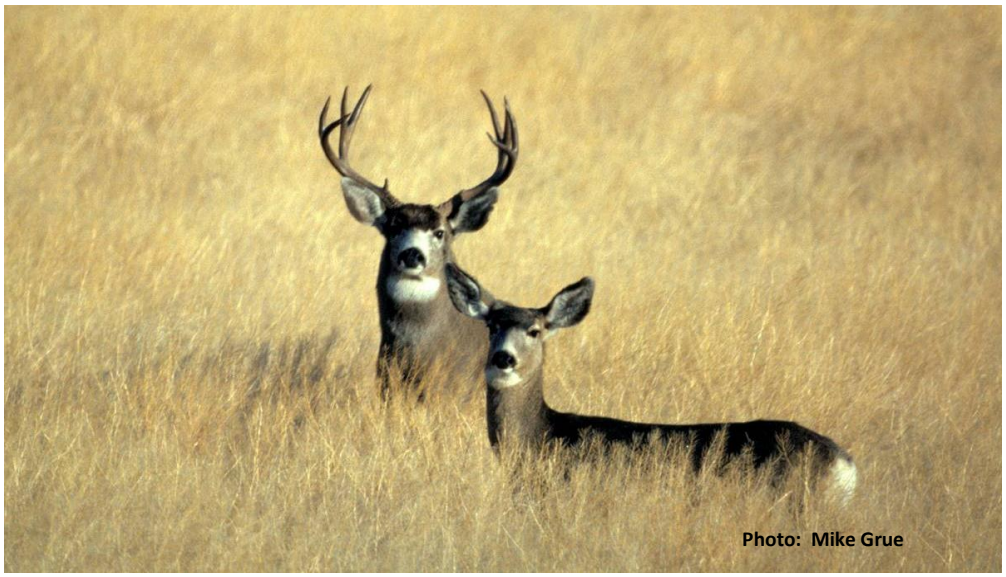
2010 Wildlife Management Unit 119 mule deer



Section Author: Mike Grue

Grue, M. 2012. Wildlife Management Unit 119 mule deer. Pages 34-37. *In:* M. Ranger and S.Webb. Delegated big game surveys, 2009/2010 survey season. Data Report, D-2011-001, produced by the Alberta Conservation Association, Sherwood Park, Alberta, Canada.

Wildlife Management Unit 119 was last surveyed in 2003. Budget and time constraints led to the decision to stratify WMU 119 only for mule deer during this survey. Survey results will be used to estimate changes in population numbers and herd composition over time. These data will also be used by ASRD to allocate harvest targets.

Study area

WMU 119 is located in the mixedgrass and dry mixedgrass natural subregions of Alberta (Natural Regions Committee 2006). It is a small unit located southeast of Medicine Hat (Figure 1). A legal description of the area is found in Schedule 9, Part 1 of the Wildlife Act – Wildlife Regulation (Province of Alberta 1999). The unit is bordered by the Cypress Hills Provincial Park to the south and several drainages originate in the Cypress Hills and extend northward through the WMU to its northern boundary at Highway 1. Most of the mule deer habitat in the unit is associated with the shrub cover found in these drainages. The primary industry in

WMU 119 is agriculture with approximately 70% of the unit consisting of grassland utilized for grazing and the remaining 30% is cropland. There is very little oil and gas activity in this unit. A few wind turbines are located in this area with a strong possibility of more in the future.

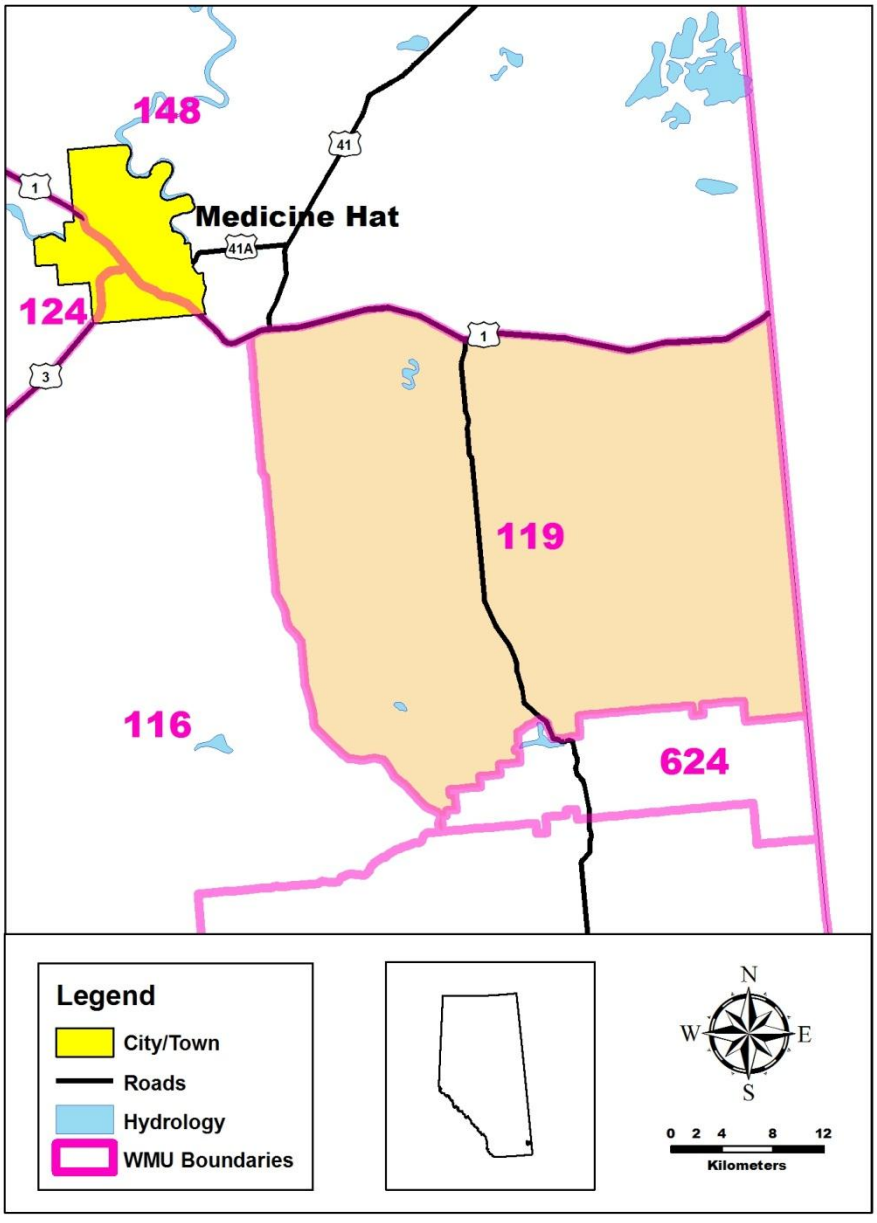


Figure 1. Location of Wildlife Management Unit 119 in Alberta.

Survey methods

The study area was stratified for mule deer (Gasaway et al. 1986; ASRD 2010), using a Bell 206B helicopter on 28 – 29 January 2010. Air speed during the survey stratification was approximately 180 km/h and altitude above ground was approximately 100 m. Height and speed of the aircraft varied depending on wind speed and direction, amount of cover and topography of the area. Stratification flight lines followed drainages containing shrub and tree cover in a general north/south orientation. Observers were expected to search for deer primarily in the drainages close to the aircraft while also detecting deer on the uplands at greater distances. Survey crews were comprised of one navigator/recorder/observer in the front seat beside the pilot and two observers in the back seat, one on each side of the aircraft.

While the entire study area was flown for stratification purposes, not all animals in the WMU were observed. Mule deer observed during the pre-survey flight provided a representation of distribution within the unit and allowed for stratifying of survey blocks (3 min latitude x 3 min longitude) as per Shumaker (2001a). The assignment of blocks was based on the number of deer seen within the survey block. The usual method of assigning survey blocks to the appropriate strata is to have approximately 60% in the middle stratum and the remaining 40% split between the high and low stratum (Shumaker 2001b). A large percentage of survey blocks (54%) had 0 deer observed; these survey blocks made up the low stratum for mule deer. The remaining survey blocks were stratified with 23% being medium, 16% high and 7% very high.

Twelve survey blocks (3 blocks x 4 strata) were randomly selected, using the RAND function in Microsoft Excel (Shumaker 2001c). Each survey block was searched intensively (100% coverage) with a Bell 206B helicopter. Results were incorporated into the Quadrat Survey Method Program developed for WMU 119 as per Lynch (1997). Strata were evaluated based on variance associated with deer density and those strata with high variance had additional units randomly selected and flown. This process continued until confidence intervals were at target levels. 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.

Results

We observed 961 mule deer during stratification flights and 395 mule deer while intensively flying 12 survey blocks. From this, a population estimate of 1,023 +/- 73 was calculated (Table 1).

During intensive survey block flights, a total of 228 white-tailed deer were observed. However, because WMU 119 was not stratified for white-tail deer, a population estimate was not calculated. Herd composition data was not collected for white-tailed deer.

Table 1. Comparison of aerial mule deer survey results from 2003 and 2010 in Wildlife Management Unit 119.

Year	Population Estimate (90% confidence limits)	Mule deer/km^2	Ratio to 100 Females	
			Males	Juveniles
2010	1,023 (±7.1%)	0.79	20	33
2003	1,440 (±22.0%)	1.11	--	--

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