

2008 WMU 526 moose, mule deer, white-tailed deer, and elk

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Ungulate populations increased throughout the Peace Country agricultural areas during the period of seven consecutive mild to average winters from the winter of 1998/99 to 2005/06 (Moyles and Johnson 2003; ASRD – Alberta Fish & Wildlife Division, unpubl. data). These increases created both excitement from hunters and naturalists, and concerns and complaints from residents dealing with increases in crop and haystack depredation and with increases in ungulate-vehicle collisions. Alberta Sustainable Resource Development attempted to reduce ungulate populations by increasing hunting pressure and harvests through several different initiatives including increasing season lengths, allowing hunting on Sundays in white zone areas in the Peace Country, increasing numbers of hunting licenses, and for antlerless mule deer, providing as many as four tags per hunting license. In addition, ASRD implemented a quota hunt for antlerless deer in WMU 526 in the Bear Canyon area in late winter 2006/07 (Moyles 2007). In past years elk herds were located and the varying amounts of depredation in these locales was determined. Given the intensive management effort in WMU 526 over the past few years, ASRD needed to determine current population levels to assess the impacts of the increased hunting pressure and the effects of the past winter.

Study area

WMU 526 is bordered by the Peace River to the south, the Clear Hills – Whitemud Hills to the north, and from Highway 35 west to the British Columbia boundary (Figure 15). This unit is relatively large (7,101.7 km²) and is dominated by settlement and agriculture, with only 15% in the green zone. There are two main towns, Grimshaw and Fairview, several smaller communities, including Worsley, Hines Creek, Bear Canyon, Cherry Point, Eureka River, Cleardale, Bluesky, Berwyn, Brownvale and Whitelaw, and farms throughout this unit. This unit is bordered and dissected by the Peace River and its tributaries, including the Clear River, Hines Creek and Montagneuse River. These river valley complexes provide escape and wintering habitat for all ungulate species, while the agricultural areas provide feeding areas.

Survey methods

Moose, mule deer and white-tailed deer – The surveys for moose, mule deer and white-tailed deer were conducted as per Lynch (1997). The survey team used two Cessna 185 fixed-wing aircraft from January 21 and 22 and one aircraft on January 23 to complete the stratification flights of four transects through each survey unit. The transects were spaced 1 min of latitude apart and the lines flown in an east-west direction. Each crew consisted of two observers, one in the front and one sitting behind the pilot. For each sighting of wildlife, the front observer took a waypoint using a hand held GPS and recorded the sighting. There were no attempts to classify any ungulates to age or sex during stratification flights. All waypoints (locations) of sightings of moose, mule deer, white-tailed deer and elk were plotted on the base map.

For moose, the survey units were classified based on the number of moose seen, with units containing 0 - 2 moose classified as low strata, units with 3 - 9 moose classified as medium strata, and units with ≥ 10 moose classified as high strata. In addition, all units with significant areas of southwest slopes along river valleys were 'upgraded' to the next stratum to allow for the importance of the river valleys as wintering habitat.

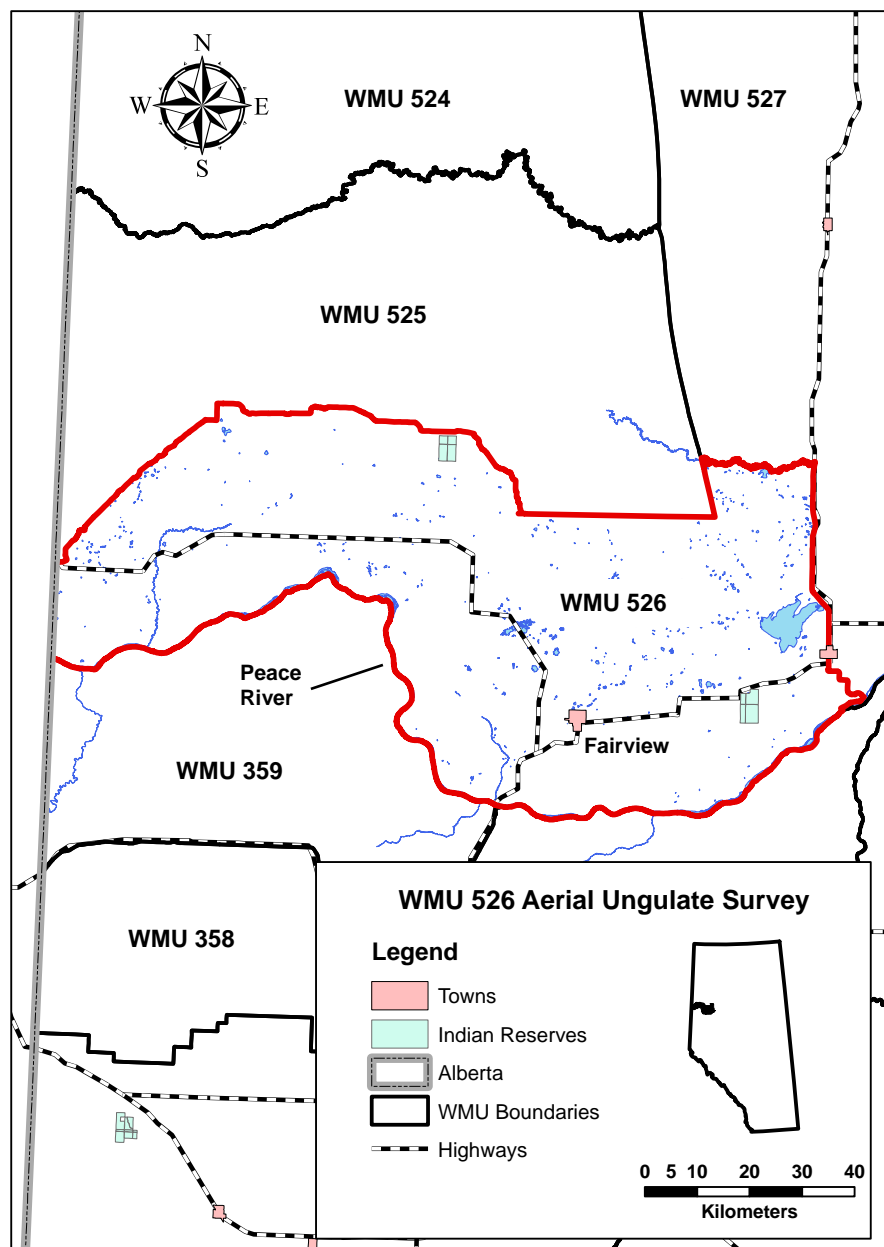


Figure 15. Location of the Wildlife Management Unit 526 aerial ungulate survey in Alberta.

For mule deer, units with 0 - 2 mule deer observed were classified as low strata, units with 3 - 15 as medium strata, and units with ≥ 16 mule deer placed into the high strata. Some units were shifted given special circumstances. For example, survey unit 119 was classified as 'medium' even though 25 deer were seen because the majority of these deer were seen in one herd. As well, several units with significant amounts of southwest-facing river valley slopes were upgraded to the next stratum to allow for wintering habitat.

For white-tailed deer, units were lumped into one stratum as there was no discernable pattern in their distribution. This species was seen on upland farmland and in river valley terrain.

The survey team used one crew in a Bell 206B helicopter on January 23, 2008 and two crews in two helicopters on January 24 - 26 to conduct intensive searches of survey units. In total, 23 survey units were searched with varying classifications for the three species. Crews flew transects orientated east-west that were spaced to ensure full coverage of the survey unit; in this WMU usually a separation of 400 m was sufficient. Every attempt was made to classify all ungulates observed unless the animals were in close proximity to farmyards or domestic livestock.

All moose observed were classified as either adults or calves based on body size and length of the nose; all yearling moose were considered adults. All adult moose were classified as cows if a white vulva patch was present. Eight bulls still had antlers, while all other bulls were classified as males because of absence of a vulva patch. We assumed bulls with and without antlers were equally detectable for gender.

Deer were classified as to species, then to age based on body size and length of the muzzle. Male adult deer with antlers were classified as yearlings if they had small forked antlers, as 'medium' if they had 3 or 4 short, spindly points per side with main beams not extending past the ears, and as 'large' if they had a minimum of four large, long antler points per side and main beams that extended well past the ears. Some adult deer without antlers were not classified to gender.

Elk – From March 17 to 19, one three-person crew in a Bell 206 helicopter searched areas with known or suspected presence of elk in WMU 526 and neighbouring WMU 527.

Locations were determined by using elk sightings from the January survey, checking areas with reports of elk depredation and contacting key residents just before the survey. All locations of elk were entered into a hand-held GPS and elk were counted.

Elk were classified as either adults or calves, based on body size and length of the muzzle. Male elk were classified as yearlings if they had one antler spike per side, as 'medium' if they had 2 - 5 spindly points per side, and 'large' if they had ≥ 6 points per side. Classification was not always possible, given close proximity to farmyards, livestock or the presence of thick coniferous cover.

Results

Moose, mule deer, and white-tailed deer – Survey conditions were cold with adequate snow to cover stumps, but no fresh snow so the survey crew did not record tracks for stratification. Visibility was reduced near the upper reaches of the Peace River due to the presence of ice fog in some areas. Moose populations were estimated to be $2,707 \pm 14.4\%$ with density of 0.38 moose/km² (Table 14). Ratios of bull and calves to 100 cows were 19 and 37, respectively. Mule deer populations were estimated to be $5,429 \pm 16.7\%$, for a density of 0.76 deer/km². The ratio of bucks and fawns to 100 does was 48 and 62, respectively. Forty-five percent of the bucks were classified as yearlings, 46% as medium, and 9% as large. The white-tailed deer population was estimated at $2,325 \pm 27.2\%$, for a density of 0.33 deer/km². The ratio of bucks and fawns to 100 does was 40 and 72, respectively.

For both deer species, the number of adult males seen was a minimum number because some antler drop would have occurred by the third week of January. However, few one-antlered deer were seen, suggesting that the majority of bucks still retained their antlers.

Table 14. Results of the 2008 Wildlife Management Unit 526 moose, mule deer, and white-tailed deer survey, with comparisons to 1999 and 2003.

Species	Year	Population Estimate (confidence limits)	Density/km ²	Ratio to 100 females	
				Males	Juveniles
Moose	2008	2707 (14.4%)	0.38	19	37
	2003	3853 (12.1%)	0.54	37	48
	1999	3154 (12.5%)	0.45	29	53
Mule deer	2008	5429 (16.7%)	0.76	48	62
	2003	8503 (13.0%)	1.20	41	124
	1999	5308 (14.9%)	0.75	11	97
White-tailed deer	2008	2325 (27.2%)	0.33	40	72
	2003	1398 (22.5%)	0.20	26	120
	1999	928 (19.5%)	0.13	8	119

Elk – There were 26 different sightings of elk herds during the January surveys for a minimum count of 239 elk. In March, there were 34 separate sightings of elk herds with a minimum count of 320 elk (Table 15). During the January survey, crews found that elk had moved into areas in which elk have not previously been seen during surveys (Moyles and Johnson 2003). Elk also seemed to be in smaller groups and more dispersed across the unit, as opposed to being in large herds. In past years elk from the Figure 8 Lake herd have moved into WMU 527 in the Warrensville area (Johnson 2007). Neighbouring portions of WMU 527 were surveyed, but no elk were found close to the common boundary between these two WMUs.

Table 15. Minimum counts of elk by 'herd areas' in Wildlife Management Unit 526, January and March 2008.

Area	January 21 - 26, 2008	March 17 - 19, 2008
Clear River – Bear Canyon	51	86
Figure 8 Lake	94	72
Golden Meadows	16	29
Hines Creek	28	0
Many Islands	4	23
Montagneuse River	20	76
Running Lake Road – Worsley	26	34
Totals	239	320

Literature Cited

- Lynch, G. 1997. Northern moose program moose survey field manual. Unpublished report by Wildlife Management Consulting, Edmonton, Alberta. 68 pp.
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