

2010 Wildlife Management Unit 340 moose



Section Authors: Dave Hobson, Kirby Smith, and Shevenell Webb

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Obtaining accurate moose population estimates is important for ensuring healthy moose populations and hunting opportunities. WMU 340 is surveyed on a rotational basis, approximately every three years. WMU 340 was surveyed using the modified Gasaway method in 1994, 1996 and 2004 (Gasaway et al. 1986; Lynch and Schumaker 1995; Lynch 1997). Our objective for this year's aerial survey was to estimate moose population size, density, condition and composition (i.e., ratio of bulls:cows:calves).

Study area

WMU 340 is located south of the Town of Edson and is bounded by Highway 16 on the north, the Wolf Lake road and Wolf Creek on the east, the Pembina River on the southeast, Highway 40 on the southwest and Highway 47 on the northwest (Figure 1). This 2,585 km² unit is characterized by moderate to high levels of oil and gas development (roads, wellsites, large and small gas plants and pipelines), a coal mine, and an extensive, moderate density, all-weather road network. Forest cut blocks in various stages of activity and regeneration are dispersed

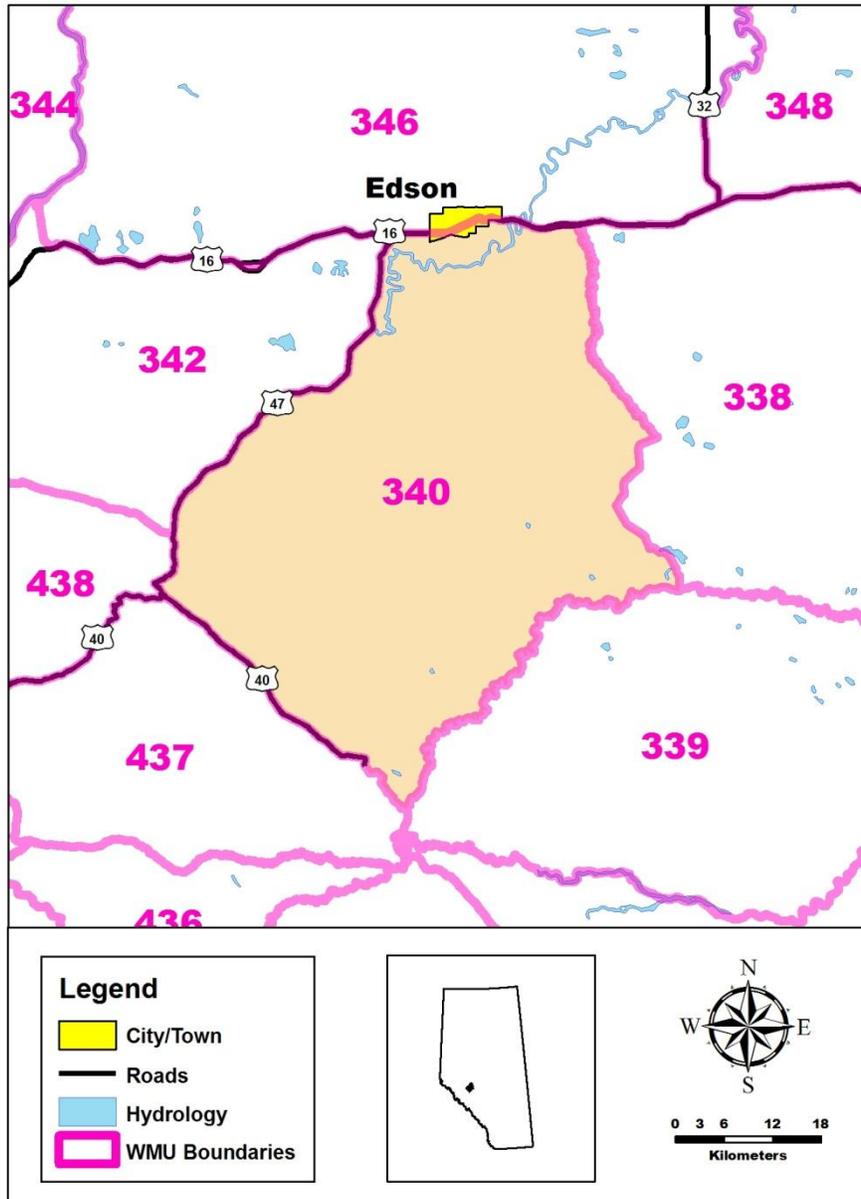


Figure 1. Location of Wildlife Management Unit 340 in Alberta.

throughout the WMU. The unit is located in the lower and upper foothills natural subregions of Alberta (Natural Regions Committee 2006). The habitat is largely coniferous forest (predominately lodgepole pine), black spruce and tamarack muskegs, and dwarf shrub bogs. Mixedwood and pure deciduous stands are mainly in the northern portion of the WMU and on the Robb Highlands. There are a few scattered small lakes.

Survey methods

WMU 340 was surveyed for moose using the modified Gasaway method (Lynch and Schumaker 1995; Lynch 1997; ASRD 2010). Fixed-wing aerial stratification of the WMU was flown on 11 – 12 January 2010. Detailed rotary-wing aerial surveys were conducted on 13 – 15 January 2010. This WMU was divided into 51 survey units (5 minute longitude by 5 minute latitude) and classified into high, medium and low strata by the fixed-wing stratification flights. Strata were determined by the number of moose observed in each unit during the fixed-wing flights and calculated as a density. Direction and distance of each moose from the airplane were also estimated and recorded. Fixed-wing stratification flights were followed by more detailed surveys of randomly selected survey units using rotary-wing aircraft. Initially 5 of each stratum were flown and data analyzed to determine confidence limits for the population estimate. The goal was to produce a population estimate with a 90% confidence interval of +/- 20% or less. If after flying 5 of each stratum the confidence limits are >20%, additional survey units are flown of those strata with high variance. We did not correct for sightability; therefore, overall counts should be considered as minimum population estimates and direct comparisons of survey results among years may be difficult.

Survey conditions were good, with complete snow cover (though not complete coverage of root balls and dead fall) and sunny or partially cloudy skies. During the fixed-wing flights, high wind and some turbulence was experienced in the western portion of the WMU.

Results

A total of 239 moose were observed during the detailed survey (47 bulls, 134 cows, 57 calves, and 1 unclassified). The population estimate for moose in WMU 340 was calculated to be between 685 and 833 (Table 1). The bull:cow ratio was the highest recorded in the past four surveys, while the calf:cow ratio was within the previous range (Table 1).

Table 1. Comparison of aerial survey results for moose in Wildlife Management Unit 340 from 1994 – 2010.

Year	Population Estimate (90% confidence limits)	Moose/km ²	Ratio to 100 Females	
			Males	Juveniles
2010	759 (±9.8%)	0.29	35	43
2004	640 (±14.5%)	0.26	26	50
1996	1,247 (--)	0.48	15	46
1994	1,463 (±17.8%)	0.63	19	39

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