

**2014**

**BC Boreal Caribou Implementation Plan:  
Mortality Investigation Summary Report No. 17:  
November and December 2014**

## EXECUTIVE SUMMARY

A total of 217 boreal caribou were radio-collared between December 2012 and December 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 investigated during the November 2014 monitoring period. Both SCEK044 (Prophet; ATS Iridium) and SCEK003/BC1051 (Kiwigana; ATS Iridium) were confirmed wolf kills. No collared wolf mortalities were detected during the November monitoring period.

No caribou or wolf mortalities were detected during the December 2014 monitoring period, however 5 caribou collars were transmitting VHF signal patterns indicating their release mechanisms had activated on low voltage conditions but were still on the animal.

Seventy radio-collared boreal caribou (63 SCEK, 7 MFLNRO) died from natural causes between the commencement of BCIP monitoring in December 2012 and the end of December 2014. Forty-six caribou mortalities were confirmed wolf kills, with an additional 6 cases of suspected wolf kills, and 2 confirmed wolverine kills. While poor condition was a factor in the death of several caribou following the particularly severe winter of 2012-13, no non-predation natural deaths were detected for either collared or unmarked caribou in 2014. Twenty-eight of 32 radio-collared caribou mortalities investigated between January and December 2014 were confirmed wolf predation, with an additional 2 cases of suspected wolf predation, and 2 cases of wolverine 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 53 caribou were collared between February 28 and December 12, 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 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 the November and December 2014 monitoring periods.

## **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**

### *November 2014 Monitoring Period*

One hundred forty-eight boreal caribou collar frequencies and 17 wolf collar frequencies were scanned during the November 23-24, 2014 fixed-wing telemetry monitoring flight. Two collars (SCEK044 and SCEK003/BC1051) were transmitting mortality signals, 2 collars (SCEK100 and SCEK110) were transmitting false mortality signals, and 1 collar (SCEK002) was transmitting an activated release mechanism signal.

SCEK044 (Prophet; ATS Iridium) was killed by wolves on the edge of a small wetland in black spruce forest southeast of the Prophet Range. The kill site was approximately 300 m from a lease and road. SCEK003/BC1051 (Maxhamish; ATS Iridium) was also a confirmed wolf kill. The collar was found frozen into ice on a beaver impoundment, approximately 50 m from the GPS data cluster.

ATS Iridium collars deployed in Year I of the project (December 2012-March 2013) are nearing the end of their battery life and starting to transmit atypical VHF beacons. SCEK100 (Snake-Sahtaneh; ATS Iridium) was located alive in a group of 5 caribou (2 females, 3 large males) on a lease immediately adjacent to the Keypile Camp (UTM 10.627437.6568588). SCEK110 (Snake-Sahtaneh; ATS Iridium) was found alive in a group of 3 caribou, including another female with a calf (UTM 10.617622.6566650). In addition, SCEK146 (Calendar; ATS Iridium) was transmitting an intermittent false mortality signal during the November 24th flight. The caribou was found alive, in a group of 3 adult females (UTM 10.646885.6621681).

The ATS Iridium collar on SCEK002/BC1048 (Maxhamish) released prior to the November 24th telemetry flight. The collar was retrieved from black spruce forest in the Capot Blanc Core (UTM 10.472761.6576720; Plate 1).



Plate 1. William Needlay (FNFN) at ATS Iridium collar release site for SCEK002/BC1048 Capot Blanc Core, Maxhamish Range (UTM 10.472761.6576720), November 25, 2014.

Details of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted during the November 2014 monitoring period are presented in Table 1 and Appendix I.

Seventeen wolf collar frequencies were scanned during the November 23-24, 2014 monitoring flight, including 13 Lotek Iridium and 4 Lotek VHF. No wolf mortalities were detected.

#### *December 2014 Monitoring Period*

One hundred fifty-eight boreal caribou collar frequencies and 17 wolf collar frequencies were scanned during the December 22-23, 2014 fixed-wing telemetry monitoring flight. No caribou collars were heard transmitting mortality signals. Five caribou collars were transmitting VHF signal patterns indicating their release mechanisms had activated on low voltage conditions but had failed to detach. If any of these collars fail to drop off by the next collar deployment session, in February 2015, these caribou will be recaptured for collar retrieval and replacement.

No wolf mortality signals were detected, although several GPS wolf collars are presumed to have reached the end of their battery life.

#### *First Nation Sub-contractors*

William Needlay, of the Fort Nelson First Nation, participated in caribou mortality site investigations for the November 2014 monitoring period.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted during the November 2014 monitoring period, northeastern British Columbia ( $n=2$ ).

Mort Invest #	Caribou ID	Range <sup>1</sup>	Collar Type	Date Collared	Core Collared <sup>2</sup>	Core Died <sup>2</sup>	Date of Death	Date Last Known Alive	Date Investigated	Cause of Death	Site Investigation Comments
078	SCEK044	PPH	ATS Iridium	25-Jan-13	PPH-OS	PPH-OS	19-Nov-14	19-Nov-14	25-Nov-14	Wolf kill	Mortality detected on Nov 23, 2014 fixed-wing telemetry flight; kill site on edge of black spruce wetland, approximately 300 m from lease and road; abundant intersecting cutlines in area.
079	SCEK003/ BC1051	MAX	ATS Iridium	08-Nov-14	KWG	KWG-OS	28-Oct-14	28-Oct-14	25-Nov-14	Wolf kill	Mortality identified from GPS data on Nov 08, 2014; caribou made approx. 10 km movement out of Kiwigana Core immediately prior to death; kill site adjacent to beaver impoundment through relatively-intact mature spruce forest.

<sup>1</sup> PPH - Prophet MAX - Maxhamish

<sup>2</sup> PPH-OS - Prophet Outside KWG - Kiwigana KWG-OS - Kiwigana Outside

## **APPENDIX I: Caribou Mortality Investigation Reports**

Mortality Investigation #078: SCEK044, November 25, 2014, report and photos.

Mortality Investigation #	078
Caribou ID	SCEK044
Range	Prophet
Date Detected	23-Nov-14
Date Investigated	25-Nov-14
Collar Type	ATS Iridium
Date Collared	25-Jan-13
Core Collared	Prophet (outside)
Capture Site UTM	10.552333.6466152
Core Died	Prophet (outside)
Date of Death	19-Nov-14
Date Last Known Alive	19-Nov-14
Mortality Site UTM	10.558780.6440975
Cause of Death	Wolf kill
Samples	Lower jaw, bone shards (including fragment of long bone with marrow); wolf scat (x 3)
Collar Condition	OK (mild chewing of webbing)
Photos	0509-0518
Investigators	Brad Culling, Diane Culling, William Needlay
Site Investigation Comments	Mortality detected on Nov 23, 2014 fixed-wing telemetry flight; carcass consumed (remains include patches of hide and hair, lower jaw, and bone shards); approximately 10 cm fresh snow since kill but wolves had revisited the site (fresh wolf tracks and scat found); kill site on edge of black spruce wetland, approximately 300 m from lease and road; abundant intersecting cutlines in area.





Plate 2. Mortality Site Investigation #078: SCEK044 (ATS Iridium), Prophet Range (UTM 10.558780.6440975), November 25, 2014. (1/2)



Plate 3. Mortality Site Investigation #078: SCEK044 (ATS Iridium), Prophet Range (UTM 10.558780.6440975), November 25, 2014. (2/2)



Mortality Investigation #079: SCEK003/BC1051, November 25, 2014, report and photos.

Mortality Investigation #	079
Caribou ID	SCEK003/BC1051
Range	Maxhamish
Date Detected	08-Nov-14
Date Investigated	25-Nov-14
Collar Type	ATS Iridium
Date Collared	17-Dec-12
Core Collared	Kiwigana
Capture Site UTM	10.527698.6570998
Core Died	Kiwigana - outside
Date of Death	28-Oct-14
Date Last Known Alive	28-Oct-14
Mortality Site UTM	10.541726.6554414
Cause of Death	Wolf kill
Samples	None available
Collar Condition	Severe damage - webbing chewed in half
Photos	0519-0534
Investigators	Brad Culling, Diane Culling, William Needlay
Site Investigation Comments	Mortality identified from GPS data on Nov 08, 2014; caribou made an approx. 10 km movement out of Kiwigana Core immediately prior to death; carcass consumed (no samples available); collar located frozen into ice on beaver impoundment approximately 50 m from GPS cluster; wolf urine in ice at collar location; kill site adjacent to beaver impoundment through mature spruce forest.



Plate 4. Mortality Site Investigation #079: SCEK003/BC1051 (ATS Iridium),  
Maxhamish Range (UTM 10.541726.6554414), November 25, 2014. (1/2)



Plate 5. Mortality Site Investigation #079: SCEK003/BC1051 (ATS Iridium),  
Maxhamish Range (UTM 10.541726.6554414), November 25, 2014. (2/2)