

2011 Wildlife Management Unit 316 moose



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Moose population surveys began in WMU 316 in 1989 due to concerns from local hunting groups that moose numbers were declining in the area. Additional surveys were conducted in 1997, 2001, and 2007. This WMU is a high priority on the provincial survey rotation, but surveys have been delayed numerous times over the past four years. Unfavourable survey conditions, mainly attributed to chinook winds, commonly occur in this area. Survey results from 2011, along with information from previous efforts, assist in identifying trends in moose population, productivity and sex structure. The 2011 estimated moose population counts will be used by ASRD staff to make management decisions and to establish harvest allocations.

Study area

WMU 316 is a small WMU (574 km²) located within the foothills of Alberta, northwest of Cochrane (Figure 1). The WMU extends along the Forestry Trunk Road at the western boundary, the Red Deer River at the northern boundary and the Rocky Mountain Forest Reserve boundary on the south and east sides. The west half of the WMU is slightly more rugged providing fragmented moose habitat. The east half of the WMU is composed of mixedwood forest, providing a more desirable lowland habitat for moose.

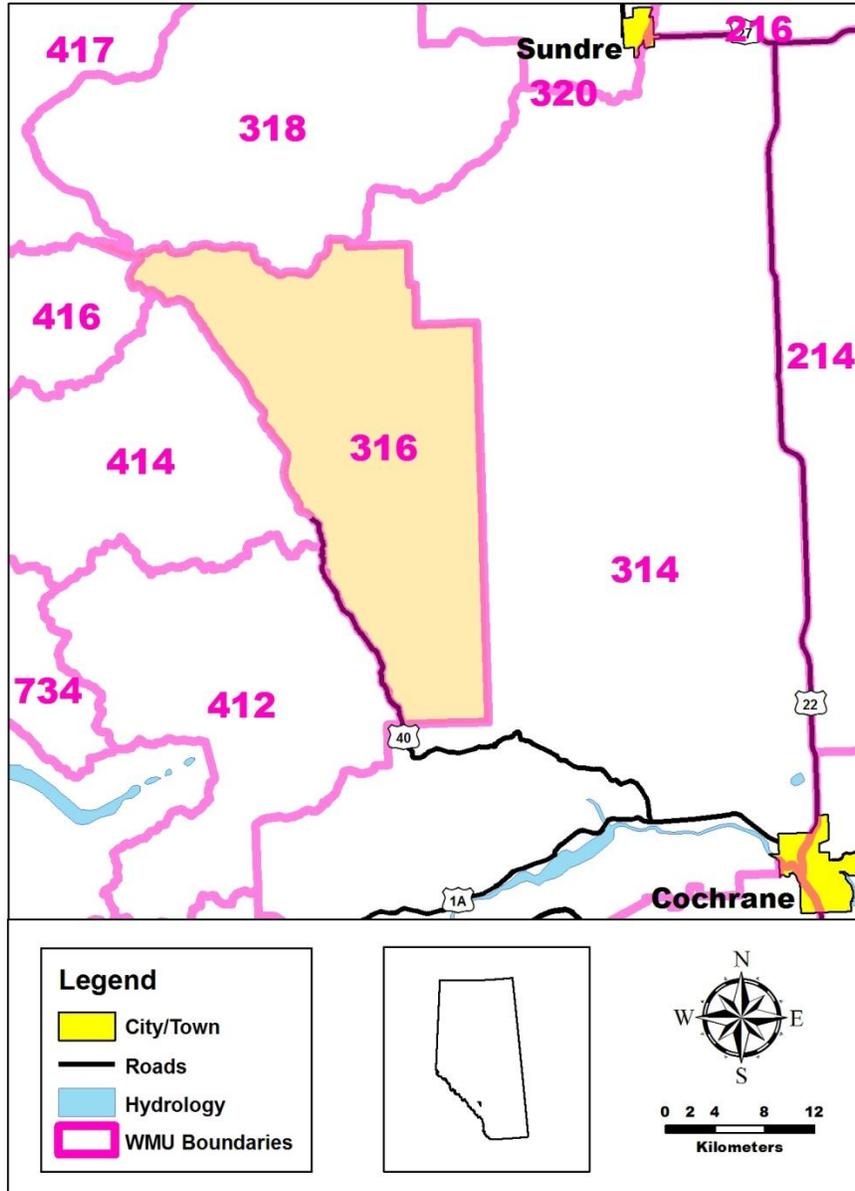


Figure 1. Location of Wildlife Management Unit 316 in Alberta.

Survey methods

The stratification process for this WMU was described in the 1997 survey report (Shumaker and Jorgenson 1997) and involved the use of 1988 Wildlife Habitat Inventory maps to assign moose habitat values to survey units (SU) based on forest cover type. For the 2001 and 2007 surveys, the WMU was divided into smaller SU (2 min latitude x 3 min longitude) than used in 1997 (2 min latitude x 5 min longitude). A total habitat value for each SU was determined by calculating the area of each habitat type present in the SU and then multiplying by the habitat value number assigned to each habitat type. The habitat values within each SU were then summed to establish a total habitat value for the SU. SUs were then ranked according to their total habitat value; values less than 45, between 45 and 55, and greater than 55 were assigned to three strata of low, medium, and high, respectively.

Forest cover types in WMU 316 have been modified over the years, primarily due to logging and oil and gas development, which could alter the total habitat value of a particular SU. To assess these changes, aerial photography from 2005 was compared with 2002 imagery to decide whether the habitat value for some SUs should be adjusted. Although some SUs have undergone significant changes, largely a result of forest cover removal by logging, the decision was made to not change any SU ratings. During the aerial survey, strata classifications of low, medium and high were reassessed through observation, and it was confirmed that no changes were required.

SUs were selected through a computer randomized list. A minimum of three SU in each strata (low, medium, high) were surveyed. Strata were evaluated based on variation associated with moose density. Strata having greater variance were assigned additional SUs that were randomly selected and flown. A Bell 206B helicopter was used for the survey with a navigator/observer seated in the front and two observers in the rear seat. A hand held Garmin GPS unit was used to log observation points. Moose were classified as cows, calves or bulls with the aid of Canon Image Stabilizer binoculars. Data were recorded on survey sheets and later condensed into digital format. 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.

Weather conditions for this survey were good with fresh snowfall and clear skies on 18 January 2011 and slightly better conditions on 19 January 2011 with overcast skies reducing glare off the snow and allowing for better visibility. Winds were calm for the duration of the survey.

Results

We flew 13 SUs during the survey (4 low, 6 medium and 3 high) with a total of 92 moose observed (30 bulls, 50 cows, 10 calves and 2 unclassified). From this a population estimate of 248 ± 65 was calculated (Table 1). The bull:cow ratio was the highest recorded over the past four surveys of this WMU, while the calf:cow ratio was the lowest recorded (Table 1). Due to time constraints, the decision was made to not fly additional SUs to improve confidence levels.

Table 1. Comparison of aerial moose survey results in Wildlife Management Unit 316 from 1989 - 2011.

Year	Population estimate (90% confidence limits)	Animals/km ²	Ratio to 100 Females	
			Males	Juveniles
2011	248 ($\pm 26.2\%$)	0.43	60	20
2007	161 ($\pm 32.6\%$)	0.28	56	56
2001	205 ($\pm 29.0\%$)	0.36	14	25
1997	321 ($\pm 22.8\%$)	0.56	50	30
1989	218 ($\pm 18.4\%$)	0.38	24	50

Literature Cited

Shumaker, G., and J.T. Jorgenson. 1997. WMU 316 moose survey. Produced by Alberta Environmental Protection, Natural Resources Service, Canmore, Alberta, Canada. 41pp.