

2011 Wildlife Management Unit 102 mule deer



Section Author: Mike Grue and Andrew Somerville

Suggested Citation:

Grue, M., and A. Somerville. 2012. Wildlife Management Unit 102 mule deer. Pages 42-45. *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.*

Aerial surveys flown on a consistent basis provide information that is used to set hunting allocations, although budget constraints and lack of favourable weather have often delayed surveys in WMU 102. The last survey of this unit was in 2004. In 2010, weather related time constraints led to the decision to stratify WMU 102 only for mule deer population counts. These survey results will be used to estimate changes in population numbers and herd composition over time.

Study area

WMU 102 is located in the grasslands region of Alberta, in the extreme southeast corner of the province (Figure 1). A legal description of the WMU is found in Schedule 9, Part 1 of the Wildlife Act - Wildlife Regulation (Province of Alberta 1999). The Milk River bisects the southwest corner of the WMU, while Pakowki Lake occupies the northwest corner. The area is approximately 12 per cent cultivated land with the remaining 88 per cent consisting of a mix of native upland, riparian and wetland habitat (GVI 2009). Most of the mule deer habitat in the WMU is within the coulees and draws associated with the various drainage systems, including the Milk River.

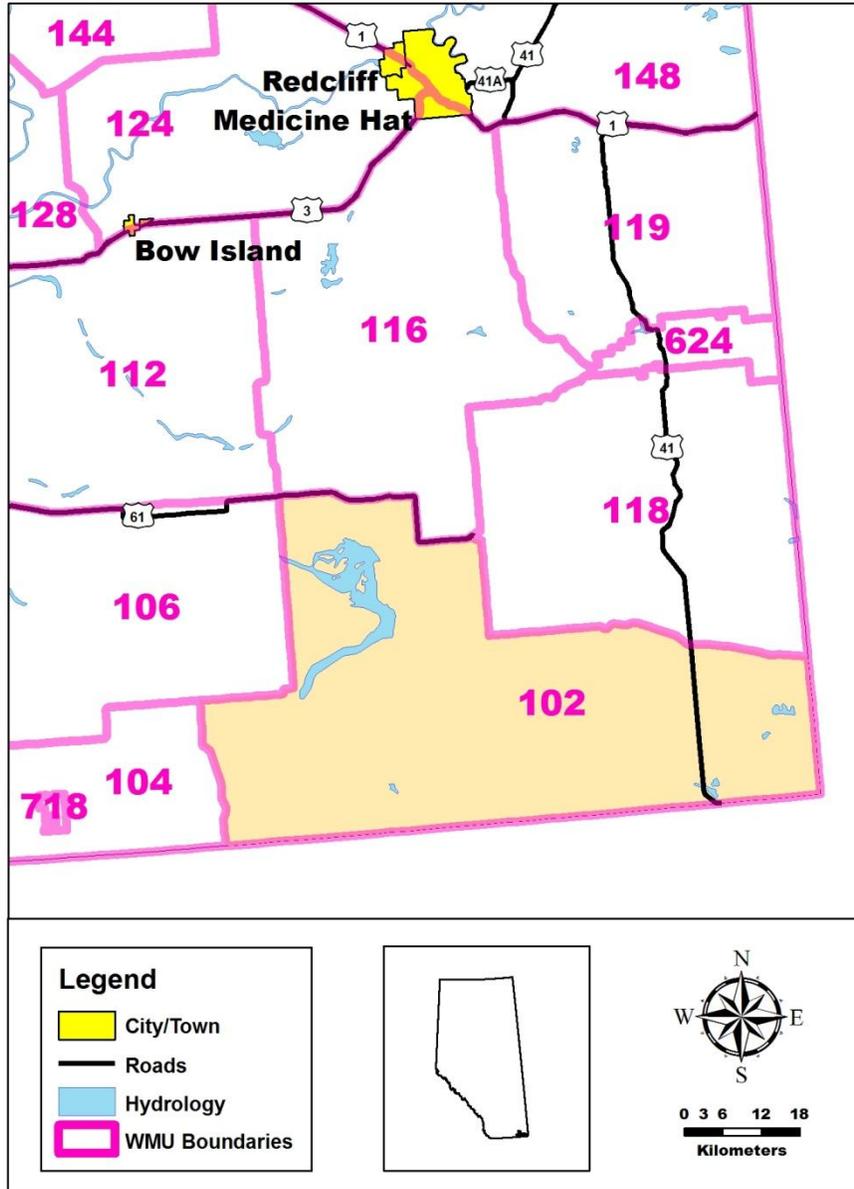


Figure 1. Location of Wildlife Management Unit 102 in Alberta.

Survey methods

The study area was stratified for mule deer (Gasaway et al. 1986; ASRD 2010), using a Bell 206B helicopter from 7 - 9 December 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, the amount of vegetation cover and topography of the area. Stratification flight lines were approximately 2 kilometers apart. Survey crews for both the stratification flight and the following intensive survey flight 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 stratification flight provided a representation of distribution within the unit and allowed for stratifying of survey blocks (3 min latitude x 5 min longitude) as per Shumaker (2001a). The assignment of survey blocks to three strata was based on the number of deer seen within each 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 (66%) had 0 deer observed and these survey blocks made up the low stratum for mule deer. The remaining survey blocks were then stratified based on deer numbers observed during the stratification flight.

Nine survey blocks (3 blocks x 3 strata) were randomly selected, using the RAND function in Microsoft Excel (Shumaker 2001c). Each survey block was searched intensively with a Bell 206B helicopter. Results were incorporated into the Quadrat Survey Method Program developed for WMU 102 as per Lynch (1997). 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 over the three day period were variable. Snow conditions were excellent at the beginning of the survey but deteriorated rapidly by the final day. Temperatures ranged from -10 to +4 degrees Celsius and winds varied from 5 - 70 km/h. Visibility was excellent at the beginning of the survey but worsened to fair by the end of the survey. With weather conditions forecasted to deteriorate beyond 9 December 2010, the decision was made to not fly additional survey blocks to improve confidence levels.

Results

We observed 685 mule deer during the stratification flight. During the intensive survey flight, 9 survey blocks were surveyed (3 low, 3 medium, 3 high). A total of 306 mule deer were observed (61 bucks, 142 does, 79 fawns, 24 unclassified). From this, a population estimate of $2,923 \pm 935$ mule deer was calculated (Table 1).

During the stratification flight, a total of 235 white-tailed deer were observed. However, the decision was made to not stratify WMU 102 for white-tailed deer, so 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 in Wildlife Management Unit 102 from 2001 - 2010.

Year	Population estimate (90% confidence limits)	Mule deer/km ²	Ratio to 100 Females	
			Males	Juveniles
2010	2,923 ($\pm 32.0\%$)	0.82	43	56
2004	2,659 (--)	0.75	24	58
2001	3,060 (--)	0.86	10	58

--" Flown as a trend survey, thus confidence limits could not be derived.

Literature Cited

- 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.
- Grassland Vegetation Inventory (GVI). 2009. Spatial database. Produced by Government of Alberta, ASRD, Edmonton, Alberta, Canada.
- Lynch, G.M. 1997. Northern moose program moose survey field manual. Unpublished report produced by Wildlife Management Consulting, Edmonton, Alberta, Canada. 68 pp.
- Shumaker, G. 2001a. White Area ungulate management project in Alberta – wildlife management unit (WMU) survey grid procedures. Produced by ASRD, Calgary, Alberta, Canada. 48 pp.
- Shumaker, G. 2001b. White Area ungulate management project in Alberta – seedfile procedures for aerial ungulate surveys. Produced by ASRD, Calgary, Alberta, Canada. 36 pp.
- Shumaker, G. 2001c. White Area ungulate management project in Alberta – Alberta preflight stratification manual for aerial ungulate surveys. Produced by ASRD, Calgary, Alberta, Canada. 78 pp.