

2011 Wildlife Management Unit 523 moose, mule deer and white-tailed deer



Section Author: Dave Moyles, Al Fontaine, and Ryan Hermanutz

Suggested Citation:

Moyles, D., A. Fontaine, and R. Hermanutz. 2012. Wildlife Management Unit 523 moose, mule deer and white-tailed deer. Pages 91-96. *In*: M. Ranger and R. Anderson. Delegated aerial ungulate surveys, 2010/2011 survey season. Data Report, D-2011-009, produced by the Alberta Conservation Association, Sherwood Park, Alberta, Canada. 100pp.

The modified Gasaway method (Gasaway et al. 1986) has been used since the winter of 1993 - 1994 to estimate moose populations in Alberta. This technique has been employed three times to estimate moose populations in WMU 523. In the late 1990s, the technique was adapted for mule deer and white-tailed deer and since then, WMU 523 has been surveyed twice, using this technique, to estimate deer populations.

Study area

WMU 523 is shaped like an upper case “L”, with the top half in Northern Sunrise County No. 133, the central and southwest portion within the M.D. of Smoky No. 130 and the southeastern extension within the M.D. of Big Lakes (Figure 1). Peace River and High Prairie are the largest towns in this WMU, and there are numerous smaller communities. The aboriginal communities of Cadotte Lake and Peavine Metis Settlement are near to this unit, accounting for significant hunting pressure, particularly along the eastern and southeastern portions of the WMU. WMU 926, the Green Valley Provincial Park, is enclosed by WMU 523. The bulk of WMU 523 is classified into the boreal forest dry mixedwood subregion, while the eastern boundary lies within the central mixedwood subregion (Natural Regions Committee 2006). This WMU is dominated by agriculture and is primarily deeded land, with some Crown land along river valleys and WMU boundaries. There is oil and gas development throughout the farmland and fringe areas. The majority of the WMU is accessible to hunting pressure, dependant on permission from landowners.

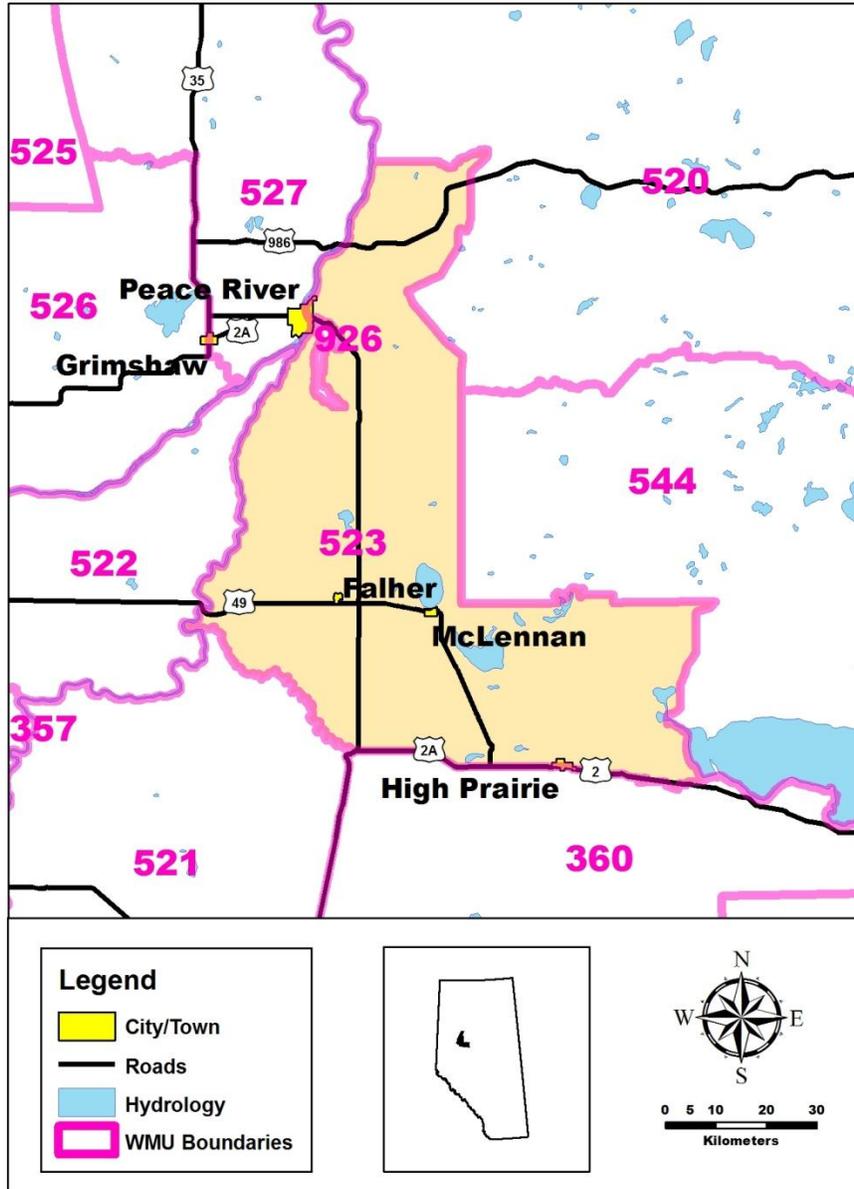


Figure 1. Location of Wildlife Management Unit 523 in Alberta.

Survey methods

All surveys were conducted following the modified Gasaway method as per Lynch (1997). Using two Cessna 206 fixed-wing aircraft on 9 - 10 January 2011, we flew stratification transects orientated in an east/west direction on every minute of latitude. Each crew consisted of a pilot and three observers; a navigator/observer in the front and two observers in the rear seat. For each wildlife observation, the front observer took a waypoint using a hand-held Garmin 60Cx or 76Cx GPS and recorded the sighting. All waypoints were downloaded using Minnesota DNR Garmin ver. 5.03 and plotted using ArcMap 9.3. Stratification of survey blocks was based on a combination of factors, including numbers of moose and deer observed during the stratification flights, past survey results, local knowledge of access, landuse patterns and habitat changes, and 2009 aerial imagery.

Intensive survey block flights were flown from 11 - 17 January 2011 using two Bell 206B helicopters. In total, we searched 23 survey blocks with varying classifications of low, medium or high density strata. Crews flew east/west transects that were spaced approximately 0.25 minute of latitude apart. All moose observed were classified as adults or calves, based on body size and length of the nose; all yearling moose were considered as adults. Adult moose were classified as cows if a vulva patch was present. Occasionally the antler bases could be seen on antlerless bulls. Bull moose with antlers were classified as small, medium or large, as per ASRD protocol (ASRD 2010). 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 small, medium or large, as per ASRD protocol (ASRD 2010). Some adult deer without antlers were not classified to gender. 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 for the stratification flights were fair to poor with ice fog, low cloud cover and snow squalls interfering with flight lines and visibility. Temperatures ranged from -24 to -17 degrees Celsius and winds were calm. During the intensive survey block flights, conditions varied greatly from clear skies to near white-out conditions, mixed with ice fog. Temperatures ranged from -30 to -22 degrees Celsius. Winds varied from calm to 20 km/h.

Results

We flew 23 survey blocks (6 low, 7 medium and 10 high) during the intensive survey flights, with a total of 855 moose observed (153 bulls, 487 cows, 199 calves and 16 unclassified). The moose population was estimated to be between 2,913 and 3,677 in WMU 523 (Table 1). The ratio of bulls to cows improved over earlier years, although the ratio of calves to cows appears to have declined. There is now a limited-entry hunt for calf moose in WMU 523.

The mule deer population estimate was lower than the previous survey; however, the confidence intervals in 2011 (1,800 - 2,272) overlap the 2001 confidence intervals (2,067 - 2,599) (Table 1). The 2001 survey was conducted about halfway through a period of relatively mild winters and increasing deer populations, and likely would not have documented mule deer numbers at their peak. During the 2011 survey, antler drop had commenced and only one of the 103 males had antlers.

The white-tailed deer population estimate has increased since 2001, to between 3,167 and 4,671 (Table 1); however, again the confidence intervals overlap with the 2001 survey. It does appear as though white-tailed deer have finally recovered from population declines suffered during the severe winters between 1995 and 1997 (ASRD unpublished data). During the 2011 survey, antler drop had commenced and only two of the 135 males had antlers.

Table 1. Comparison of aerial survey results for moose, mule deer and white-tailed deer in Wildlife Management Unit 523 from 1999 - 2011.

Species/Year	Population estimate (90% confidence limits)	Animals/km ²	Ratio to 100 Females	
			Males	Juveniles
Moose				
2011	3,295 (±11.6%)	0.58	31	41
2001	2,833 (±11.8%)	0.51	19	67
1999	2,612 (±12.2%)	0.46	21	73
Mule deer				
2011	2,036 (±11.6%)	0.36	41	88
2001	2,333 (±11.4%)	0.42	39	72
White-tailed deer				
2011	3,919 (±19.2%)	0.70	30	84
2001	2,853 (±16.2%)	0.51	27	87

Literature Cited

- Alberta Sustainable Resource Development (ASRD). 2010. Aerial ungulate survey protocol manual. Produced by ASRD, Fish and Wildlife 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 produced by 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.