Alberta Conservation Association (ACA)

Date: 2014-2015

Project Name: Pronghorn Resource Enhancement and Monitoring

Wildlife Program Manager: Doug Manzer

Project Leader: Paul Jones

Primary ACA staff on project:

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Partnerships

- Alberta Fish & Game Association
- Bushnell
- Cabelas Canada
- Canadian Forces Base Suffield
- National Fish and Wildlife Foundation
- Onefour Research Station
- Safari Club International – Northern Alberta Chapter (Hunting Heritage Fund)
- TD Friends of the Environment
- The Nature Conservancy
- University of Montana
- World Wildlife Fund

Key Findings

- We prioritized key areas where fences limit pronghorn movement and shared this information with Alberta Fish & Game Association to guide fence modification work as part of their Pronghorn Antelope Travel Corridor Enhancement Project.
- During our winter 2013/14 trials, images of pronghorn were the most common, followed by elk, coyote and deer.
- We captured images of a dramatic predation event by a golden eagle on a pronghorn fawn and published this unusual footage in the journal *Canadian Wildlife Biology and Management*.

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 fence lines 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; they also may become entangled and perhaps trapped and die (Jones 2014). A solution to this problem is to replace the bottom wire with smooth wire, and move it up to 45 cm; however, this is expensive and takes a lot of effort. There are alternatives that should allow pronghorn to freely cross a fence, although most are in need of evaluation. Our project is helping to identify fences that need to be modified, exploring different ways to do this more efficiently and increasing the public's understanding of the conservation challenges pronghorn face in Alberta.

Primary objectives for this work are to 1) map fence lines that inhibit pronghorn movement, 2) evaluate fence design alternatives to improve movement by pronghorn, 3) share our information with our partners, particularly those working to modify existing fence lines along key migration routes across the northern sagebrush steppe, and 4) increase the profile of pronghorn and the conservation challenges they face in Alberta through presentations and publications.

Methods

We met with interested landowners and Alberta Fish & Game Association (AFGA) to discuss modifying fences to make them pronghorn and wildlife friendly. We provided AFGA with a map showing the fence lines to be modified for each participating landowner to assist with their planning of fence-enhancement weekends and coordinating volunteers.

During winter 2013/14, we assessed pronghorn use of fences modified using clips (quick-links or carabineers used to raise the bottom fence line wire by clipping it to the wire above it) on Canadian Forces Base (CFB) Suffield using 46 trail cameras. We removed all cameras from CFB Suffield on April 24, 2014, and began processing images. We classified images into six behaviours: 1) successfully crossed under, 2) successfully crossed over, 3) successfully crossed through, 4) failed attempt to cross, 5) lingering at the site and 6) paralleling fence. We used a study design that looks at the difference before and after a treatment to determine if there was a difference in mean failed attempts by pronghorn per day and mean successful attempts by pronghorn per day between known crossing sites and control and enhanced sites.

During summer 2014, we assessed how domestic livestock and pronghorn react to clips (quick-links and carabineers) by placing cameras at known pronghorn crossing sites and at control sites on the Onefour research station.

In October 2014, we also began our winter trials using 48 trail cameras to test whether fences modified using double-stranded smooth wire improves permeability across fence lines for pronghorn. We also monitored use of open gates by wildlife (four cameras).

Results

After removing 46 trail cameras from CFB Suffield in April 2014, we processed the images. Images of pronghorn were the most common, followed by elk (*Cervus elaphus*), coyote (*Canis latrans*) and deer (*Odocoileus* sp.) (Figure 1). We compared the temporal distribution of

attempted crossings, either failed or successful, by week to see if we captured enough data to complete our analysis (Figure 2). It appears that the crossing data from 2012/13 are more evenly distributed across the time frame, whereas in 2013/14, there is a large portion of the winter where we did not collect data on attempted crossings by pronghorn. Further investigation will identify if we have enough data to statistically test the effectiveness of clips or if we will need another field season.

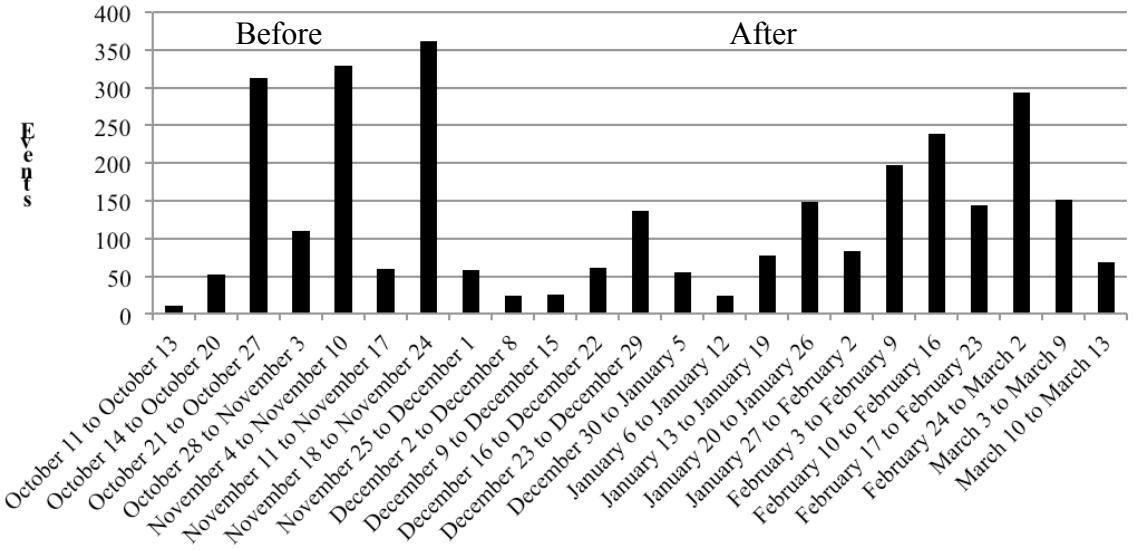
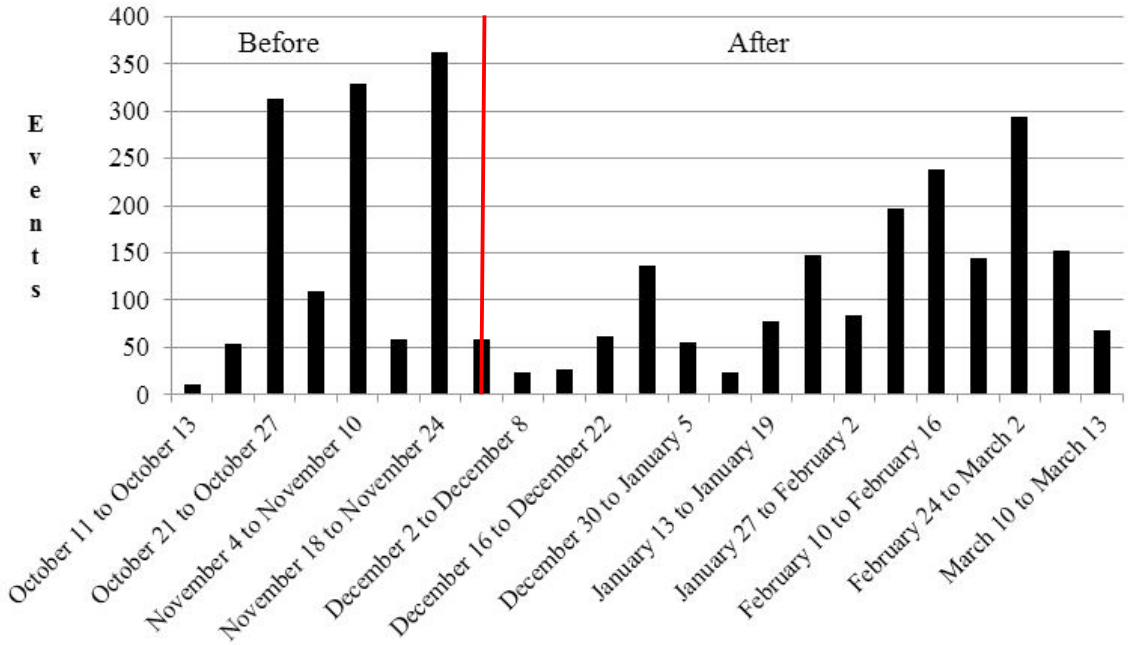
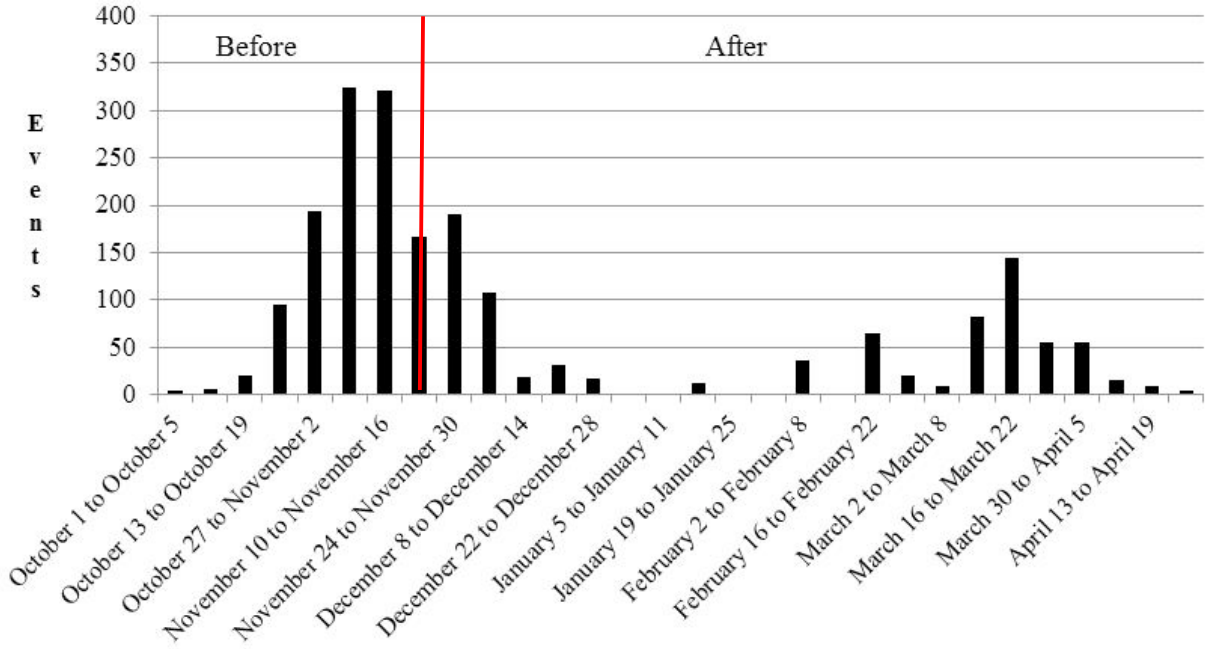


Figure 1. Number of events of pronghorn, elk, white-tailed deer, mule deer and coyotes captured by 46 cameras on Canadian Forces Base Suffield as part of the fence modification evaluation project, October 2013 to April 2014.



a)



b)

Figure 2. Number of attempts by pronghorn to cross a fence (successful and failed) on Canadian Forces Base Suffield: a) events from 2012/13 where the enhancement tested was a goat-bar, b) events from 2013/14 where the enhancement tested was clips. The bars to the left of the red line indicate the period before treatment, and the bars to the right indicate the period after treatment.

Initial images from our 2014/15 field season documented the predation of a pronghorn female fawn by an adult female golden eagle. We published the account in the journal *Canadian Wildlife Biology and Management*.

Conclusions

Pronghorn predominately cross under a fence, but if the bottom wire is too low, the fence becomes a barrier. Pronghorn appear to be using existing "traditional" sites for crossing fences, while evidence of preferential crossings at treatment locations is weak thus far. The acceptance of modified crossing locations may be a learned behaviour that develops over time with visual sight cues. As results become available, we will disseminate information to stakeholders, wildlife managers and conservation groups to enhance the effectiveness of efforts to restore movement patterns that have been relied on for thousands of years by pronghorn.

Communications

Publications

- Jones, P.F. 2014. Scarred for Life; The Other Side of the Fence Debate. *Human-Wildlife Interactions* 8:150–154.
- Jones, P.F., B. Seward, L. Seward, and H.M. Dorchak. 2014. Opening Up the Prairies: Evaluating the Use of Goat-bars by Pronghorn. *Pronghorn Workshop Proceedings* 25:52–58.
- Seward, B., P.F. Jones, and A.T. Hurley. 2014. Where Are All the Fences: Mapping Fences from Satellite Imagery. *Pronghorn Workshop Proceedings* 25:92–98.
- Yoakum, J.D., P.F. Jones, J. Cancino, R.J. Guenzel, R. Sneidler, A. Munguia-Vega, I. Cassigne, and M. Culver. 2014. Pronghorn Management Guides. Fifth Edition. Western Association of Fish and Wildlife Agencies' Pronghorn Workshop and New Mexico Department of Game and Fish, Santa Ana Pueblo, New Mexico. 159 pp.
- Yoakum, J.D., J. Cancino, and P.F. Jones. 2015. Pronghorn Bibliography. Western Association of Fish and Wildlife Agencies' Pronghorn Workshop and Texas Parks and Wildlife Department, Alpine, Texas. 316 pp.
- Jones, P.F., B. Seward, J.L. Baker, and B.A. Downey. 2015. Predation Attempt by a Golden Eagle (*Aquila chrysaetos*) on a Pronghorn (*Antilocapra americana*) in Southeastern Alberta, Canada. *Canadian Wildlife Biology and Management* 4(1): 66–71.
- Jones, P.F., M. Grue, M. Suitor, J. Landry-DeBoer, C. Gates, D. Eslinger, and D. Bender. Variability in the Selection Patterns of Pronghorn; Are They Really Native Prairie Obligates? *The Prairie Naturalist* (resubmitted – February 2015).

Presentations

- Winter Resource Selection by Pronghorn at the Northern Limit of Their Range. (P. Jones) – 26th Biennial Pronghorn Workshop, May 13, 2014 (70 people)
- Opening Up the Prairies: Are Fence Enhancements Effective for Pronghorn? (P. Jones) – Matador Science and Research Workshop, June 18, 2014 (60 people)

- Pronghorn Antelope: Prairie Ghosts. (P. Jones) – Lethbridge College, November 27, 2014 (6 people)
- Wildlife-Friendly Fences: Mythical Creatures or Practical Solutions? (P. Jones) – 2015 Native Prairie Restoration/Reclamation Workshop, January 29, 2015 (68 people)

Media

- "Pronghorn Are a Conservation Success" (D. Mabell) – *Lethbridge Herald*, November 5, 2014 (partner article)
- "Ranchers Not Sitting on the Conservation Fence" (S. Monk) – AlbertaBeef.ca, December 2014
- "Pronghorn Are a Conservation Success Story" (D. Mabell) – *Prairie Post West*, January 16, 2015 (partner article)
- "Fencing and Wildlife – Does Design Matter?" (L. Thompson) – *Beef Business*, January 2015
- Photographs of eagle predation attempt on a pronghorn fawn – ACA Facebook page

Key Contacts

- Dr. John Byers – University of Idaho
- Dr. Sue Fairbanks – Iowa State University/Oklahoma State University
- Dr. Andrew Hurley – University of Lethbridge
- Christine Paige – Ravenworks Ecology
- Dr. Mark Hebblewhite – University of Montana

Literature Cited

Gates, C.C., P. Jones, M. Suitor, 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:* M.J. Somers and M. Hayward (ed.). Fencing for conservation: Restrictions of evolutionary potential or a riposte to threatening processed? 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: 150–154.

Photos

Field crew checking cameras on Canadian Forces Base Suffield. Photo: Alberta Conservation Association

And you thought only kids stick out their tongues when getting their pictures taken. Photo: Alberta Conservation Association

Say cheese!—elk calf approaching trail camera. Photo: Alberta Conservation Association

A frosty morning. Photo: Alberta Conservation Association