

Final Report from Grizzly Bear Coexistence Solutions 2020-21



Photo credit: Gillian Sanders

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Prepared for Fish and Wildlife Compensation Program

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Executive Summary

Grizzly Bear Coexistence Solutions promotes coexistence between grizzly bears and rural residents in the Columbia Region through education, collaboration, and the use of practical tools. Coexistence is made possible using correctly installed electric fencing to prevent bear conflicts and associated grizzly bear mortalities in low elevation linkage habitats that often overlap with agricultural lands. The project also provides grizzly bear safety education and bear spray training for front country and back country users. As conflicts are reduced, and people are better educated about grizzly bear behaviour and provided with tools to mitigate conflicts, there will be improved grizzly bear conservation status in the region, including enhanced connectivity between core grizzly bear populations.

This project aligns directly with FWCP Upland and Dryland, and Wetland and Riparian Action Plans. The action type is Species of Interest and the direct action is to support grizzly bear conservation actions, specifically the use of electric fencing (COLUPD.SOI.SB.24.01).

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Introduction

Grizzly bear conflicts often result in property damage, bear mortalities, and intolerance for grizzly bear presence on private properties. The prime objective of Grizzly Bear Coexistence Solutions (GBCS) is to assist Columbia Region residents and grizzly bears to coexist by preventing grizzly bear/agricultural conflicts in low elevation habitats. GBCS works to improve human-grizzly bear coexistence through education, collaboration, and implementation of practical tools. This has resulted in improved conservation status of grizzly bears, including effective linkage between core populations when grizzly bears move through rural properties in low elevation habitat, and decreased the number of grizzly bear mortalities due to conflicts. GBCS was initiated as an expansion of FWCP sponsored project work in Meadow Creek BC, where attractant management and electric fencing greatly reduced grizzly bear conflicts, especially in the face of the recent collapse of kokanee at the Meadow Creek Spawning Channel. This project's objectives address known causes of grizzly bear conflicts by providing feasible and cost-effective solutions (electric fencing) that benefit Columbia Region residents and grizzly bear populations. These objectives are consistent with recommendations from Auditor General Report (2017), Davis (2012), Proctor et al. (2012, 2015, 2017, 2018), and Sanders (2013, 2016). The success of such conflict mitigation efforts has been demonstrated in the Creston Valley to significantly reduce grizzly bear mortalities (Proctor 2018), of which GBCS was a part of with outreach and education and installing all electric fencing associated with that work.

When grizzly bears kill livestock, they are often shot, either by residents or the BC Conservation Officer Service (COS). There were 389 grizzly bears killed by COS due to conflicts between 2006 -2015 in BC (Auditor General Report 2017). While COS can enforce the protection of livestock and other attractants on hobby farms, the Wildlife Act does not permit COS to enforce commercial agricultural businesses to protect livestock, crops, and other attractants from bears (the Right to Farm Act is a higher legislation than the Wildlife Act). The only solutions to prevent such conflicts on commercial farms are those used by GBCS to educate and provide tools for producers. However, GBCS enables a range of management applications for COS by ensuring conflicts do not continue or escalate after the installation of electric fencing. GBCS efforts have proven repeatedly successful in protecting remaining livestock after conflicts using electric fencing, with the bear remaining in the reproductive population, and resulting in a 'win' for the producer, the bear, and the COS.

Since 2013 GBCS has been successful in meeting its goal by improving grizzly bear-human coexistence in low elevation habitats of the Columbia Basin. To date GBCS installed and tracked 416 electric fences to prevent and mitigate conflicts in linkage areas as identified by Proctor (2015) (see Figure 1. pg. 16). GBCS also provided electric fencing education and outreach in the Columbia Basin with 33 electric fencing and 20 safety workshops in various Kootenay communities.

Goals and Objectives

The goal of Grizzly Bear Coexistence Solutions is to improve human-grizzly bear coexistence through education, collaboration, and the use of practical tools.

Project objectives are:

Objective 1. To improve grizzly bear/human coexistence in low-elevation habitats.

Objective 2. To reduce grizzly bear/agricultural conflicts by providing education and support to Columbia Region residents.

Objective 3. To share the cost of direct conservation action (electric fencing).

Objective 4. To increase tolerance towards grizzly bears as conflicts are reduced.

Objective 5. To assist Conservation Officer Service in non-lethal management of grizzly bears.

Objective 6. To provide safety information and bear spray training to various groups and individuals where human activities and grizzly bear habitats overlap.

This project aligns directly with FWCP Upland and Dryland, and Wetland and Riparian Action Plans. The objectives listed above all work towards FWCP priority action to support grizzly bear conservation, including the use of electric fencing to prevent and mitigate human-grizzly bear conflicts.

Study Area

The study area of this work is throughout the Columbia Region, with a focus on identified grizzly bear linkage areas between core populations of bears. The project office is located in Meadow Creek BC.

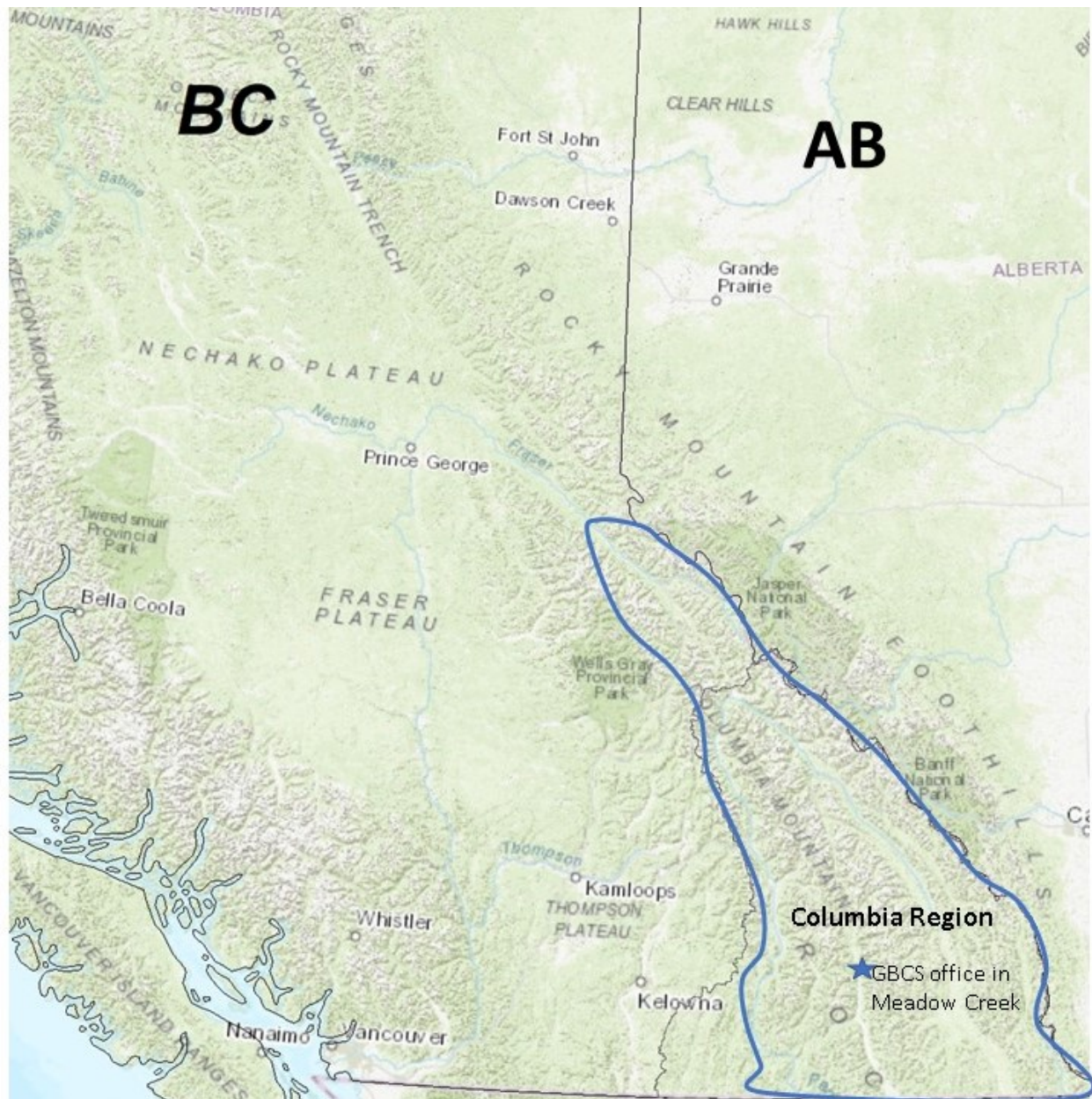


Figure 1. Map of GBCS project areas: throughout FWCP Columbia Region, including the wildlife extension area to the north of Valemount BC.

Methods

Methods are listed below according to each project objective:

Objective 1. Track number and frequency of grizzly conflicts through calls to Conservation Officer Service.

Objective 2. Provide education through site visits, outreach events, fencing workshops, and media. Tools will be made accessible through electric fencing cost share. Track number, location, and frequency of conflicts and educational outreach efforts.

Objective 3. Track how many, location, and type of electric fences installed.

Objective 4. Track success of electric fences (defined by safe livestock, no property damage, no ensuing conflicts, and resident satisfaction).

Objective 5. Track management events and provide outreach to residents on how to mitigate existing conflicts and prevent future conflicts.

Objective 6. Track number and location of events where safety info is shared and track results of anonymous participant feedback forms.

Results and Outcomes

Results and Outcomes are described below as per each objective:

Objective 1 was met by reducing grizzly bear conflicts and mortalities due to conflicts. There were five grizzly bear mortalities due to conflict in the East Kootenays, but only one grizzly bear mortality in the West Kootenays. The West Kootenay bear was in the Meadow Creek area and was initially unreported to BC COS (GBCS coordinator was told by a resident about the carcass, and she reported it to BC COS). Electric fencing was made available through GBCS at both the Meadow Creek location and at two of the East Kootenay locations of conflict to protect chicken coops from further bear damage. While it is acknowledged that more conflict mitigation is needed in the East Kootenay area, all fences installed through GBCS were effective at mitigating existing conflicts and fences previously installed were effective at preventing conflicts in 2020.

Objective 2 was met through promoting electric fencing as a long-term solution to human-bear conflicts and has become a social norm in the West Kootenays. Electric fencing workshops were limited due to COVID-19 gathering protocols, but GBCS was able to host five physically distanced workshops. Three of these were in partnership with WildSafeBC and held in New Denver, Nakusp, and Burton. The other two were in Creston and a small outdoor one in Meadow Creek. GBCS fielded 341 emails and 85 phone calls from individual residents in the Columbia Region in 2020. Many Columbia Region residents are using social media to communicate with GBCS. GBCS expanded use of social media in 2020 and the project's facebook page now has 847 followers. The GBCS coordinator regularly posts on other social media threads to promote electric fencing in response to bear conflicts, especially utilizing the Farm the Kootenays page with 13,780 members. The GBCS How To Electric Fence for Bears video now has 101,012 views on YouTube. In partnership with GBCS, Kootenay Conservation Program produced a new video about the project that currently has 260 views. It can be found at this link: <https://www.youtube.com/watch?v=GYL7ygnJTfQ&feature=youtu.be>

Objective 3 was met by installing 98 electric fences throughout the Columbia Region. This number was greater than originally proposed due to reduced workshops, travel, and related expense because of COVID-19. Some partner funding that was initially budgeted for travel and workshops could not be used for that purpose and was instead used to install additional electric

fences. The location and type of each fence was tracked: there were 46 small fences (<20x20m), 28 medium (up to 1 acre), 16 large (between 1 – 5 acres), and 8 fences were larger than 5 acres. There were 50 chicken coops, 4 other poultry coops, 25 honeybee yards, 19 livestock pens, 31 small orchards, 13 crops, and 8 composts protected by new fences in 2020 (note: some fences protected more than one attractant at the same location).

Objective 4 was met by tracking the success of electric fences installed through GBCS. Electric fences previously installed through GBCS funds were successful in 2020 to prevent bear conflicts, and new fences were successful in mitigating any existing conflicts. Success is defined by safe livestock, no property damage, no ensuing conflicts, and resident satisfaction. Bear activity was tracked near residences at Mill Creek and Meadow Creek Spawning Channel through the project's remote cameras, and residents near Cranbrook, Creston, Harrop Procter, Johnson's Landing, and Meadow Creek shared their remote camera footage with GBCS. These images are used to track bear activity and to also show the presence of grizzly bears that are not actually causing any troubles but simply passing through the area. The electric fencing cost share program has proven highly successful with strong community support, and the efforts of GBCS is thought to be increasing tolerance towards grizzly bear presence as grizzly bears move through private properties without conflicts.

Objective 5 was met by enabling BC COS to recommend electric fencing as an effective non-lethal management response to grizzly bear conflicts and provide residents and COS with viable alternatives to shooting bears. GBCS coordinator assisted BC COS in Meadow Creek with roadside non-lethal management to teach 2 somewhat habituated subadult grizzly bears to better avoid people. There were no traps set for grizzly bears in the West Kootenays in 2020 as BC Conservation Officers are now directing residents to manage agricultural attractants through GBCS to mitigate conflicts. One grizzly bear that went into a trap near Nelson was released by COS without issue. GBCS assisted COS by providing safety education and conflict mitigation through the use of electric fencing in response to grizzly bear conflicts in Creston, Cranbrook, Kimberley, Fernie, Harrop Procter and Meadow Creek and helped COS track bear locations and conflicts in these areas.

Objective 6 was met by providing safety information on grizzly bear behaviour and how to safely respond if/when encountering a grizzly bear. It was not possible to deliver this education to 10 groups as proposed in 2020 due to COVID-19 protocols, but GBCS provided four small and one large grizzly bear safety workshops in the following communities in 2020: Creston (49 people with an additional 35 people turned away due to COVID-19 restrictions~ 84 people showed up!), Meadow Creek, Kaslo, Nelson, and Harrop. Safety information was passed along through phone calls, emails, sharing online information, social media, and individual face to face meetings. Safety outreach to bear viewers and photographers was given on the Lardeau River and at Meadow Creek Spawning Channel throughout September-October through partnership funding.

Discussion

Grizzly Bear Coexistence Solutions made substantial progress towards its goal of improving grizzly bear/agricultural coexistence in low elevation habitats of the Columbia Region over the past eight years. The project was considerably assisted by support from Fish and Wildlife Compensation Program in 2020-21 and this support enabled increased project scope. As education and outreach progresses, the effectiveness of properly installed and maintained electric fencing has become widely acknowledged throughout the Kootenays. Activities and outcomes in 2020-21 included five electric fencing workshops, four grizzly bear safety sessions, 98 electric fences installed through cost share funding, and monitoring of fences installed through project activities. The project coordinator worked with groups such as WildSafeBC, Coexisting with Carnivores, BC Parks, and others to promote similar electric fencing projects in BC, and has been asked to mentor a student from the Okanagan Nation Alliance on coexistence measures in future. The GBCS coordinator worked as a co-chair of the Human-Bear Conflict Working Group, which includes stakeholders from various levels of government including municipal and regional staff, bear biologists, Conservation Officers, wildlife educators and WildSafeBC coordinators who work together to prevent and minimize bear conflicts. Working Group meetings in 2020 were held virtually through Zoom.

COVID-19 restrictions on gathering limited some project activities in 2020. As a result of these restrictions, GBCS learned how to adapt workshop delivery to smaller physically distanced groups and to limit group size as needed. In addition, GBCS can expand use of short videos for project outreach and host Zoom video calls for presentations as needed. It is hoped that by fall 2021 that restrictions will be lifted and group gatherings and face to face presentations can be held.

Project success in 2020 and over time has been the result of the following main activities: outreach, electric fencing installations and monitoring, electric fencing and grizzly bear safety workshops, and publications.

Outreach

GBCS' outreach objective was achieved by outreaching directly to 750 people in 2020 to prevent grizzly bear conflicts and educate residents about grizzly bear behaviour, attractant management, and to promote electric fencing for bears. This outreach was completed via phone calls, emails, social media private messages, on-site consultations and fencing checks, and some limited workshops in 2020-21 (these were limited by COVID-19 protocols). The project coordinator posted or responded on social media threads about bear conflicts 175 times, especially utilizing Farm the Kootenays facebook group with 13,780 members, and other community group pages such as West Kootenay Beekeepers and Elk Valley Homesteading. The GBCS coordinator was frequently 'tagged' by GBCS participants to be alerted of unreported bear conflicts. GBCS initiated a facebook page in 2017 and currently has 847 followers. This outreach has led to a growing community of people who now use electric fencing for bears and

are actively promoting the tool to other food producers. It should be noted that each electric fence that is installed and maintained correctly lends to the overall outcome of electric fencing being accepted as an effective tool in preventing all bear conflicts.

Outreach to residents of the region is greatly assisted through the ongoing support of the BC Conservation Officer Service (BC COS). Conservation Officers can identify problem hotspots through their response system for dealing with conflicts with wildlife in the region, communicate this information to the GBCS Coordinator and deliver the same consistent messaging about the benefits and efficacy of electric fencing and other best management practices for attractants. Conservation Officers have been instrumental to the success of this project as they refer residents who are experiencing grizzly bear conflicts to the GBCS coordinator.

GBCS receives guidance and works with Dr. Michael Proctor from the Transborder Grizzly Bear Project to target areas with high potential for grizzly bear encounters in grizzly bear linkage areas. Outreach has been augmented by remote camera photos and videos of bear activity in the area. In previous years of project delivery GBCS has given presentations to a variety of conservation and agricultural groups, but these did not happen in 2020 due to COVID-19.

Electric Fence Installations and Monitoring

Electric fencing has been widely recommended to prevent bear conflicts (Alberta Grizzly Bear Recovery Plan 2008-2013, 2008; Idaho's Yellowstone Grizzly Bear Delisting Advisory Group, 2002; Moody et al. 2002; Dood et al. 2006; Davis 2017; Proctor 2018). Electric fencing can be used to protect beehives (Wilson et al., 2005; Gunter et al., 2004), orchards, private gardens (Gunter et al., 2004), calving grounds, sheep bedding areas, pigs, feedlots, and bone yards (Dood et al., 2006) from depredation by bears. Since 2007, electric fencing has been used effectively to prevent bear depredation of poultry, small livestock, fruit trees, honey beehives, and carcass disposal areas by the GBCS Coordinator and residents of the North Kootenay Lake Area of the Kootenay Region where she lives and works.

One of the methods this project has used to measure efficacy of fencing and attractant management is through resident reporting when they find bear sign (scat) outside of their fence, witness bear(s) outside of the fenced area, or if they know of neighbouring depredation from bears without experiencing any issues within their fence. In 2020 there were 98 new electric fences installed and 34 residents reported knowing of bear activity outside of their fenced area without experiencing conflicts after the fence was installed.

Since 2013 GBCS has provided a cost share on 416 electric fences for bears throughout the Columbia Region. The 2020 fences ranged from small (20 x 20m) for chickens, poultry, and bee yards; medium (greater than 20mx20m but less than one acre) for small livestock pens and/or fruit trees; large (between one and five acres) for more livestock, fruit trees, and/or crops; and extra-large (greater than five acres) for orchards, crops, and/or livestock pastures. Some fences

only protected one attractant, but many fences were installed around a perimeter area that acted to protect multiple attractants within the fenced area. In addition to direct determent of bears these fences also serve as ongoing educational tools as neighbours and friends of the resident’s notice how effective electric fencing is in preventing bear conflicts and conserving their agricultural assets. At each installment there is the opportunity to provide additional education regarding animal husbandry improvements to reduce the potential for bear conflicts. This included proper storage of livestock feed within the fenced areas, cleaner slaughtering areas, use of bleach and lime to reduce smells, and improved carcass disposal.

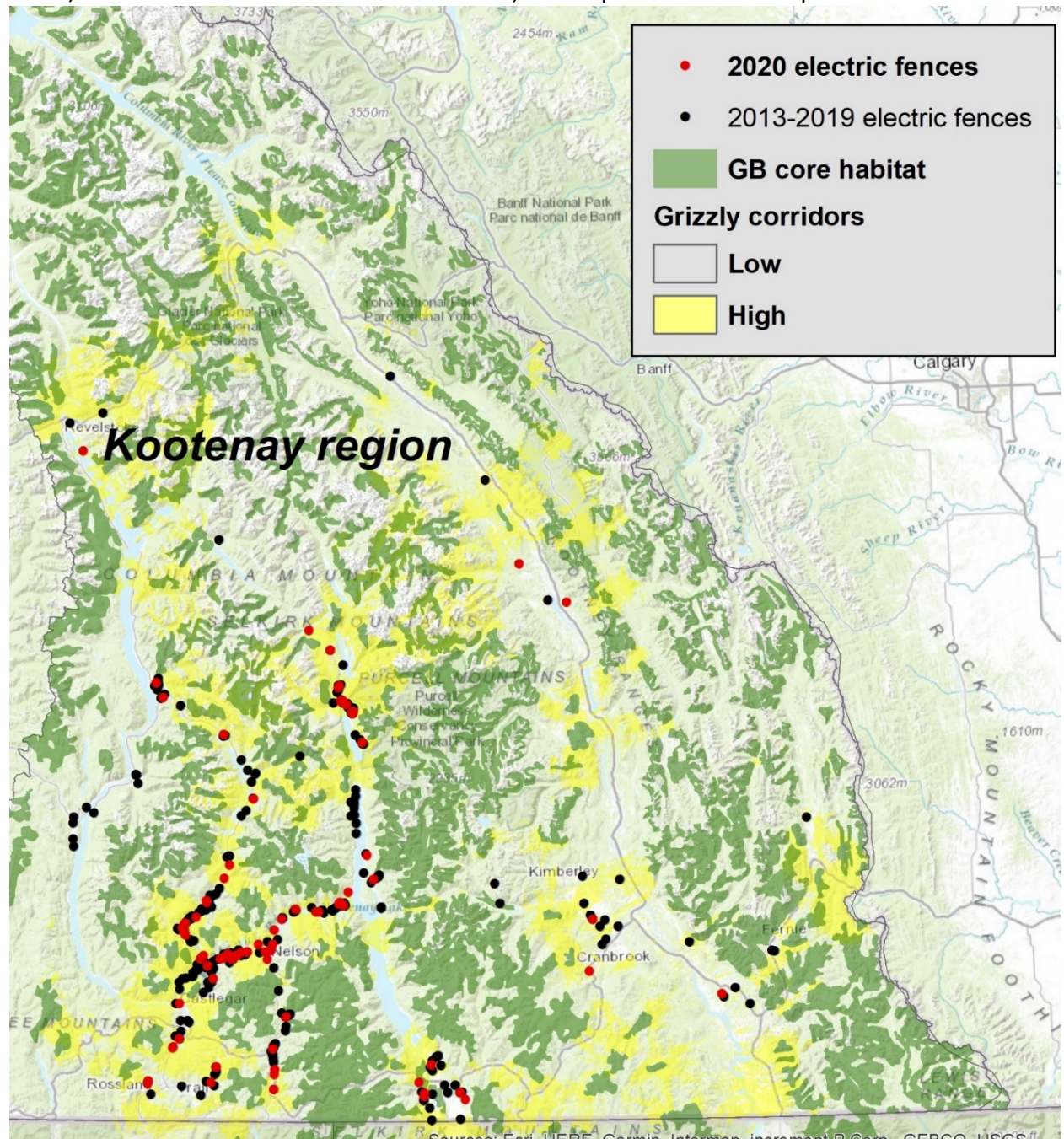


Figure 2. Map of Electric Fences Installed by GBCS from 2013-2020.

Cost sharing of electric fencing materials was made possible in 2020 through \$9634 contribution from Columbia Basin Trust, \$7994 contribution from FWCP, \$5,002 contribution from Kootenay Lake Local Conservation Fund, and \$6,400 contribution from the Transborder Grizzly Bear Project. Grizzly biologist Dr. Michael Proctor from the Transborder Grizzly Bear Project also provided valuable technical support. An additional \$2000 towards electric fencing cost shares was provided by Valhalla Wilderness Society Bear Smart Program, and \$1700 from RDCK Affected Areas Fund, leading to a total of over \$69250 invested in electric fencing in 2020 (including the resident's portion of the cost share, which was sometimes more than 50% of total cost).

Residents who purchase electric fencing equipment through the cost share portion of this project are 100% responsible for installing and maintaining the electric fencing. An average fence installation time was estimated at 7.5 hours of planning, purchase, and installation for a small area like a chicken coop or bee yard, but it is difficult to estimate the hours for ongoing fence maintenance. This effort contributes towards the project goals and this project would not succeed without this partnership, and the effort from these project participants. It is important to keep these participants engaged and ensure that a few years of successful determent of bears does not result in complacency with the maintenance of their fencing projects and attractant management. The GBCS Coordinator completed 38 socially distanced site checks in 2020, of which 25 were from previous years fencing installations. This resulted in the discovery of three fences that were not being maintained and/or were below the recommended voltage for success. At the time, no bears had accessed these sites despite the deficiencies and the fences were still deemed successful as there were bears known to be in the surrounding area but excluded from the fence. Though there may be a percentage of people who do not maintain their fencing over time, most people understand the need and value for maintenance and are willing to put in the effort to protect their agricultural assets and conserve grizzly bears. All check-ins and monitoring were well received.

There were two new sites in 2020 where grizzly bears were captured on video directly outside of a fenced area or actively testing the fence and being deterred. The best of these was at the Meadow Creek Kokanee Spawning Channel and will be incorporated into project presentations and outreach. The project's remote cameras are functioning well and will continue to be deployed in future years to monitor fence effectiveness, with footage being used as an educational tool. Collared grizzly bears recorded near electric fencing projects have not been detected inside a fenced area.

There were five areas (Meadow Creek, Harrop Procter, Creston, Cranbrook and Kimberley) where grizzly bears were confirmed to kill livestock and the COS recommended GBCS help to install electric fencing. Another case involved a location near Nelson where the resident shot a female grizzly bear with cub in 2019 at a site where the resident had installed electric fencing *without help or advice from GBCS* and the fence was not operational. After outreach in 2019, this resident reached out to GBCS for advice in 2020 and the fencing is now effectively installed.

Electric Fence Workshops

The GBCS coordinator delivered a total of five electric fencing for bears workshops in 2020 in the Columbia Region in the following communities: New Denver, Creston, Nakusp, Burton, Meadow Creek. This was less than planned for the year because of COVID-19 restrictions on gathering. Outside of the Columbia Region and using partner funding (not FWCP), GBCS provided electric fencing workshops for District of Squamish bylaw staff, community of Bella Coola, Nuxalk Nation staff, and Tsilhqot'in National Government rangers from five Nations on the Caribou Plateau.

Workshop participants were very engaged with excellent feedback from anonymous evaluation forms. All workshop participants planned to install or improve their electric fencing on their properties and were appreciative of the assistance and practical relevant information provided. Not everyone who indicated that they were going to install fencing did so in 2020 but have indicated that they still plan to do so.

It is much more difficult to encourage people to install the fencing at 100% their own cost in areas outside the Kootenays (where there are not cost share funds available yet). The cost share enables a 'win-win' for the resident, the COS, and the bears.

Grizzly Bear Safety Workshops

It was not possible to deliver grizzly bear safety workshops to 10 groups as proposed in 2020 due to COVID-19 protocols, but GBCS provided four small and one large grizzly bear safety workshops in the following communities in 2020: Creston (49 people with an additional 35 people turned away due to COVID-19 restrictions~ 84 people showed up!), Meadow Creek, Kaslo, Nelson, and Harrop. Safety information was passed along through phone calls, emails, sharing online information, social media, and individual face to face meetings. Safety outreach to bear viewers and photographers was given on the Lardeau River and at Meadow Creek Spawning Channel throughout September-October through partnership funding.

Assisting with the promotion of similar electric fencing for bears projects in BC

With partnership funding (not FWCP) the GBCS coordinator has been working with the WildSafeBC Provincial Coordinator, Coexisting with Carnivores Alliance, Margo Supplies, and BC Parks to promote electric fencing for bears projects in other areas of BC. The GBCS coordinator has been asked by FLNRORD regional biologists to provide grizzly bear conflict mitigation workshops in 2021 in the following communities outside the Columbia Region: Bella Coola, Quesnel, Prince George, Vanderhoof, McBride/Dunster, and Malakwa (Shuswap) using FLNRORD Together for Wildlife Funds (not FWCP).

Publications

The "How-To Electric Fence for Bears" video was posted to YouTube in May 2016 with permission from HCTF. The written guide by Annis (2017) now includes reference to this project's How-To Electric Fence for Bears video, and the video has had great acclaim and been used by other agency grizzly and black bear managers from the US, including being hosted on the Nevada Department of Wildlife webpage. This video is also posted on the IUCN Human-Wildlife Conflict Resource Library webpage at <http://www.hwctf.org/document-library/electric-fences>.

In today's world of social media and video, the video format of the guide is easier to share widely and more useful than written format. At the time of writing this report, there are 101,012 views, 872 'likes', and 72 positive comments of this project's How-To video on YouTube. It can be found at this link <https://www.youtube.com/watch?v=lqIRMavnahE>

GBCS collaborated with Kootenay Conservation Program in 2020 to produce this video featuring our work: <https://www.youtube.com/watch?v=GYL7ygnJTfQ&feature=youtu.be>

The new How-To Guide to Protect Beehives from Bears Using Electric Fencing is currently under review and will be forwarded to FWCP as soon as reviews are complete.

Grizzly Bear Coexistence Solutions is creating a legacy of implementing a long-term solution to grizzly bear/agricultural conflicts. With increasing demonstration of the effectiveness of electric fencing, people are changing behaviours to utilize this tool to prevent bear conflicts near residences and farms, which has increased tolerance for grizzly bear presence in low elevation habitats and on private properties. The outcome of this project results in increased connectivity between core populations of grizzly bears and assists with the persistence of healthy grizzly bear populations into the future.

Recommendations

GBCS has built on accomplishments of previous years in building a network of participants who have become knowledgeable in coexistence measures, and this change in social norms is what enables long-term, broad-scale conservation benefits. Changing human behaviour can take time and it is difficult to advise rural residents to change their behaviour on their private property. It should be noted that just because it is logical to install electric fencing to protect a chicken coop in bear habitat, it does not mean that people will act to prevent conflicts (and there is no enforceable legislation for COS to order a commercial agricultural business to comply with the Wildlife Act). Some people's behaviour is slow or resistant to change, and preventing bear conflicts takes patience, time, and a steady ongoing effort. It is important to continue expanding work to continue building relationships with those who have experienced bear conflicts and are slowly considering installing electric fencing. It is through ongoing efforts

in creating these relationships that behavioural change takes place. GBCS's reputation has momentum and is gaining steadily in scope and educational impact. This project has been effective in working with people to change existing behaviour and learn to coexist with grizzly bears, but ongoing effort is needed, and it is recommended that efforts continue in the Columbia Region for at least the next four years.

Acknowledgements

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