

2009 WMU 330 Moose

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WMU 330 is a desirable WMU for moose hunters, and requires regular population inventories to balance losses due to unregulated harvest, predation, and severe winters with recreational hunting. The objectives of this survey were to estimate the total moose population size and herd composition in the WMU. WMU 330 is surveyed approximately every 3-5 years on a rotational basis. To improve moose management, ASRD replaced the general season in WMU 330 with a special license draw system in 1996. In 2008, hunting of only antlered moose was permitted, with a season from September 24 to November 30. In 2007, moose hunter success was estimated at 28% (ASRD 2007).

Study Area

WMU 330 is located directly northwest of Rocky Mountain House (Fig. 6.5.1). The North Saskatchewan and Brazeau Rivers form the southern and northern boundaries; the Sunchild Road and Wolf Creek/Hwy 22 form the western and eastern borders. The Sunchild/O'Chiese First Nations Reserve is located in the northwest portion of the WMU but was not surveyed during the intensive portion of the survey. WMU 330 is dominated by the lower foothills subregion, with a small amount of central mixedwood covering the northeast portion (Natural Regions Committee 2006). Of the WMU's total land area, the dominant land cover type was conifer (41%) and mixedwood/deciduous forest (33%), followed by wetland (16%), shrub (8%), and other (2%; e.g., exposed land, developed). In general, the industrial footprint was widespread; oil and gas and forestry were the dominant disturbances. Road density in the sampling blocks ranged from 0.11 – 3.5 km/km² (avg = 1.29 km/km²).

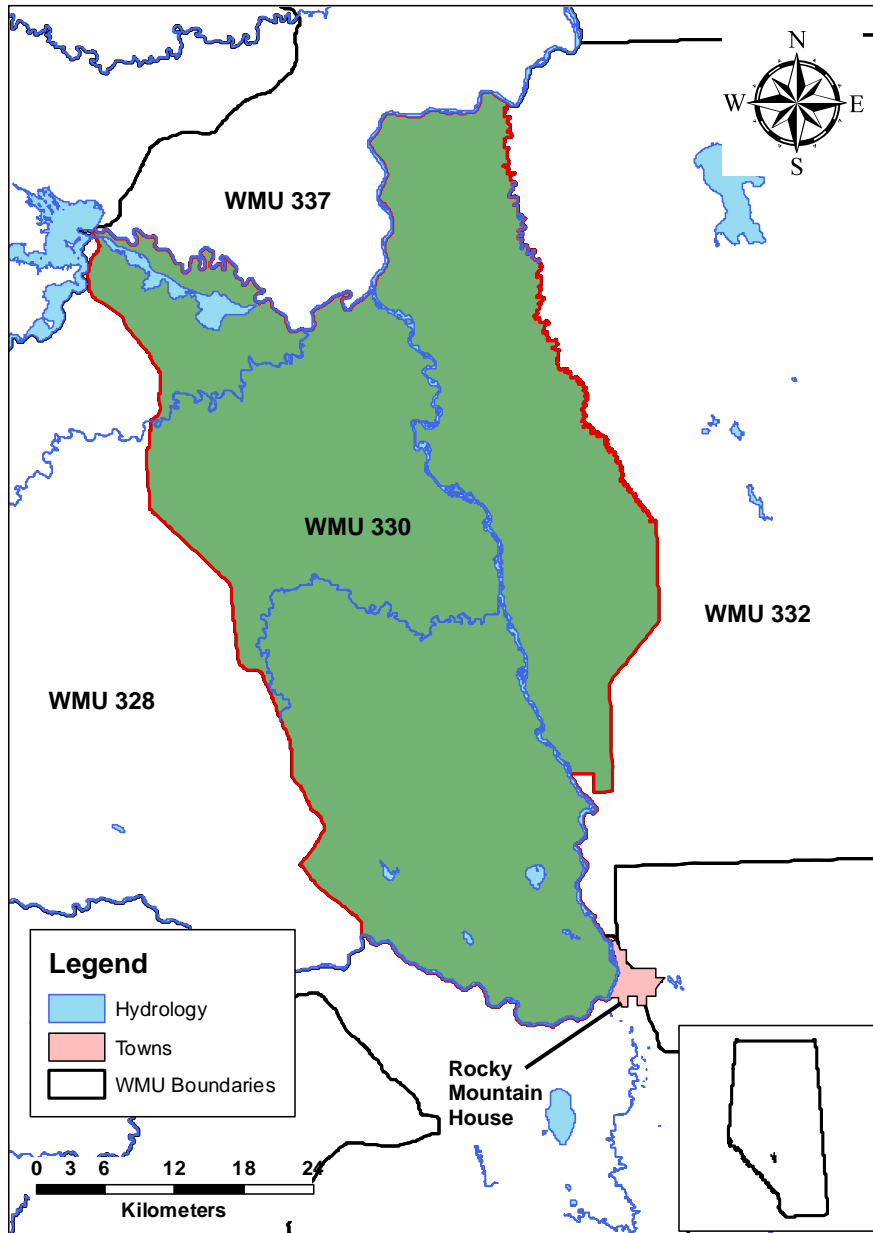


Figure 6.5.1. Location of WMU 330 in Alberta.

Survey Methods

We stratified the WMU based on moose counted from a Cessna 185 fixed-wing aircraft on February 2 – 3, 2009 (Gasaway et al. 1986). During the stratification survey the fixed-wing aircraft flew at approximately 160 km/h, 90 m above the ground depending on land cover and topography (higher in dense forest and greater topography). We flew transects in a North-South direction at 1 minute longitude (~1 km) intervals (Lynch and Shumaker 1995; Lynch 1997). Observers scanned 300-500 m out from the aircraft and recorded moose locations found along the transect. After the stratification survey, moose counts and GPS locations were uploaded into a GIS and intersected with a 3 minute latitude X 5 minute longitude sampling grid to determine the number and density of moose observed in each block. We classified blocks into strata based on the following moose counts during the stratification flight: 0 (low), 1 - 3 (medium), and ≥ 4 (high), respectively.

We randomly selected 5 blocks to sample in each of the low, medium, and high strata. We also sampled 1 additional high strata block to improve confidence intervals, for a total of 16 blocks (5 L: 5 M: 6 H). We searched sample blocks with a Bell 206 Jet Ranger helicopter from February 4 - 6, 2009 (Gasaway et al. 1986). We flew approximately 120 km/h, 30 - 50 m above the ground at 400 m intervals to ensure that each block was completely covered. A navigator sat next to pilot and observed and recorded animal locations, while 2 observers sat in the back of the aircraft. Each observer was responsible for scanning out to approximately 200 m from the aircraft. We circled all moose to determine age, sex, total number of individuals, and condition. Most bulls had shed their antlers but the white vulva patch below the tail indicated a cow moose. Light brown or grey patches, typically occurring on the shoulders and back, indicated tick infestation. In addition, we recorded locations and approximate counts for other wildlife species. All deer were simply recorded as “deer” and counts were recorded for each block. Moose counts per block were summed and entered into an Excel Quad file to determine population estimates (Gasaway et al. 1986).

During the stratification survey, temperatures were mild (-5 to +4° C) and snow conditions were good with moderate snow cover. The intensive surveys were flown during constant weather: partially cloudy, calm days with average temperatures ranging from -12 to +6° C. Snow conditions deteriorated slightly as the survey progressed,

exposing most south facing slopes and black stumps in open areas. Blowing snow on the final day made visibility poor at times and prevented further surveying.

Results

We estimated the total population at 211 ± 63 (29.9%), for a density of 0.11 moose/km² (Table 6.5.1). The composition of moose was 60 bulls/100 cows and 40 calves/100 cows. No twins were observed. We observed 11 moose with slight ticks; approximately one-third of the cow/calf pairs showed evidence of ticks.

Table 6.5.1. Comparison of aerial survey results for moose in WMU 330 in 2001-2009.

Species	Year	Population Estimate (conf. limits)	Density / km ²	Ratio to 100 Females	
				Males	Juveniles
Moose	2009	211 (29.9%)	0.11	60	40
	2004	499 (19.7%)	0.26	--	--
	2001	494 (28.5%)	0.26	44	38

