2018 Mountain Caribou Census

CENTRAL SELKIRK MOUNTAINS

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Summary

A complete census of the Central Selkirk caribou subpopulation was conducted on March 10, 11 and 12, 2018. The survey conditions were favorable with significant snowfall (approximately 50 cm) occurring the week prior which erased older tracks, followed by high pressure clear sky with no precipitation.

A total of 31 caribou were observed which included 27 adults and 4 calves. Despite the increase of 2 caribou from 2017 census the population is still down 66% from the 92 caribou recorded in 2010 (DeGroot, 2010) and an 84% decline over the past two decades.

Four calves were identified and recruitment is estimated to be 12.9% (4 of 31 animals.) Calf recruitment at 12.9% is within the suggested 12% - 16% recruitment required for a stable population (Bergerud, 1996). However, the five year average has been below the Berguerd suggested levels for stability at 10.5% recruitment.

Reasons for the declining population is unknown however known threats to caribou recovery do exist within this subpopulation. Most noticeable during our census is the high levels of commercial heli ski activity which overlaps the entire caribou core habitat. Active ski runs, landing areas, and helicopters over flights are abundant. Snowmobile use is also widespread across the Central Selkirk range. In addition to disturbance from recreation, predation may be a concern with 2 cougar predation events on collard caribou have been documented since March 2017.

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). Seventeen 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 Kootenay Valley Helicopters and expertly piloted by Jeff Parker. Observers were Dave Lewis, Thomas Hill and Aaron Reid.

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. For this report classification is reported to adults and calves. Caribou tracks were only recorded if the caribou that made the tracks were not observed 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 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.

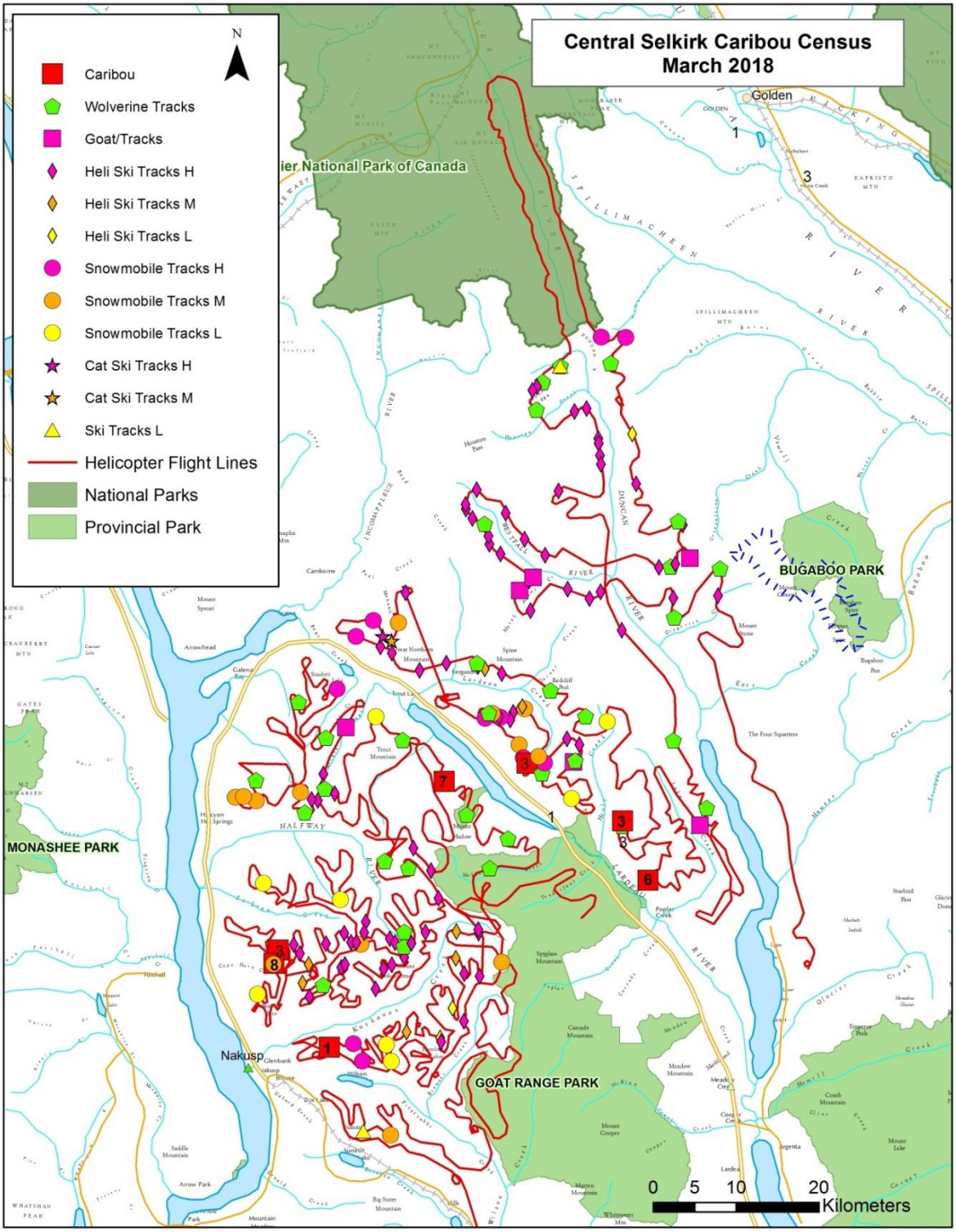

Figure 1. Flight lines, caribou sightings, and locations of snowmobile tracks, ski tracks, and tracks from other wildlife from the 2018 census. The groups of caribou are indicated by the red squares. The number of caribou in each group is indicated in the squares. Regarding ski and snowmobile tracks, 1-5 tracks is classed as low, 6 – 10 as medium, and >10 as high.

Results

The census was conducted March 10, 11 and 12, 2018. The survey conditions were favorable with significant snowfall (approximately 50cm) occurring the week prior which erased old tracks, followed by high pressure clear sky with no precipitation.

A total of 31 caribou were spotted which included 27 adults and 4 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.

On March 10, the total flying time was 5.2 hours which included a ferry from Nelson and a refuel in Nakusp. On March 11, the total flying time was 7.2 hours which included a refueling in Golden and CMH Galena. On March 12 the flying time was 5.7 hours and included refueling in Nakusp. The total flying time was 18.1 hours with 14.0 survey hours.

Snow water equivalent at the nearest snow pillow sites, St. Leon Creek (1822 m elevation) and East Creek (2004 m elevation) were at 129% and 118% of the means respectively for those dates (BC Ministry of Environment, 2018).

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. Evidence of snowmobile and backcountry skiing activity was also locally abundant (Figure 1). Within a 4 day window post snowfall observers collected 89 waypoints of heli ski runs and 32 waypoints of snowmobile tracks along the survey route.

Recruitment

Four calves were identified and recruitment is estimated to be 12.9% (4 of 31 animals.)

Table 1. 2018 Central Selkirk caribou census results. Coordinates are given in UTM projection, Zone 11, NAD 83.

Date	Location	Caribou Observations			Easting	Northing
		Adult	Calves	Total		
10-Mar-18	Kuskanax Creek	1	0	1	451802	5569266
11-Mar-18	Mt Johnston	5	1	6	490204	5589401
11-Mar-18	Healy Creek	3	0	3	487160	5596595
11-Mar-18	Silvercup Ridge	3	0	3	475625	5603533
12-Mar-18	Lew Creek	6	1	7	455614	5601349
12-Mar-18	St Leon Creek	3	0	3	445607	5580992
12-Mar-18	Cape Horn Creek	6	2	8	445106	5579394

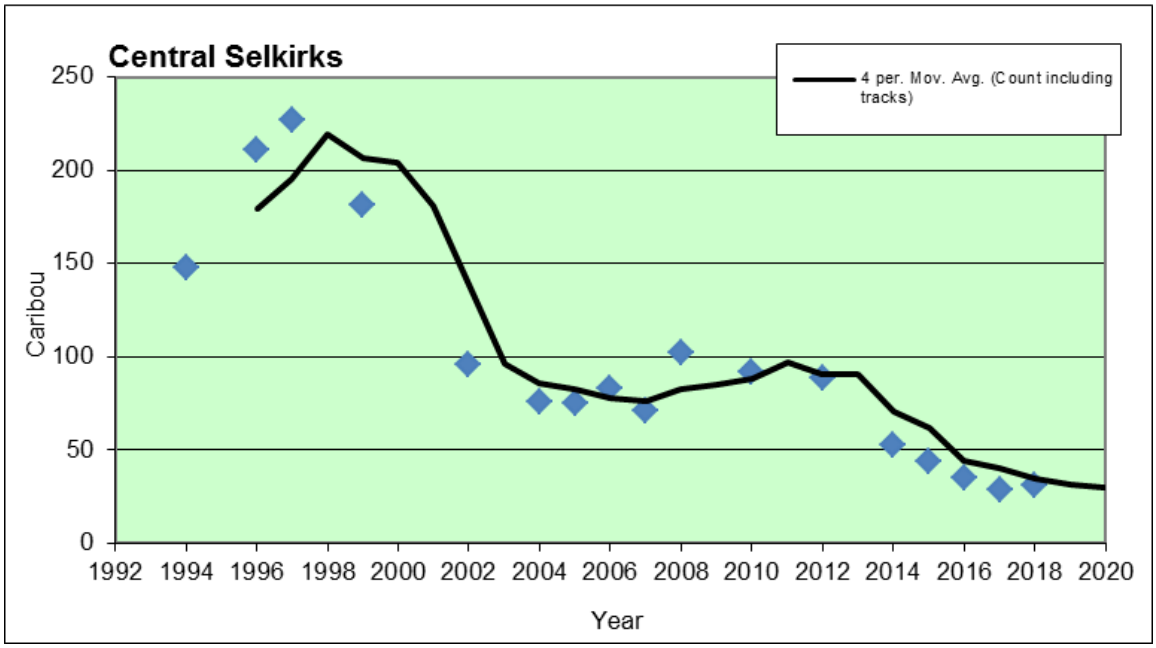

Figure 2. Central Selkirk census results from when census work began in 1994 to the present. Blue diamonds indicate the actual count plus an estimate of group size from tracks when caribou could not be found. The trendline is based on the count including tracks, each trendline point averaged over the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

Discussion

All collared caribou were observed (n=8) during the survey, suggesting 100% sightability. However, 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.

Despite the increase of 2 caribou from 2017 census the population is still down 66% from the 92 caribou recorded in 2010 (DeGroot, 2010) and an 84% decline over the past two decades.

Calf recruitment at 12.9% is within the suggested 12% - 16% recruitment required for a stable population (Bergerud, 1996). The five year average has been below Berguerd suggested levels for stability at 10.5% recruitment. In March 2017, after the 2017 census, 9 caribou were collared to monitor adult survival. Since the collars were deployed we investigated 2 cougar predation events on cows in summer of 2017 and 2018. In one case a month old calf was also found at the kill location.

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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