2016

BC Boreal Caribou Implementation Plan:

Mortality Investigation Summary Report No. 27: January-March 2016

Diversified Environmental Services
Fort St. John, BC

EXECUTIVE SUMMARY

As a component of the *British Columbia Boreal Caribou Implementation Plan* (BCIP), 240 individual boreal caribou (hereafter, *SCEK* caribou) were radio-collared in British Columbia's boreal caribou ranges between December 2012 and March 2016. The fate of these animals, as well as boreal caribou previously collared by the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO), is monitored monthly to track adult survival and collect information on causes of caribou mortality. This summary report (#27) provides details of mortality events detected and investigated between January 1 and March 31, 2016.

No caribou mortalities were detected in January or February 2016. One caribou mortality was detected during the March 2016 recruitment survey. SCEK078 (Lotek VHF) was killed by wolves in relatively intact mixedwood habitat in the Fortune Core of the Maxhamish Range.

Ninety-one radio-collared boreal caribou (84 SCEK, 7 MFLNRO) died between the commencement of BCIP monitoring in December 2012 and the end of March 2016. Sixty-one caribou mortalities were confirmed wolf kills, with an additional 7 cases of suspected wolf predation, 3 cases of wolverine predation, 4 non-predation deaths related to condition, and one accidental death. One caribou was shot. Cause of death for the remaining 14 animals could not be determined.

A total of 23 wolf collar frequencies were scanned periodically throughout the January-March 2016 monitoring period; 1 wolf mortality (BW032; Petitot Pack) was detected. Cause of death could not be confirmed, however conspecific mortality is suspected.

BACKGROUND

Between December 2012 and March 2013, 164 adult female caribou were radio-collared in British Columbia's boreal caribou ranges as part of the BCIP. To maintain a consistent sample size over the course of the multi-year project, additional collars were deployed during the

winters of 2013-2014, 2014-2015, and 2015-2016. A total of 240 individual caribou (239F, 1M[1]) were collared between December 2012 and March 2016. Caribou collaring and monitoring activities were administered and funded through the BC Oil and Gas Research and Innovation Society (OGRIS; *formerly the* Science and Community Environmental Knowledge Fund (SCEK)).

The fate of all SCEK caribou, as well as boreal caribou previously collared by MFLNRO, was monitored using a combination of mortality notifications from transmitted GPS/satellite data and monthly fixed-wing telemetry flights. Upon detection of a suspected mortality event, a ground-based mortality investigation was conducted to determine the cause of death, collect biological samples, and recover the radio-collar.

In addition, active caribou and wolf collars from other programs known to be present within BC boreal caribou ranges were also monitored for approximate location and mortality status during the monthly telemetry flights. These included caribou and wolf collars deployed by MFLNRO and associated research projects, as well as radio-collared caribou that entered BC's boreal caribou ranges from adjacent jurisdictions.

Information on adult female caribou mortality and survival was used in conjunction with annual calf recruitment surveys to assess population trend. Biological samples collected from mortality investigation sites support associated research on boreal caribou health in British Columbia.

METHODS

Mortality sites were accessed by helicopter from the Fort St. John airport for the Milligan and Etthithun cores of the Chinchaga Range and from the Fort Nelson airport for the Chinchaga RRA and all other ranges and cores.

Information recorded during mortality site investigations included: animal ID, collar frequency, collar condition, GPS coordinates, photodocumentation, condition of remains, confirmed or suspected cause of death, habitat type and extent of habitat disturbance in the vicinity. Where

[1] Male caribou BC1037 was collared by MFLNRO in March 2010, then recaptured and fitted with a GPS collar (ID: SCEK173) in March 2014.

available, biological samples were collected, including caribou remains (tissue, bone, hair, rumen, etc.) and parasites, as well as predator and scavenger fecal samples. Mortality investigation numbers were assigned sequentially, based on the date of detection.

RESULTS

A total of 154 boreal caribou collar frequencies (1 ATS Iridium GPS, 10 Lotek LifeCycle GPS, 76 Vectronic Vertex GPS, and 67 Lotek VHF) were scanned during associated field activities conducted within BC's boreal caribou ranges between January 1 and March 31, 2016, including caribou, moose, and wolf capture, as well as during the March 14-30 caribou recruitment survey. No caribou mortalities were detected in January or February, and 1 mortality was detected in March (Table 1).

The VHF signal of SCEK078 (Lotek VHF) had not been heard since December 2015; a mortality signal was detected on March 29, 2016, during the late winter recruitment survey of the Maxhamish Range (Appendix I). The caribou was killed by wolves in relatively intact mixedwood habitat in the Fortune Core.

A total of 23 wolf collar frequencies were scanned periodically throughout the January-March monitoring period, with 1 wolf mortality detected. The Lotek VHF collar of Petitot Pack female BW032 was heard transmitting a mortality signal during the March 30 caribou recruitment survey. The carcass had been consumed, with only bone shards and the bare skull remaining at the mortality site (UTM 10.581160.6628167). Abundant wolf scat was noted throughout the area and the collar webbing had been completely chewed off (Plates 1 and 2). Several moose beds and pellet groups were noted within 150 m of the mortality site, however, no sign of a moose kill was found. While the site investigation failed to confirm the cause of death, the most likely possibilities are either conspecific mortality or that the wolf sustained mortal injuries during a predation attempt on a moose and was later scavenged by pack mates.

First Nation Sub-contractors

Eva Needlay, Fort Nelson First Nations, participated in the March 2016 caribou and wolf mortality site investigations.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted between January 1 and March 31, 2016, northeastern British Columbia, (*n*=1).

Mort Invest #	Caribou ID	Range[1]	Collar Type	Date Collared	Core Collared[2]	Core Died[2]	Date of Death	Date Investigated	Cause of Death	Site Investigation Comments
100	SCEK078	MAX	Lotek VHF	4-Feb-13	FRT	FRT	Unk	29-Mar-16	Wolf Kill	Detected during the March 2016 recruitment survey; VHF last heard December 2015; kill site in relatively-intact open mixedwood habitat, but ploughed access trail and snowmobile tracks within approximately 2km.

[1] MAX - Maxhamish [2] FRT - Fortune

Plate 1. Mortality Site Investigation, Wolf BW032 (Lotek VHF), Petitot Pack; (UTM 10.581160.6628167), March 30, 2016. (2/2)

Plate 2. Mortality Site Investigation, Wolf BW032 (Lotek VHF), Petitot Pack; (UTM 10.581160.6628167), March 30, 2016. (2/2)

APPENDIX I:

January-March 2016

Caribou Mortality Investigation Report

Mortality Investigation #100: SCEK078, March 29, 2016, report and photos.

Mortality Investigation #	100
Caribou ID	SCEK078
Range	Maxhamish
Date Detected	29-Mar-16
Date Investigated	29-Mar-16
Collar Type	Lotek VHF
Date Collared	04-Feb-13
Core Collared	Fortune
Capture Site UTM	10.475961.6633595
Core Died	Fortune
Date of Death	Unknown
Mortality Site UTM	10.461571.6628342
Cause of Death	Wolf kill; remains scavenged by mustelids
Samples	Caribou hair and bone shards, wolf scat, scavenger scat X 3
Collar Condition	Destroyed
Photos	3732-3745
Investigators	Brad Culling, Diane Culling, Eva Needlay
Site Investigation Comments	Detected during the March 2016 recruitment survey; VHF last heard December 2015; carcass consumed, evidence of wolves and multiple scavengers at site (weasel and marten tracks/ scat); open willow/paper birch/black spruce habitat relatively intact but ploughed access trail and snowmobile tracks within approx. 2 km; mean snow depth 63 cm, crusting n/a as snow column consolidating (current air temp + 12 C, but very hard crust could result from overnight freezing).

Plate 3. Mortality Site Investigation #100; SCEK078 (Lotek VHF), Maxhamish Range (UTM 10.461571.6628342), March 29, 2016. (1/2)

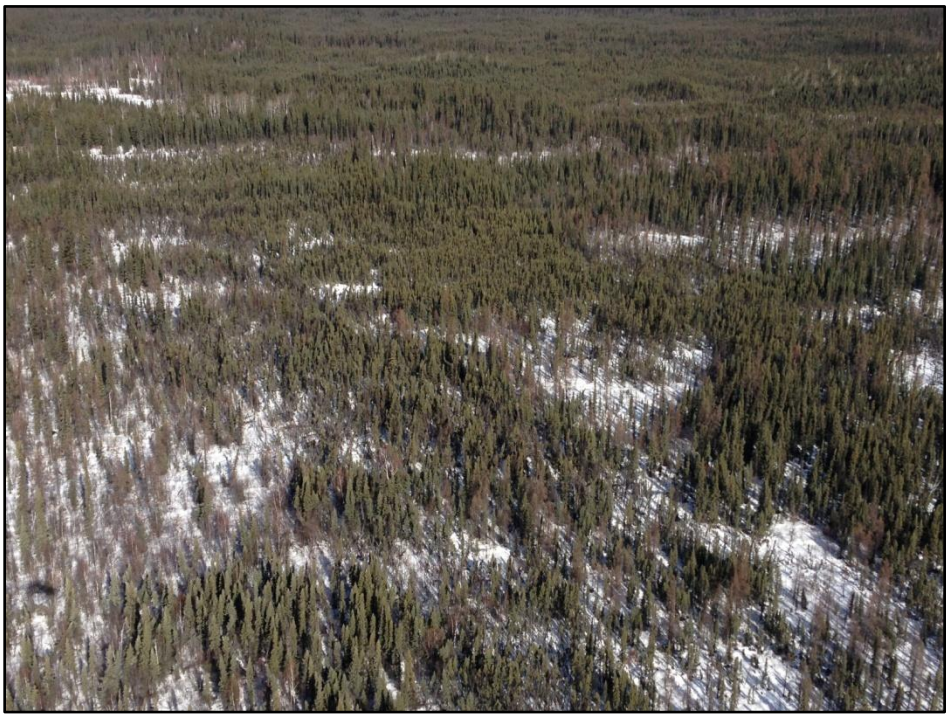

Plate 4. Mortality Site Investigation #100; SCEK078 (Lotek VHF), Maxhamish Range (UTM 10.461571.6628342), March 29, 2016. (2/2)