2008 WMU 360 moose, white-tailed deer and mule deer

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Historically, one trend block survey (1993) and five detailed population-estimate surveys for moose (1993, 1994, 2000, 2001 and 2007) and three detailed surveys (2000, 2001 and 2007) for elk and deer have been completed for WMU 360. The ungulate management efforts in the Lesser Slave area strive to complete surveys in each WMU every 3 - 4 years, or more frequently when management issues necessitate increased monitoring and assessment. Regular ungulate surveys in WMU 360 are important in order to determine ungulate population status and trend, to set recreational license permit numbers and to assist with ungulate depredation and land use management. This section contains the results and preliminary analysis of moose and deer surveys conducted in WMU 360 in December 2007.

Study area

Wildlife Management Unit 360 is located immediately south of the town of High Prairie and borders the southwestern shore of Lesser Slave Lake (Figure 17). The landbase in WMU 360 includes portions of the Dry Mixedwood, Central Mixedwood, and Lower Foothills subregions, as described by the Natural Regions Committee (2006). Mixedwood forests of aspen and white spruce dominate the non-agricultural portions of the WMU, and are interspersed with the major river systems of the East and West Prairie and Little Smoky River valleys. The mixed farmland is dominated by tame hay and pasture lands with some grazed Mixedwood forest. Croplands in the vicinity of High Prairie, Sunset House and Valleyview are dominated by annual cultivation of grains and oilseeds; however, in recent years there has been more conversion of these lands into hay and pasture production.
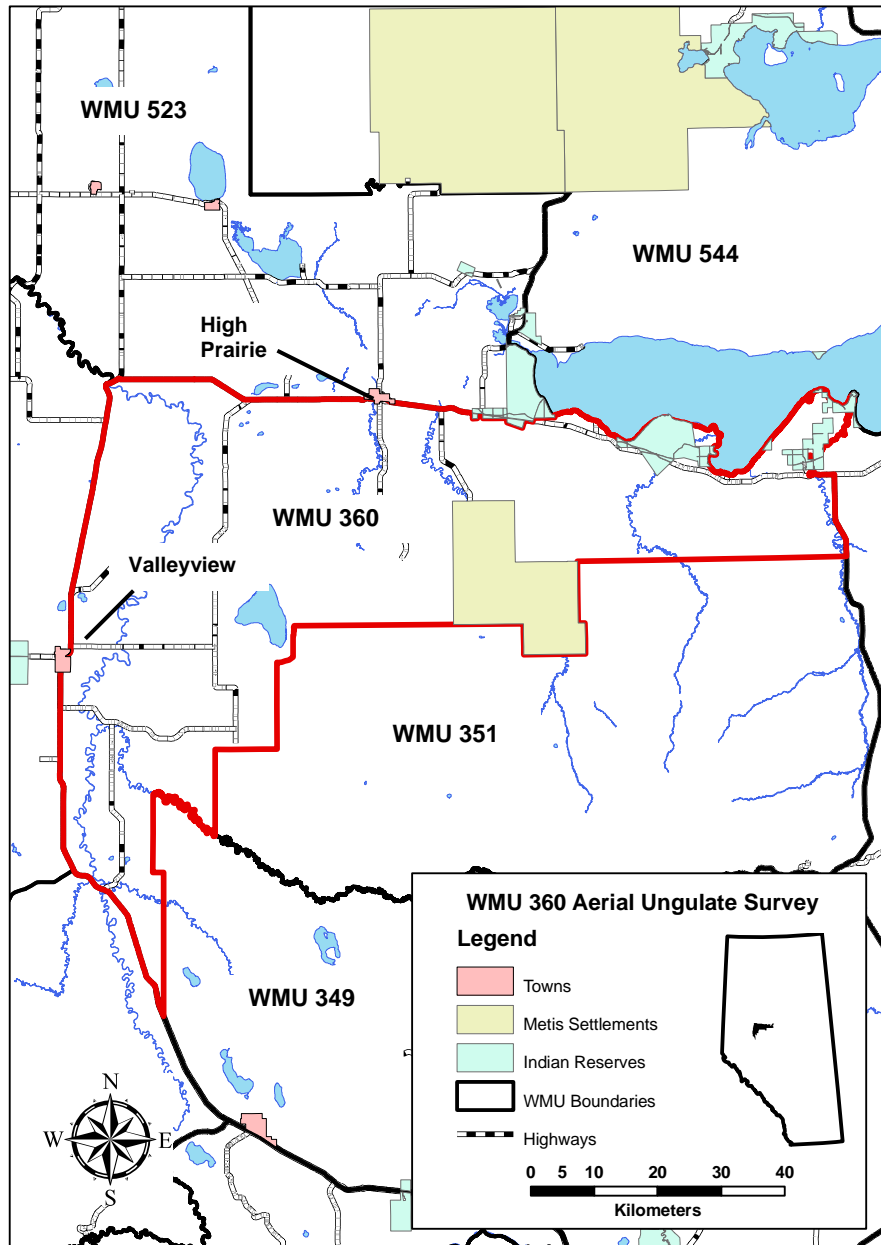
Figure 17. Location of the Wildlife Management Unit 360 aerial ungulate survey in Alberta.

Survey methods

A modified Gasaway-style survey was used in late 2007 as described in the Northern Moose Program Moose Survey Field Manual (Lynch 1997). Two Cessna 185 fixed-wing aircraft were used for stratification, with each aircraft occupied by a pilot and three observers. Survey staff flew east-west transects across the WMU on December 14 and 15, 2007 for a total of 21.4 h. Locations of moose, deer, and other wildlife were marked using a GPS.

Based on relative counts from stratification flights, survey blocks were stratified for moose into low (< 5), medium (5 - 12), and high (> 12) classifications. For white-tailed and mule deer, survey blocks were stratified using a combination of information derived from transect surveys, as well as through application of local knowledge of animal concentrations, food sources, cover availability and animal movement patterns in winter. In WMU 360, deer are known to concentrate in areas with winter food sources such as unharvested cereal grains and unprotected grain piles and livestock forage. Based on relative counts from stratification flights, survey blocks were generally classified for white-tailed deer as low (≤ 5), or high (> 5). Classification of survey blocks for mule deer included low (≤ 4), and high (> 4). A total of nineteen detailed survey blocks were randomly selected for intensive search by helicopter. The classification distribution of these blocks differed by species. For moose, seven of the blocks were classed as low, seven as medium and five as high. For mule deer, the classification of survey blocks was broken down as 12 low and seven high. White-tailed deer classifications included 11 low survey blocks and eight high.

Two Bell 206 helicopters were used to determine the number of moose and deer within each of the randomly selected blocks on December 16 - 18, 2007. Each block was flown east to west on flight lines spaced 0.25 min of latitude (approximately 400 m) apart, at 100 - 140 km/h, and at an altitude of approximately 100 m. Each flight crew consisted of three observers. All ungulates were identified by sex and age where possible, using physical characteristics that were easily observed from the air (e.g., presence of white vulva patch on cow moose, or antlers on males). Adult male ungulates were classed into categories using the same criteria as in WMU 359 (Table 16). In addition to observations of moose, deer and elk, other wildlife sightings were also recorded.

The rotary wing portion of the survey totaled 42.1 h. Data were entered into a Gasaway population estimate spreadsheet and population estimates, male/female/juvenile ratios, population densities and twinning rates were calculated.

Results

During the stratification portion of the survey, winds were calm, and snow cover was fresh, complete and with a depth averaging 50 cm. Visibility was generally excellent throughout the survey. Mean ground temperature was -8°C during the stratification. Conditions for rotary-wing surveys were generally good with fresh and complete snow coverage averaging 50 cm in depth. Air temperatures varied from -1°C to -5°C, with a progression towards cooler weather during later portions of the survey. Winds were generally calm throughout the duration of the survey. Observation conditions were excellent throughout all portions of the rotary wing survey.

Moose – The population estimate for moose was 2,964 ± 15.3 % (Table 19). There were 17 bulls to 100 cows and 39 calves to 100 cows. The occurrence of cows with twins at survey time was 9.4% and the overall density was 0.62 moose/km². Of the bulls that were observed during detailed surveys, 21.9% had already shed their antlers. Of those bulls still retaining antlers, 40% were classed as yearlings and 52% were classed as medium. Very few bulls in the large category were observed.

Mule deer – The population estimate for mule deer was 879 ± 29.6% (Table 19). The density of mule deer was observed to be 0.18/km². There were 44 adult bucks and 53 fawns/100 does, with a twin occurrence of 9.1% observed. One antlerless mule buck was observed, indicating that antler drop had begun. The proportion of mule deer bucks in each size class was similar to past surveys (Table 20).

White-tailed deer – In this survey the white-tailed deer population estimate was 5,096 ± 18.1% (Table 19). There were 26 bucks and 51 fawns/100 does and a twin occurrence rate of 8.5%. Two white-tailed bucks were observed to lose antlers during the survey, indicating the initiation of antler drop.

Table 19. Population estimates and herd composition of moose, mule deer, and white-tailed deer in Wildlife Management Unit 360 during December 2007 and previous survey years.

Species	Year	Population estimate (confidence limits).	Density/km²	Ratio to 100 females Males	Ratio to 100 females Juveniles
Moose	2007	2964 (15.3%)	0.62	17	39
	2001	3551 (17.8%)	0.75	24	63
	2000	1905 (9.5%)	0.40	13	48
	1994	2667 (19.7%)	0.63	19	52
	1993	3357 (24.0%)	0.74	28	53
	1993[a]	-	0.70	13	61
	1990[a]	-	1.1		
Mule deer	2007	876 (29.6%)	0.18	44	53
	2001	536 (26.4%)	0.11	22	100
	2000	467 (12.7%)	0.10	7	116
White-tailed deer	2007	5096 (18.1%)	1.06	26	51
	2001	2059 (8.7%)	0.43	27	78
	2000	1150 (13.6%)	0.30	35	115

[a]Trend block survey.

Table 20. Age structure of classified male mule and white-tailed deer in Wildlife Management Unit 360 during surveys in 2000, 2001, and December 2007.

Age Classification	Mule Deer 2000 (N = 5)	Mule Deer 2001 (N = 16)	Mule Deer 2007 (N = 71)	White-tailed Deer 2000 (N = 39)	White-tailed Deer 2001 (N = 55)	White-tailed Deer 2007 (N = 177)
Antlerless	0%	0%	2%	0%	0%	0%
Yearling	40%	50%	42%	36%	36%	38%
Medium	60%	31%	46%	51%	38%	48%
Large	0%	19%	10%	13%	25%	14%

Literature Cited

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