

Alberta Conservation Association 2010/11 Project Summary Report

Project Name: *Where the Pronghorn Cross – Mapping and Evaluating Fences in Southern Alberta*

Wildlife Program Manager: Doug Manzer

Project Leader: Paul Jones

Primary ACA staff on project:

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Partnerships

Alberta Fish and Game Association
Canadian Forces Base Suffield
Canada Summer Jobs Program
Miistakis Institute of the Rockies
National Geographic Magazine
Safari Club International – Northern Alberta Chapter (Hunting Heritage Fund)
Summer Temporary Employment Program
Writing-on-Stone Provincial Park

Key Findings

- Mapped 5,646 km of fence lines in 57 townships from satellite imagery.
- Initiated a three-year study using camera traps to evaluate whether fence modification allows easier passage by pronghorn.
- Assisted Alberta Fish and Game Association with the installation of 38 km of smooth wire fence line at 45 cm from the ground to make fences pronghorn and wildlife friendly.
- Delivered four presentations to the general public and stakeholders on pronghorn conservation and the need for pronghorn wildlife-friendly fencing.

Introduction

Pronghorn (*Antilocapra americana*) are the most specialized, endemic, large mammal in the Grasslands Natural Region of Alberta. Having evolved on the prairies, pronghorn have not honed an ability to jump vertically to facilitate movement through obstructions or to escape predators. With human settlement across the west, fencing appeared across the prairies and created a barrier to pronghorn movement. Pronghorn have difficulty crossing a fence and commonly stoop under the bottom wire if it is at least 45 cm from the ground. Crossing underneath the fence line can cause significant hair loss and scarring from the barbs, and occasionally entangles individuals which may become trapped. Unfortunately, specific information on fence lines (e.g., location, type, etc.) in Alberta is not available and requires investigation to allow an assessment of how

fence lines affect pronghorn movement and to prioritize areas to make fences pronghorn friendly. There are alternatives to raising every strand of bottom wire that will allow pronghorn to freely cross a fence, although most have not been tested. We examined pronghorn reaction to fence lines enhanced using the goat bar method, which uses a piece of plastic tubing to clip the bottom wire to the wire above it. We anticipated that modified fence sections would preferentially be used by pronghorn.

Our primary objectives for this program include: 1) map fence lines in southern Alberta, 2) evaluate fence modification alternatives in terms of benefits to pronghorn, 3) enhance partner relationships, with an emphasis on our partnership with Alberta Fish and Game Association to address fencing issues faced by pronghorn, and 4) increase the profile of pronghorn in Alberta and awareness of the conservation challenges they face through presentations and publications.

Methods

We mapped fence lines in ArcMap by identifying thin linear features on satellite imagery. The features on the imagery represent cow trails that are created when cows repeatedly walk parallel to a fence. As part of this work, we ground truthed and collected attribute data on the mapped fence lines.

Along chosen fences on Canadian Forces Base Suffield, we set up 34 camera traps in November 2010 to monitor reaction of pronghorn to non-modified fence lines with a bottom wire 35 cm from the ground or lower. After a month, we randomly modified 17 of these fence lines using goat bars, and continued to monitor the fence lines to assess how pronghorn reacted to the enhancement.

Figure 1. Number of individuals captured on camera on Canadian Forces Base Suffield as part of the fence modification evaluation project, November 2010 to January 2011.

Results

We mapped fence lines using satellite imagery in 57 townships in southeastern Alberta. We were able to add fence line attribute data to 40 of the mapped townships based on field verification surveys. In total, we mapped 5,646 km of fence lines.

During the initial three month period (November 2010 to January 2011) of our study to evaluate how pronghorn react to fence line enhancements, cameras recorded images of 188 individuals across six species (Figure 1). We will continue to monitor the 17 control and 17 enhanced fence line sections until May 2011 and then analyse the data to determine whether enhancements have been effective.

We increased the profile of pronghorn through four presentations to the general public and stakeholders, submitted two manuscripts for publication, and completed an article for Alberta Conservation Association's *Conservation Magazine*. At Writing-on-Stone Provincial Park, we constructed a fence line that displays a typical fence in contrast to four alternative wildlife-friendly modifications that is now used as part of the park's interpretive program.

We assisted Alberta Fish and Game Association with the installation of 38 km of smooth wire fence line at 45 cm from the ground to make them pronghorn and wildlife friendly.

Conclusions

Pronghorn predominately cross under a fence but if the bottom wire is too low the fence becomes a barrier. We have initiated a three-year study to examine fence enhancements that can be used to facilitate movement across fences by pronghorn. As results become available, we will disseminate information to stakeholders, wildlife managers and conservation groups to demonstrate if and how changes in fencing standards are needed, and where to focus enhancement efforts.

Communications

Papers:

- Jones, P.F., and J. D. Yoakum. 2011. Where are all the pronghorn fawns: is low fawn recruitment an issue revisited? Pronghorn Workshop Proceedings.
- Jones, P.F., M. Grue, M. Sutor, J. Landry-Deboer, C. Gates, D. Eslinger, K. Morton, and D. Bender. 2011. Differential habitat selection by three behavioural phenotypes of pronghorn in the Northern Sagebrush Steppe of Canada. *Journal of Wildlife Management* (submitted for consideration).

Presentations:

- Where are all the pronghorn fawns: is low fawn recruitment an issue revisited? (P. Jones and J. Yoakum) – 24th Biennial Pronghorn Workshop, Laramie, Wyoming, May 20, 2010.
- A year in the life of a pronghorn. (P. Jones) – Writing-on-Stone Provincial Park, July 23, 2010 (47 people).
- A year in the life of a pronghorn. (P. Jones) – Writing-on-Stone Provincial Park, August 20, 2010 (55 people).
- A year in the life of a pronghorn. (P. Jones) – Grassland Naturalists Society, Medicine Hat, October 26, 2010 (18 people).

Poster:

- Pronghorn age and horn size in southern Alberta (K. Morton, P. Jones, and M. Grue) – 24th Biennial Pronghorn Workshop, Laramie, Wyoming, May 18 – 21, 2010.
- The good, the bad and the ugly; fences are more than barriers to movement. (M. Sutor, P. Jones, and C. Koenig) - 24th Biennial Pronghorn Workshop, Laramie, Wyoming, May 18 – 21, 2010.

Media:

- Antelope corridor enhancement – article in *The Outdoor Edge Alberta*, November/December 2010 by Alberta Fish and Game Association.
- ARBI meets AFGA and ACA on pronghorn project 2010 – article in *The Outdoor Edge Alberta*, November/December 2010 by C. Greco.

- Evaluating fencing alternatives to facilitate passage by pronghorn antelope in Alberta – article in the Safari Club International – Northern Alberta Chapter newsletter, July 2010 by P. Jones.

Website:

- Website, www.albertapronghorn.com, updated to convey program information to interested stakeholders.

Literature Cited

None

Photos

Alberta Conservation Association biologist, Layne Seward, programs a trail camera to record crossings by pronghorn. (Photo: Paul Jones)

Layne Seward measures the height of each strand of wire to determine if pronghorn would be able to cross at this site. (Photo: Paul Jones)

A group of pronghorn attempting to cross a fence line are captured by a trail camera set up two weeks earlier. (Photo: Alberta Conservation Association)

Caught on camera, a pronghorn doe successfully crosses a fence line. (Photo: Alberta Conservation Association)

A goat bar, a piece of plastic tubing used to clip the bottom wire of a fence line to the wire above it, is installed along a fence line and monitored to see if it allows easier passage by pronghorn. (Photo: Paul Jones)