaluate producer awareness of and use of available programs (e.g. carcass disposal bins, electric fencing, bear-proof grain bins), any barriers to participation they may experience, and whether or not they perceive conflicts with large carnivores to have decreased in response to their participation in these programs.</td>
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<tr>
<td>- analyze and report on the results of the social survey</td>
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<tr>
<td>- Continue to seek resources to fully fund ongoing program.</td>
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</table>
Additional Resources

Carnivores and Communities Program presentations and events:

- Apr 11, 2017  Scouts and Venturers (Levitt)
- May 12, 2017  Father and Sons Camp (Magrath)
- May 24, 2017  Day on the Creek (Bear Discovery Trail) (Pincher Creek)
- May 25, 2017  CACP Field tour with group from Slovenia (WBR)
- June 23, 2017  Bear Safety Workshop and Bear Discovery Trail (Cardston)
- July 14, 2017  WBRA AGM / CACP program update (Waterton Lakes)
- July 27, 2017  NCC Volunteer Day presentation (Crowsnest Pass)
- Aug 25, 2017  Field day with students from Guelph University (WBR)
- Sept 28, 2017  Wetland Field Day (Bear Discovery Trail)
- Oct 2, 2017  Heart of the Rockies Partnership Meeting presentation (Kallispell)
- Dec 6 & 7, 2017  CACP Community Meetings (Cardston, Chain Lakes, Pincher Creek)
- Feb 2, 2018  Living in the Natural Environment presentation (Cochrane)
- Mar 1, 2018  MD of Pincher Creek Ag Service Board (Pincher Creek)
- Mar 1, 2018  NCC Eat and Greet – display (Twin Butte)
- Mar 2, 2018  Pincher Creek Coop Producer Meeting presentation (Pincher Creek)

Selected media related to the project

2017 – Environment Canada and Climate Change - Habitat Stewardship Program - Reducing Conflict with Large Carnivores in the Waterton Biosphere Reserve
https://www.ec.gc.ca/nature/8926CA7E-BE49-491E-AA82-1A64C91F08BB/7453_waterton_eng.pdf

August 2017 – Andrea Morehouse, Pincher Creek Voice - Deadstock Removal Program continues in the Waterton Biosphere Reserve

August 2017 – Kate Willis, University of Alberta – Faculty of Science News - Keeping Alberta's wildlife wild

October 2017 – CTV Documentary – A Grizzly Debate
http://calgary.ctvnews.ca/video?clipId=1226844&binId=1.1201926&playlistPageNum=1

January 2018 – Kate Willis, University of Alberta – Faculty of Science News - Reimbursing ranchers for livestock killed by predators supports conservation efforts

January 2018 – Colette Derworiz, Canadian Press - Predator compensation program for ranchers helps conservation efforts: study
Waterton Biosphere Reserve  
Carnivore Working Group (CWG) Committee  
Terms of Reference  
(Updated October 2017)

Introduction and Background

Waterton Biosphere Reserve’s Carnivore Working Group (CWG) was established in the fall of 2011 as a committee of the Waterton Biosphere Reserve Association (WBRA). The impetus for formation of the CWG was the receipt of funds under a 2011-2014 Memorandum of Understanding (2011-2014 MOU) between WBRA and Alberta Environment and Parks (AEP) (then Alberta Environment and Sustainable Resource Development). These funds were to support “project initiatives to reduce human-carnivore conflict issues in Southwestern Alberta, with a specific focus on grizzly bears, black bears, and wolves”. One of the requirements of the 2011-2014 MOU was that a community-based, landowner driven, working group be established. The WBRA established the CWG committee on October 13, 2011 and the inaugural committee meeting was held on October 17, 2011. The CWG is the third carnivore focussed landowner - government group in southwestern Alberta, and follows the Large Carnivore Communication Committee (2010-2011) and the Carnivore Advisory Group (2003-2007).

While originally established to meet the requirements of the 2011-2014 MOU, the CWG has since been maintained as a valuable community-based committee providing direction and guidance to the WBR’s Carnivores and Communities Program (CACP). WBR’s CACP was launched in 2009 with a landowner survey addressing large carnivore issues and financial support in 2009 and 2010 to the Drywood Yarrow Conservation Partnership, Chief Mountain Land Owners Information Network and Nature Conservancy of Canada for deadstock pickup and attractant management projects in the municipalities of Pincher Creek and Cardston. With the signing of the 2011-2014 MOU, the CACP expanded to include the MD of Ranchland and the western portion of the MD of Willow Creek. AEP has continued to provide funding to the CACP with annual grants. This provincial funding has also been used to leverage support from other funders including Environment Canada, Alberta Innovates BioSolutions, Alberta Ecotrust, Yellowstone to Yukon Conservation Initiative, Shell Fuelling Change, Canadian Agricultural Safety Association, and others.

This document provides a Terms of Reference for Waterton Biosphere Reserve’s CWG committee and outlines the role of the WBRA, the role of the CWG, and how they operate together to achieve the desired outcomes for the CACP.

Vision

The following vision was recommended by the CWG on December 13, 2011 and approved by the Waterton Biosphere Reserve Association on January 3, 2012. It serves as the vision not only for the Carnivore Working Group, but also for the larger WBR Carnivores and Communities Program.

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

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

**Role of WBRA**
The WBRA is accountable to funders for meeting funding agreement requirements and completion of project deliverables. The WBRA provides project administration, approves CACP budgets and work plans, and appoints and oversees staff including the CACP Coordinator who chairs the CWG committee. The WBRA Executive Director sits as an ex-officio member on the CWG committee. The WBRA establishes and maintains the CWG, and receives direction and guidance from it, regarding use of program funds, to achieve the goals of the CACP (listed below).

**Role of CWG**
The CWG will be composed of producers who represent the community, representation from the Alberta government, and others as may from time to time be recommended by the CWG. CWG members bring concerns, knowledge, and ideas to the table and help relay information back to the community and the government of Alberta with the vision in mind. The CWG provides direction and guidance to the WBRA regarding use of program funds to achieve the goals of the CACP listed below, including specific advice regarding projects to be completed.

**Carnivores and Communities Program Goals**
- GOAL#1: To maintain an effective community-based carnivore working group with strong collaborative partnerships.
- GOAL#2: To support the completion of landowner-driven projects & other agricultural practice change efforts that reduce human carnivore conflicts.
- GOAL#3: To develop a common knowledge base and effective communication strategies related to large carnivore issues.
- GOAL#4: To encourage development of a long-term strategy for balancing coexistence of large carnivores and humans in Southwestern Alberta that recognizes the need for conflict reduction, predation compensation, and wildlife management.
- GOAL#5: To ensure effective project management and evaluation

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

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

Background:
Concern for Alberta grizzly bear populations at a provincial level resulted in a hunting moratorium in 2006, and the listing of grizzly bears as a provincially threatened species in 2010 (Alberta Sustainable Resource Development and Alberta Conservation Association 2010, Government of Alberta 2011). This listing was largely a result of a 2004 to 2008 province wide DNA-based, capture-mark-recapture population study that estimated a provincial population of 691 grizzly bears (Alberta Sustainable Resource Development and Alberta Conservation Association 2010). The small size of the breeding population, increasing human activity and unrestricted road access within grizzly bear habitats have been identified as some of the major threats facing grizzly bears in Alberta (Alberta Sustainable Resource Development 2008, Alberta Environment and Parks 2016).

In some areas of the province, however, populations have increased (Morehouse and Boyce 2016, Stenhouse et al. 2015). Such is the case in southwestern Alberta in Bear Management Area 6 (BMA 6). A recently completed DNA survey estimated a population increase of approximately 4% per year (Morehouse and Boyce 2016). BMA 6 is a unique area of the province; here, public mountainous lands rapidly transition to private agricultural lands. Indeed, approximately 50% of the land within this BMA is privately owned. The grizzly bear population in this area is a small part of a much larger international population of grizzly bears that includes southeastern British Columbia and Montana (i.e. the Rocky Mountain Subpopulation). Within BMA 6 there are approximately 67 resident grizzly bears, but over the course of a year approximately 172 grizzly bears use the area (Morehouse and Boyce 2016).

This high number of bears using BMA 6 coupled with a high amount of private land means there is a large potential for conflict in this region; provincially, the area is a hotspot for grizzly bear agricultural conflicts (Alberta Government 2013). Ironically, successful conservation of large carnivores can increase the propensity for such conflicts, ultimately undermining conservation successes (Graham et al. 2005). Conflicts in the area have been increasing primarily since 2006 (Morehouse and Boyce 2017). The majority of grizzly bear incidents (bear use of anthropogenic food, killing or injury of livestock or pets, property damage) are related to agricultural attractants, and the two main attractant types are grain and dead stock (Northrup and Boyce 2012, Morehouse and Boyce 2017). Further, not only have grizzly bear incidents been increasing, but the distribution of these incidents has been changing as well (Morehouse and Boyce 2017). From 1999 through 2014, grizzly bear incidents have been occurring in increasingly eastern areas, and more people are encountering bears for the first time. This is especially important given that the grizzly bear population in this region is increasing (Mace et al. 2012, Morehouse and Boyce 2016, Mowat and Lamb 2016).

The intensification of conflicts leads to an escalation of management actions which can result in death or relocation of bears. Grizzlies are designated as threatened under Alberta’s Wildlife Act, and the recovery plan identifies humans as the main source of grizzly bear mortality (Alberta Environment and Parks 2016, Alberta Sustainable Resource Development 2008). Relocation and mortality from management actions can make a significant contribution to total mortality rates. Decreasing conflicts is critical for coexistence of grizzlies and people, and for long-term conservation of bear populations. Indeed, one of the strategies outlined in the new draft grizzly bear recovery plan is to reduce grizzly bear-human conflicts through the management of attractants (Strategy 7.2.1, Alberta Environment and Parks 2016). Waterton Biosphere Reserve is explicitly mentioned in the grizzly bear recovery plan as a model for helping agricultural communities manage attractants (Alberta Environment and Parks 2016).

Since 2009, the Waterton Biosphere Reserve Association’s (WBRA) Carnivores and Communities Program (http://www.watertonbiosphere.com/projects/carnivores-communities/) has been using community-based efforts targeting attractant management including electrical fencing projects, grain bin replacements and retrofits, and removal of dead livestock from the landscape. Thus far, a total of 60 projects have been completed, and over 2,000 dead livestock have been removed from the landscape. While attractant management projects intuitively make sense as a conservation tool to reduce grizzly bear-human conflicts, these programs are rarely evaluated using scientific inference (Treves et al. 2016).
While ad-hoc monitoring of these projects through personal interviews and some use of trail cameras has occurred (Loosen et al. 2014, Loosen 2016), it has become apparent that a more deliberate, targeted monitoring program is necessary to determine design effectiveness, the response of grizzly bears to attractant management projects, and to identify what changes or improvements might be necessary.

Our project aims to provide a scientifically rigorous evaluation of grizzly bear-agricultural conflict mitigation measures. By taking an applied research approach, we will strengthen WBRA's Carnivores and Communities Program and ultimately yield practical solutions for optimizing strategies for reducing grizzly bear agricultural conflicts.

**Objectives:**
Our overall objective is to evaluate the efficacy of, and make recommendations for program improvements to, the conflict mitigation work that has, and is, being completed in southwestern Alberta through the Waterton Biosphere Reserve Association’s (WBRA) Carnivores and Communities Program to reduce conflicts between grizzly bears and agriculture. Because grizzly bears are opportunistic omnivores, we hypothesize that both the temporal and spatial extent of conflicts will be decreased after the implementation of attractant management efforts. Specifically, our objectives are to:

1. Evaluate the deadstock removal program
2. Evaluate spatial and temporal patterns of grizzly bear agricultural conflicts prior to and after the establishment of the Carnivores and Communities Program
3. Document and assess producer engagement and/or barriers to engagement in attractant management projects

**Activities/Methodology:**
All of our work will take place in southwestern Alberta, and will include Alberta’s Bear Management Area (BMA) 6 and a portion of BMA 5. Our northern boundary is Chain Lakes Provincial Park, with British Columbia to the west, Montana to the south, and an approximation of grizzly bear range to the east.

1. **Evaluate the deadstock removal program.**

Because grizzly bear attractant incidents are related primarily to grain and deadstock (i.e. boneyards) (Morehouse 2016, Northrup and Boyce 2012), one of WBRA’s main programs has been the removal of deadstock from the landscape. Not only are boneyards attractants for bears, but they are also attractants for wolves and cougars (Banfield 2012, Morehouse and Boyce 2011). The prevalence of boneyards increased markedly after the detection of BSE (mad cow disease) in Canadian cattle in 2003. Prior to BSE rendering companies removed deadstock free of charge and used the rendered carcasses in dog food and cattle feed supplements. However, changes in regulations by the Canadian Food Inspection Agency (CFIA) now prohibit the inclusion of specified risk material (SRM, i.e. tissues capable of transmitting BSE) in livestock feed, pet food, and fertilizer (Canadian Food Inspection Agency 2007). SRM must now be disposed of separately, through either burial or incineration (Canadian Food Inspection Agency 2007). Rendering companies pass on the costs of dealing with these new regulations to producers, and these costs have been prohibitive for producers and they have turned to boneyards instead. Pre-BSE the average number of dead stock removed from the study area was 1,478 per year compared to an average of 262 per year post-BSE from 2004 through 2007 (Northrup and Boyce 2012).

We would expect that the number of deadstock removed from the landscape will have increased since the implementation of the deadstock removal program in 2009. Waterton Biosphere Reserve removes deadstock at no cost to the producer (or landowner) on over 500,000 hectares (1.2 million acres) in southwestern Alberta; the program includes both on-farm pick-up as well as the use of bear-proof carcass storage bins. We will work with participating municipalities and West Coast Reduction (the rendering company) to document the number of animals removed from both the deadstock bins and on-farm pickups. We will determine the location of deadstock removals, the number of people participating in the program, the percentage of dead livestock within each municipality that are being removed, and whether the number and distribution of deadstock-grizzly bear incidents have declined since the implementation of
the deadstock removal program. Incident data are available as occurrence records from Alberta Environment and Parks from 1999 through 2016.

Additionally, we will review the financial costs of this program, and compare those costs to the costs of other mitigation options such electric fencing or composting of dead stock. West Coast Reduction increased their rates in February 2015, going from 9 cents/lbs. to 14 cents/lbs. Additionally, the minimum charge rose from $75 to $120 per pickup. This increase coupled with an increase in the number of people participating in the program, has meant that the deadstock removal program represents the single largest cost of the WBRA’s Carnivores and Communities Program. Thus, it is imperative to understand how grizzly bear incidents have been changing in response to this program.

2. Evaluate spatial and temporal patterns of grizzly bear agricultural conflicts prior to and after the establishment of the Carnivores and Communities Program

Following methods similar to Northrup et al. 2012, we will develop a conflict risk model using a modeling framework similar to an RSF. Briefly, this modeling approach identifies areas on the landscape with the highest probability of conflicts (at the quarter section, 800x800m scale). We will develop two models: before and after the implementation of the Carnivores and Communities Program. Because the Carnivores and Communities Program has focused on attractant management, we will focus specifically on carnivore incidents that involve attractants (e.g. grain and deadstock). We predict that the probability of conflict will have decreased after the implementation of attractant management initiatives. Although grizzly bears also kill livestock, we note, however, that the Carnivores and Communities Program has completed relatively few projects related to livestock depredation. Because of that we might not see a response in grizzly bear livestock depredation incidents. These models will help us identify areas on the landscape where additional work is necessary and will help us focus our upcoming mitigation projects.

Additionally, we will use the occurrence records from 1999 through 2016 to evaluate temporal trends in the type of incidents in southwestern Alberta. Previous work has shown a general increase in the number of total grizzly bear incidents (Morehouse and Boyce 2017), but it is not clear if or how specific types of incidents have changed over time (e.g. livestock incidents, grain bin incidents, boneyard incidents). Evaluating specific patterns of incident type will help us determine if our efforts in the area have been successful in reducing grizzly bear-agricultural conflicts.

3. Document and assess producer engagement and/or barriers to engagement in attractant management projects

Without landowner participation and support, conflict mitigation projects will not be successful. There is no “one-size-fits all” solution to the conservation challenge of grizzly bear agricultural conflicts. Resolving large-carnivore human conflicts is a challenging problem beyond the scope of biology; successful mitigation programs will integrate concepts and ideas from biology, ecology, economics, agricultural sciences, rangeland ecology, sociology, and anthropology both in program design and evaluation (Redpath et al. 2013, Kansky and Knight 2014). Methods must be realistic to implement and economically viable for the human communities experiencing conflicts.

Using occurrence and deadstock pickup data described in Objectives 1 and 2, we will be able to identify areas on the landscape where participation in the deadstock removal program and attractant management projects is low, and grizzly bear incidents remain as problems. We will then work with landowners in the area to identify barriers to their participation in the deadstock removal program. To do this, we will survey landowners within the study area to evaluate producer use of available programs (e.g. carcass disposal bins, electric fencing, bear-proof grain bins), and whether or not they perceive conflicts with grizzly bears to have decreased in response to their participation in these programs. We will work with a social scientist for this objective to ensure that the appropriate survey methods are used. Further, we will ask landowners what factors influence their decision to call in a complaint to Alberta Environment and Parks (e.g. do they only report livestock depredations and not grain bin damage). We will then work with the WBRA’s Carnivore Working Group to identify strategies to address barriers and increase engagement in efforts to reduce conflict with grizzly bears.
Literature Cited:
