

2012 Mountain Caribou Census
CENTRAL SELKIRK MOUNTAINS



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Summary

A complete census of the two sub populations of mountain caribou within their known range in the Central Selkirk Mountains was conducted March 23-24, 2012.

In the Nakusp sub population 76 adult caribou and 9 calves were located for a total of 85 caribou. In addition there was one occasion where tracks were spotted but caribou could not be found. These tracks should account for 1-2 caribou. This would put the Nakusp block at 86 - 87 caribou. The previous census (2010) reported 82-85 caribou based on the count and tracks where caribou could not be found.

In the Duncan sub population we spotted 2 caribou, none of which were calves. No other caribou tracks were found. This is down from 7 in 2010.

The total of 88 – 89 caribou suggests a relatively stable population since 2002, but at approximately one half of the numbers reported between 1996 and 1999. Calf recruitment, combined over the two sub populations, was 10.3% below the 12 – 16% range generally thought to be required for a stable population.

The large increase in forestry no harvest zones in the Central Selkirk Mountains in the past few years should significantly increase the probability that these caribou sub populations 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 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'. 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 threatened under the Federal Species at Risk Act 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. The

mountain caribou population has since been divided into 18 sub populations (Wittmer et. al., 2005). The Central Selkirk sub population was divided into the Nakusp and Duncan sub populations based on telemetry data. Telemetry data suggests that there is very little movement of caribou between the Nakusp and Duncan sub populations (Hamilton and Wilson, 2003).

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). Twelve censuses have been conducted in both sub populations over the past 18 years, all in late winter when the caribou are consistently in the open forest at high elevations. The Nakusp sub population declined from an estimate of 211 caribou in 1997 to an estimate of 76 in 2007 and then increased to an estimate of 87 in the 2008 census. The Duncan sub population declined from an estimate of 26 to 9 in the same time period then increased to an estimate of 15 in 2008.

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 Summit Lake, 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 Highland Helicopters and piloted by Steve Goodliffe. Observers were Kelsey Furk, Paul Seaton, and Terry Anderson.

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 and a Canon 5D mark II with a 80-400 mm telephoto. 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 could not be found. 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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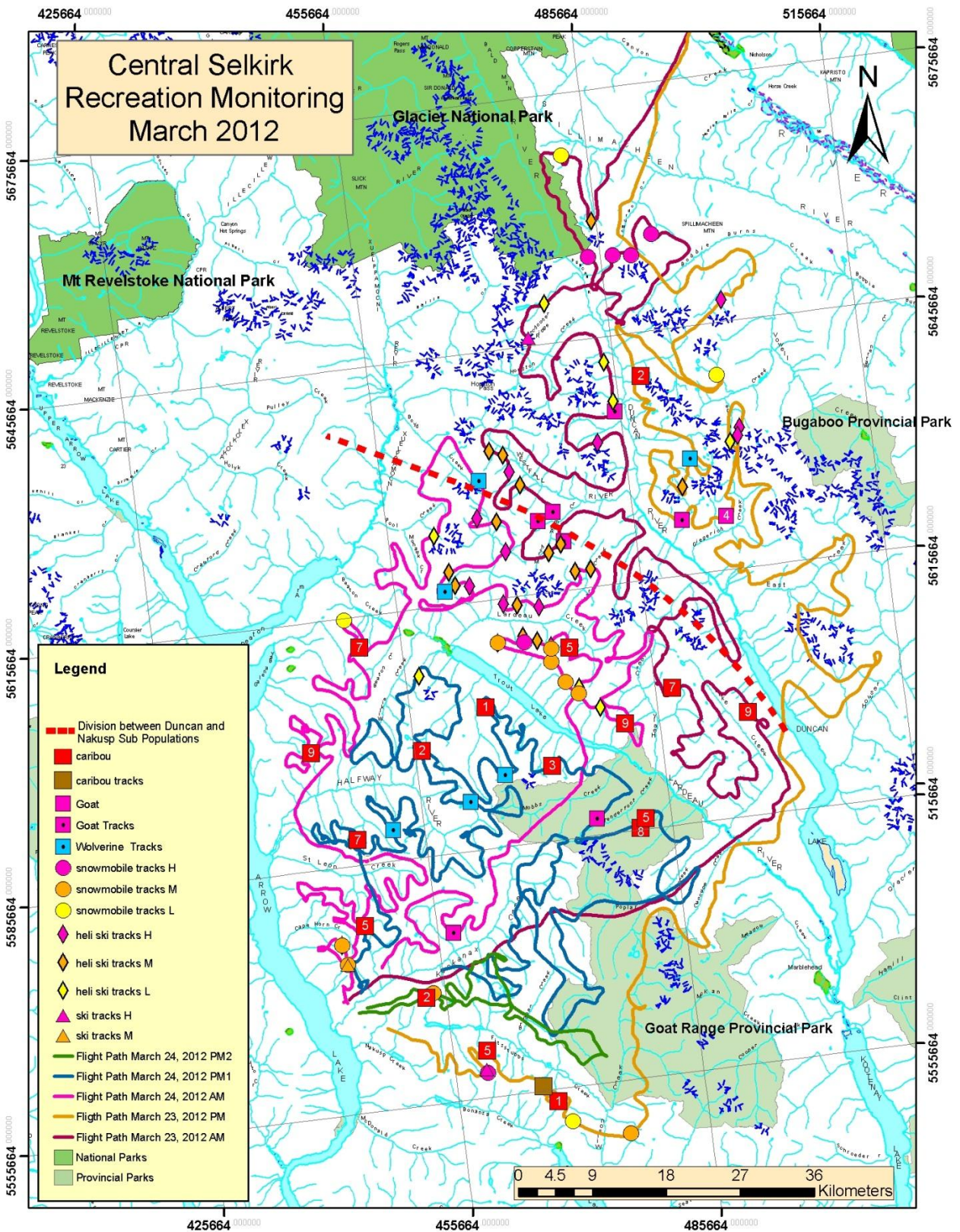


Figure 1. Flight lines, caribou sightings, other wildlife sightings and locations of snowmobile and ski tracks from the 2012 census. The groups of caribou are indicated by the red squares. The number of caribou in each group is indicated in the squares.

Results

A total of 85 caribou were spotted in the Nakusp block, which included 9 calves. In addition tracks from 1-2 caribou were observed but caribou associated with these tracks could not be found. This would put the population for the Nakusp block at 86 - 87 caribou.

In the Duncan block 2 caribou were found, none of which were calves. No other caribou tracks were found.

The census was conducted March 23 and 24, 2012. During this time the weather was clear and calm except for some high cloud the afternoon of March 24 and a short duration of diminished light quality in the mid afternoon. Temperatures at 2000 meters elevation ranged from -2 to -6 degrees Celsius. Approximately 6 cm of snow fell on March 22 allowing separation of tracks formed before and after that date.

The helicopter was stationed in Nakusp for the survey. The flying time on March 23 was 6.9 hours of which 5.9 hours were on survey. The helicopter was refueled once in Golden. On March 24 the flying time was 8.1 hours with 7.4 hours on survey. The helicopter was refueled twice in Nakusp.

As the temperatures remained below 0° Celsius for the duration of the census the new snow remained in the trees resulting in a smooth snow surface and excellent track sighting conditions. Snow water equivalent at the nearest snow pillow sites, St. Leon Creek (1822 m elevation) and East Creek (2004 m elevation) were at 113% and 112% of the means respectively for those dates (BC Ministry of Environment, 2012). Snow depth at the Mt Fidelity snow survey location in Glacier National Park was at 133% of the mean (Parks Canada, 2012).

There was some evidence of slab avalanche activity likely from a natural avalanche cycle on March 16th and 17th. The danger rating for the Columbia South Region on March 23rd was considerable at treeline with alpine windslabs becoming less reactive but a continued concern for infrequent, large deep avalanches on a persistent weak layer (Canadian Avalanche Centre). Snowmobile and heli-ski activity were abundant in many areas.

Recruitment

Nine calves were identified. Recruitment is estimated to be 10.3% (9 of 87 animals) overall and 10.5% (9 of 85 animals) in the Nakusp block.

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Table 1. 2012 Nakusp block winter 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 Sightings				
23-Mar-12	Pudding Bowl Creek	8	1	9		496563	5598196	
23-Mar-12	Madden Creek	6	1	7		487751	5602319	
23-Mar-12	Ranch Ridge	1	0	1		467645	5554182	
23-Mar-12	Ranch Ridge	0	0	0	2	466107	5556214	
23-Mar-12	Ranch Ridge - N end.	5	0	5		459840	5561360	
24-Mar-12	Naciliwaet	8	1	9		443168	5599953	
24-Mar-12	Marlow Creek	6	1	7		450588	5611928	
24-Mar-12	Silvercup - S end at Healy Crk.	7	2	9		481533	5598691	
24-Mar-12	Triune Crk.	3	2	5		475956	5608682	
24-Mar-12	Gardner Crk.	5	0	5		446995	5578290	
24-Mar-12	Deep Crk.	7	0	7		447455	5588759	
24-Mar-12	Asher Crk.	2	0	2		456542	5598526	
24-Mar-12	Asher Crk.	1	0	1		464958	5602805	
24-Mar-12	Abrahamson	3	0	3		472061	5594746	
24-Mar-12	Rusty Crk.	8	0	8		481787	5585855	
24-Mar-12	Rusty Crk.	4	1	5		482582	5586980	
24-Mar-12	Kimble Crk.	2	0	2		453311	5568723	
Total		76	9	85	2			

Table 2. 2012 Duncan block winter census results. Coordinates are given in UTM projection, Zone 11, NAD 83. Adults are considered to be older than twelve months of age, calves less than twelve months.

Date	Location	Caribou Sightings			# Caribou based on tracks only	Easting	Northing	Comments
		Unclassified Adult Caribou	Calves	Total Caribou				
23-Mar-12	Hatteras Crk.	2	0	2		488780	5640354	
Total		2	0	2	0			

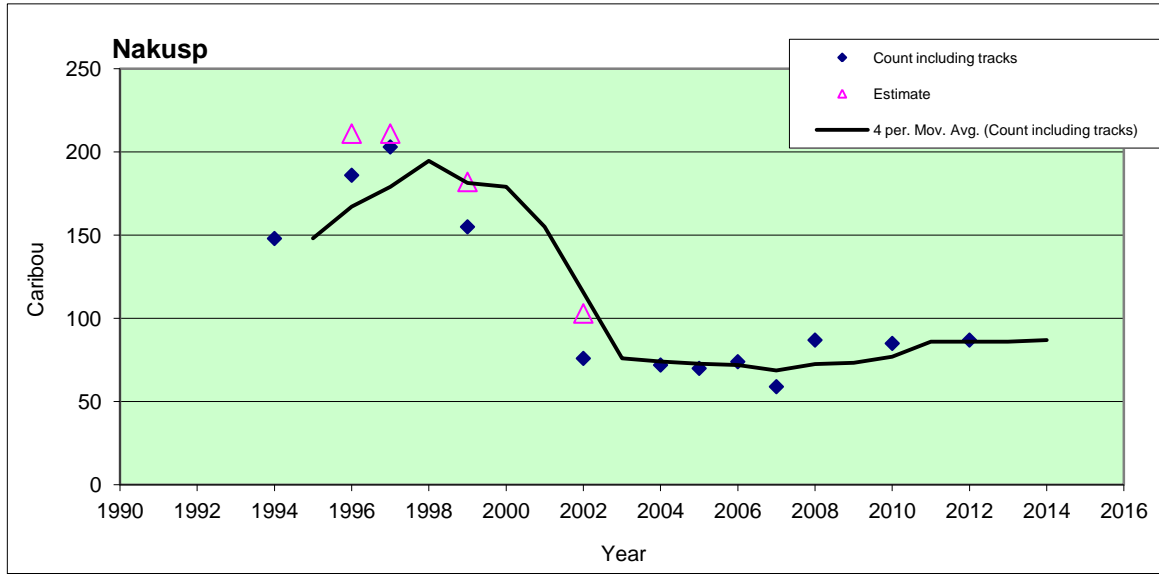


Figure 2. Nakusp sub population numbers from when census work began in 1996 to the present. Sufficient numbers of radio collared caribou from 1996 to 2002 allowed population estimates based on sightability. Blue triangles indicate the actual count plus an estimate of group size from tracks when caribou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

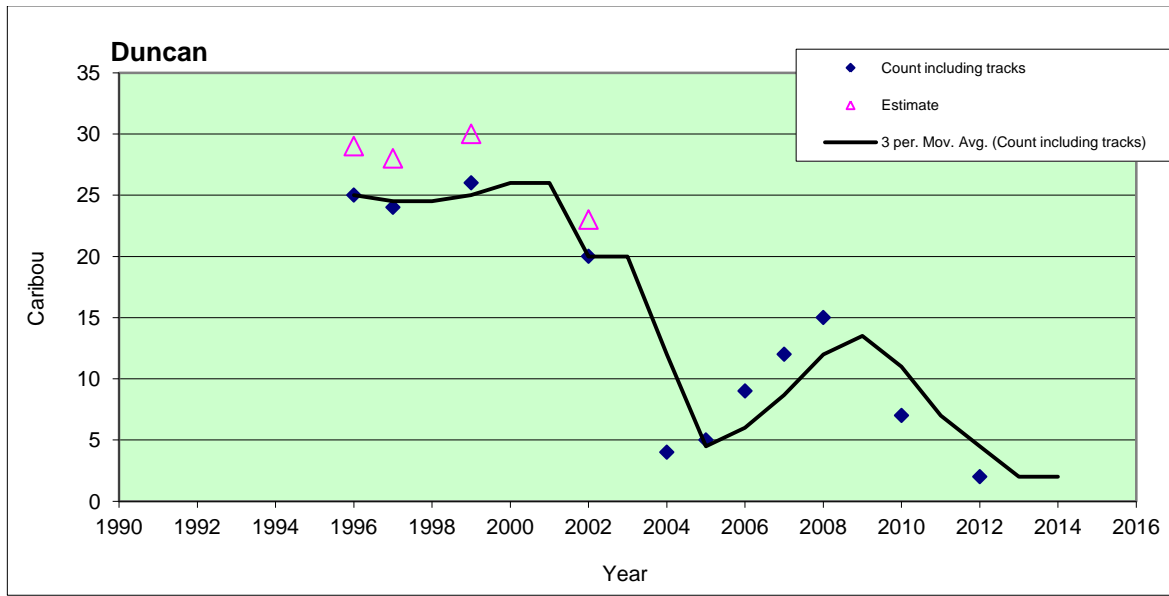


Figure 3. Duncan sub population numbers from when census work began in 1996 to the present. Sufficient numbers of radio collared caribou from 1996 to 2002 allowed population estimates based on sightability. Blue triangles indicate the actual count plus an estimate of group size from tracks when caribou 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. Excellent 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.

In the Nakusp sub population the estimate of 86 - 87 caribou is similar to the estimate of 82-85 from the previous census (DeGroot, 2010) and indicates a stable population subsequent to the large decline that took place between 1998 and 2002. There is the chance that a group could have been missed but with the consistent number from the last census and the fact that all groups reported by heliski operators in the area were found, we are fairly confident in the result. A notable observation was the steep and avalanche prone terrain that one group was found in (see report cover photo). A telephoto lens was used to count these animals from a distance, in order to minimize the chance of triggering an avalanche.

The result of one group of 2 caribou in the Duncan sub population is down from one group of 7 in 2010 (DeGroot, 2010) and four groups and an estimate of 15 in 2008 (Hamilton, 2008). However telemetry records show caribou occasionally using much lower elevations near the end of March and into early April in this area. There is a chance that a group of caribou had moved to lower elevations prior to our survey and were missed. Due to the low sightability in dense forest and likelihood of confusion with moose tracks, the lower elevations were not surveyed.

Calf recruitment in the Nakusp sub population at 10.5% is the lowest since 1999 and lower than the suggested 12% - 16% recruitment that is required for a stable population (Bergerud, 1996). The mean since 1994 is 14.1%. Calves have not been observed in the Duncan sub population since 2007.

Displacement of caribou from preferred habitat by recreational disturbance is a concern in many areas. In particular, the Great Northern Mountain / Mohawk Creek area, the majority of Silvercup Ridge, and the Silent Pass area in the Duncan block. 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 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

This census was funded by Parks Canada and the BC Ministry of Forests, Lands, and Natural Resource Operations. Observers were Kelsey Furk, Paul Seaton, and Terry Anderson. Steve Goodliffe was the pilot.

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