

Aerial Wildlife Survey Report

Wildlife Management Unit 355 Aerial Ungulate Survey (2017)

Background

Wildlife Management Unit (WMU) 355 represents the northern extent of the Redrock-Prairie Creek caribou winter range in the Rocky Mountain foothills ecozone.

The moose population in this unit increased between 1994 (103 moose) and 2007 (519 moose), likely in response to habitat changes associated with increased harvest of old growth timber and subsequent regeneration.

To limit further population growth of alternative prey for wolves in caribou range, an antlerless moose draw was initiated in WMU 355 in 2008. The goal of this survey was to assess the status of moose since the last survey in 2007. Specific objectives were to determine a population estimate, population ratio for sex and age classes, and a density estimate for moose in WMU 355. The results from this assessment will be used to help direct decision making with regards to moose management within WMU 355 as they relate to caribou management initiatives.

Survey method

Distance sampling methods were used to determine population estimates for moose in WMU 355. Distance transects were spaced 1.2 kilometres apart, oriented north-south and spanned the full width of the WMU. All transects were flown in order to achieve the desired level of precision for the population estimate. Transects were flown as described in the Distance Sampling Chapter of the Aerial Ungulate Survey Protocol Manual (ESRD 2014).

To account for differences in moose densities between landscapes with intensive forest harvest and those with less, we stratified the WMU into Cutblock Zone and Non-Cutblock Zone. Canopy cover (high, medium or low) within 10 metres of the moose and was included as a covariate in the detection function model. To correct for group size effects, log cluster size was regressed on estimated detection probability as in Buckland et al. (2001, 73-75). All analyses were conducted using program Distance 6.0 (Laake et al., 2009).

Results

One hundred and forty transects were surveyed from January 10 to 12, 2017 for a total survey effort of 1209 kilometres and 28.6 hours flying time. In total, 159 moose were observed from 115 independent groups of moose.

Of the 159 moose observed, 155 individuals were classified:

- 58 (37%) were bulls
- 78 (50%) were cows
- 19 (12%) were calves

Of the bulls observed, 84% had already shed their antlers. Of those bulls still with antlers, 67% were small and 33% were medium. No large bulls were observed. The bull:cow and calf:cow ratio were 0.74 and 0.24, respectively.

The final density estimate was 0.352 moose/km² with a log-based 90% confidence interval of (0.274, 0.452) and a CV of 15.2%. The estimated moose population for WMU 357 is 512 (90% CI 399, 657).

Other species observed

- 6 white-tailed deer (unclassified)

- 12 mule deer (3 does, 2 bucks, 1 fawn and 6 unclassified)
- 15 elk (12 cows, 1 bull and 2 calves)
- 2 coyotes

The number of observations of other species was too low to estimate density.

Figure 1. Stratification, transects flown and moose groups observed in WMU 355 from January 10 to 12, 2017.

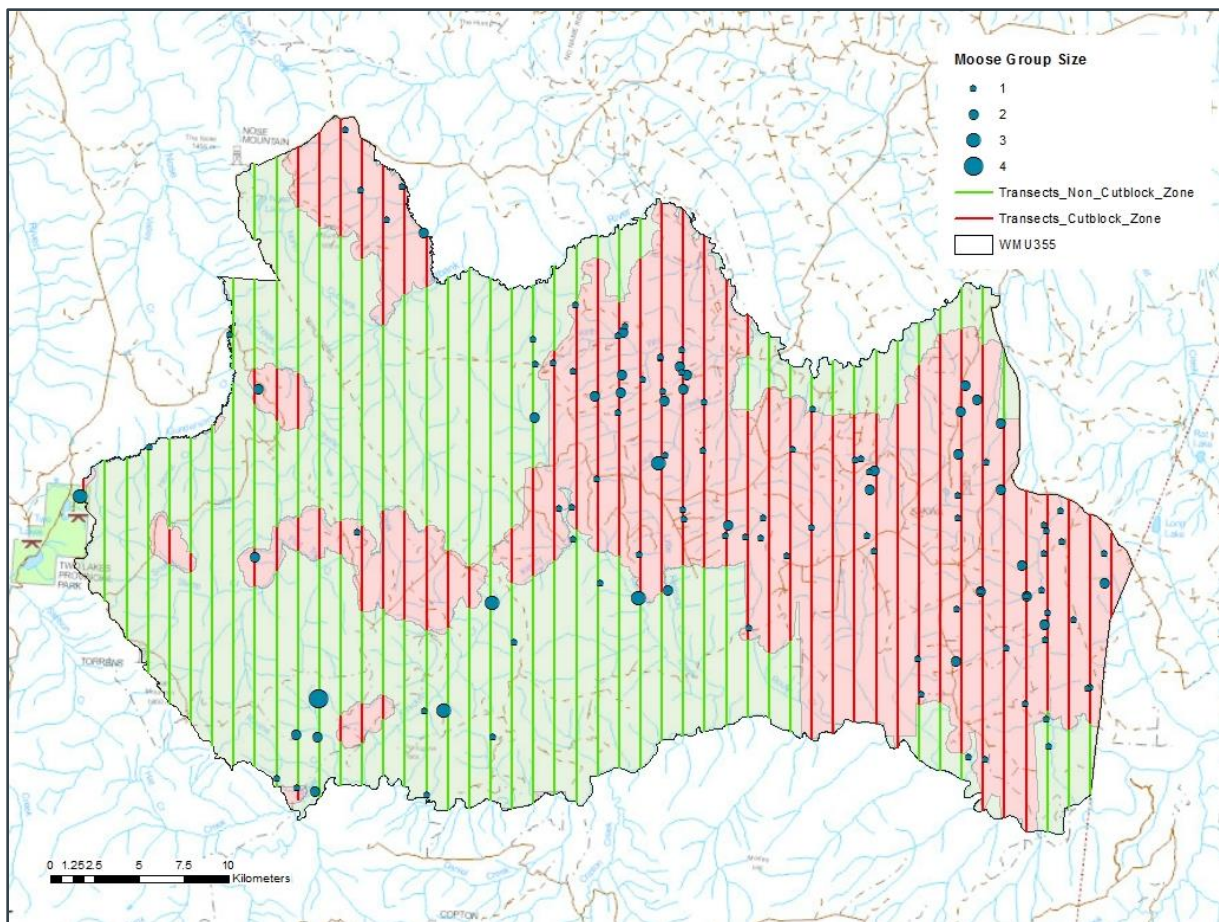


Table 1. Comparison of current and previous moose densities, and age/sex composition ratios for WMU 355. Survey types for moose have included random stratified block (Gasaway) surveys and distance sampling methods.

Year	Density	Estimate	CV	90% CI	Bulls / 100 Cows	Calves / 100 Cows
2017	0.35	512	0.15	399 - 657	74	24
2007	0.36	519	0.10	436 - 602	59	26
1994	0.08	103	0.16	76 - 131	36	28

Table 2. Estimated age/sex population split for moose in WMU 355, 2017.

	Males	Females	Juveniles	Total
Sample (classified)	58	78	19	155
M/F/J Ratio	74.4	100	24.4	-
Percent	37.4%	50.3%	12.3%	-
Population Split	191	258	63	512