

**Aerial Survey for Bighorn Sheep (*Ovis canadensis*) in
Mountain Winter Ranges
March 6-9 2013**

Alberta Environment and Sustainable Resource Development
Operation Division
Fish and Wildlife Branch
Red Deer and North Saskatchewan Region

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ABSTRACT

A bighorn sheep survey was conducted from March 6 to 9, 2013 on all known winter ranges on provincial lands within the Red Deer-North Saskatchewan Region (RDNS) and on select winter ranges along the eastern slopes, east of Banff and Jasper National Parks.

Weather conditions were generally good for visibility (bright light) and wind (calm); , snow coverage was generally good, but some slope had patches of grounds not completely covered by snow.

A total of 24.6hrs of helicopter time was used to complete the survey.

A total of 1594 sheep were observed on provincial ranges, consisting of 896 ewes, 246 lambs, 389 rams (60- $\frac{1}{4}$; 100- $\frac{1}{2}$; 86- $\frac{3}{4}$; 81- $\frac{4}{5}$ or full curl), 62 unclassified males and 64 overall sheep. 5% of the total sheep were classified as trophy ($\frac{4}{5}$ or full curl). Herd composition was 43.4 rams: 100 ewes: 27.5 lambs.

RAM/EWE RATIO

RAM/EWE RATIO

A total of 343 sheep were observed in ranges within Banff and Jasper National Parks, consisting of 119 ewes, 58 lambs, 162 rams (13- $\frac{1}{4}$; 35- $\frac{1}{2}$; 50- $\frac{3}{4}$; 42- $\frac{4}{5}$ or full curl). 12% of the total sheep were classified as trophy ($\frac{4}{5}$ or full curl). Herd composition was 136 rams: 100 ewes: 47.7 lambs.

*DOUBLE →
IN
PARKS*

Bighorn Sheep Winter Ranges: Aerial Survey 2013

Areas Flown: All sheep winter ranges in the former Clearwater Fish and Wildlife District (now Red Deer, North Saskatchewan region -RDNS) were surveyed. Ranges within Banff National Parks were also surveyed.

Dates: March 6, 7, 8 and 9, 2013

Survey Crew:

- March 6-8: Chiarastella Feder (A), Anne Hubbs (A) and Carrie Nugent – (A)
 - Pilots: Murray Schroderus (A) and Cam Campbell (A)
- March 9- Chiarastella Feder, Blair Fyten (A), Eldon Bruns (A),
 - Pilot: Murray Schroderus (A)

Aircraft: Bell 206 TEZ

Weather:	Mar.6	Mar.7	Mar.8	March 9
Temp. (C)	-9 C	-11	-14	-7
Wind	10 KPH	10 KPH	10 KPH	5KMP
Snow cover (%)	80%	80%	70% *	80%*
Cloud cover (%)	0	30	10	0
Visibility	Good	Good	Good	Good

* Brown on some slopes

Hours Flown: Mar 6- 5.8 hrs
Mar 7- 7.1 hrs
Mar 8- 5.6 hrs
Mar 6- 6.1 hrs

Total Hrs- 24.6

Observations for each WMU are as follow:

<i>WMU</i>	<i>Total Sheep</i>	<i>Rams</i>	<i>Ewes</i>	<i>Lambs</i>	<i>Unknown</i>
328	20	12	4	4	0
414	1	0	1	0	0
416	25	1	17	7	0
418	228	44	131	53	0
420	376	84	239	53	25
422	317	95	177	32	44
426	72	27	40	5	0
428	42	16	5	5	16
429	9	1	7	1	0
430	83	27	45	11	0
432	108	16	69	23	1
434	307	65	159	49	40
738	6	1	2	3	0
<i>Total Sheep</i>	<i>1594</i>	<i>389</i>	<i>896</i>	<i>246</i>	<i>126</i>

National Parks: Winter ranges were flown within Banff National Park in the following areas: Indianhead, Malloch Creek, Peters Creek, Divide Creek, Tyrrell Creek, Scotch camp, Divide Pass, Mt. White, Panther River, Windy cabin and Dormer River.

Discussion Provincial Land

On provincial land, the total number of sheep observed during this survey (1594) was higher than previous surveys in 2005 (1482), 2007 (1072), 2009 (1491) and 2011 (1169).

A total number of sheep consisted of 896 ewes, 246 lambs, 389 rams (60- $\frac{1}{4}$; 100- $\frac{1}{2}$; 86- $\frac{3}{4}$; 81- $\frac{4}{5}$ or full curl), 62 unclassified males and 64 unclassified sheep. 5% of the total sheep were classified as trophy (4/5 or full curl). The proportion of legal rams on the entire population has been the highest since 2005.

Herd composition was 43.4 rams: 100 ewes: 27.5 lambs. Both "ram: ewe" ratio and "lamb: ewe" ratio recorded during this survey are within the normal range of values for a stable population.

The ram: ewe ratio from the 2013 survey (37 rams: 100 ewes) is within the normal range of values for a stable population. This ratio was higher than the ratio for the 2011 (37 rams: 100 ewes) and it is only slightly lower than previous surveys in 2005 and 2009 (45-46 rams: 100 ewes). The percentage of trophy rams in this 2011 survey was approximately 5%. The value is within the target value of 5-6%. Since 1995, the percentage of legal rams in the Clearwater area has been consistently less than 5%.

??
SHOULD BE 43.4

ESRD SAID
5% IN SOUTH
4% IN NORTH
WHAT CHANGED?

The lamb: ewe ratio is slightly below the 30:100 ratio that is considered "normal" at this time of the year, but it appears to be better than the last 2 surveys (2011: 19 lambs: 100 ewes, 2009: 23 lambs: 100 ewes, 2007: 30 lambs: 100 ewes, 2005: 30 lambs: 100 ewes). A rainy summer (2012) and a mild winter (2012-2013) may also have increased forage production and lamb survival.

← PREDATORS??

National Parks

A total of 343 sheep were observed in ranges within Banff and Jasper National Parks, consisting of 119 ewes, 58 lambs, 162 rams (13- $\frac{1}{4}$; 35- $\frac{1}{2}$; 50- $\frac{3}{4}$; 42- $\frac{4}{5}$ or full curl). 12% of the total sheep were classified as trophy (4/5 or full curl). Herd composition was 136 rams: 100 ewes: 47.7 lambs.

National Parks (Banff and Jasper Parks):

Lamb: ewe ratios in 2013 were healthy within Banff and Jasper National Parks (47.7 lambs: 100 ewes)

Ram: ewe ratios were very high for Banff NP. However this might be due to the fact that we were unable to survey all the winter ranges within the National Park, hence results might be somewhat biased if land-use is different between the sexes. Interestingly, the highest percentage of trophy rams was seen in Banff (12%) .

Other Wildlife Seen during 2007 Sheep Survey:

495 Elk (including 273 elk at Yaha-Tinda Ranch
78 feral horses
30 goats
2 Eagles
White-tailed (6) and Mule deer (14)
Moose 25
Wolves: 11 (1 wmu 434, 4 wmu 422 and 6 in BNP)

Sheep Summary March 2013 Survey

WMU	Total Sheep	Total Rams	quarter	half	three quarter	legal	unclass_rams	Ewes	Lambs	Unclassified Sheep
00328	20	12	1	1	3	7	0	4	4	0
00414	1	0	0	0	0	0	0	1	0	0
00416	25	1	0	1	0	0	0	17	7	0
00418	228	44	11	9	13	11	0	131	53	0
00420	376	84	15	22	14	8	25	239	53	0
00422	317	95	6	27	16	16	30	177	32	14
00426	72	27	8	6	9	4	0	40	5	0
00428	42	16	0	6	5	5	0	5	5	16
00429	9	1	0	0	0	1	0	7	1	0
00430	83	27	4	4	6	12	1	45	11	0
00432	108	16	6	7	0	3	0	69	23	0
00434	307	65	8	17	20	14	6	159	49	34
00738	6	1	1	0	0	0	0	2	3	0
Banff	343	162	13	35	50	42	22	119	58	4
prov. Lands	1594	389	60	100	86	81	62	896	246	64