

## 2010 Wildlife Management Unit 445 bighorn sheep



Photo: Conrad Thiessen

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In order to effectively manage bighorn sheep populations throughout Alberta, periodic surveys are used to monitor populations and ensure that present harvest levels are sustainable. Bighorn sheep have been surveyed in WMU 445 since 1972, with subsequent surveys in 1975, 1978, 1980, 1982, 1988, 1995, and 1999. Traditionally only mountains and ridges on the Alberta side of the border have been surveyed. In December of 2009, WMU 445 was surveyed, along with a newly expanded area that included adjacent mountain ranges in British Columbia (Figure 1). Many mountain ridges in this area overlap Alberta and British Columbia, and as a result likely contain a continuous sheep population. Survey methodology was consistent for all survey years, resulting in minimum counts, population trends and changes in demographics that can be compared over time.

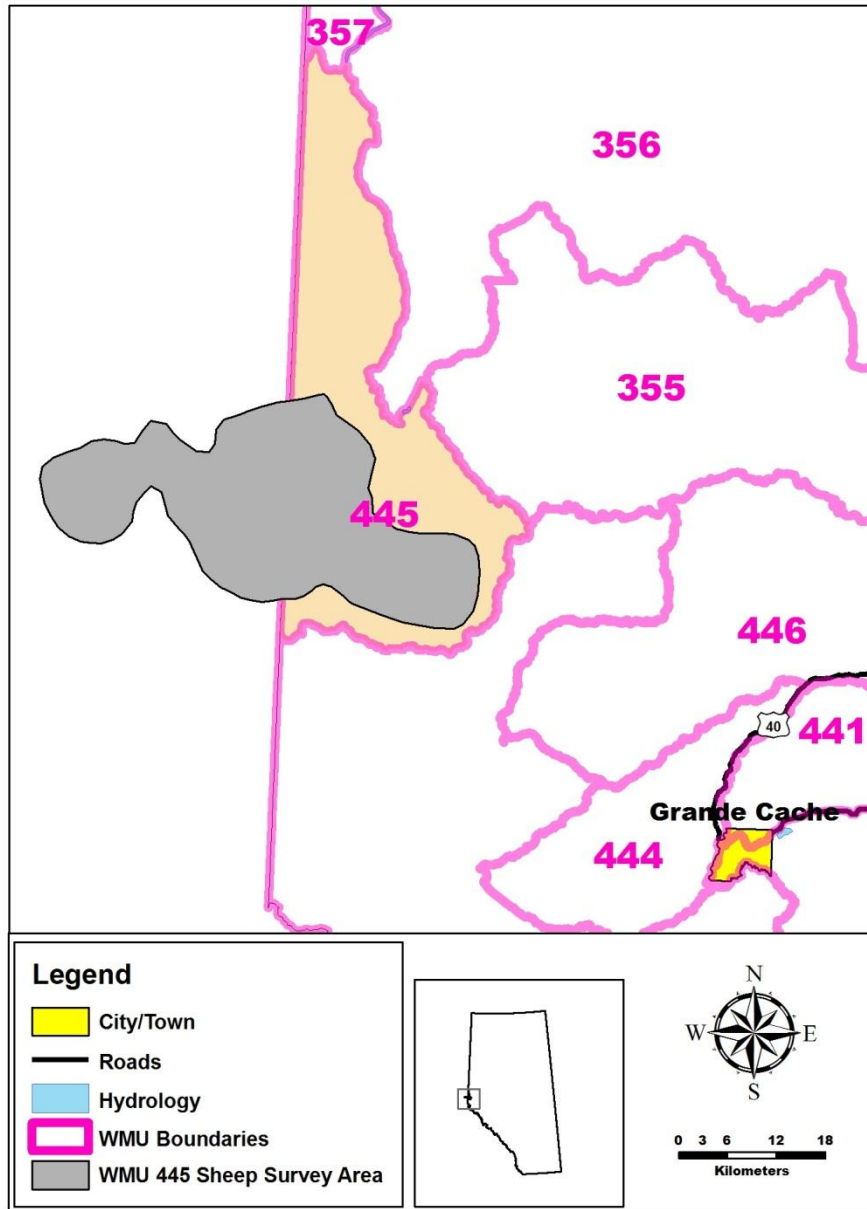


Figure 1. Location of the bighorn sheep survey area in British Columbia and Wildlife Management Unit 445 in Alberta.

## *Study area*

All probable bighorn sheep winter range within WMU 445 and the adjacent ridges in British Columbia were surveyed. Prominent ridges and mountains that were searched during the survey include: Mount Torrens (AB), Torrens Ridge (AB), Dinosaur Ridge (AB/BC), Mount Gorman (AB/BC), Coal Ridge (AB), Sulfur Ridge (AB), Mount Minnes (BC), Hannington Pass (BC), Saxon Ridge (BC), Nekik Mountain (BC), Picture Mountain (BC), Mokasis Mountain (BC), Meosin Mountain (BC), and Manitou Mountain (BC). This area includes portions of the alpine and subalpine natural subregions of Alberta (Natural Regions Committee 2006). The area is dominated by non-treed alpine landscapes, with alpine shrubs and grasses being the predominant vegetation. Moderate levels of recreational activities (notably snowmobile use in the winter months) are visible with little to no industrial activity present. A portion of the survey area overlaps the Kakwa Wildland Provincial Park in Alberta and Kakwa Provincial Park in British Columbia.

## *Survey methods*

All mountain complexes and known sheep habitat were surveyed from 14 – 15 December 2009 using a Bell 206B helicopter. Mountain contours were flown counter-clockwise at a height to ensure visibility of open slopes on all ridges. The crew consisted of a pilot, a navigator/observer, an observer and a recorder/observer. The navigator was seated in the left front seat of the helicopter and was responsible for directing the pilot on the survey as well as assisting in obtaining a total count and classification of the sheep. The observer was seated directly behind the navigator and was responsible for obtaining a total count and classification of sheep. If a discrepancy between the numbers counted by the navigator and the observer seated behind the navigator occurred, the herd was re-counted and re-classified. The recorder (seated behind the pilot) was responsible for recording all observations, for using a GPS unit to obtain precise locations of animals, and for scanning down to tree line below the helicopter for sheep. All sheep were classified by sex (ewes and rams) and age (adults and lambs). Rams were further classified into horn size categories of  $\frac{1}{4}$  curl,  $\frac{1}{2}$  curl,  $\frac{3}{4}$  curl,  $\frac{4}{5}$  curl (legal) and larger. Other sheep classifications include unclassified rams (horn size not determined); ewes and lambs (lambs not distinguished from ewes and rams with less than  $\frac{1}{4}$  curl); and unclassified sheep (ewes and lambs with noticeable rams mixed in the group but an exact classification could not be obtained).

Conditions for the surveys were generally good with an estimated 95% of the ridges snow covered. Temperatures averaged -20 degrees Celsius. Although winds were generally calm, gusty winds on 15 December resulted in marginally difficult flying conditions. As a result, several high alpine ridges in the Mokasis, Picture and Manitou Mountain areas (in British Columbia) were partially surveyed. We did not correct for sightability; therefore, overall counts should be considered as minimum population estimates and direct comparisons of survey results among years may show only broad trends.

### ***Results***

A total of 177 bighorn sheep were counted during the survey (Table 1). Greater numbers of sheep were counted in the Alberta portion of the survey (123 sheep) than the British Columbia portion of the survey (54 sheep). The age/sex composition for the entire survey area (Alberta and British Columbia combined) was 24% rams, 53% ewes, and 23% lambs, or 43 lambs/100 ewes and 45 rams/100 ewes. Comparisons within the Alberta portion of the survey (Table 1) were possible over time, due to repeat surveys that have been conducted for sheep since 1972. Although the total number of sheep counted was slightly greater than previous surveys, the proportion of rams was down, with an age/sex classification on the Alberta winter range of 21% rams, 53% ewes and 26% lambs.

Table 1. Total counts and age/sex classification of bighorn sheep in Wildlife Management Unit 445 and adjacent mountain ranges in British Columbia during aerial surveys from 1972 - 2009.

Province	Year	Rams	Ewes	Lambs	Unclassified	Total Sheep
Alberta	2009	26	65	32	0	123
B.C.	2009	16	28	8	2	54
Alberta	1999*	4	8	6	28	46
Alberta	1994/1995	28	50	21	0	99
Alberta	1988	29	53	26	11	119
Alberta	1982	42	51	17	0	110
Alberta	1980	23	57	26	6	112
Alberta	1978	26	48	17	0	91
Alberta	1975	9	23	8	0	40
Alberta	1972	15	21	7	0	43

\* 1999 totals were an underestimate, as weather did not allow for surveying part of the Dinosaur/Torrens Ridge complex.

### *Literature Cited*

Natural Regions Committee. 2006. Natural regions and subregions of Alberta. Compiled by D.J. Downing and W.W. Pettapiece. Pub. No. T/852, produced by the Government of Alberta, Edmonton, Alberta, Canada.