2008 WMU 118 Mule Deer

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Wildlife Management Unit 118 is a desirable zone for hunters. Most Prairies WMUs are surveyed primarily for mule deer, although extra flying and stratification can also provide white-tailed deer estimates (Glasgow 2000). Time restraints in 2008 led to the decision to stratify WMU 118 for mule deer only.

Survey results will be used to determine changes in population over time and determine herd composition. These data will also be used by ASRD to calculate allowable hunter harvest and license allocations for upcoming hunting seasons.

Study area

Wildlife Management Unit 118 is located in the Grasslands region of the Prairies area. The unit is roughly square shaped, lying south of the Cypress Hills Park and east of Manyberries (Figure 12) and bisected diagonally by Lodge Creek, which is oriented northwest/southeast. Habitat is predominantly native prairie, with some cultivation occurring mostly in the northwest and southwest corners. Most of the mule deer wintering habitat is associated within the drainages of Lodge Creek, Manyberries Creek and South Manyberries Creek.

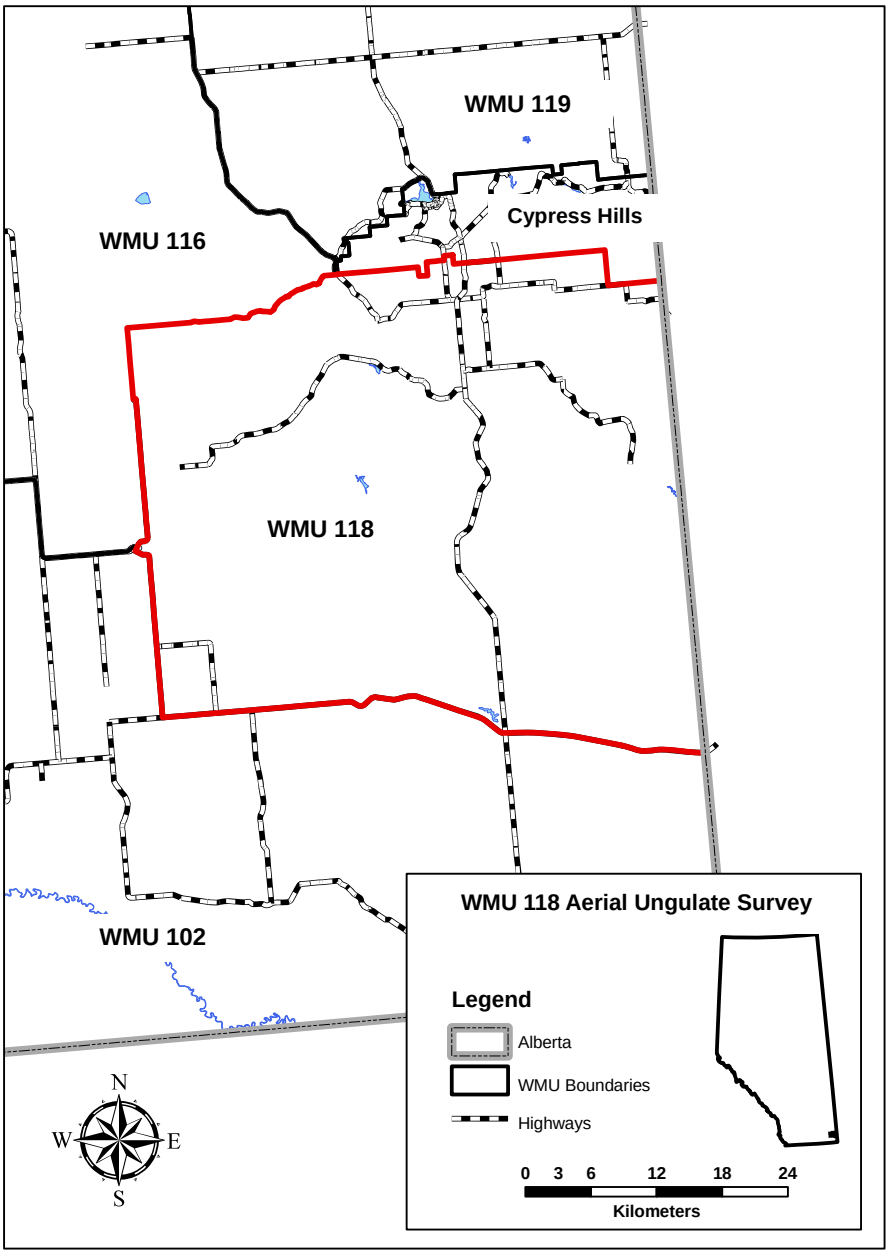

Figure 12. Location of the Wildlife Management Unit 118 deer survey in Alberta.

Survey methods

The study area was stratified for mule deer densities (Gasaway et al. 1986), using a fixed-wing aircraft (Cessna 185 and 206) February 12 to 14, 2008. Air speed during stratification was approximately 120 km/h and altitude above ground was approximately 120 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 in areas of sparse vegetative cover. Where cover and topography required, distance between lines was reduced and direction of the lines were altered to follow landforms. Observers were expected to see deer within 800 m of the aircraft in open areas. When flying along creeks with thick shrub cover, observers were expected to see deer within approximately 200 m of the aircraft. Survey crews for both stratification flights and intensive survey unit flights were comprised of one navigator/recorder/observer in the front right seat beside the pilot and two observers in the back, one on each side of the aircraft.

Stratification flights on February 12 were delayed by aircraft mechanical problems and further delayed by bad weather on February 13. Another aircraft (Cessna 206) was brought in to replace the original Cessna 185. The same pilot was used for both aircraft. The stratification flight was completed on February 14, 2008. The lengthy time period required to conduct stratification did not appear to negatively affect the accuracy of our results. The search effort within each survey unit was not equal due to the variable habitat conditions. More importance was placed on sighting as many deer as possible and following strips of habitat which likely contained deer. This method is successful in stratifying WMUs containing clumped distributions of deer in patchy habitat.

While the entire study area was flown, not all animals in the WMU were observed. I assume that those observed provided a good representation of the distribution within the unit and allowed for stratifying survey units (3 min latitude x 5 min longitude as per Shumaker 2001a) into one of four strata (low, medium, high or super high). Blocks were assigned to strata based on the number of deer seen within the survey unit. Four strata were used for this survey due to the high variability in number of deer seen between units. The low, medium, high and super high strata contained 0 - 8 deer, 12 - 48 deer, 52 - 74 deer and 105 - 526 deer, respectively.

Twelve survey units (3 units x 4 stratum) were randomly selected using Microsoft Excel (Shumaker 2001c). Each survey unit was searched intensively (100% coverage) with a Bell 206L helicopter on February 15, 2008. Results were incorporated into a Quad file program developed for WMU 118 as per Gasaway et al. (1986). Strata were evaluated based on variance associated with deer density and additional survey blocks were selected and flown in those strata with high variability. This process continued until the upper and lower population estimates were close to ± 20% at the 90% confidence interval.

Results

The snow conditions during the stratification flight ranged from fair in the southern portion on February 12 to good in the northern portion on February 14. Snow cover conditions during the intensive portion of the survey ranged from good in the morning to poor in the afternoon. Sunny, warm, windy conditions melted snow as the day progressed. As a result, transects were flown closer together as the snow melted to reveal patches of ground. We assume that sightability was maintained at or near 100% throughout the day by intensifying search efforts as snow conditions deteriorated.

Mule deer – A total of 2,726 mule deer were observed during fixed-wing stratification flights, and 1,297 were observed while flying a total of 14 survey units in rotary-wing aircraft. This resulted in a population estimate of 2,808 ± 20.5% and a density estimate of 1.42 mule deer/km^2. Herd composition showed 35 bucks per 100 does and 44 fawns per 100 does (Table 11).

White-tailed deer – During fixed-wing stratification flights, a total of 45 white-tailed deer were observed. Because WMU 118 was not stratified for white-tailed deer, a population estimate was not calculated. Only 68 white-tailed deer were observed during the intensive survey flight. Herd composition data is not reported due to the low number of white-tailed deer observed.

Incidental wildlife observations – A total of 44 coyotes, 129 sharp-tailed grouse, 232 pronghorn, and seven moose were observed during the survey.

Table 11. Population estimates and herd composition of mule deer in Wildlife Management Unit 118 in 2008.

Species	Population Estimate (confidence limits)	Density / km²	Ratio to 100 females	
			Males	Juveniles
Mule deer	2808 (20.5%)	1.42	35	44

Literature Cited

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