2009 WMU 349 Moose

Section Authors: Curtis Stambaugh and Nathan Webb

Suggested Citation:
Stambaugh, C. and N. Webb 2009. WMU 349 Moose. Pages 58-62. In: N. Webb and R. Anderson. Delegated aerial ungulate survey program, 2008-2009 survey season. Data Report, produced by the Alberta Conservation Association, Sherwood Park, Alberta, Canada.

WMU 349 has traditionally been a popular area for moose hunters. Above average hunting pressures are seen in this WMU due to its relatively close proximity to Edmonton, an abundance of public land, varying terrain and remote ruggedness, and Sunday hunting opportunities. However, in 2008 Sunday hunting was expanded to most of the Province. WMU 349 has also seen an enormous amount of landscape change over the last 20-30 years. A total of 3 Forest Management Agreements with a handful of embedded quota holders overlap with oil and gas companies too numerous to mention, all competing for resources within the boundaries of the WMU. Along with extraction activities come road infrastructure and currently most places in the WMU are accessible by truck or ATV. In fact, some areas of the WMU experience some of the highest road densities in the Province (e.g., SW of Swan Hills, Judy Creek oil field).

WMU 349 has been surveyed three times since its separation from WMU 350 in 1993. The WMU was surveyed in 1994 and 1997 as part of the Northern Moose Program (Lynch 1997), and again in 2000. Elk, Mule, and White-tailed deer are also found within the WMU, however, their numbers are considered low and are not seen consistently enough to warrant special attention during surveys.

Study Area

WMU 349 is a relatively large WMU totaling 6,488 km^2. It is located between the towns of Whitecourt to the south, Fox Creek to the West, and Swan Hills and Fort Assiniboine to the North and East (Fig. 6.8.1). It is formally bounded in the North by the Goose River and Goose Tower road, Highways 33 and 658 in the East, the Athabasca River and Highway 43 in the South and West.

WMU 349 is rolling, upper and lower foothills terrain, predominately comprised of deciduous mixedwood on the western and southern edges changing to lodgepole pine forest with a gain in elevation in the central and northeastern portions of the WMU. Streams and creeks flowing out of the Swan Hills form deeply incised valleys through the WMU. In the summer of 1998, the Virginia Hills forest fire burned approximately 1/3rd of the WMU.

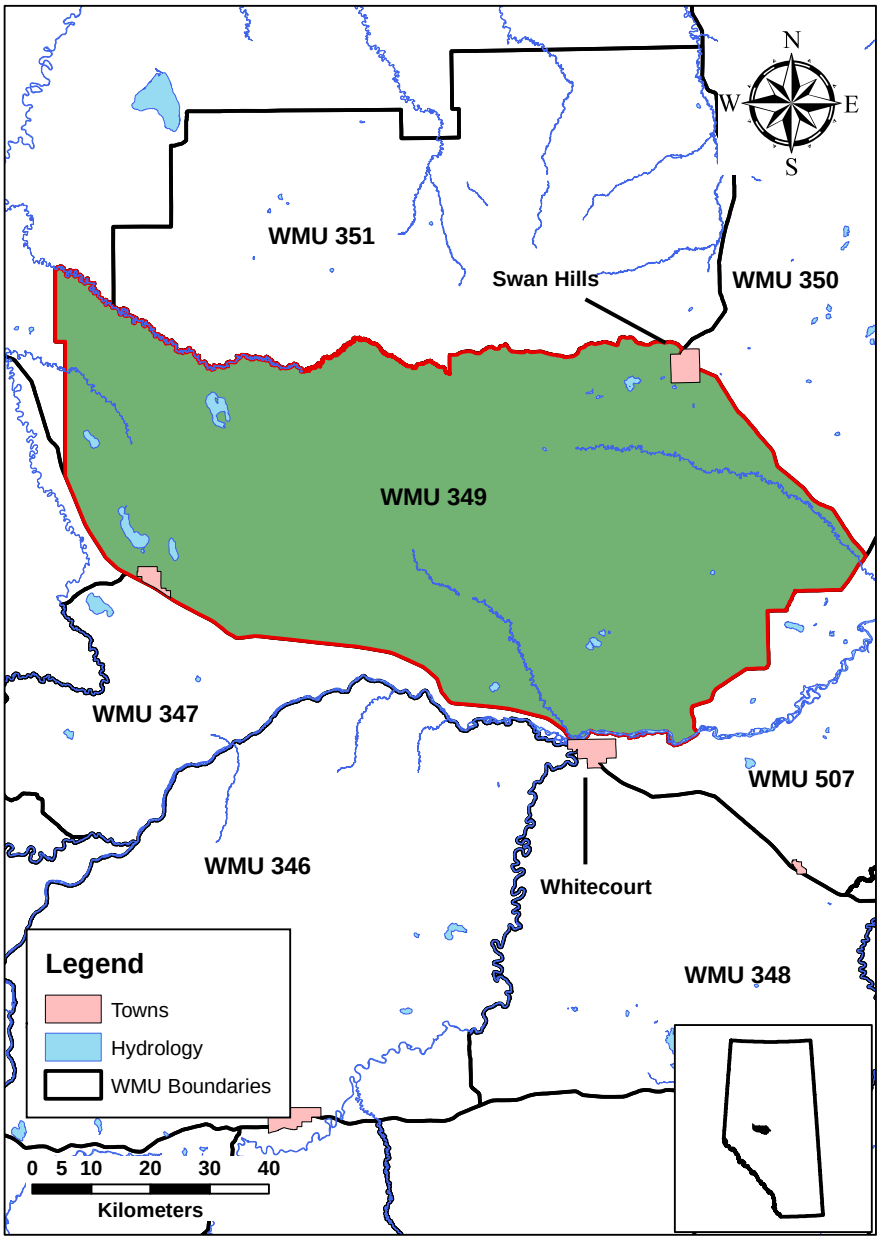

Figure 6.8.1. Location of WMU 349 in Alberta.

Survey Methods

Survey methodology followed the modified Gasaway technique as per Lynch (1997) and Gasaway et al. (1986). The WMU was divided into a 5 minute latitude by 5 minute longitude grid resulting in 139 survey blocks (some blocks varied in size along the WMU boundary). Sample block stratification was conducted by 2 crews of three plus a pilot in a Cessna 185 and Cessna 206 fixed-wing aircraft on January 15-16, 2009. Crews consisted of at least 2 experienced observers; 1 in the front seat and the other behind the pilot. Crews flew every 1 minute latitude, with the exception of block boundaries (every 5th minute), and counted all moose on either side of the machine. Elk and deer were also recorded if they were seen. Pilots attempted to maintain a consistent altitude of 100 m above the trees. Aircraft speed was maintained at approximately 160 km/h. Survey blocks were then assigned a value of low, medium, or high based on moose densities from stratification flights.

Five blocks for detailed surveys were chosen randomly for each of the high, medium and low strata. Detailed surveys were conducted by 2 crews of three plus a pilot using two Bell 206 Jet Ranger helicopters from January 17-20, 2009. Crews consisted of at least 2 experienced observers; 1 in the front seat and the other behind the pilot. North/south lines were flown 400 m apart within each sample block. Pilots flew approximately 30-40 m above ground at a speed of 80-130 km/h, depending on cover type. All moose observation locations were recorded with a handheld GPS. Every attempt was made to sex and age the animals unless forest cover and/or wind prevented safe or confident identification. All moose were classified as adults or calves based on body size and length of nose; all yearlings were classified as adults. All adult moose were classified as cows if a white vulva patch was present. All adult bulls that still possessed antlers were classified according to Table 3.5.1. Because of variability in the timing of antler drop and survey dates, comparisons of the percentage of large, medium, and small bulls across years is difficult. Observations of other ungulates (i.e., deer) were classified to species, however gender was only confirmed if antlers were present. Wolves and other species of interest were recorded if observed.

During stratification flights, snow conditions were good and the sky was clear for both days with the temperature hovering around 0° C, however, winds from the NW made it very turbulent resulting in a couple green faces at the end of the day. Conditions during intensive surveys were clear with temperatures rising throughout the week, reaching

approximately 5° C. Snow conditions deteriorated as the week progressed and were classified as marginal by the end of the survey, with bare stumps and exposed hilltops.

Results

The estimated moose population was 1,969 ± 375 (19.1%) for a density of 0.30/km², showing a 40% decline in population since 2000 (Table 6.8.1). Demographic ratios showed 24 bulls/100 cows and 37 calves/100 cows with a twinning rate of 1.4%. Eight bulls were observed with antlers of which 7 were classified as yearlings and 1 medium.

Table 6.8.1. Comparison of population and demographic estimates for WMU 349.

Year	Population Est. (conf. limits)	Density / km²	Ratio to 100 Females		Twinning Rate
			Males	Juveniles	
2009	1969 (19.1%)	0.30	24	37	1.4%
2000	3277 (18.5%)	0.51	29	37	3.3%
1997	2976 (19.7%)	0.46	22	33	4.5%
1993	3911 (18.7%)	0.65	15	48	--

Literature Cited

Gasaway, W.C., D. DuBois, D.J. Reed, and S.J. Harbo. 1986. Estimating moose population parameters from aerial surveys. Biological Papers of the University of Alaska No. 22, Fairbanks, Alaska. 108 pp.

Lynch, G. M. 1997. Northern moose program, moose survey field manual. 68pp.

Photo: Dave Jackson