

Aerial Wildlife Survey Report

Wildlife Management Unit 214, 314 and 316 Aerial Ungulate Survey (2018-2019)

Background

An aerial survey for all big game ungulate species was conducted in Wildlife Management Units (WMU's) 214 (1,844 km²), 314 (2,204 km²), and 316 (575 km²) northwest of Calgary. These WMU's are home to mule deer, white-tailed deer, moose and elk, and the habitat ranges from agricultural dominated landscapes to ranch lands to forested foothills from east to west. With the exception of white-tailed deer and bull elk, all other big game ungulate species are on special license in these WMU's, and are managed for sustainable harvest opportunity.

The most recent aerial ungulate survey in WMU 314 occurred in 2000 and for moose only in WMU 316 in 2011. This was the first time that WMU 214 has ever been surveyed. Previous estimates in WMU 314, flown in 2000, indicated 623 moose, 1613 white tailed deer and 1496 mule deer (Young, 2000). Previous estimate for moose in WMU 316, flown in 2011, indicated a population of 248 moose (Jokinen and Jorgenson 2012).

The intent of this survey was to generate an abundance for each species using distance sampling, as well as age composition and sex ratios, to better inform harvest management.

Survey Method

This survey was conducted from February 4th to February 7th, 2019, during a constant period of -20°C temperatures and low, but consistent snow cover. Transects were set up for every minute of latitude (~1600 metres apart) for each WMU, separately, and every second transect was flown in each WMU. The portion of lands within WMU 314 belonging to the Stoney First nation, were not surveyed. Using Distance sampling methodology (Buckland et al. 2001), a Bell 206 Long Ranger, supplied by Elbow River Helicopters, with 4-man crew flew the survey. Crew members for the flights were Mike Koloff (pilot), Grant Chapman, Brett Boukall and Russell Kondro.

Each ungulate species encountered, a waypoint was collected on the transect, as well as the group, and recorded. Additionally, information on group size, gender, age, antler class (where possible) were collected, as well as activity, habitat and closure amount for each observation. Data were analysed using the program 'Distance' (Version 6.0, Thomas et al. 2010). Elk were surveyed as a total minimum count, and efforts were made to include all observations of elk during all flights. Other species such as coyotes, sharp-tailed grouse and feral horses were also recorded.

Results

A total of 1,111 kilometres was flown on transect, over a total of 22.9 hours. In total, 175 moose were observed from 97 groups, 571 elk were observed in 9 groups, 500 mule deer in 82 groups, and 441 white-tailed deer in 98 groups. The densities, estimated abundances and 90% confidence intervals for each species for each WMU is shown in Table 1, 2, and 3. It was not possible to estimate elk population through distance sampling. A total 483 elk were observed in WMU 314, and 88 elk were observed in WMU 214 (on the western edge of the unit). No elk were observed in WMU 316.

All observed animals were further categorized into gender, as well as age. Further, where possible, antlers were classified as Small, Medium and Large (Table 1, 2, 3) on the basis of points or width, as per the Aerial Ungulate Survey Protocol Manual (2010). A total of 100 coyotes (76 in WMU 214, 24 in WMU 314) and 117 feral horses (45 in WMU 314, 72 in WMU 316) were observed during the survey.

Table 1: WMU 214 2019 Ungulate estimates, sex ratios and antler classification

Species	Survey Method	Abundance Estimate	Density	Ratio to 100 Cows		Ratio of Antlered		
		Mean (90% CI)	Sq. km	Bulls	Calves	S	M	L
Moose	Distance	426 (274-663)	0.23	63	69	11	4	2
Whitetail Deer	Distance	1399 (836-2341)	0.76	54	86	16	26	3
Mule deer	Distance	2312 (1522-3511)	01.25	66	87	28	31	36
Elk	Min. Count	88						

(Model Selection for each species was Half-Normal Cosine (HNCOS) Truncation Distance 724m for Moose, HNCOS Truncation 850m for Mule Deer, and HNCOS Truncation 601m for White-tailed deer with WMU as Stratum).

Table 2: WMU 314 Ungulate estimates, sex ratios and antler classification (Used 1668 km² for area surveyed)

Species	Survey Method	Abundance Estimate	Density	Ratio to 100 Cows		Ratio of Antlered		
		Mean (90% CI)	Sq. km	Bulls	Calves	S	M	L
Moose	Distance	484 (312-752)	0.29	60	57	8	5	0
Whitetail Deer	Distance	1858 (1191-2898)	1.11	9	68	5	5	1

Mule deer	Distance	857 (524-1402)	0.51	21	54	11	5	1
Elk	Min. Count	483						

Table 3: WMU 316 Ungulate estimates, sex ratios and antler classification

Species	Survey Method	Abundance Estimate	Density	Ratio to 100 Cows		Ratio of Antlered		
		Mean (90% CI)	Sq. km	Bulls	Calves	S	M	L
Moose	Distance	259 (143-468)	0.45	58	32	3	1	0
Whitetail Deer	Distance	263 (136-512)	0.46	0	69	0	0	0
Mule deer	Distance	N/A						

For more information on licensing and draw results and hunter harvest in these WMU's or management plans for the species, visit www.mywildalberta.com

Literature

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Acknowledgements

AEP Operations, Resource Management would like to thank Russell Kondro for assisting with the survey, the PRCC who provided flight watch, and our capable pilot Mike Koloff of Elbow River Helicopters. Aircraft charter costs were paid from AlbertaRELM funding.