2015 Mountain Caribou Census

CENTRAL SELKIRK MOUNTAINS

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Summary

A complete census of mountain caribou within their known range in the Central Selkirk Mountains was conducted between March 17 and April 2, 2015.

Thirty nine adult caribou and five calves were located for a total of 44 caribou. The previous census (2014) reported 53 caribou and in 2012 there were 88-89.

The sub population declined approximately 50% between 1999 and 2002, and then remained relatively stable for a decade. The results of this year's census indicate a 50% decline from 2012 and an 81% decline since comprehensive census work began in the mid 1990's. Calf recruitment was 11.4%.

Causes of this sudden decline are unknown. A mean calf recruitment rate of 12.6% since 1994 including 16 % calf recruitment in 2004 are within the 12 – 16% range generally thought to be required for a stable population. The decline suggests a large increase in adult mortality subsequent to 2012.

The large increase in forestry no harvest zones in the Central Selkirk Mountains in the past few years should increase the probability that this caribou sub population can be recovered in the long term. However displacement of caribou from preferred habitat by recreational activities remains a major concern. An altered predator / prey system largely due to past forest harvesting and other habitat changes is also a significant concern. This concern should diminish over the next several decades as the cutblocks regenerate. Meanwhile predator and alternate prey populations should be monitored and managed when and where necessary.

Introduction

Woodland caribou (*Rangifer tarandus caribou)* in southeastern British Columbia, northern Washington, and northern Idaho are a unique ecotype of caribou distinguished from other woodland caribou by their winter diet consisting almost exclusively of arboreal lichens. This trait allows them to inhabit the deep snow wet belt of the Columbia Mountains. In British Columbia these caribou are often referred to as the 'mountain caribou' ecotype. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) considers them the "Southern Group" of the Southern Mountain National Ecological Area. Due to their low, and over the longer term decreasing populations, and shrinking and fragmented distribution, these caribou are considered endangered in the United States. In Canada, they are listed as endangered by COSEWIC, threatened under the Federal Species at Risk Act (SARA) and are provincially red-listed (species at risk of extinction or extirpation) by the British Columbia Conservation Data Centre.

Caribou were once distributed in a contiguous fashion throughout the Selkirk and Purcell Mountains of southeastern British Columbia (Stevenson and Hatler, 1985; Spalding, 2000). In recent decades the distribution has declined to several sub populations, one spanning the Central Selkirk Mountains, the northwest Purcell Mountains, the Duncan Valley and the upper Beaver Valley of Glacier National Park. This was called the Central Selkirk sub population by Simpson et al. (1997), one of 13 sub populations of mountain caribou within southern British Columbia. Based on telemetry data Wittmer et. al. (2005) revised this into 18 sub populations which included

dividing the Central Selkirk sub population into the Nakusp and Duncan units. However since 2010 caribou have been consistently sighted in between the Duncan and Nakusp blocks and were not technically part of either. In the 2010 and 2012 census reports they were included with the Nakusp block (DeGroot, 2010; DeGroot and Furk 2012). As of the 2014 report we have returned to the convention of Simpson et al. (1997) and using the term "Central Selkirks" for the sub population without division into the Duncan and Nakusp blocks.

Most of the caribou research in this area has occurred since 1992. Twenty three caribou were fitted with VHF radiocollars from 1992 – 2003 (Hamilton, 2008). Fourteen censuses have been conducted over the past 20 years, all in late winter when the caribou are consistently in the open forest at high elevations. The sub population declined from an estimate of 240 caribou in 1996 to an estimate of 88 in 2007 and then increased to an estimate of 122 in the 2008 census. Numbers have been declining since.

Study Area

The study area boundaries are described as the area bordered to the west by Arrow Lake; to the east by Kootenay and Duncan Lakes but including all of the Duncan Valley and the upper ends of adjacent drainages to the east, north of Duncan Lake; to the south by the Nakusp – New Denver – Kaslo highway; and extending north to Glacier National Park (Figure 1).

Methods

Standard survey protocols for mountain caribou (Resources Inventory Committee, 2002) were followed. This involved flying by helicopter at an elevational contour near treeline (1900 – 2200 m elevation) over all suitable caribou habitat in the area mentioned above. Attempts were made to conduct flights within a few days of a new snowfall so that recent tracks are visible but older tracks are covered up.

The helicopter was a 206B owned by High Terrain Helicopters and piloted by Roman Sookorukoff (March 17) and Ray Taylor (March 27 & April 2). Observers were Aaron Reid (March 17 & April 2), Terry Anderson (March 27 & April 2), Lisa Tedesco (April 2), Thomas Hill (March 17), and Leo DeGroot (March 17 & 27).

When caribou tracks were observed they were followed until the animals were observed. All caribou were classified as either adults or calves. Attempts were not made to classify adults by gender as it is difficult due to similarities between young males and adult females. In addition extended observation time often results in additional physiological stress on the animals. High resolution (3000 X 2008 pixel) photos of the groups of caribou were taken with a Nikon D50 digital SLR camera with a Nikon 70 – 300 mm zoom telephoto vibration reduction lens. Photos were later analyzed on a computer monitor to verify classification. If the caribou could not be found we estimated group size from the number of tracks and / or beds. Caribou tracks were only recorded if the caribou that made the tracks were not in the immediate area. Flight paths and caribou locations were recorded as Universal Transverse Mercator (UTM) coordinates using North American Datum 1983 (NAD83). Snowmobile, ski and other large mammal tracks were also recorded. The ski and snowmobile track records were limited to one per upper basin, which are usually 1 – 2 km across at the flight elevations.

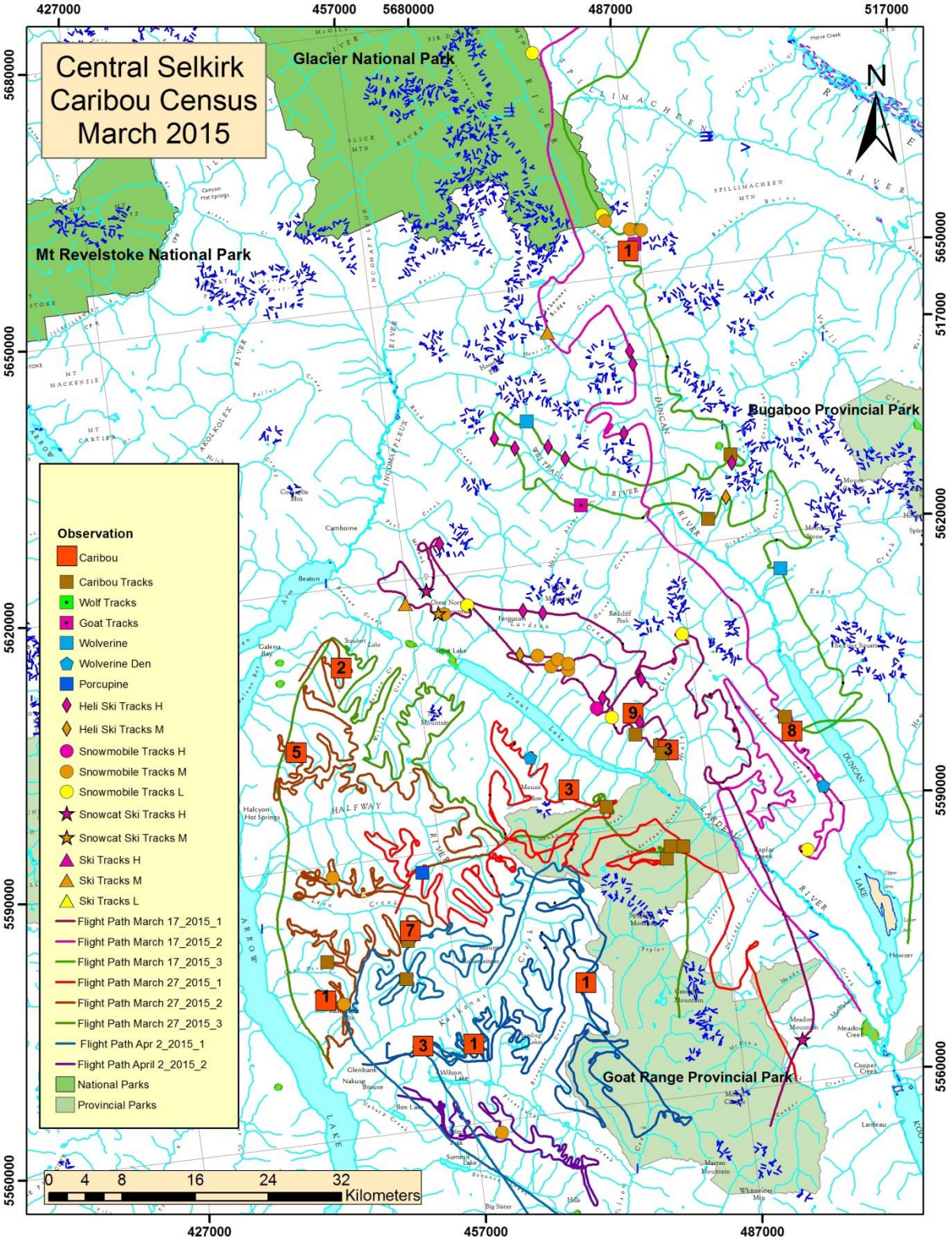

Figure 1. Flight lines, caribou sightings, and locations of snowmobile and ski tracks from the 2015 census. The groups of caribou are indicated by the red squares. The number of caribou in each group is indicated in the squares.

Results

The census was conducted March 17, 27, and April 2, 2015. Poor weather did not allow the census to be conducted during a three day continuous time span. The Lardeau River / Trout Lake corridor formed a good low elevation cutoff between the March 17 and 27 flights. The cutoff between the March 27 and April 2 flights was not ideal, some extra flying was undertaken to ensure groups were not missed or double counted in this area. Weather and light conditions were excellent on March 17. Some valley fog had to be worked around early on March 27, high cloud brought in flatter light conditions later in the day. Conditions on April 2 were variable with some storms cells, but otherwise sunny.

A total of 44 caribou were spotted which included 5 calves. Tracks not directly associated with caribou observations were sighted in three locations; however the lack of large snowfall amounts for several weeks previous to the flights allowed caribou tracks to remain visible over a larger area than normal. Therefore additional caribou were not estimated from these tracks.

Wolverine tracks were very abundant, as were porcupine tracks in some areas. To avoid overwhelming the map, these sightings are not displayed in Figure 1.

The helicopter was to be stationed in Nakusp for the survey, however due to the fractured schedule all flying was out of Nelson. The flying time on March 17 was 7.5 hours of which 5.0 hours were on survey. The helicopter was refueled once in Meadow Creek and once in Golden. On March 27 the flying time was 9.0 hours with 6.6 hours on survey. The helicopter was refueled twice in Nakusp. The flying time on April 2 was 4.8 hours of which 3.3 hours were on survey. The helicopter was refueled once in Nakusp. Mean survey flying speed was approximately 130 km / hr. Total flying time was 21.25 hours of which 14.7 hours were on survey.

Snow water equivalent at the nearest snow pillow sites, St. Leon Creek (1822 m elevation) and East Creek (2004 m elevation) were at 100% and 88% of the means respectively for those dates (BC Ministry of Environment, 2015).

The commercial (heli and cat) ski operators were still active on March 17, ski tracks were observed in many locations. Evidence of snowmobile activity was also locally abundant. The commercial ski season was finished prior to the March 27 and April 2 flights. Snowmobile activity had also diminished by this time.

Recruitment

Five calves were identified. Recruitment is estimated to be 11.4% (5 of 44 animals.)

Table 1. 2015 Central Selkirk caribou census results. Coordinates are given in UTM projection, Zone 11, NAD 83.

Date	Location	Caribou Sightings			Additional # Caribou based on tracks only	Easting	Northing	Comments
		Unclassified Adult Caribou	Calves	Total Caribou Observed				
17-Mar-15	Haskins Cr – SilverCup Ridge	8	1	9		479961	5602401	
17-Mar-15	SilverCup Ridgetop	2	1	3		483290	5597943	
17-Mar-15	Upper Duncan Lake – West Side	7	1	8		496986	5598265	
17-Mar-15	Silent Pass	1	0	1		485284	5651216	
27-Mar-15	Abrahamson Cr.	3	0	3		471925	5594978	
27-Mar-15	Cape Horn	1	0	1		442607	5575443	
27-Mar-15	St Leon	6	1	7		452764	5581863	
27-Mar-15	Payne Cr.	5	0	5		442821	5602779	
27-Mar-15	Hill Cr.	2	0	2		448862	5611346	
02-Apr-15	Bremner Cr.	1	0	1		471116	5573809	
02-Apr-15	Kimbol Lake E	1	0	1		458057	5568706	
02-Apr-15	Kimbol Lake W	2	1	3		452560	5569182	
Total		**39**	**5**	**44**	**0**			

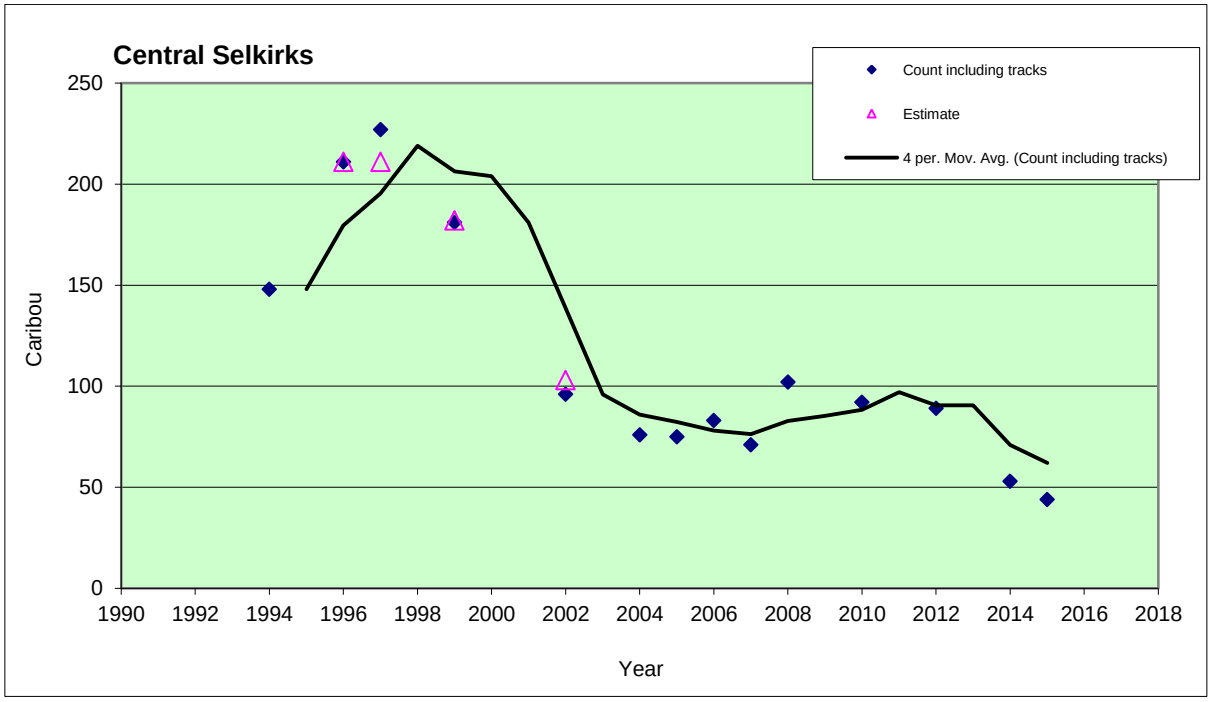

Figure 2. Central Selkirk census results from when census work began in 1994 to the present. Sufficient numbers of radio collared caribou from 1996 to 2002 allowed population estimates based on sightability, indicated by the purple triangles. Blue diamonds indicate the actual count plus an estimate of group size from tracks when caribou could not be found. The trendline is based on the count including tracks, averaged over several points.

Discussion

Without any radio collared caribou, specific sightability corrections cannot be made. Caribou could have been missed on the flight routes or were using areas that we did not survey. We were however consistent with previous surveys where every drainage either used by radio collared caribou or detected on other census flights during the late winter season since research began in 1992 were surveyed. Periphery areas were not surveyed. Good visibility and snow conditions for most of the survey made it less likely that caribou tracks on the flight routes were missed. Tracks from smaller animals such as hares and wolverines were readily visible. Therefore, we are fairly confident that all caribou tracks present at normal elevations in the census area were detected.

The result of 44 caribou is a 50% decline from the 89 - 92 caribou recorded in 2010 and 2012 (DeGroot, 2010) (DeGroot and Furk, 2012) and an 81% decline over the past two decades. There is the chance that some caribou could have been at lower elevations and would have been missed.

Calf recruitment at 11.4% is slightly below the suggested 12% - 16% recruitment that is required for a stable population (Bergerud, 1996). The mean since 1994 is 12.6%. Generally adequate calf recruitment and a declining population suggest high adult mortality.

Displacement of caribou from preferred habitat by recreational disturbance has long been a concern in many areas. In particular, the Great Northern Mountain / Mohawk Creek area, the majority of Silvercup Ridge, and the Silent Pass area. These areas contain suitable but unused late winter habitat that is heavily used by snowmobilers and/or snowcat operators and / or heli ski operators. Ranch Ridge and the Kimbol Lake areas may be heading in the same direction; the past two years the group sizes in these locations were significantly reduced and in what appears to be marginal habitat instead of more optimum habitat nearby.

The increase in no harvest zones as per the Government Action Regulations in the Central Selkirk Mountains since 2008 should significantly increase the probability that these caribou sub populations can be recovered in the long term. However, an altered predator/prey system largely due to past forest harvesting and other habitat changes remains a significant concern. This concern should diminish as cutblocks regenerate over the next 20 – 30 years. Meanwhile, predator and alternate prey populations should be monitored and managed when and where necessary.

Acknowledgements

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