

# **2020 Mountain Caribou Monitoring Report**

## **CENTRAL SELKIRK MOUNTAINS**



**February-March 2020**

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## **Summary**

The 2020 census was impacted by the arrival of the global pandemic COVID-19. The census was started but was interrupted by weather and then cancelled with the arrival of COVID-19 restrictions. This monitoring report combines data from a partial census completed on March 9, 2020 and observations from collar deployment on February 10, 2020. Based on these data we can report a minimum known number of caribou alive in the population.

On February 10, 2020, 7 cows of the Central Selkirk population were captured and GPS collared. Including the collars deployed in March 2017, there are now 9 active GPS collared cows in the population. This represents greater than 50% of the total cows in the Central Selkirk herd. The collars are distributed proportionally across the known wintering areas.

Current telemetry data from the Central Selkirk herd suggests that during winter caribou on the west side of the Lardeau River are geographically separated from caribou on the east side of the Lardeau River. Therefore, we can combine data collected from the March partial census, where caribou were observed on the east side, and data collected from the February capture, where caribou were counted on the west side, without the risk of double counting animals. The partial census observation of 12 caribou and capture observation of 14 caribou suggest a minimum of 26 caribou remain the Central Selkirk herd as of March, 2020. This count is up 1 caribou from the 24 caribou and 1 track counted in 2019 (Reid 2019).

## **Introduction**

Woodland caribou (*Rangifer tarandus caribou*) in southeastern British Columbia 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 are using the term “Central Selkirks” for the sub population without division into the Duncan and Nakusp blocks (DeGroot, 2014). The last observed caribou during census in the Duncan River Valley was 2015, since that time 4 subsequent censuses have been completed (2016-2019). With 4 consecutive years of no caribou detections in the Duncan Valley, we now consider this portion of the Central Selkirks extirpated and did not include this area in the 2020 census.

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). Additional collaring began in March 2017 when 9 GPS collars were deployed with an additional 7 GPS collars in February 2020. Nineteen censuses have been conducted over the past 22 years, all in late winter when the caribou are consistently in the open forest at high elevations. The sub population declined from approximately 222 caribou in 1996 to 71 in 2007 and then increased into the 90’s for the 2008 – 2012 period. Numbers have been declining since.

The 2020 census was impacted by the arrival of the global pandemic COVID-19. The census was started but interrupted by weather and then cancelled with the arrival of COVID-19 restrictions. This monitoring report will combine results from the partial census on March 9, 2020 and observations during collar deployment on February 10, 2020. Based on these data we can report a minimum known number of caribou alive in the population.

## **Study Area**

The study area boundaries are described as the area bordered to the west by Upper Arrow Lake; to the east by Kootenay Lake and the watersheds that feed the Lardeau River; to the south by the Nakusp – New Denver – Kaslo highway; and extending north to the Burton Arm of Arrow Lake (Figure 1).

## **Methods**

For the census portion of this report 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.

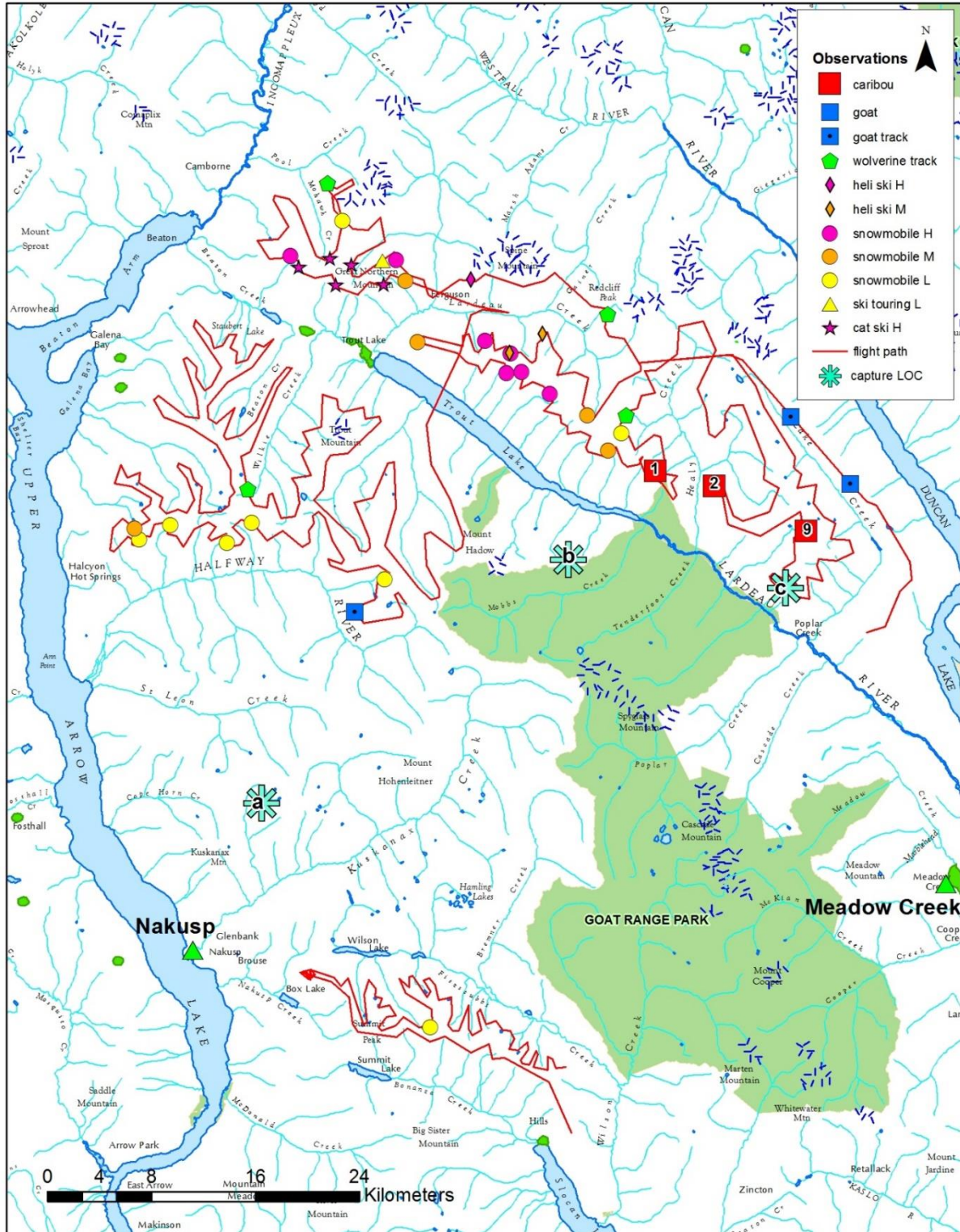
The helicopter was a 206B Jet Ranger owned by High Terrain Helicopters and expertly piloted by Roman Sookorukoff. Observers were Dave Lewis, Thomas Hill and Aaron Reid.

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.

The second portion on this count was derived by observations or total group counts during helicopter capture to deploy GPS collars. During that process helicopter capture crew obtained a total count from each caribou group that was encountered. For this monitoring report capture observations are used to derive counts from areas not censused.

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**Figure 1.** 2020 partial census flight lines, caribou sightings and locations of snowmobile tracks, ski tracks, and tracks from other wildlife. The groups of caribou observed are indicated by the red squares. The number of caribou in each group is indicated in the squares. 2020 caribou capture locations, turquoise asterix, labeled with a letter (a,b,c) noting the three locations caribou were captured. Regarding ski and snowmobile tracks, 1-5 tracks is classed as low, 6 – 10 as medium, and >10 as high.

## **Results**

The partial census was conducted March 9, 2020. The survey conditions were favorable with significant snowfall occurring 24 hours prior erasing old tracks, followed by high pressure clear skies. Isolated snowfall did occur the afternoon before the census in some areas. We surveyed areas with lower likelihood of encountering caribou in the morning followed by areas with known caribou presence in the afternoon, to allow for more time to track set. This was a precautionary approach to increase track sightability.

Snow water equivalent at the nearest snow pillow sites from St. Leon Creek (1822 m elevation) and East Creek (2004 m elevation), were at 135% of the historic mean for early-March (BC Ministry of Environment, 2019).

A total of 12 caribou were observed which included 11 adults and 1 calf (Table 1). The total flying time including ferry on March 9, 2020 was 6.4 hours with 5.2 hours of survey time.

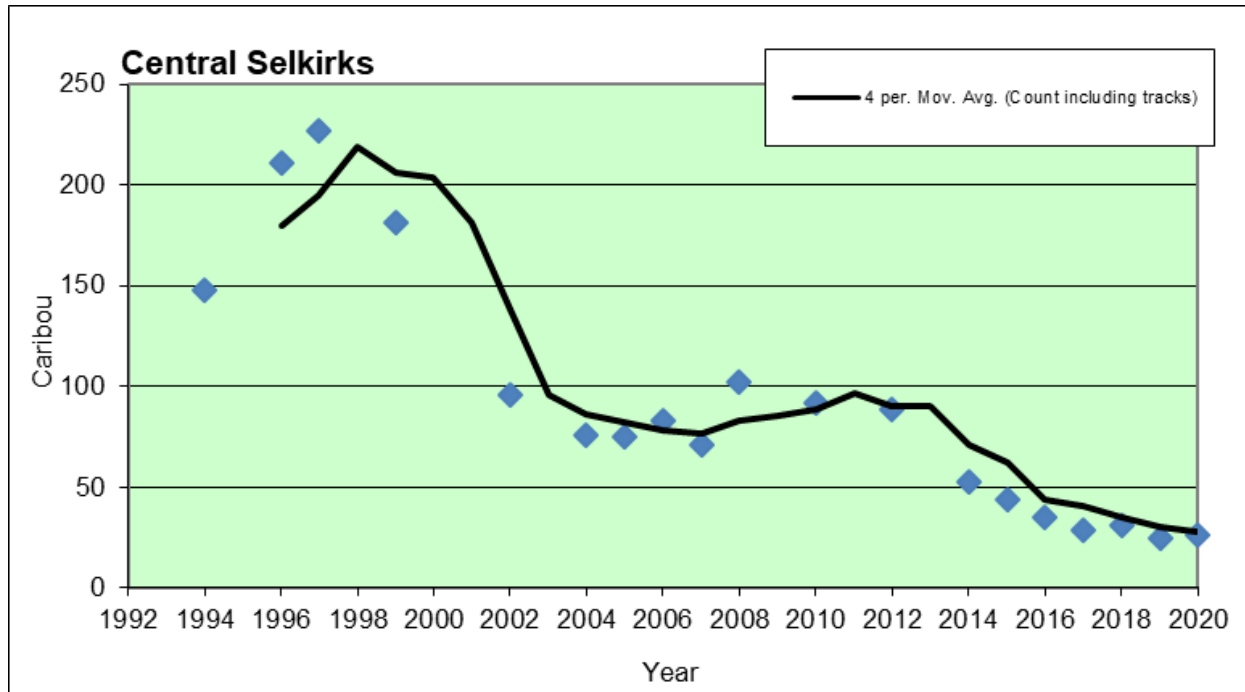
On February 10, 2020, 7 cows of the Central Selkirk population were captured and GPS collared. Including the collars deployed in March 2017, there are now 9 active GPS collared cows in the population. This represents greater than 50% of the total cows' in the Central Selkirk herd. The collars are distributed proportionally across the known wintering areas.

The capture efforts were focused on the caribou wintering in Gardner Creek, Craig Creek and Hope Creek. During capture, 9 caribou in Gardner Creek, 5 in Craig Creek and 9 in Hope Creek, were observed. Active GPS collars have been in the population since March 2017. The telemetry data suggests that these groups do not interact during winter. Therefore, we can assume that caribou observed during capture in Gardner (Figure 1, capture location a) and Craig Creek (Figure 1, capture location b) have not mixed with caribou in Hope Creek (Figure 1, capture location c) on the east side of the Lardeau River. Consequently, a minimum known number of caribou alive can be derived by adding capture observations from Gardner and Craig Creeks on February 10, 2020 to the 12 caribou observed during partial census on the east side of the Lardeau River on March 9, 2020. The total minimum known number of caribou alive in 2020 is 26. This number is one more than the 24 caribou and 1 track counted in 2019 (Reid 2019).

During the partial census, we collected data on winter recreation activities. Evidence of snowmobile, cat skiing and backcountry skiing was locally abundant (Figure 1). On the day of the survey, the commercial heli-ski company was quiet as it was client change over day.

**Table 1.** 2020 Central Selkirk caribou capture and partial census observations. Coordinates are given in UTM projection, Zone 11, NAD 83.

Date	Observation	Location	Caribou Observations				Easting	Northing
			Adult	Calves	UnClass	Total		
10-Feb-20	Capture	Gardner Creek			9	9	445618	5577801
10-Feb-20	Capture	Craig Creek			5	5	474944	5592871
10-Feb-20	Capture	Hope Creek			9	9	490035	5588050
09-Mar-20	Census	Healy Creek	1			1	482020	5598915
09-Mar-20	Census	Hope Creek	8	1		9	492976	5592853
09-Mar-20	Census	Skinner Creek	2			2	486403	5597206



**Figure 2.** Central Selkirk census results from 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. The 2020 observations from capture and partial census were combined to obtain a minimum known number alive.

## Discussion

This monitoring report differs from past census reports, by combining data from a partial census and observations during the caribou capture over winter 2019/2020. The census was interrupted by weather and then eventually cancelled due to the arrival of the global pandemic COVID-19. Fortunately, we deployed 7 collars on February 10, 2020 which allowed us to collect total counts from the groups observed. Observations from the capture can be combined with the partial census observations to determine minimum number known of caribou alive in the Central Selkirks. Collar data suggest that there is no movement between these groups in winter and thus they are spatially separated allowing us to combine counts from two different time periods without the risk of double counting animals.

Survey conditions and sightability during the partial census were excellent. All collared caribou in the area censused were observed (n=3) suggesting 100% sightability. However, caribou could have been missed on the flight routes or were using areas not surveyed. As per previous surveys, every drainage either used by radio collared caribou or detected on other census flights during the late winter season, were surveyed. Periphery areas were not surveyed.

The long term population trend in the Central Selkirks has been declining with minimum counts now 88% fewer than those counted in 1997 (222 – 26). Anecdotally, recruitment is higher in 2019/2020 based on calves observed during capture. However, these values are not being reported here due to limitations in the observation data. Recent recruitment in the herd has been well below the suggested 12% - 16% required for a stable population (Bergeurd, 1996). In 2019 census, recruitment was only 4% and the 5 year average is 8.2%.

Multiple caribou recovery measures have been implemented over the past year in the Central Selkirks. It was recognized that, without immediate management intervention, extirpation of the Central Selkirks caribou was imminent. Predator control started in February 2020 to minimize adult and calf mortality. A total of 20 wolves were removed during an aerial removal program and 7 cougar from ground based program. These programs will continue over winter 2020/2021.

To address disturbance from winter recreation, a new Wildlife Act snowmobile closure was implemented. The new closure had significant consultation and collaboration from local snowmobile clubs. An innovative approach was created to allow more flexibility in legally closed areas. The new measures allowed boundaries to change as caribou moved across the landscape during winter. Measures were also taken to mitigate encounters and overflights of caribou during helicopter skiing activities using a similar technology as the snowmobile closures. The helicopter skiing sector has agreed to avoid flights within a 4 km diameter buffer based on collar locations. The methods use a web application tailored to each sector to inform spatial restrictions. The restrictions are revised daily using current GPS collar locations to dictate live time avoidance measures. The restrictions are a legal requirement for the snowmobile sector and at voluntary for the helicopter skiing sector.

## **Acknowledgements**

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