

2009 WMU 124 Mule Deer

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Mule deer are an important game animal in Prairie WMUs. White-tailed deer can be included with mule deer surveys with a little extra flying and stratification work (Glasgow 2000), although time restraints led us to stratify WMU 124 for mule deer only during this survey.

Survey results will allow us to estimate changes in population numbers over time and to assess herd composition. These data will also be used by ASRD to calculate allowable hunter harvest and license allocations for future hunting seasons.

Study Area

WMU 124 is located in the Grasslands region of Alberta. It is a small WMU residing west of the City of Medicine Hat (Fig. 6.1.1). A legal description of the area is found in Schedule 9, Part 1 of the Wildlife Act – Wildlife Regulation (Province of Alberta 1999). The WMU is bisected by the South Saskatchewan River which is oriented east/west. Approximately 75 percent of the WMU is cultivated with the remaining 25 percent in native grassland. Most of the known mule deer habitat in the WMU is associated with the coulees and draws along the South Saskatchewan River.

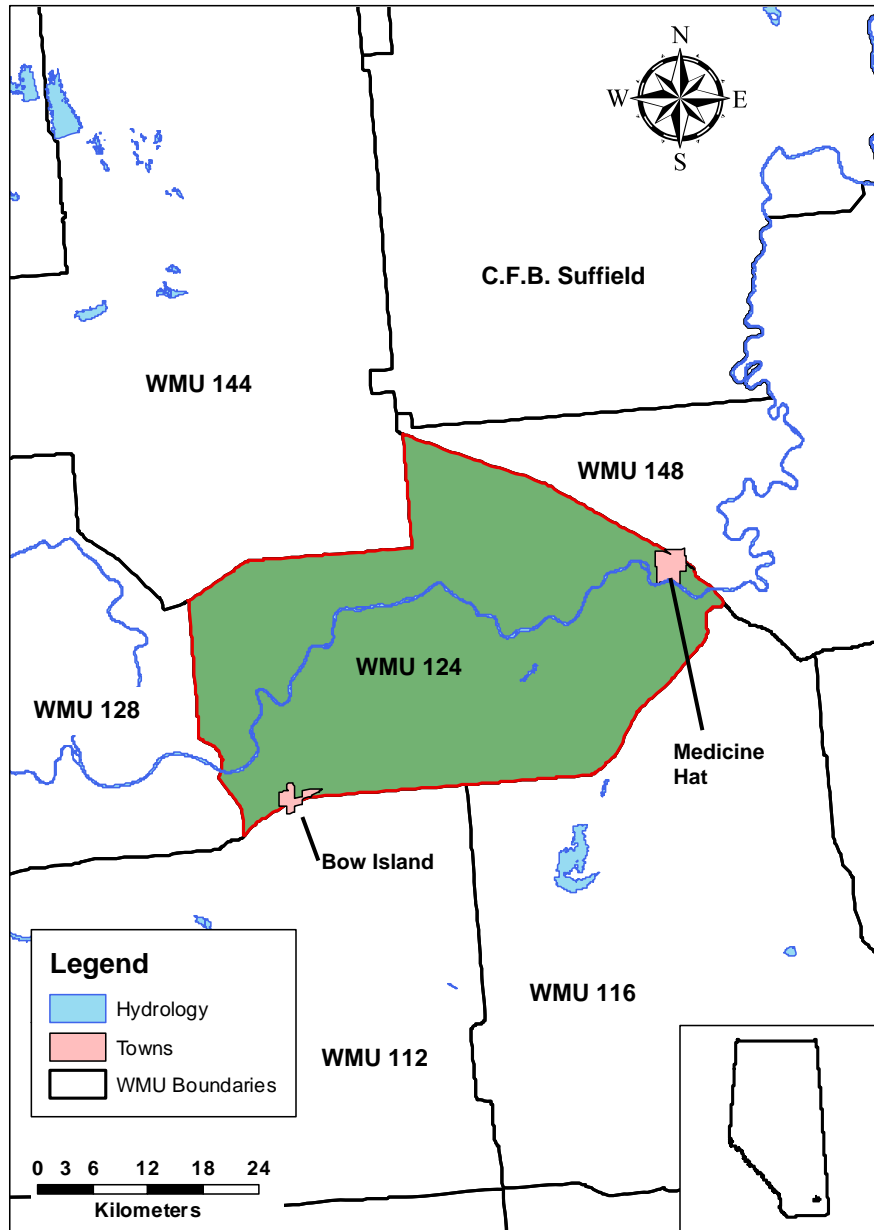


Figure 6.1.1. Location of WMU 124 in Alberta.

Survey Methods

The study area was stratified for mule deer densities (Gasaway et al. 1986), using a helicopter (Bell 206L) on February 26, 2009. Air speed during 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 lines were approximately 2 km apart. Where cover and topography required, distance between lines was reduced. In areas with deep coulees and/or heavy tree cover (i.e. South Saskatchewan River) lines were meandering to effectively cover the area for accurate stratification. We assumed observers could locate deer within 800 m in open areas, and to 100 m when flying rivers and coulees. Survey crews for both stratification flights and intensive survey block flights were comprised of one navigator (who also recorded and observed) in the front seat beside the pilot and two observers in the back, one on each side of the aircraft. The pilot was able to observe intermittently, but was not considered an observer.

Mule deer observed during the stratification flight provided a good representation of distribution within the WMU and allowed for stratifying of survey blocks (3 minutes latitude x 5 minutes longitude as per Shumaker 2001A) into one of three strata (low, medium, or high). Assignment of blocks was based on number of deer seen within the survey block. The usual method of assigning survey blocks to the appropriate strata is to allocate approx. 60% to the middle stratum and the split the remaining 40% between the high and low stratum (Shumaker 2001B). In this survey, a large percentage of survey blocks (66%) had 0 deer observed. These survey blocks made up the low stratum for mule deer, while the remaining blocks were stratified based on deer numbers observed during stratification.

Nine survey blocks (3 blocks in each of the 3 stratum) were randomly selected for intensive surveys using Microsoft Excel (Shumaker 2001C). Each survey block was searched (100% coverage) with a Bell 206L helicopter. Results were incorporated into a Quad file program developed for WMU 124 as per (Gasaway et al. 1986). Stratum were evaluated based on variance associated with deer density, and additional blocks were randomly selected and flown from stratum with high variance until confidence intervals were at acceptable levels (<25%). Herd composition data were not collected because many of the males had dropped their antlers before the start of the survey.

Results

Mule Deer — During stratification flights, a total of 831 mule deer were observed. A total of 315 mule deer were observed while flying a total of 11 survey blocks in rotary-wing aircraft. From this, a population estimate of 712 (+/- 21.4%, 90%C.L.) was calculated (Table 6.1.1). The density of mule deer in WMU 124 was 0.49/km².

White-tailed Deer — During stratification flights a total of 319 white-tailed deer were observed. Because WMU 124 was not stratified for white-tail deer, a population estimate was not calculated.

Table 6.1.1. Comparison of aerial mule deer survey results from 2004 and 2009 in WMU 124.

Year	Population Estimate (conf. limits)	Density / km ²	Ratio to 100 Females	
			Males	Juveniles
2009	712 (21.4%)	0.49	--	--
2004	994 (25.8%)	0.68	22	24

