

# Aerial Wildlife Survey Report

## Wildlife Management Unit 524 and 525 Aerial Ungulate Survey (2018-19)

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### Background

Wildlife Management Units 524 and 525 are located northwest of the town of Peace River and cover large portions of the northwest region, with these units covering 12,990 and 5,761 km<sup>2</sup> respectively. Both units are almost entirely within the Upper and Lower Foothills Ecoregions, and feature conventional oil and gas development and timber harvest. Extensive agricultural activities surrounds the units to the south and east, but there is no agriculture within WMU 524 and only small portions of provincial grazing reserves on the southeastern and southwestern edges of WMU 525.

WMU 524 includes higher elevation areas such as the Fontas Hills, the Naylor Hills, and the Halverson Ridge, while the southwestern portion is low-lying muskeg and lakes. WMU 525 features the Clear Hills and portions of the Whitemud Hills, and is separated from WMU 524 by the Notikewin River.

These units have historically been important moose hunting areas for both licensed and Indigenous hunters. Licensed moose hunting is regulated in both units as antlered harvest only, with a general archery season from August 25 to 31 and two seasons managed through a draw (September 1 to October 31 and November 1 to 30). Crews recorded sightings incidental wildlife including elk, deer, bison, and caribou, but none of these species were observed in enough quantities to report on population status.

### Survey Method

An aerial survey for ungulates was conducted January 14 to 24, 2019 using distance sampling techniques (Buckland *et al.*, 2001; Thomas *et al.*, 2010). The survey was flown with two Bell 206 JetRanger helicopters, each outfitted with rear bubble windows to maximize visibility. Crews surveyed a total of 526 north-south transect lines over 4289 kilometres (271 transects spanning 2395 kilometres in WMU 524, 182 transects spanning 1337 kilometres in WMU 525, and 73 transects spanning 558 kilometres in areas outside these units). Moose were classified by age class (adult or juvenile) and sex. Other incidental wildlife sightings were also recorded.

### Results

#### Wildlife Management Unit (WMU) 524

A total of 89 Moose were classified in 51 groups in WMU 524, which included 41 cows, 11 calves, 37 bulls (29 antlerless, 8 antlered) and an additional 4 unclassified moose. The estimated density in WMU 524 was 0.094 moose/km<sup>2</sup> (CV = 0.180) for a population estimate of 1,217 moose (90% CI: 907 – 1,633). The estimated bull:cow:calf ratio was 90:100:27, however this bull:cow ratio may be influenced by small sample sizes and should be interpreted with caution.

#### Wildlife Management Unit (WMU) 525

A total of 153 Moose were classified in 103 groups in WMU 525, including 70 cows, 32 calves, 51 bulls (36 antlerless and 15 antlered) and an additional 8 unclassified animals. The estimated density in WMU 525 was 0.205 moose/km<sup>2</sup> (CV = 0.162) for a population estimate of 1,182 moose (90% CI: 905 – 1,542). The estimated bull:cow:calf ratio was 73:100:46.

**Table 1: Current and historic moose survey results in Wildlife Management Units 524 and 525**

WMU	Survey Year	Survey Method	Abundance Estimate	Density	Ratio to 100 Cows	
			Mean (90% CI)	Sq. km	Bulls	Calves
524	2019	Distance	1,217 (907 - 1,633)	0.09	90	27
	2005	RSB	2,856 (2,297- 3,415)	0.22	51	31
	1994	RSB	2,448 (1,926 - 2,970)	0.19	47	32
525	2019	Distance	1,182 (905 - 1,542)	0.21	73	46
	2014	Distance	1,210 (963 - 1,521)	0.21	61	28
	2009	RSB	1,349 (1,108 - 1,591)	0.23	23	17
	2002	RSB	1,609 (1,609 - 2,319)	0.34	27	43
	1994*	RSB	1,598 (1,255 - 1,941)	0.27	36	41

\*1995 Survey results for WMU 525 excluded due to biologically implausible results

## Literature

Buckland, S. T., D. R. Anderson, K. P. Burnham, J. L. Laake, D. L. Borchers, and L. Thomas. 2001. *Introduction to Distance Sampling: Estimating Abundance of Biological Populations*. Oxford University Press, Oxford, UK.

Thomas, L., S.T. Buckland, E.A. Rexstad, J.L. Laake, S. Strindberg, S.L. Hedley, J.R.B. Bishop, T.A. Marques, and K.P. Burnham. 2010. Distance software: design and analysis of distance sampling surveys for estimating population size. *The Journal of Applied Ecology*, 47(1) 5-14.