

2017 Mountain Caribou Census
CENTRAL SELKIRK MOUNTAINS



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Forests, Lands and
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Summary

A complete census of mountain caribou within their known range in the Central Selkirk Mountains was conducted between February 23 and February 25, 2017.

Twenty seven adult caribou and two calves were located for a total of 29 caribou. The previous census (2016) reported 35 caribou and in 2012 there were 88-89 caribou.

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 67% decline from 2012 and an 87% decline since comprehensive census work began in the mid 1990's. Calf recruitment was very low at 6.9%.

Causes of this recent decline are unknown. A mean calf recruitment rate of 12.2% 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. Nine caribou were collared on March 17, 2017 to enable mortality notifications and immediate investigation of causes. Due to the collaring activity we were able to classify the adults with reasonable confidence. The results were 18 bulls to 9 cows, a very abnormal bull / cow ration.

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 radio collars from 1992 – 2003 (Hamilton, 2008). Sixteen 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 Jet Ranger owned by High Terrain Helicopters and expertly piloted by Ray Taylor. Observers were Dave Lewis, Thomas Hill, Leo DeGroot, and Marley Bassett.

When caribou tracks were observed they were followed until the animals were observed. 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. Normally classification is limited to adults vs calves however due to upcoming collaring plans we were able to use the photos to reasonably separate out bulls as well. 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 including wolverine and porcupine 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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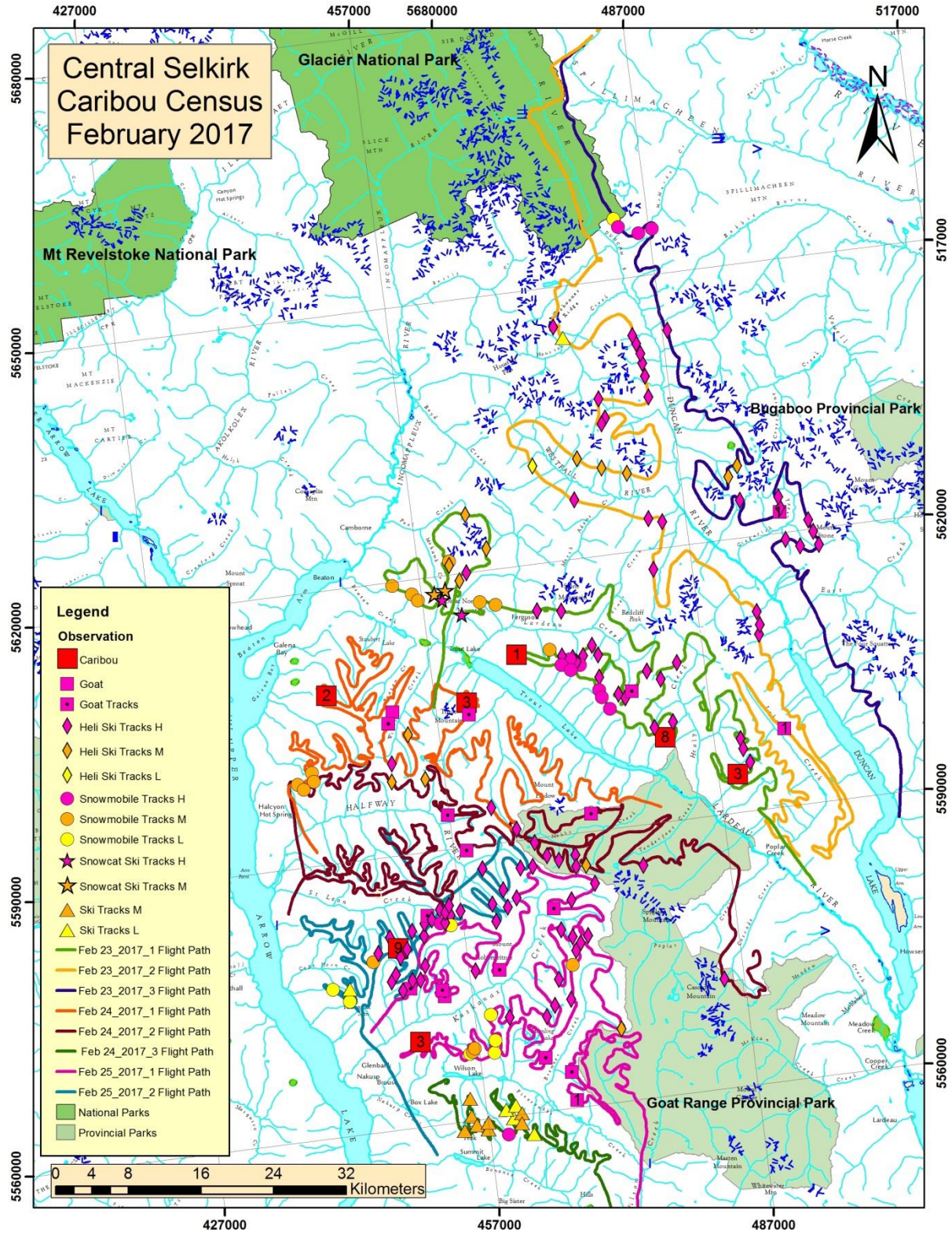


Figure 1. Flight lines, caribou sightings, and locations of snowmobile tracks, ski tracks, and tracks from other wildlife from the 2017 census. The groups of caribou are indicated by the red squares. The number of caribou in each group is indicated in the squares. Wolverine and porcupine tracks were abundant; to avoid cluttering the map they are not displayed. Regarding ski and snowmobile tracks, 1-5 tracks is classed as low, 6 – 10 as medium, and >10 as high.

Results

The census was conducted February 23, 24, and 25, 2017. Light conditions were threatening to deteriorate regularly on all three days. However in the end the lighting was sufficient and the confidence in the survey results was not compromised. Approximately 80 cm of snow fell during the week prior to the survey, sufficient to cover all older tracks. The snowfall ended approximately 48 hours prior to the commencement of the survey.

A total of 29 caribou were spotted which included 18 bulls, 9 cows, and 2 calves (Table 1). Tracks not directly associated with caribou observations were not observed.

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

The flying time on February 23 was 7.9 hours of which 5.1 hours were on survey. The helicopter was refueled once from barrels in Meadow Creek and once at the Golden airport. On February 24 the flying time was 8.1 hours with 5.75 hours on survey. The helicopter was refueled once at the Kaslo airport and once at a heli ski base in Nakusp. The flying time on February 25 was 5.75 hours of which 3.9 hours were on survey. The helicopter was refueled in Nakusp. Total flying time was 21.75 hours of which 14.75 hours were on survey. Mean survey flying speed was approximately 122 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 100% and 90% of the means respectively for those dates (BC Ministry of Environment, 2017).

The commercial heli and snowcat ski operators were very active during the census, skier and helicopter observations, snowcat tracks, 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 in multiple layers, whether they overlapped in time as well as space was not certain. Evidence of snowmobile and backcountry skiing activity was also locally abundant.

Recruitment

Two calves were identified. Recruitment is estimated to be 6.9% (2 of 29 animals.)

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Table 1. 2017 Central Selkirk caribou census results. Coordinates are given in UTM projection, Zone 11, NAD 83.

Date	Location	Caribou Sightings				Easting	Northing	Comments
		Cows	Bulls	Calves	Total Caribou Observed			
23-Feb-17	SilverCup Ridge	0	1	0	1	466645	5610388	
23-Feb-17	SilverCup Ridge	2	5	1	8	481742	5599293	
23-Feb-17	Skinner Creek	0	3	0	3	489160	5594268	
24-Feb-17	Beaton Creek	0	2	0	2	445266	5608530	
24-Feb-17	Lew Creek	3	0	0	3	460495	5605826	
25-Feb-17	Kimbol Lake	0	3	0	3	450741	5569378	
25-Feb-17	Gardner Cr.	4	4	1	9	449622	5579951	
Total		9	18	2	29			

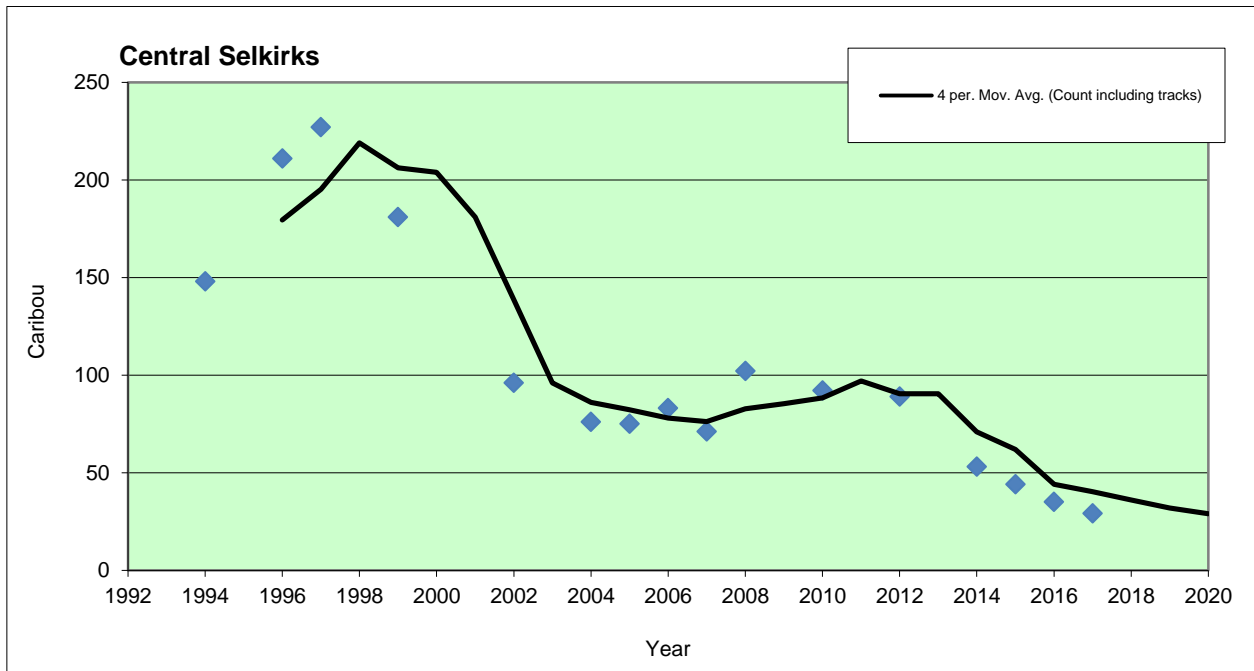


Figure 2. Central Selkirk census results from when census work began in 1994 to the present. Blue diamonds indicate the actual count plus an estimate of group size from tracks when caribou could not be found. The trendline is based on the count including tracks, each trendline point averaged over the 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. Sufficient visibility and snow conditions made it less

likely that caribou tracks on the flight routes were missed. Tracks from smaller animals such as porcupines 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 29 caribou is a 68% decline from the 92 caribou recorded in 2010 (DeGroot, 2010)) and an 87% 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 6.9% is well below the suggested 12% - 16% recruitment that is required for a stable population (Bergerud, 1996). The mean calf recruitment since 1994 is 12.2%. Generally adequate calf recruitment and a declining population suggest high adult mortality. Thirty one percent of the caribou (nine animals) were collared a few weeks after the census with the intention of determining causes of mortality.

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 / Hamling Lakes 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. Overlap of caribou and ski tracks is a regular occurrence in this area; separation should be a priority so that the caribou do not abandon this area as well.

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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