

2010 Wildlife Management Unit 347 moose



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Wildlife Management Unit 347 has seen an abundance of landscape change over the last 20 to 30 years. The forest industry is very active within the WMU and the energy sector has been steadily increasing. Along with resource extraction activities comes road infrastructure and currently very few places in the WMU are inaccessible by vehicle or ATV, which increases hunting pressure on game species.

WMU 347 has been surveyed three times since its delineation in 1993. The unit was surveyed in 1994 and 1998 as part of the Northern Moose Program (Lynch 1997) and again in 2002. The objective for this survey was to produce a moose population estimate with a 90% confidence interval of +/- 20% or less. Elk, mule deer and white-tailed deer

are also found within the WMU; however, forest vegetation means the accuracy of population estimates for these species is low and thus not a priority for this WMU.

Study area

WMU 347 is a relatively small unit, totaling 1,579 km², located to the west of Whitecourt and south of Fox Creek (Figure 1). It is bounded in the north by Highway 43, to the west by the Bigstone Road and other smaller resource roads, and to the south by the Athabasca River. WMU 347 lies primarily within the lower foothills natural subregion of Alberta (Natural Regions Committee 2006) and is predominately comprised of coniferous and mixedwood forest. The Athabasca and Little Smoky rivers are the predominant watersheds, although numerous tributaries to the Athabasca are present.

Survey methods

Aerial stratification was completed on 26 January followed by detailed block surveys from 27 – 29 January 2010. Survey methodology followed the Alberta Fish and Wildlife modified Gasaway technique or stratified random block design (Gasaway et al. 1986; Lynch 1997; ASRD 2010). The WMU was divided into a 3 minute latitude by 5 minute longitude grid, resulting in 55 survey blocks (some blocks varied in size due to WMU boundary). Block stratification was conducted using a Cessna 185 and a crew of three plus a pilot. The crew consisted of a navigator/observer and two full time observers. Transects were flown every one minute latitude, with the exception of block boundaries (every fifth minute), and all observations of moose on either side of the aircraft were recorded. All moose locations were recorded with a Garmin GPSMap 76CSx. Pilots attempted to maintain a consistent altitude of 100 m above ground level (AGL) so an approximate distance to the animal could be consistently recorded. Aircraft speed was maintained at approximately 150 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 low, medium and high strata. Detailed surveys were conducted by 2 crews of 3 observers, plus a pilot, using 2 Bell 206B helicopters. Crews consisted of at least two experienced observers; one in the front left seat (navigator/observer) and the other behind the pilot. A third observer was also present behind the navigator/observer. North/south lines were flown

400 m apart and approximately 30 m above the trees at a speed of 100 km/h, depending on cover type. All moose locations were recorded with a handheld global positioning system (GPS). Every attempt was made to sex and age the animals unless forest cover

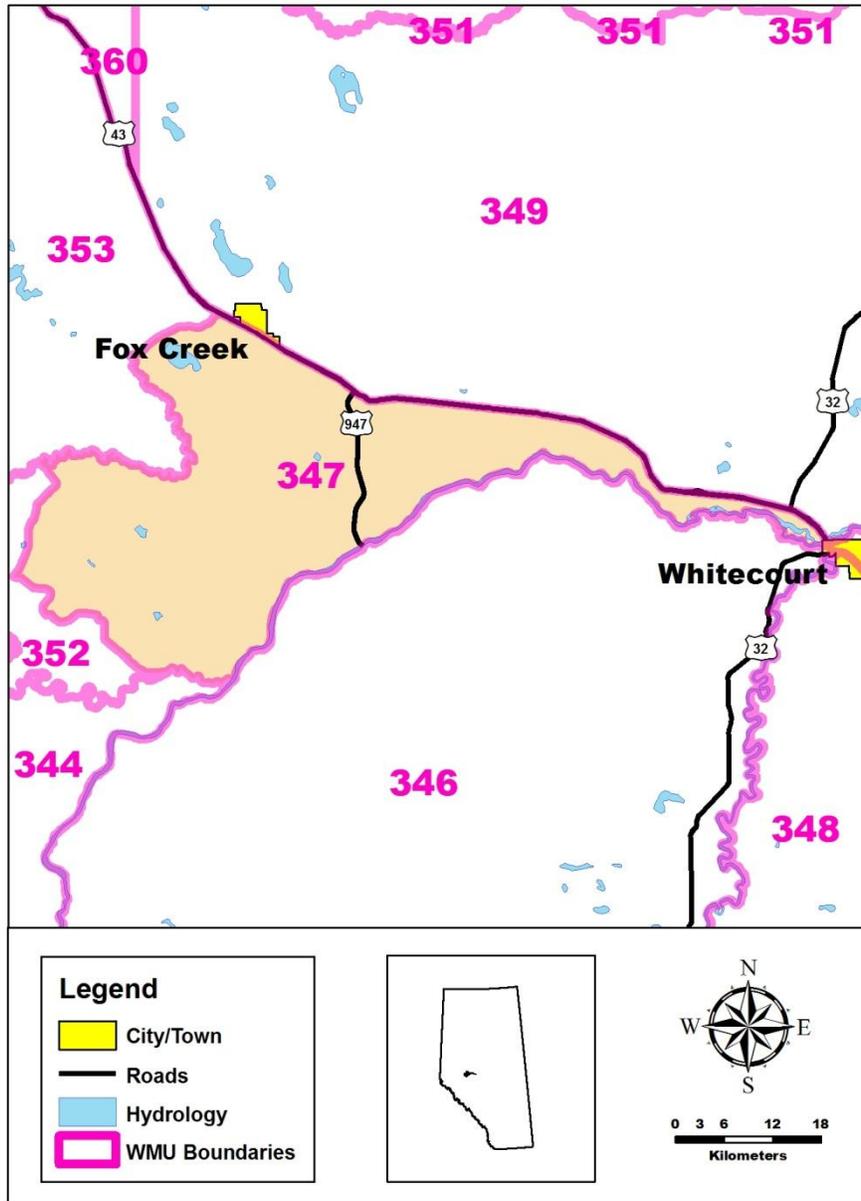


Figure 1. Location of Wildlife Management Unit 347 in Alberta.

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 by their size. 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.

Conditions were adequate throughout the duration of the survey. Temperatures ranged from -15 degrees Celsius in the mornings to -5 degrees Celsius in the afternoons. Winds were calm and turbulence was negligible. Snow cover varied between the forest and cut blocks and from east to west but overall was adequate with a skiff of fresh snow. Heavy frost on the trees in the mornings, particularly along the Athabasca River, did make sightability difficult but was largely avoided by changing which blocks were surveyed in the afternoons when the frost had melted.

Results

The estimated moose population was between 566 and 776 (Table 1). This represents a slight drop in estimate (approximately 16%) from 2002, though confidence intervals for these two most-recent surveys overlap. The bull:cow ratio was the highest observed in the past four surveys. Calf:cow ratios fell within the range of past surveys with an observed twin rate of 24%. A total of 42 bulls were observed with 83% having already shed their antlers. Of those still carrying antlers, four were yearlings and three were classified as medium. Table 1 shows population and demographic estimates for WMU 347 among survey years.

Table 1. Comparison of aerial survey results for moose in Wildlife Management Unit 347 from 1994 – 2010.

| Year | Population Estimate (90% confidence limits) | Moose/km ² | Ratio to 100 Females | |
|-------|--|-----------------------|----------------------|-----------|
| | | | Males | Juveniles |
| 2010 | 671 (±15.7%) | 0.42 | 42 | 43 |
| 2002 | 800 (±19.3%) | 0.52 | 15 | 46 |
| 1998* | 194 (--) | 0.21 | 13 | 26 |
| 1994 | 613 (±19.9%) | 0.42 | 15 | 39 |

*Data presented was split from the total survey which also included WMU 352.

Literature Cited

- Alberta Sustainable Resource Development (ASRD). 2010. Aerial ungulate survey protocol manual. Produced by the Fish and Wildlife Management Division, Edmonton, Alberta, Canada. 65 pp.
- 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, USA. 108 pp.
- Lynch, G.M. 1997. Northern moose program moose survey field manual. Unpublished report, Wildlife Management Consulting, Edmonton, Alberta, Canada. 68 pp.
- Natural Regions Committee. 2006. Natural regions and subregions of Alberta. Compiled by D.J. Downing and W.W. Pettapiece. Pub. No. T/852, produced by the Government of Alberta, Edmonton, Alberta, Canada.