

Alberta Conservation Association
2021/22 Project Summary Report

Project Name: Pronghorn Fence Crossing Enhancement

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Partnerships

Alberta Environment and Parks

Alberta Fish & Game Association

Key Findings

- We completed three fencing projects in partnership with Alberta Fish & Game Association in 2021 where we modified 38 km of barbed wire fence by replacing the bottom strand with double-stranded smooth wire and adjusted its height to 46 cm off the ground.
- Funding was provided to a landowner through the Pronghorn Fence Crossing Enhancement project for the purchase of double-stranded smooth wire resulting in the construction of 20 km of wildlife-friendlier fence.
- Since the initial year of the project nearly 580 km of fencing has been enhanced and an additional 34.5 km of page wire has been completely removed.

Abstract

A simple and effective method to mitigate the negative impact fences have on pronghorn is to implement wildlife-friendlier fencing techniques. For pre-existing fences, the retrofitting of wires to wildlife-friendlier standards is time consuming and costly. In 2021, we were able to alleviate these burdens on landholders interested in improving fence permeability for pronghorn by replacing the bottom barbed wire of 38 km of fenceline with double-stranded smooth wire raised

to 46 cm. Retrofitting was completed by volunteers with the Alberta Fish & Game Association. In addition to modifying fences, the project funded the purchase of 20 km of double-stranded smooth wire for the construction of a new fence by a private landowner. In total, the Pronghorn Fence Crossing Enhancement project facilitated the establishment of nearly 60 km of wildlife-friendlier fencing throughout the pronghorn migration corridor of southeastern Alberta.

Introduction

Having evolved on the prairies of North America, pronghorn (*Antilocapra americana*) have not developed an instinct to jump vertical obstacles. The proliferation of fencing that followed cattle ranching into Alberta poses a serious barrier to pronghorn movement (Gates et al. 2012).

Pronghorn may cross under fencelines in some locations, but it slows down their movement, making them susceptible to predators and in some cases strips hair off their back causing lacerations and making them vulnerable to infection and frostbite (Jones 2014). Pronghorn also may become entangled in fences and perhaps become trapped and die (Gates et al. 2012).

A solution is to replace the bottom wire with double-stranded smooth wire and move it up to 46 cm; however, this is expensive and labour intensive.

To help alleviate the financial burden and workload of retrofitting fences, Alberta Fish & Game Association (AFGA) initiated a fence crossing enhancement project in 2009. Alberta Conservation Association (ACA) assists by identifying important pronghorn movement zones and landowner introductions, and conducting field activities. The project works with private landowners in southeastern Alberta to actively convert existing barbed wire fences to wildlife-friendlier fences. On a case-by-case basis, funding may be provided to landowners going towards the purchase of supplies for wildlife-friendlier fences. The primary objective for this project is to increase permeability within the pronghorn migration corridor in southern Alberta and reduce associated stress to wildlife, physical injury, and even death that can be caused by high densities of current barbed wire fences. This ongoing effort benefits pronghorn and deer by reducing barriers to seasonal movements and enabling wildlife to move throughout the landscape more easily, without the associated stress and physical harm that animals endure when forced to cross underneath barbed wire fences.

Methods

In response to the challenges imposed by the COVID-19 pandemic, methodology for the project was altered from previous years. A COVID-19 safety protocol was developed in 2020 and continued to be implemented throughout 2021 to ensure the fencing events could be conducted in a safe and responsible manner. Each month from July through September, we evaluated fencing events on a case-by-case basis to allow for the consideration of provincial health guidelines and the feasibility of conducting a safe event. Upon identifying landowners interested in modifying fences to make them pronghorn- and wildlife-friendlier, we set dates for the events with the understanding they could be cancelled with changing provincial health recommendations. We identified candidate fencelines on maps to be modified for each participating landowner; this information was used to help plan fence modification weekends and coordinate volunteers.

In the field, small crews worked with their cohorts and replaced the bottom strand of barbed wire with double-stranded smooth wire and adjusted the height of the bottom wire to 46 cm (Paige 2020). We also re-spaced the remaining strands of barbed wire to ensure the fence remains functional for livestock. When approved by the landowner, we left a gap of 30 cm between the top two wires to prevent entanglement by other ungulates crossing over the fence (Paige 2020). These alterations enable wildlife such as pronghorn and deer (*Odocoileus sp.*) to easily cross fences underneath the bottom smooth wire or safely jump over the top wire (Burkholder et al. 2018, Jones et al. 2020). In addition to retrofitting pre-existing fences in 2021-2022, we also provided funding to a landowner interested in the installation of a new fence at wildlife-friendlier standards. This funding went to the purchase of double-stranded smooth wire.

Results

We completed three fencing projects with AFGA in 2021, where we modified 38 km of barbed wire fence by replacing the bottom strand with double-stranded smooth wire and adjusting its height to 46 cm, additionally 21 km of wildlife-friendlier fencing was constructed with financial assistance from the program (Figure 1). To adhere to our COVID-19 safety protocol, we allowed fewer volunteers to participate in the fencing weekend events, resulting in a below average distance modified at fencing events; however, by providing funding for the construction of a wildlife-friendlier fence we facilitated the second greatest distance of fence set to wildlife-

friendlier standards since the initial year of the project, well above the yearly average (Avg. = 45 km). Projects were completed within the Milk River and Red Deer River Basins, allowing for fine-scale barrier reduction over the large geographic range, which pronghorn use as migration corridors.

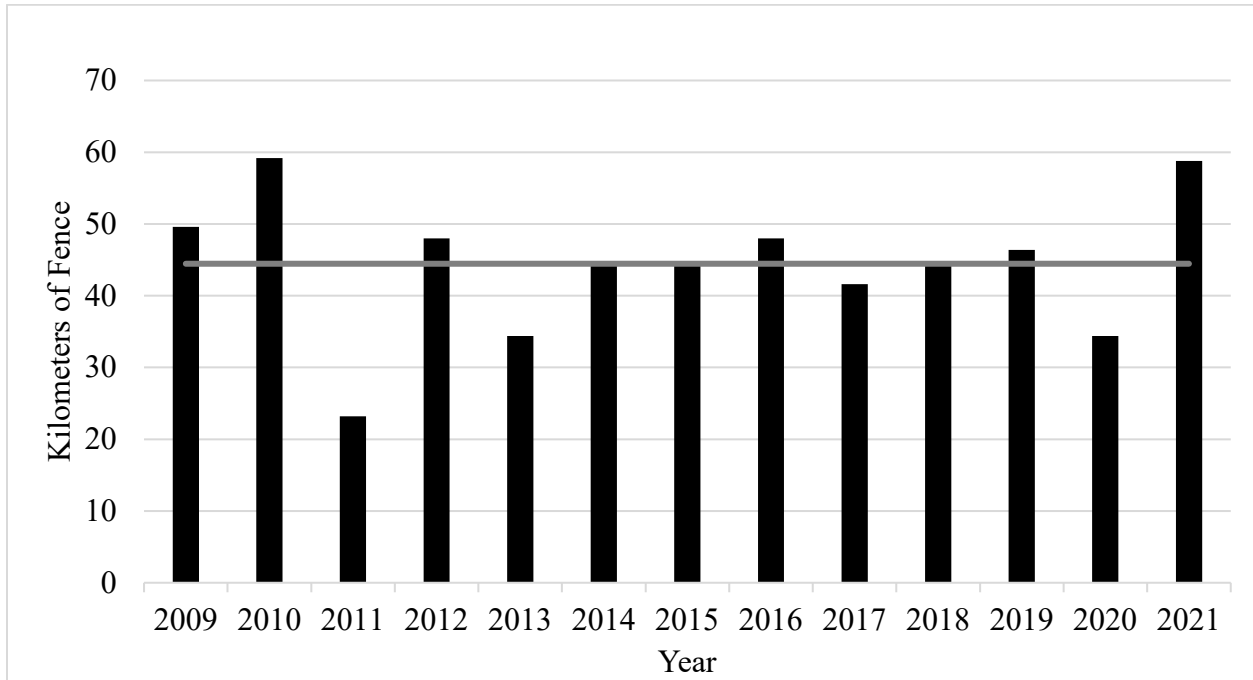


Figure 1. Number of kilometres of wildlife-friendlier fence completed per year by AFGA and ACA with the average of kilometres modified to date (n = 44.5).

Conclusions

Replacing the bottom strand with smooth wire at 46 cm is a practical solution to reducing physical harm done to pronghorn and other wildlife, and it also eliminates barriers to movement on a fine-scale, project-by-project basis. The primary challenge associated with this solution is that there is currently an extremely high density of existing barbed wire fences within the Grasslands Natural Region and the pronghorn migration corridor in southeastern Alberta (Seward et al. 2014). Prioritizing focal areas within the migration corridor based on previous animal collar data is one method of identifying priority areas to work within; however, this would also require the cooperation of private landowners living in these areas. The cumulative effort of completed projects have the potential for landscape connectivity for pronghorn. Other

considerations include the cost, time, effort, and materials required to complete fence modifications. Certainly, these projects would not be possible without the leadership and coordination from AFGA, dedicated volunteers, and participating private landowners.

Key Contacts

- T.J. Schwanky – AFGA
- Mark Olson – AFGA

Literature Cited

Burkholder, E.N., A.F. Jakes, P.F. Jones, M. Hebblewhite, and C.J. Bishop. 2018. To jump or not to jump: Mule deer and white-tailed deer fence crossing decisions. *Wildlife Society Bulletin* 42(3): 420-429.

Gates, C.C., P. Jones, M. Sutor, A. Jakes, M.S. Boyce, K. Kunkel, and K. Wilson. 2012. “The influence of land use and fences on habitat effectiveness, movements and distribution of pronghorn in the grasslands of North America.” Pages 277–294. *In: Somers, M.J., and M. Hayward (Eds.). 2011. Fencing for Conservation: Restriction of Evolutionary Potential or a Riposte to Threatening Processes? Springer-US, New York, New York USA.*

Jones, P.F. 2014. Scarred for life: the other side of the fence debate. *Human-Wildlife Interactions* 8(1): 150–154.

Jones, P.F., A.F. Jakes, A.M. MacDonald, J.A. Hanlon, D.R. Eacker, B.H. Martin, and M. Hebblewhite. 2020. Evaluating Responses by Sympatric Ungulates to Fence Modifications Across the Northern Great Plains. *Wildlife Society Bulletin* 44(1): 130–141.

Paige, C. 2020. *Alberta Landholder’s Guide to Wildlife Friendly Fencing*. Alberta Conservation Association. Sherwood Park, Alberta, Canada. 68 pp.

Seward, B., P.F. Jones, and A.T. Hurley. 2014. Where are all the fences: mapping fences from satellite imagery. *Proceeding of the Pronghorn Workshop* 25: 92-98.

Photos



Photo 1. AFGA volunteers using a measuring stick to respace the wires and a power stapler to secure them, with the bottom smooth wire set at 46 cm (roughly knee height) above the ground and remaining strands spaced evenly while leaving a 30-cm gap between the top two wires. Photo: Amanda MacDonald



Photo 2. ACA staff member spooling barbed wire for disposal after the fenceline was retrofitted to wildlife-friendly standards. Photo: Amanda MacDonald



Photo 3. Completed section of modified fence with the bottom strand of barbed wire removed and replaced with smooth wire secured at 46 cm (roughly knee height) above ground and remaining strands of barbed wire respaced evenly. Photo: Amanda MacDonald