

2016 Mountain Caribou Census
CENTRAL SELKIRK MOUNTAINS



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Forests, Lands and
Natural Resource Operations

Summary

A complete census of mountain caribou within their known range in the Central Selkirk Mountains was conducted between March 17 and March 19, 2016.

Thirty three adult caribou and two calves were located for a total of 35 caribou. The previous census (2015) reported 44 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 61% decline from 2012 and an 85% decline since comprehensive census work began in the mid 1990's. Calf recruitment was very low at 5.7%.

Causes of this recent decline are unknown. A mean calf recruitment rate of 12.1% since 1994 is within the 12 – 16% range generally thought to be required for a stable population. The decline in population suggests a large increase in adult mortality subsequent to 2012. Collaring a sample of the caribou to enable mortality notifications and immediate investigation of causes is recommended.

The large increase in forestry no harvest zones in the Central Selkirk Mountains in the past decade 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 significant 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. These caribou are often referred to as “mountain caribou” and were classified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Designatable Unit 9 (DU-9) Southern Mountain Caribou (COSEWIC 2014). 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 grouping 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 (DeGroot, 2014).

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). Fifteen 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 approximately 230 caribou in 1996 to 71 in 2007 and then increased into the 90’s for the 2008 – 2012 period. 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 in the Purcell Mountains 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 Coldstream Helicopters and expertly piloted by Guy Thibault. Observers were Ross Clarke, Thomas Hill, and Leo DeGroot.

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 this is difficult due to similarities between young males and adult females. 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. 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.

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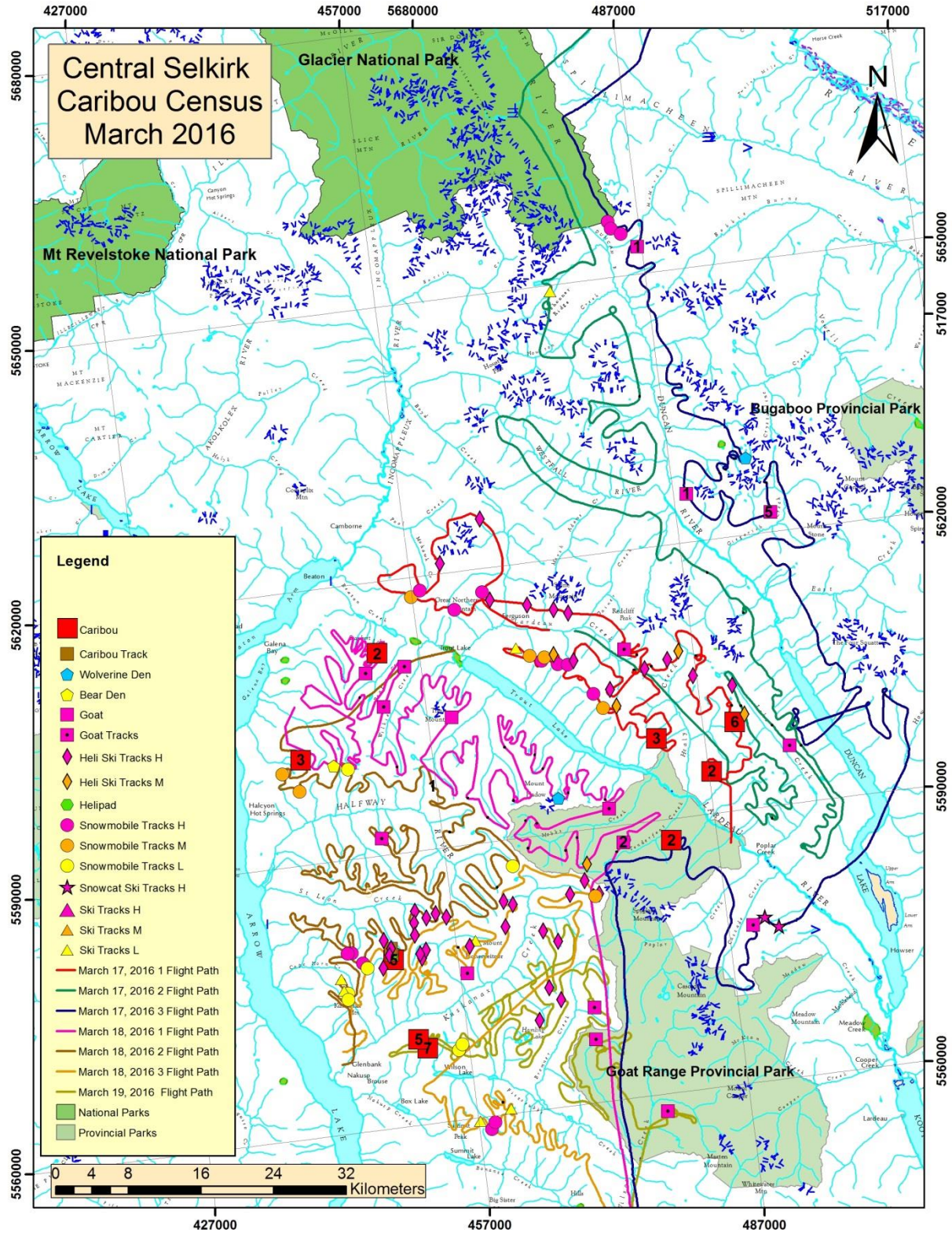


Figure 1. Flight lines, caribou sightings, and locations of snowmobile tracks, ski tracks, and tracks from other wildlife from the 2016 census. The groups of caribou are indicated by the red squares. The number of caribou in each group is indicated in the squares. Wolverine tracks were abundant; to avoid cluttering the map they are not displayed.

Results

The census was conducted March 17, 18, and 19, 2016. Weather and light conditions were excellent for the duration of the census. A total of 35 caribou were spotted which included 2 calves. Tracks not directly associated with caribou observations were not observed.

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

The flying time on March 17 was 7.5 hours of which 5.3 hours were on survey. The helicopter was refueled once at the CMH Galena Heli Ski Lodge and once at the Golden airport. On March 18 the flying time was 8.0 hours with 6.1 hours on survey. The helicopter was refueled once at the CMH Galena Heli Ski Lodge and once in Nakusp. The flying time on March 19 was 3.3 hours of which 2.1 hours were on survey. Total flying time was 18.8 hours of which 13.5 hours were on survey. Mean survey flying speed was approximately 145 km / hr.

Snow water equivalent at the nearest snow pillow sites, St. Leon Creek (1822 m elevation) and East Creek (2004 m elevation) were at 110% and 119% of the means respectively for those dates (BC Ministry of Environment, 2016).

The commercial heli ski operators were still active during the census, skier and helicopter observations, ski tracks, and helicopter landing pads were observed in many locations. Along the Gardner / St Leon divide heli ski tracks and caribou tracks were overlapping, whether they overlapped in time as well as space was not certain. Evidence of snowmobile activity was also locally abundant. One commercial cat ski operation was active; the other had finished operations for the season.

Recruitment

Two calves were identified. Recruitment is estimated to be 5.7% (2 of 35 animals.)

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Table 1. 2016 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-16	Skinner Cr.	2	0	2		487374	5594644	
17-Mar-16	Madden Cr.	6	0	6		490566	5599716	
17-Mar-16	Silvercup Ridge	3	0	3		481793	5599006	
17-Mar-16	Tenderfoot Cr.	2	0	2		481988	5587683	
18-Mar-16	Beaton Cr.	2	0	2		452419	5612207	
18-Mar-16	Halcyon Mtn.	2	1	3		442600	5601580	
18-Mar-16	Gardner Cr.	5	0	5		449971	5578457	
19-Mar-16	Kimbol Ridge South side	6	1	7		452487	5568335	
19-Mar-16	Kimbol Ridge North Side	5	0	5		451609	5569426	
Total		33	2	35	0			

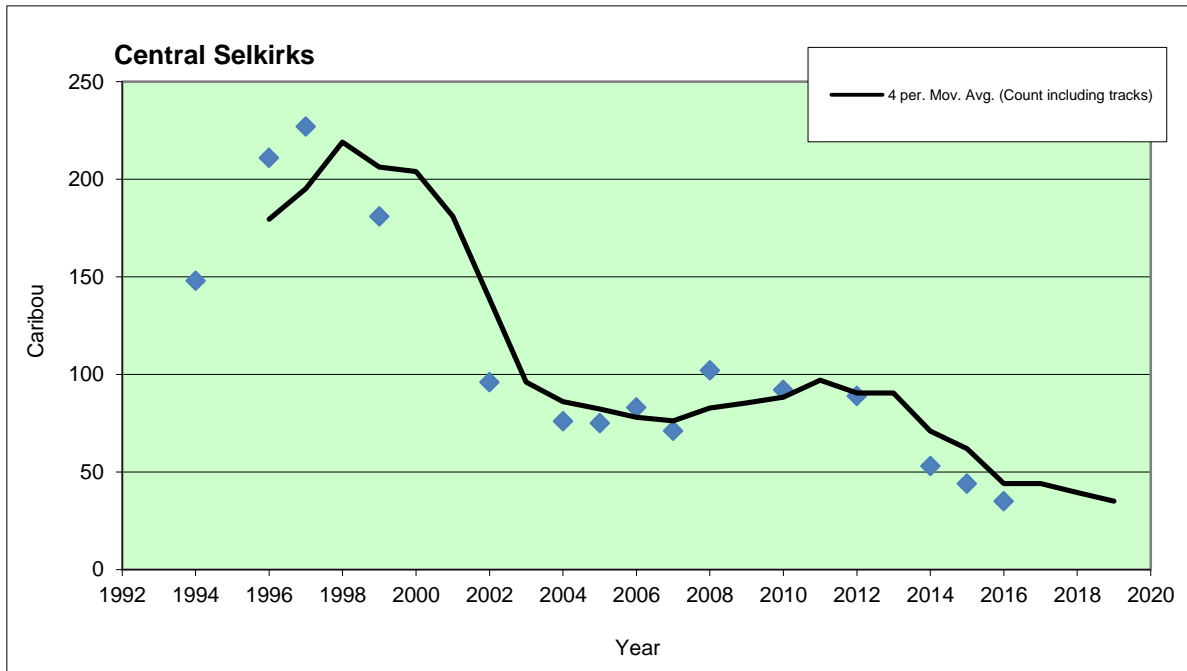


Figure 2. Central Selkirk census results from when census work began in 1994 to the present. Blue diamonds indicate the actual count plus an estimate of group size from tracks when caribou could not be found. The trendline is based on the count including tracks, each trendline point averaged over the previous four count 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 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 35 caribou is a 61% decline from the 89 - 92 caribou recorded in 2010 and 2012 (DeGroot, 2010) (DeGroot and Furk, 2012) and an 85% 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 5.7% is well below the suggested 12% - 16% recruitment that is required for a stable population (Bergerud, 1996). The mean calf recruitment since 1994 is 12.1%. Generally adequate calf recruitment and a declining population suggest high adult mortality. Installing collars on a sample of the caribou sub population to enable mortality notifications and immediate investigation into causes is recommended.

Displacement of caribou from preferred habitat by recreational disturbance has long been a concern in many areas. In particular, Ranch Ridge, 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. The Kimbol Lake area may be heading in the same direction; the last three years the groups appear to be in marginal habitat instead of more optimum habitat nearby. The caribou are still using what appears to be optimum habitat along the Gardner / St Leon divide, an area that experiences heavy use by a heli ski operator.

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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