2010 Pronghorn antelope

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Aerial surveys for pronghorn antelope are conducted annually to provide information on population density, distribution and composition within a series of long-term trend survey blocks. This information is used by ASRD to extrapolate an estimate of population size for each antelope management area (AMA), which in turn influences harvest objectives for the upcoming fall hunting seasons. In Alberta, recreational hunting opportunities for pronghorn antelope are highly sought after, making the information collected during the annual aerial survey an important component of the decision process. This summary describes data collected during the 2010 survey conducted in AMAs A to H, and CFB Suffield (Area S) (Figure 1).

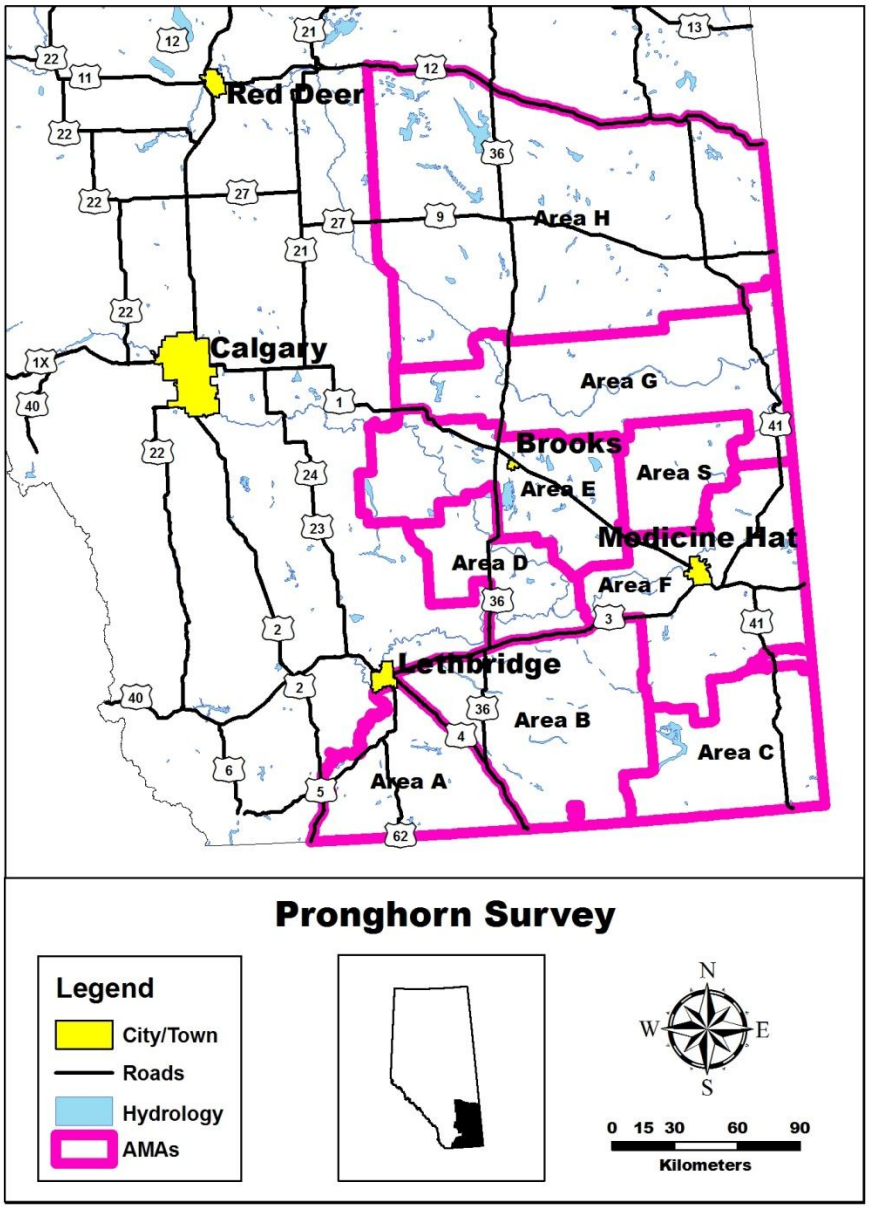

Figure 1. Location of pronghorn antelope management areas (AMA) in Alberta.

Survey methods

We conducted pronghorn antelope surveys from 13 - 21 July 2010 following our standard trend survey methods. Each AMA contains designated survey blocks with fixed strip transects, which we surveyed from rotary-winged aircraft. To reduce survey costs, we conducted non-stop, 3 hour flights with the support of strategic fuel cache locations. We divided each survey day into two periods, with the first flight commencing at approximately 0800 h and the second flight beginning toward evening, after the heat of the day. The survey crew consisted of the pilot, navigator, and two rear seat observers in a Bell 206L helicopter. Primary observers maintained constant observation of the ground out to a distance of 0.8 km perpendicular to the flight line on each side of the aircraft. The navigator kept the aircraft on course, recorded observations, and assisted with ground observation and herd classification, whenever possible. Observers counted all pronghorn seen on the transect, and classified the number of bucks, does and kids, whenever possible. Counts also include individuals seen while off the center of the flight line but still within the 1.6 km strip width. This likely biased our result by placing more effort in areas with higher pronghorn density. The GPS location of all observed individuals and groups was recorded.

Observed pronghorn density

We calculated a minimum estimate of pronghorn density (# animals/km^2) for the survey blocks in each AMA by dividing the number of animals observed by the total area (km^2) of the strip transects that were flown. We did not correct for sightability; therefore, overall counts should be considered as minimum estimates. We are testing a distance sampling approach for surveying pronghorn that incorporates a sightability correction (Webb et al. 2008; Grue and Morton 2011; unpublished ACA reports), and allows for robust statistical comparisons of population density among years and regions. Until this preliminary work is completed and incorporated into a revised survey format, overall counts will continue to be considered as minimum estimates that are extrapolated across pronghorn habitat to calculate a population estimate. Direct comparison of trend survey results among years should be interpreted as an indication of a trend rather than a robust comparison of the actual population number.

Results

During the 2010 survey, we counted 992 bucks, 2,033 does and 475 kids. Observed pronghorn density (pronghorn/km^2), buck to doe ratios and kid to doe ratios, calculated by AMA, are presented in Table 1.

Table 1. Comparison of pronghorn antelope survey results from 2007 - 2010.

	Antelope Management Area								
	A	B	C	D	E	F	G	H	S
2010 Survey									
Observed pronghorn density (pronghorn/km^2)	0.39	0.54	0.68	0.36	0.63	0.42	0.43	0.19	1.12
Bucks/100 Does	47	45	48	45	48	53	50	43	54
Kids/100 Does	20	33	15	17	12	26	29	37	20
2009 Survey									
Observed pronghorn density (pronghorn/km^2)	0.63	0.39	0.93	0.62	0.89	0.50	0.44	0.27	0.95
Bucks/100 Does	38	66	43	60	39	35	62	35	66
Kids/100 Does	39	58	22	42	42	35	34	29	47
2008 Survey									
Observed pronghorn density (pronghorn/km^2)	0.50	0.43	0.98	0.95	0.90	0.38	0.50	0.25	--
Bucks/100 Does	40	47	59	44	50	32	52	65	--
Kids/100 Does	21	42	28	30	27	43	47	31	--
2007 Survey									
Observed pronghorn density (pronghorn/km^2)	0.48	0.44	0.96	0.93	0.65	0.53	0.37	0.19	--
Bucks/100 Does	24	46	42	24	48	30	45	68	--
Kids/100 Does	30	67	30	52	37	37	50	39	--

Literature Cited

Webb, N., M. Grue, K. Morton, and J. Taggart. 2008. Evaluation of helicopter-based distance sampling for pronghorn in Alberta. Produced by ACA and ASRD, Rocky Mountain House, Alberta, Canada. 12 pp.

Grue, M.G., and K. Morton. 2011. Evaluation of line-transect sampling for densities of pronghorn (Antelocapra americana) in Alberta, 2010. Unpublished draft report, produced by Alberta Conservation Association (ACA) and ASRD, Lethbridge, Alberta, Canada.