Aerial Wildlife Survey Report

Wildlife Management Unit 515 Aerial Ungulate Survey (2018-19)

Background

Heart Lake Wildlife Management Unit (WMU 515) covers an area of 2,768 km^2 and is located northeast of Lac La Biche, Alberta. The unit is bounded to the east by the Cold Lake Air Weapons Range, and to the north by the northern edge of township 72. The southern boundary is formed by the northern edges of Lakeland Provincial Park and Lakeland Provincial Recreation Area. The western boundary extends almost to the eastern shore of Lac La Biche, and never further west than the eastern edge of range 16.

While there are no major population centers within the WMU, both Lac La Biche (to the southwest) and Wandering River (to the west) are relatively close by. The Heart Lake First Nation has two reserves in the WMU, though almost all of the reserve lands fall within No. 167, which is centered around Heart Lake. The Owl and Piche River valleys provide over 350 square kilometres of critical habitat for ungulates near the center of the WMU. The unit is predominantly forested (76%), including large swaths of coniferous (33%), deciduous (24%), and mixedwood (19%) forests with pockets of grassland and shrubland interspersed throughout. Cultivated land covers a relatively small portion of the WMU (less than 1%) and mostly occurs in the southwest, close to the northeastern shores of Lac La Biche. Cut blocks (at various stages of regeneration) cover approximately 14% of the land base. Forest harvesting and petroleum extraction are the most common land uses, and their associated footprints (cut blocks, roads, well pads, seismic lines, pipelines, and cutlines) occur throughout the unit.

The objective of the 2019 aerial ungulate survey was to assess the status of moose and white-tailed deer populations in WMU 515 by estimating abundance, density and the age-sex composition.

Survey Method

An aerial survey for ungulates was conducted January 15 to 17, 2019 using distance sampling techniques (Buckland *et al*., 2001, Thomas *et al.*, 2010). A total of 127 north-south transect lines (survey effort = 1,046 kilometres) were flown with two jet ranger helicopters, each outfitted with rear bubble windows to maximize visibility. Moose and (where possible) white-tailed deer were classified by age class (adult or juvenile) and sex. Other incidental wildlife sightings were also recorded.

Results

Moose

A total of 149 moose were observed in 81 groups, which included 72 cows, 54 calves, 21 bulls (5 antlerless, 16 antlered), and two unclassified adults. The estimated density was 0.214 moose/km^2 (90% CI 0.163 – 0.281) and the estimated abundance was 577 individuals (90% CI 439 – 757; Table 1). A total of 147 moose were successfully classified and the bull:cow:calf ratio was estimated to be 29:100:75.

White-tailed deer

A total of 283 white-tailed deer were observed in 130 groups, which included 129 does, 85 fawns, 4 bucks, and 65 unclassified individuals. The estimated density was 0.768 deer/km^2 (90% CI 0.596 – 0.990) and the estimated abundance was 2,068 individuals (90% CI 1,605 – 2,664; Table 1). Given the timing of the survey, antler drop was already well underway, making white-tailed deer sex ratios unreliable (23% of observed individuals could not be classified).

Table 1. Historical and current ungulate population estimates for WMU 515. Estimates include number of individuals, density and age-sex composition ratios. Ranges in parentheses represent 90% confidence limits.

Species	Survey Year	Survey Method	Abundance Estimate	Density	Ratio to 100 Females	
			Mean (90% CI)	Sq. km	Males	Juveniles
Moose	2019	Distance	577 (439 – 757)	0.21	29	75
	2014	Distance	375 (276 – 509)	0.14	29	44
	2004	Random Block	649 (501 – 796)	0.24	39	68
White-tailed deer	2019	Distance	2,068 (1,605 – 2,664)	0.77	-	-
	2014	Random Block	2,750 (2,201 – 3,436)	1.02	-	-
	2004	Total Count	374	-	24	74

Acknowledgements

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Literature

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