2008 POPULATION CENSUS OF MOUNTAIN CARIBOU IN THE CENTRAL SELKIRK MOUNTAINS OF SOUTHEASTERN BRITISH COLUMBIA

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Pope & Talbot Ltd
&
Canadian Mountain Holidays

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March 17, 2008

Summary

The Central Kootenay (Selkirk) mountain caribou population was studied using VHF radiocollars from 1992 to 2003. Population estimates were calculated using mark-resight methods when there were collard caribou in the population (1996, 1997, 1999, 2002). Total counts (animals observed + tracks) were reported for subsequent census years. This is the ninth census we have completed since 1996.

Population estimates in the first three census years indicated a relatively stable population between 213 and 268 animals. The 1997 count was the highest recorded over all census years at 223 caribou, with 22 of 23 collared-caribou spotted. The ability to detect trends in the population was limited however because estimates were based on only three annual counts taken over a four year period.

No censuses were conducted in 2000 or 2001 due to funding limitations. This was most unfortunate in that the population was in significant decline during this period. The 2002 census population estimate was 97 animals, a 53% decline from 1997. The 2002 census was the first year a statistically significant decline could be reported. This population decline appeared for most caribou populations in BC during these years.

Census results from 2002 to the present suggest that the Central Kootenay caribou population has stabilized, albeit at <50% the population levels reported in the late 1990s.

Based on generalized observations made during censuses, we suggest snowmachine use and extent has increased substantially in only a few short years. A monitoring program should be immediately implemented to support proposed backcountry recreation access planning activities recently initiated by government.

Acknowledgements

Funding for the 2008 census was provided by BC Timber Sales, Pope & Talbot Ltd and Canadian Mountain Holidays. The contract manager was George Edney (BCTS) with assistance provided by Jane Miller. Paul Seaton and Darcy Torrans assisted with spotting and Mark Homis and Dave Mair piloted the aircraft during the 2 day census. Steve Wilson provided a review and useful suggestions on the first draft of this report.

Introduction

Mountain caribou (*Rangifer tarandus*) are a species at risk in British Columbia. From 1996 to 2003 an inventory project occurred for the Central Selkirks caribou study area (Hamilton et al. 1999). The purpose was to provide caribou population and habitat information necessary to effectively integrate the needs of caribou with strategic landscape unit planning and operational implementation. The study included caribou capture and collaring with VHF radio transmitter collars, aerial monitoring of collared caribou, population census, mortality investigations, field studies, early winter trailing studies and development of science-based and ecosystem-based habitat models at various scales.

The research results enabled development of a local District Level Agreement (DLA; 2002). The agreement is an operational approach to forest and caribou planning whereby caribou 'no harvest' zones and 'caribou special management' zones are applied and refined across landscapes and forest ecosystem units based on field assessments which validate caribou habitat values represented in the models and field record evidence of use. The intent was to apply caribou forest retention guidelines requirements under the Kootenay-Boundary Higher Level Plan Order (KBHLPO) to areas of highest caribou value as found in-the-field. The monitoring and adaptive management component of this agreement requires that a population census be conducted every 2-3 years, to monitor population trend and late winter distribution. On-going industry financial support has allowed for yearly census to be completed since 2002 in support of provincial recovery planning, with the exception of 2003 when weather conditions precluded a reliable census.

Methods

The caribou census was conducted in accordance with aerial-based inventory methods outlined by the Resource Inventory Standards Committee (RISC 2002). The census was completed using an A-Star helicopter and was carried out by 3 experienced observers plus the pilot. Starting in 2004 the census area was expanded to include a fixed-wing flight (Cessna 337) of the periphery of the helicopter survey area. Flight paths were similar to those of previous years (Hamilton 2004). This year we further expanded the fixed-wing search to include the upper elevations of Caribou[1], Goatcanyon, Shannon Wragge and Slewskin areas in the southwest.

Helicopter speed and altitude varied along established flight paths. When tracks or caribou were seen, the helicopter left the flight path until animals were located and counted. Caribou observed were classified as adult or juvenile. If tracks were encountered but the animals were not located, the number of tracks was recorded. Each caribou group, individual observation or track(s) encountered was assigned an identity number and the location was recorded using onboard GPS.

[1] Caribou were reported by locals in Caribou Creek in 2007.

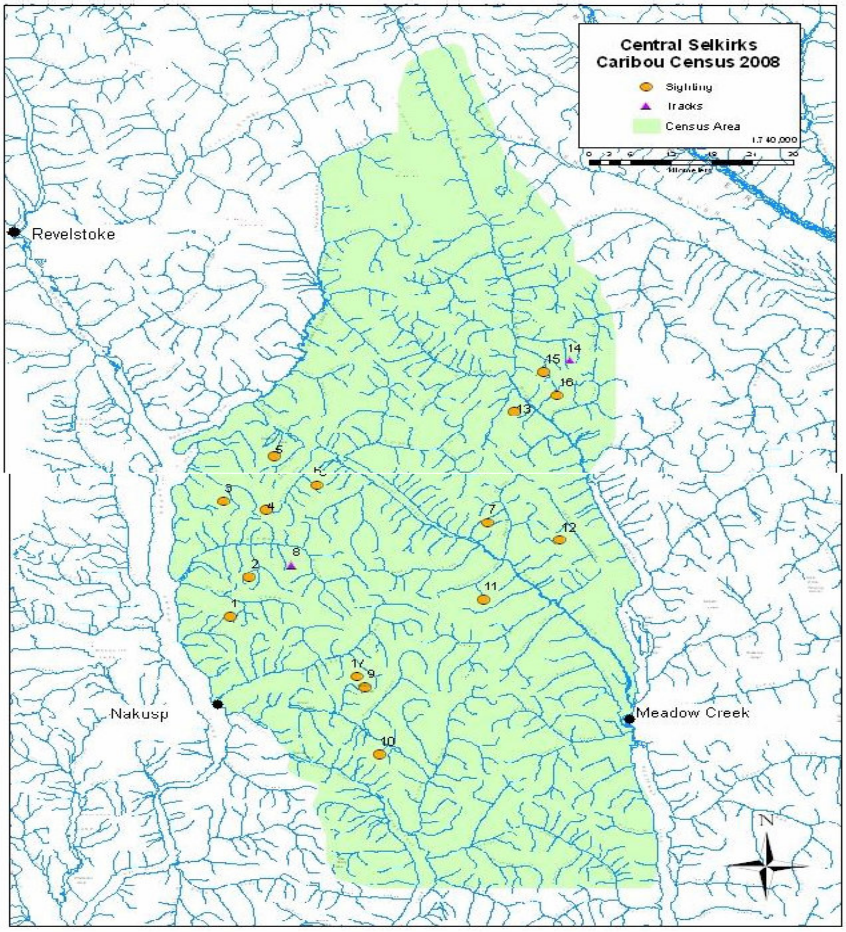

Figure 1: Animal sightings and tracks associated with the 2008 mountain caribou census in the Central Selkirk mountains.

Results and Discussion

The census was completed on March 5th and 6th of 2008, 2 days following snowfall. The fresh snow and clear, bright skies on census days combined to allow for excellent visibility and ease in locating fresh tracks and observing caribou (Figure 1).

Results for all census years are tallied in Table 1 and illustrated in Figure 2. For 2008, the total count was 102 caribou: 83 adults; 13 calves; and, 6 sets of fresh tracks where the animals could not be located in the dense forest. The fixed-wing flight of the periphery of the helicopter survey area did not reveal additional caribou or tracks.

Group size ranged from 1 to 21 animals with a mean of 6 and median of 7. Six sightings were of groups of 7 animals. Census numbers suggest the population has stabilized over the period from 2002 to present; however, at <50% of numbers reported in the late 1990s.

Table 1: Total number of mountain caribou observed (with % calves), tracks counted, and mark-resight population estimates (where applicable) for the Central Selkirk subpopulation from 1996 to 2008

Year	Observed (%calves)	Tracks	Observed + Tracks	# Active Collars	# Collars Observed	Population Estimate	90%CI
1996	211(12)	19	230	13	12	268	230-354
1997	223 (8)	9	232	23	22	231	223-266
1999	181 (9)	17	198	17	14	213	190-266
2002	93 (22)	4	97	9	6	131	105-207
2004	72 (22)	16	88	1	2	-	-
2005	75 (27)	22	97	-	-	-	-
2006	73 (26)	13	86	-	-	-	-
2007	68 (15)	18	86	-	-	-	-
2008	96 (16)	6	102	-	1	-	-

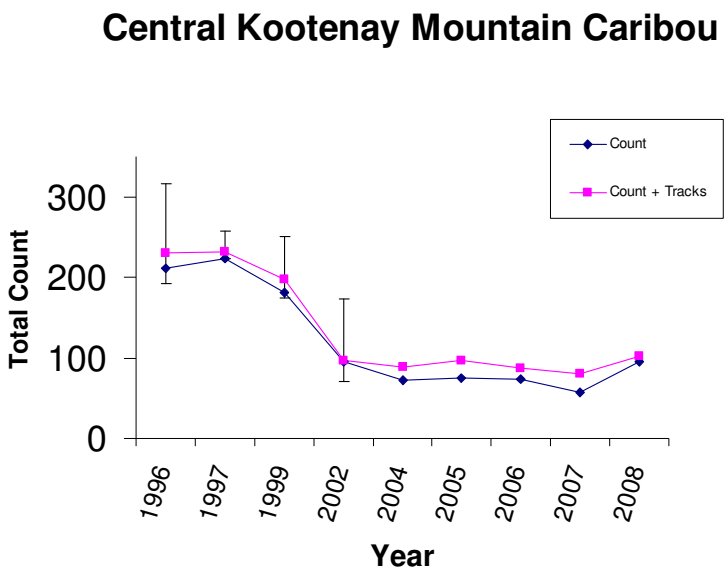

Figure 2: Total count and population estimates (for years when collared caribou could be used as a measure of sightability) for Central Kootenay mountain caribou population

Censuses conducted from 1996 to 2006 stratified the Central Selkirk survey area into the Nakusp and Duncan census blocks. Census, analysis and reporting were based on the assumption that these were 2 distinct herds (Hamilton et al 2000, Wittmer et al 2004). There were no caribou sightings in the Duncan census block in either 2005 or 2006; however, caribou were counted in the Duncan census block every other census year including 9 caribou and 7 sets of tracks in 2007 and 14 caribou and 4 sets of tracks in 2008. McLellan et al (2006) suggested that for the 4 census blocks north of Revelstoke that movement in and out of census areas between years might be an explanation for changes in census numbers rather than changes in the population.

One collared caribou from the South Selkirk herd was sighted during the 2004 census and one other collared caribou of unknown population source was spotted during the 2008 census. It is unlikely the collared caribou observed is from the original collared animals from the Central Selkirk study because the collaring program was terminated in 2003 and all collars used during the study were attached with rot straps; however, it remains a possibility the collared animal may be resident to the population[2]. Despite several years of telemetry monitoring in the Central Kootenay and adjacent population areas in Revelstoke, Purcells, Monashee and South Selkirks, little is known or documented regarding overall population interaction or exchange between these herds.

Although our focus during the census was to locate tracks and caribou, we have over the years been making generalized observations on levels and distribution of snowmachine activity. The extent and levels of use snowmachine use observed this year is unprecedented over previous years. More detailed monitoring should be implemented immediately to support recently initiated snowmachine management activities in the Central Kootenay planning unit by Ministry of Environment, under the direction of the Species at Risk Coordination Office (SaRCO).

[2] Discussions with Ross Clark, Columbia Basin Fish & Wildlife Compensation Program, confirmed their staff later located the 2004 collar in Mohawk Creek, but the mortality/motion sensitive collar was on mortality signal. Dave Mair (pilots for CBFWCP) will be scanning known radio collar frequencies in his flights through the Central Selkirk population unit to possibly determine the frequency/origin of the collared caribou observed near Ranch Ridge during our 2008 census.

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2006 Data

Sighting_ID_Num	Adults	Young	Total	Tracks	Easting	Northing	Comments
1	2	0	2	0	458788	5560368	Harlow
2	0	0	0	1	459707	5560114	Harlow
3	1	0	1	0	467716	5554979	Ranch Ridge
4	0	0	0	1	472941	5567597	Burkitt
5	2	2	4	0	474314	5566709	Burkitt
6	4	0	4	0	462975	5570891	Hamling Lakes
7	5	3	8	0	462542	5571362	Wood/Hamling
8	3	0	3	0	464044	5568749	Wood/Hamling
9	7	3	10	0	445487	5575790	upper Cape Horn
10	4	2	6	0	442058	5598432	Halcyon
11	2	0	2	0	451144	5611045	Mount Murray
12	0	0	0	2	464217	5615921	Mtn Goat
13	6	3	9	0	479586	5605522	Ottawa
14	2	1	3	0	479218	5600565	American
15	9	3	12	0	475072	5594044	Craig/Benson
16	2	0	2	0	453477	5590676	Halfway/Mt Steenhoff
17	3	3	6	0	454234	5592713	Halfway
18	2	0	2	0	491852	5586957	Lower Mt Johnson
19	0	0	0	2	491448	5593592	Skinner/Hope
20	0	0	0	1	491005	5538821	Carpenter/12mile
21	0	0	0	2	492791	5591331	Lake Cr
22	0	0	0	2	487824	5576670	Cascade
23	0	0	0	2	491287	5578112	Deep
0	0	0	0	0	496109	5582418	wolverine track + den
0	0	0	0	0	484769	5594691	wolverine track + den
0	0	0	0	0	492495	5601984	wolverine track
Total	**54**	**20**	**74**	**13**			

2007 Data

Sighting_ID_Num	Adults	Young	Total	Tracks	Easting	Northing	Comments
1	1		1		451163	5588498	valley bottom in Deep Cr
				4	449179	5587844	old tracks
				5	442284	5599634	old tracks
2				2	473106	5594482	tracks into trees
3				2	474569	5594518	tracks into trees
4	10	2	12		476103	5592305	top of Mobbs Cr
5	10	2	12		453100	5591062	above Halfway hotsprings
0					453560	5594982	old tracks around Halfway hotsprings
0				2	454799	5590082	old tracks
0					464360	5586487	Gbear den - back of Halfway R
6	5	1	6		447780	5581097	ridge between St. Leon and Cape Horn
7	11		11		463479	5571802	Hamling Lakes - in tress. No adult/juv.class
8				3	468761	5567406	Bremner Cr - in trees. No adult/juv. Class
9				1	459723	5559910	Harlow cabin
0					484558	5627925	Female +2 cubs emerg. Gbear and den
10				3	486740	5636953	feeding on blowdown in thick timber
					488110	5632896	Gbear
11	6	1	7		490485	5629631	moving downslop to valley bottom
12	2		2	2	491689	5621114	moving downslop to valley bottom
13				2	499369	5608686	moving downslop to valley bottom
14	2	1	3		466788	5579490	Rogers Cr
				7	478356	5589639	old tracks in timber
15	11	3	14		479821	5599508	America Cr
16				5	457193	5606720	tracks in burn above Roca mine
Total	**58**	**10**	**68**	**38**			

2008 Data

Sighting_ID_Num	Adults	Young	Total	Tracks	Easting	Northing	Comments
1	5	2	7		444171	5581761	St. Leon / Cape horn
2	3		3		447019	5589126	Middle fork Deep creek
3	7		7		443175	5602975	Nacillewaet / Payne creek
4	7		7		449490	5601487	Payne / Wilkie
5	2		2		451412	5611007	Fullmer creek
6	5	2	7		457018	5606012	Wilkie above mine past burn
7	18	3	21		481982	5599010	Horsefly / Healy / American
8				2	453340	5591332	Fresh tracks & beds in trees N of Mnt. Steenhoff
8	6	1	7		464072	5568965	Hamling lakes
10	6	1	7		466138	5556495	Ranch ridge w/collard female
11	9	2	11		481469	5584984	Rapid / Tenderfoot creek
12	1	2	3		492712	5595885	Lake / Skinner creek
13	1		1		486765	5619193	North of Mount Templeman
14				4	494894	5628595	Fresh tracks & beds South fork Hume creek
15	6		6		491072	5626427	Drainage south of Hume creek
16	4		4		493053	5622235	Fitch / Giegerich creek
17	3		3		462779	5570871	West fork Wood creek
total	**83**	**13**	**96**	**6**			