2014

BC Boreal Caribou Implementation Plan:

Mortality Investigation Summary Report No. 14: August 2014

Diversified Environmental Services
Fort St. John, BC

EXECUTIVE SUMMARY

A total of 204 boreal caribou were radio-collared between December 2012 and March 2014 in British Columbia's boreal caribou ranges as part of the *British Columbia Boreal Caribou Implementation Plan* (BCIP). The fate of these animals, as well as all boreal caribou previously collared by the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO), is monitored monthly to track adult survival and calf recruitment.

Two SCEK-collared caribou mortalities were detected and investigated during the August 2014 monitoring period, including SCEK074 (North Kotcho; Lotek VHF) and SCEK147 (Calendar; Vectronic Vertex GPS). Wolf predation was the confirmed cause of death for both animals. One wolf mortality was also detected and investigated during the August monitoring period (Snake Pack female BW016; Lotek VHF); cause of death was undetermined.

Sixty-six radio-collared boreal caribou (59 SCEK, 7 MFLNRO) died from natural causes between the commencement of BCIP monitoring in December 2012 and August 31, 2014. Predation accounted for the majority of cases, including 42 confirmed wolf kills, an additional 5 cases of suspected wolf kills, and 2 confirmed wolverine kills. Poor condition was a factor in the death of several caribou following a particularly severe winter in 2012-13. In contrast, no non-predation mortality of radio-collared caribou occurred during the more moderate winter of 2013-14. Twenty-two of 24 radio-collared caribou mortalities investigated between late winter and summer 2014 (March through August) were confirmed wolf predation, with an additional 2 cases of suspected wolf predation.

BACKGROUND

During the winter of 2012-13, 164 adult female caribou were radio-collared in British Columbia's boreal caribou ranges as part of the *British Columbia Boreal Caribou Implementation Plan* (BCIP). An additional 41 caribou (40F, 1M[1]) were collared between February 28 and March 31, 2014. Caribou collaring activities were administered and funded through the Science and Community Environmental Knowledge Fund (SCEK). The fate of SCEK-collared caribou, as well as boreal caribou previously collared by MFLNRO, was monitored to track adult survival and calf recruitment.

The VHF signal status of each active radio-collar is monitored monthly during regular fixed-wing telemetry flights, as well as during associated incidental surveys and field activities. In addition to the SCEK collars, active caribou and wolf collars from other programs, known to be present within BC boreal caribou ranges, are also monitored for approximate location and mortality status. These include caribou and wolf collars deployed by MFLNRO, as well as collared caribou that have entered BC's boreal caribou ranges from adjacent jurisdictions.

Upon detection of a suspected mortality event, through VHF signal status or transmitted GPS/satellite data, a ground-based mortality investigation is conducted to determine the cause and approximate date of

[1] SCEK173/BC1037 was collared as a yearling by MFLNRO in March 2010. It was recaptured and fitted with a larger SCEK collar in February 2014.

death, collect biological samples, and recover the collar. Adult mortality information is used in conjunction with juvenile recruitment data to estimate population trend.

This summary report pertains to mortality signals investigated during August 2014.

METHODS

Mortality sites are typically accessed by helicopter from the Fort St. John airport, in the case of the Milligan and Etthithun cores of the Chinchaga Range, and from the Fort Nelson airport in the case of the Chinchaga RRA and all other ranges and cores.

Information recorded for each confirmed mortality site includes: animal ID, collar frequency, collar condition, GPS coordinates, photodocumentation, condition of remains, habitat, and other evidence relevant to suspected cause of death. Where available, and when the stage of decomposition allows, biological samples are collected (e.g., long bones, lower jaw, tissue samples, and internal organs). Samples of predator scat from the mortality site are collected when available. Mortality investigation numbers are assigned based on the date of detection, not the date of the ground investigation.

RESULTS

Two SCEK-collared caribou deaths were investigated during the August 2014 monitoring period (Table 1). SCEK147 (Calendar; Vectronic Vertex GPS) was identified as a potential mortality during a review of incoming GPS/satellite data on August 15, 2014 and investigated on August 21. SCEK074 (North Kotcho; Lotek VHF) was detected and investigated on August 21. The cause of death was confirmed as wolf predation for both caribou; both were killed in areas with relatively little habitat disturbance.

Between the commencement of BCIP monitoring in December 2012 and August 31, 2014 a total of 66 radio-collared boreal caribou (59 SCEK, 7 MFLNRO) have died from natural causes. No non-predation natural deaths were detected for either collared or unmarked caribou during late winter through summer of 2014 (March through August).

Twenty wolf collar frequencies were scanned during the August 18-21, 2014 monitoring flight, including 14 Lotek Iridium GPS, 1 Vectronic Vertex GPS, and 5 Lotek VHF. One wolf mortality was detected and investigated on August 21 (BW016; Lotek VHF).

BW016 was the alpha female of the Snake Pack. The wolf was originally fitted with a Lotek Iridium collar (148.590) in the Paradise Core on April 06, 2013. The collar ceased transmitting GPS/satellite data on August 15, 2013 and commenced transmitting a low battery signal on September 06, 2013. BW016 was recaptured on January 25, 2014 and the Iridium collar was replaced with Lotek VHF collar (149.939).

The destroyed collar was located a short distance from the remains, which consisted of a patch of hair and portions of the disarticulated skeleton, including the skull, vertebrae, lower jaw, and bone fragments

(Plate 1). While the cause of death could not be determined, a large area of grass was trampled in the vicinity of the remains, suggesting the wolf may have died then been scavenged.

Plate 1. Remains of Snake Pack female wolf BW016 (Lotek VHF), found along the Snake River, (UTM 10.544850.6532034), August 21, 2014.

First Nation Sub-contractors

The timing of mortality investigations precluded First Nations assistance in August 2014.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted in August 2014, northeastern British Columbia (*n*=2).

Mort Invest #	Caribou ID	Range[1]	Collar Type	Date Collared	Core Collared[2]	Core Died[2]	Date of Death	Date Last Known Alive	Date Investigated	Cause of Death	Site Investigation Comments
074	SCEK074	SNS	Lotek VHF	03-Feb-14	NRK	NRK	UNK	15-Jul-14	21-Aug-14	Wolf kill	Mortality detected and investigated on same day (August 18 fixedwing flight weathered out, completed flight with helicopter); kill site in bog-fen complex; relatively undisturbed habitat with a few small cutlines in vicinity (collar found at end of small seismic line)
075	SCEK147	CAL	Vectronic Vertex GPS	02-Mar-13	CAL	CAL	21-Jul-14	20-Jul-14	21-Aug-14	Wolf kill	Identified as a potential mortality based on GPS/satellite data on 15 August 2014, confirmed dead/ investigated on 21 August; collar located on a game trail, had been moved from kill site (GPS data cluster); black spruce bog-fen complex; relatively undisturbed habitat with a few older leases and lines in vicinity

[1] SNS - Snake-Sahtaneh, CAL - Calendar
[2] NRK- North Kotcho, CAL - Calendar

APPENDIX I: Caribou Mortality Investigation Reports

Mortality Investigation #074: SCEK074, August 21, 2014, report and photos.

Mortality Investigation #	074
Caribou ID	SCEK074
Range	Snake-Sahtaneh
Date Detected	21-Aug-14
Date Investigated	21-Aug-14
Collar Type	Lotek VHF
Date Collared	03-Feb-13
Core Collared	North Kotcho
Capture Site UTM	10.604797.6553862
Core Died	North Kotcho
Date of Death	Unknown
Date Last Known Alive	15 July 2014 (July Telemetry Flight)
Mortality Site UTM	10.610269.6574469
Cause of Death	Wolf kill
Samples	Scapula (1), fragment of long bone
Collar Condition	OK (mild chewing of webbing)
Photos	0430-0436
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	Mortality detected and investigated on same day (August 18 fixedwing flight weathered out, completed flight with helicopter); carcass consumed - only scattered bone fragments and small patches of hair remain; kill site at interface of scrub birch/tamarack fen and black spruce bog; relatively undisturbed habitat with a few small cutlines in vicinity (collar found at end of small seismic line)

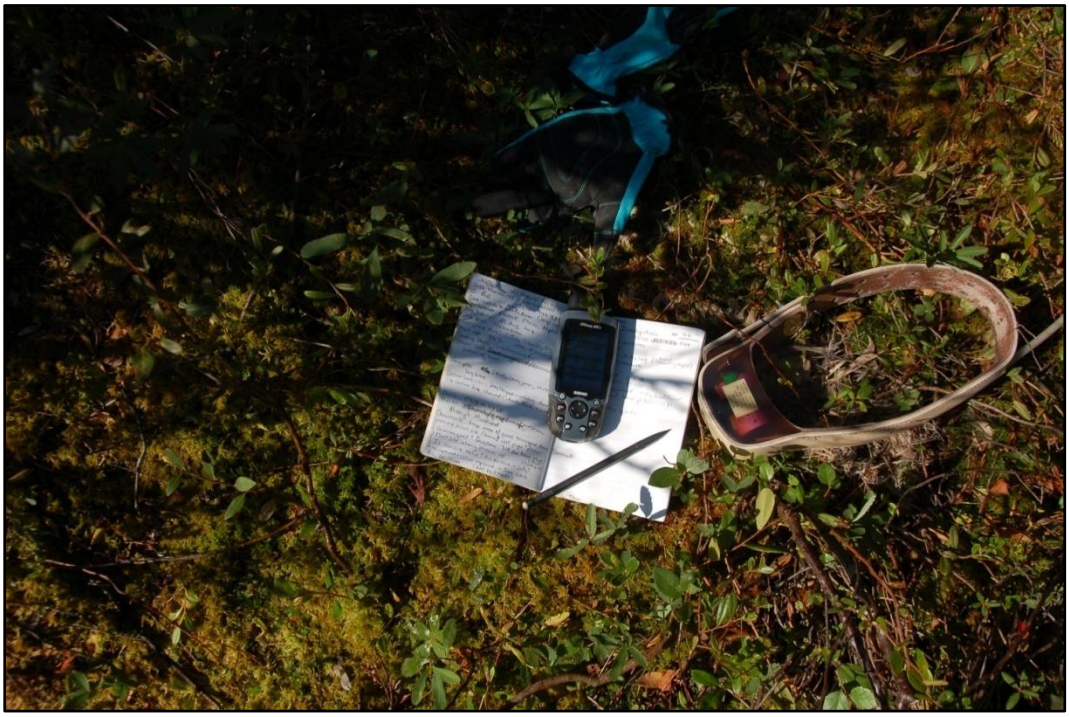

Plate 2. Mortality Site Investigation #074: SCEK074 (Lotek VHF),
Snake-Sahtaneh Range, (UTM 10.610269.6574469), August 21, 2014. (1/2)

Plate 3. Mortality Site Investigation #074: SCEK074 (Lotek VHF),
Snake-Sahtaneh Range, (UTM 10. 610269.6574469), August 21, 2014. (2/2)

Mortality Investigation #075: SCEK147, August 21, 2014, report and photos.

Mortality Investigation #	075
Caribou ID	SCEK147
Range	Calendar
Date Detected	15-Aug-14
Date Investigated	21-Aug-14
Collar Type	Vectronic Vertex GPS
Date Collared	02 March 20132
Core Collared	Calendar
Capture Site UTM	10.653072.6637946
Core Died	Calendar
Date of Death	21-Jul-14
Date Last Known Alive	20-Jul-14
Mortality Site UTM	10.627137.6653067
Cause of Death	Wolf kill
Samples	None
Collar Condition	Damaged (webbing chewed in half)
Photos	0437-0445
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	Identified as a potential mortality based on GPS/satellite data on 15 August 2014, confirmed dead/investigated on 21 August; carcass completely consumed, collar located on a game trail, had been moved from kill site (i.e., GPS data cluster); habitat scrub birch/tamarack fen and black spruce bog complex; relatively undisturbed habitat with a few older leases and lines in vicinity

Plate 4. Mortality Site Investigation #075: SCEK147 (Vectronic Vertex GPS), Calendar Range, (UTM 10.627137.6653067), August 21, 2014. (1/2)

Plate 5. Mortality Site Investigation #075: SCEK147 (Vectronic Vertex GPS), Calendar Range, (UTM 10.627137.6653067), August 21, 2014. (2/2)