

2011 Wildlife Management Unit 520 moose



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WMU 520 is an important unit for providing moose hunting opportunities to hunters in Alberta. Aboriginal moose hunters routinely hunt this area throughout the year, as there are several First Nation and Metis communities in and adjacent to this WMU. During the recreational hunt, demand for the 'calling season' hunting season (1 September - 31 October) has exceeded the supply of licences for the past few years. The moose hunting outfitting industry is also active in this WMU. In order to make informed management decisions on moose populations in this WMU, aerial surveys are fundamental in understanding population dynamics and distribution.

Study area

WMU 520 lies northeast of Peace River, Alberta (Figure 1) in the boreal forest natural region (Natural Regions Committee 2006). A legal description of the WMU is found in Schedule 9, Part 1 of the Wildlife Act - Wildlife Regulation (Province of Alberta 1999). The entire WMU is Crown land and there are three First Nations communities located in WMU 520; Wood Land Cree, Lubicon Cree, and Loon Lake Cree. Peace River is the largest nearby community and Red Earth Cree is a small community located on the eastern edge of the WMU. Mixedwood forests of aspen and spruce dominate much of this WMU, with pockets of peatlands. Industrial development has been extensive during the past several decades and has intensified in recent years, with rapid expansion of in-situ oil sands production in the southwest portion of this unit. There has been considerable conventional oil and gas development throughout the remainder of the WMU. Forestry activity has been intensive in past years with large cutblocks in the northwest and central areas of this WMU. Industrial development has increased both the quantity and quality of road access in recent years. Attempts to regulate access have generally been ineffective, with the exception of access management efforts in the northwest portion of this WMU. Much of this WMU is accessible in frozen ground conditions.

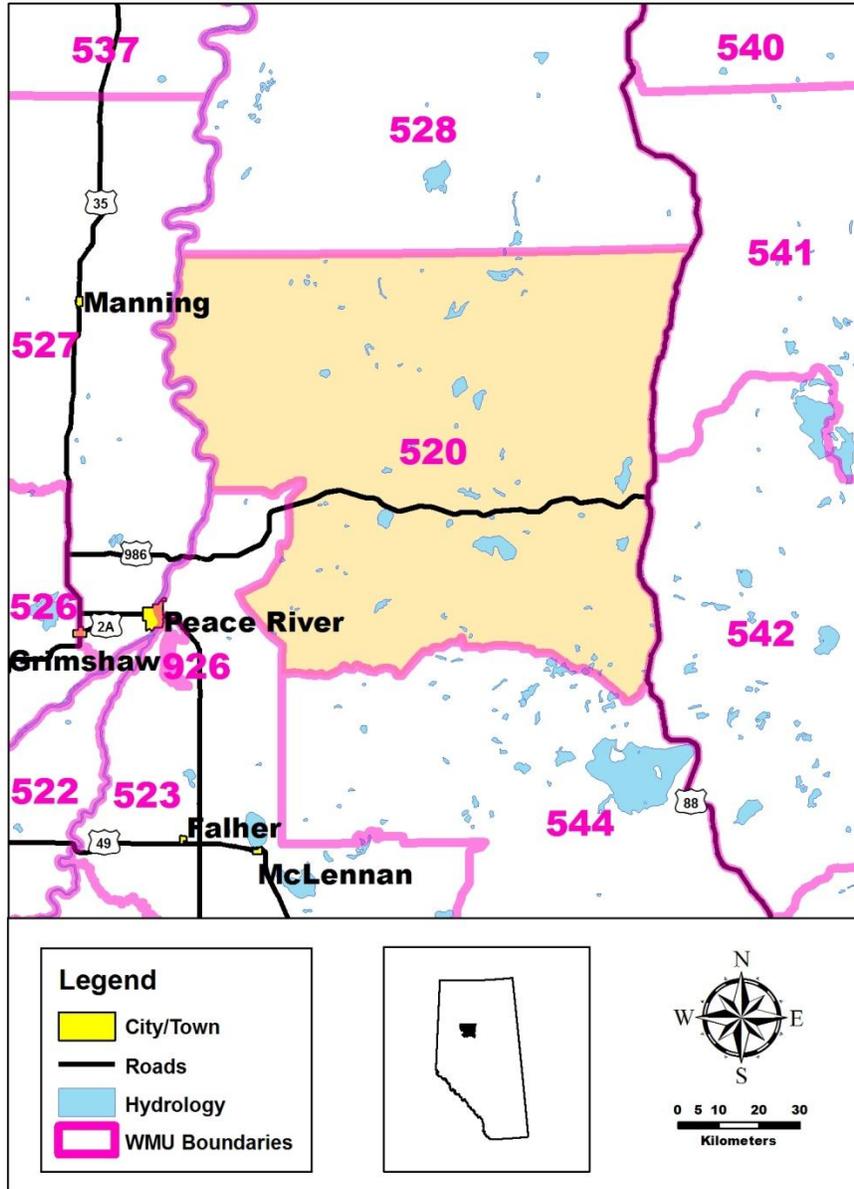


Figure 1. Location of Wildlife Management Unit 520 in Alberta.

Survey methods

All aerial surveys for moose in WMU 520 were conducted as per Lynch (1997). The stratification surveys were flown on 6 - 7 February 2011. We used three fixed-wing aircraft, (one Cessna 185 and two Cessna 206) and flew transects one nautical mile apart in an east/west direction. Air speed during stratification flights was approximately 160 km/h, and flight altitude was maintained at approximately 90 m above ground level (AGL). Each crew consisted of a pilot and two observers, one seated in the front and one seated in the back behind the pilot. For each wildlife observation the front observer took a waypoint using a hand held Garmin GPS (models 60Cx or 76Cx) and recorded the sighting. All waypoints were downloaded using Minnesota DNR Garmin ver. 5.03 and plotted using ArcMap 9.3.1. Stratification of survey blocks was based on a combination of information, including moose counts from stratification flights, past survey results, local knowledge of access, landuse patterns and habitat changes, and 2009 aerial imagery.

We used two three-person crews in Bell 206B helicopters to conduct intensive searches of survey blocks from 8 - 10 February 2011. In total we searched 17 survey blocks with varying classifications of low, medium or high moose density. Crews flew transects orientated east/west that were spaced 0.25 minute of latitude apart. Air speed was 100 - 140 km/h, at an altitude of approximately 30 m AGL. All moose observed were classified as either adults or calves, based on body size and length of the nose; all yearling moose were considered as adults. All adult moose were classified as cows if a vulva patch was present. Of the bull moose that were observed, 86% had dropped their antlers and were classified as males because of absence of a vulva patch. Bulls still retaining their antlers were classified as either small, medium or large (ASRD 2010). 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.

Survey conditions for the first three days of the survey were excellent with temperatures ranging from -25 to -15 degrees Celsius and clear skies. Temperatures rose from -18 degrees Celsius on 9 February to +4 degrees Celsius on 10 February and there were flurries through parts of both days. Winds were mostly calm throughout the entire five day survey.

Results

We flew 17 survey blocks during the intensive survey (6 low, 6 medium and 5 high) with a total of 353 moose observed (66 bulls, 197 cows, 86 calves and 4 unclassified). We estimated the total moose population to range between 1,884 and 2,768 (Table 1). Moose distribution has changed since the last survey of WMU 520 in 1999, which is likely due to increased road access resulting from industrial activities. Although moose are still relatively abundant in the northwest portion of this unit, there have been obvious declines in abundance of moose in the southwest and south-central areas of this WMU.

Table 1. Comparison of aerial moose survey results in Wildlife Management Unit 520 from 1999 and 2011.

Year	Population estimate (90% confidence limits)	Moose/km ²	Ratio to 100 Females	
			Males	Juveniles
2011	2,326 (±19.0%)	0.21	34	44
1999	2,785 (±14.7%)	0.27	38	48

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.
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