

**2014**

**BC Boreal Caribou Implementation Plan:**

**Mortality Investigation Summary Report No. 9:  
March 2014**

## **BACKGROUND**

During the winter of 2012-13, 164 adult female boreal caribou were radio-collared in British Columbia's boreal caribou ranges as part of the *British Columbia Boreal Caribou Implementation Plan* (BCIP). Caribou collaring activities were administered and funded through the Science and Community Environmental Knowledge Fund (SCEK).

Thirty-six SCEK-collared boreal caribou died from natural causes between the commencement of the study, in December 2012, and February 28, 2014. An additional 6 caribou, which were previously collared by the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO) and are currently monitored under the BCIP, also died during that period. To maintain the target sample size, 40 new GPS collars were deployed on 41 individual caribou between February 28 and March 31, 2014, including 1 collar redeployed following the predation death of a newly collared animal. Nine GPS wolf collars were also deployed under the SCEK program in winter 2013-14 in order to maintain the sample deployed with MFLNRO funding the previous winter.

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 each caribou range, are also monitored for approximate location and mortality status. These include caribou and wolf collars previously 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 detected during March 2014, including mortalities detected during caribou and wolf collar deployment, and late winter recruitment surveys. Due to the timing of these activities throughout March, no fixed-wing telemetry monitoring flight was necessary during the month.

## **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 is collected when available. Mortality investigation numbers are assigned based on the date of detection, not the date of the ground investigation.

## **RESULTS**

Five caribou mortalities were identified in the March 2014 monitoring period, including 1 detected during caribou collar redeployment, 2 detected during wolf collar deployment, and 2 detected during late winter recruitment surveys conducted between March 17 and 22 (Table 1).

The cause of death was confirmed to be wolf predation for all 5 caribou. Two caribou were killed within an active 3D seismic program in the Fortune Core of the Maxhamish Range and 1 caribou was killed on a lease site in the West Kotcho Core of the Snake-Sahtaneh Range. The remaining 2 caribou were killed in areas of relatively intact habitat in the Prophet Range and Kiwigana Core of the Maxhamish Range. SCEK174 was killed within 3 weeks of initial collar deployment.

Although Prophet caribou SCEK050 wasn't detected until March, GPS data indicated it was killed in November 2013 and ceased transmitting GPS data 11 days later. The VHF beacon was not heard during monitoring flights after November 2013 until a faint VHF mortality signal was detected during the March 2014 late winter recruitment survey. The collar was found severely damaged by wolves and imbedded in frozen overflow on a small lake. No remains could be located due to elapsed time and snow accumulation.

In addition to the 5 caribou mortalities investigated in March, ATS Iridium collar SCEK017 was retrieved from the Clarke Core after its release mechanism was activated by low battery voltage. This collar ceased Iridium data transmission in November 2013, after which its VHF signal was detected only intermittently. The detached collar was subsequently located and retrieved from under the snow during the March 17 recruitment survey of the Clarke Core (UTM 10.535640.6500514).

### *First Nation Contractors*

Laurelle Dettiah and Eva Needlay, of Fort Nelson First Nation, participated in caribou mortality site investigations in March 2014.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted in March 2014, northeastern British Columbia ( $n=5$ ).

Mort Invest #	Caribou ID	Range <sup>1</sup>	Collar Type	Date Collared	Core <sup>2</sup> Collared	Core Died	Date of Death	Date Last Known Alive	Date Investigated	Cause of Death	Comments
052	SCEK130	MAX	Lotek VHF	27-Feb-13	FRT	FRT	Unknown	25-Feb-14	02-Mar-14	Wolf kill	Kill site approx. 50 m from active 3D seismic line through black spruce peatland; group of collared caribou moved from this site between Feb 25, 2014 telemetry flight and March 02 (big trail heading west).
053	BC1031	MAX	Lotek VHF	24-Mar-10	FRT	FRT	Unknown	25-Feb-14	18-Mar-14	Wolf kill	Kill site within active 3D seismic program through black spruce peatlands, less than 20 m from intersection of 2 lines
054	SCEK050	PPH	ATS Iridium	26-Jan-13	PPH	PPH	11-Nov-13	10-Nov-13	21-Mar-14	Wolf kill	VHF last heard on Nov 10, 2013 FW flight, last GPS data Nov 19, 2013. Very weak VHF mortality signal detected during Mar 21, 2014 late winter recruitment survey. Collar destroyed by wolves and frozen into lake ice. GPS mortality cluster in open black spruce 50 m east of collar. Caribou made 13 km round-trip movement within 48 hrs of death.

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

<sup>2</sup> FRT - Fortune, PPH - Prophet

Table 1 cont. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted in March 2014, northeastern British Columbia ( $n=5$ ).

Mort Invest #	Caribou ID	Range <sup>1</sup>	Collar Type	Date Collared	Core <sup>2</sup> Collared	Core Died	Date of Death	Date Last Known Alive	Date Investigated	Cause of Death	Comments
055	SCEK174	SNS	Lotek Lifecycle	01-Mar-14	WSK	WSK	23-Mar-14	21-Mar-14	31-Mar-14	Wolf kill	Kill on lease surrounded by black spruce forest; collar redeployed on SCEK204 on same day.
056	SCEK063	MAX	Lotek VHF	02-Feb-13	KWG	KWG	Unknown	17-Mar-14	31-Mar-14	Wolf kill	Kill site in tamarack fen surrounded by black spruce forest.

<sup>1</sup> SNS - Snake-Sahtaneh, MAX - Maxhamish

<sup>2</sup> WSK - West Kotcho, KWG - Kiwigana

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

Mortality Investigation #052: SCEK130, March 02, 2014, report and photos.

Mortality Investigation #	052
Caribou ID	SCEK130
Range	Maxhamish
Date Detected	02-Mar-14
Date Investigated	02-Mar-14
Collar Type	Lotek VHF
Date Collared	27-Feb-13
Core Collared	Fortune
Capture Site UTM	10.535196.6633658
Core Died	Fortune
Date of Death	Unknown
Date Last Known Alive	25-Feb-14
Mortality Site UTM	10.535174.6621795
Cause of Death	Wolf kill
Samples	Lower jaw (x2), tissue, long bones, caribou hair, wolf scat
Collar Condition	Destroyed
Photos	3129-3139
Investigators	Brad Culling, Diane Culling, John Cook
Site Investigation Comments	Detected during caribou collar deployment; kill site approx. 50 m from active 3D seismic line through black spruce peatland; collar found approx. 40 m from kill site; group of collared caribou moved from this site between Feb 25 telemetry flight and March 02 (big trail heading west); wolf scat collected - appeared to have diarrhea; no snow depth/crust measurements taken as approaching helicopter downtime; proximity to open seismic line grid likely makes snow crust conditions irrelevant to predation event.



Plate 1. Mortality Site Investigation #052: SCEK130 (Lotek VHF), Maxhamish Range, (UTM 10.535174.6621795), March 02, 2014. (1/2)



Plate 2. Mortality Site Investigation #052: SCEK130 (Lotek VHF), Maxhamish Range, (UTM 10.535174.6621795), March 02, 2014. (2/2)



Mortality Investigation #053: BC1031, March 18, 2014, report and photos.

Mortality Investigation #	053
Caribou ID	BC1031
Range	Maxhamish
Date Detected	18-Mar-14
Date Investigated	18-Mar-14
Collar Type	Lotek VHF
Date Collared	24-Mar-10
Core Collared	Fortune
Capture Site UTM	10.540491.6622410
Core Died	Fortune
Date of Death	Unknown
Date Last Known Alive	25-Feb-14
Mortality Site UTM	10.530877.6626840
Cause of Death	Wolf kill
Samples	Caribou hair, wolf scat
Collar Condition	Destroyed
Photos	3300-3309
Investigators	Brad Culling, Diane Culling, Eva Needlay
Site Investigation Comments	Detected during late winter recruitment survey; kill site within active 3D seismic program through black spruce peatlands - less than 20 m from intersection of 2 lines; collar found approx. 50 m from kill site; carcass completely consumed; mean snow depth off seismic lines 52 cm



Plate 3. Mortality Site Investigation #053: BC1031 (Lotek VHF), Maxhamish Range, (UTM 10.530877.6626840), March 18, 2014. (1/2)



Plate 4. Mortality Site Investigation #053: BC1031 (Lotek VHF), Maxhamish Range, (UTM 10.530877.6626840), March 18, 2014. (1/2)

Mortality Investigation #054: SCEK050, March 21, 2014, report and photos.

Mortality Investigation #	054
Caribou ID	SCEK050
Range	Prophet
Date Detected	21-Mar-14
Date Investigated	21-Mar-14
Collar Type	ATS Iridium GPS
Date Collared	26-Jan-13
Core Collared	Prophet
Capture Site UTM	10.556135.6446960
Core Died	Prophet-OS
Date of Death	11-Nov-13
Date Last Known Alive	10-Nov-13
Mortality Site UTM	10.557608.6447111
Cause of Death	Wolf kill
Samples	None available
Collar Condition	Collar destroyed; frozen into ice of small lake, not at kill site
Photos	3393-3405
Investigators	Brad Culling, Diane Culling, Eva Needlay
Site Investigation Comments	VHF last heard on Nov 10, 2013 telemetry flight; last GPS data logged on Nov 19, 2013; very weak VHF mortality signal detected during Mar 21, 2014 late winter recruitment survey; collar destroyed by wolves and frozen into lake ice at UTM 10.557568.6447131; no remains found; GPS mortality cluster in open black spruce 50 m east of collar (UTM 10.557608.6447111); caribou made sudden 13 km movement to the east and then back to within approx. 1 km of its departure point within 48 hrs of death; mean snow depth approx. 50 m off lake 56 cm.



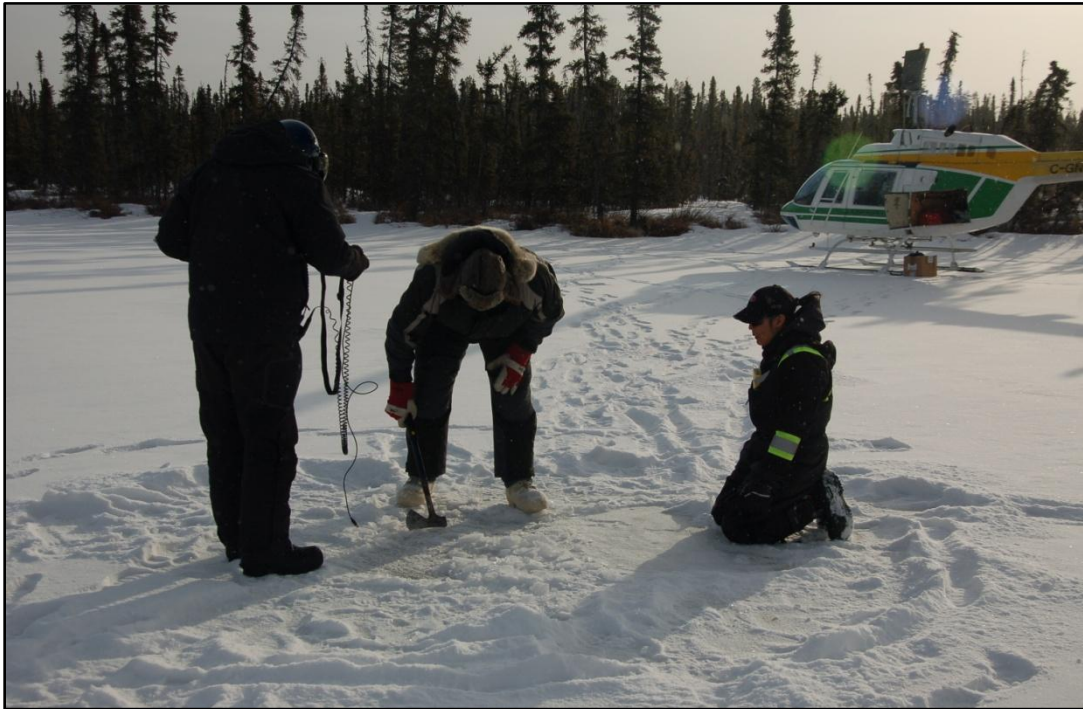


Plate 5. Mortality Site Investigation #054: SCEK050 (ATS Iridium GPS), Prophet Range, (UTM 10.557608.6447111), March 21, 2014. (1/2)



Plate 6. Mortality Site Investigation #054: SCEK050 (ATS Iridium GPS), Prophet Range, (UTM 10.557608.6447111), March 21, 2014. (2/2)

Mortality Investigation #055: SCEK174, March 31, 2014, report and photos.

Mortality Investigation #	055
Caribou ID	SCEK174
Range	Snake-Sahtaneh
Date Detected	31-Mar-14
Date Investigated	31-Mar-14
Collar Type	Lotek Lifecycle GPS
Date Collared	01 March 2014
Core Collared	West Kotcho
Capture Site UTM	10.591752.6549014
Core Died	West Kotcho
Date of Death	23-Mar-14
Date Last Known Alive	21-Mar-14
Mortality Site UTM	10.585557.6558223
Cause of Death	Wolf kill
Samples	Wolf scat
Collar Condition	Slight damage but reusable
Photos	3560-3561
Investigators	Brad Culling, Ted Euchner
Site Investigation Comments	Caribou located during recruitment survey Mar 21, killed Mar 23; mortality detected during wolf collar deployment (Mar 31); carcass completely consumed - only hair remained; kill on lease surrounded by black spruce forest; mean snow depth 59 cm; collar redeployed on SCEK204 on same day.



Plate 7. Mortality Site Investigation #055: SCEK174 (Lotek Lifecycle GPS), Snake-Sahtaneh Range, (UTM 10.585557.6558223), March 31, 2014. (1/2)



Plate 8. Mortality Site Investigation #055: SCEK174 (Lotek Lifecycle GPS), Snake-Sahtaneh Range, (UTM 10.585557.6558223), March 31, 2014. (2/2)

Mortality Investigation #056: SCEK063, March 31, 2014, report and photos.

Mortality Investigation #	056
Caribou ID	SCEK063
Range	Maxhamish
Date Detected	31-Mar-14
Date Investigated	31-Mar-14
Collar Type	Lotek VHF
Date Collared	02-Feb-13
Core Collared	Kiwigana
Capture Site UTM	10.527326.6572903
Core Died	Kiwigana
Date of Death	Unknown
Date Last Known Alive	17-Mar-14 (LW Recruitment Survey)
Mortality Site UTM	10.529098.6572049
Cause of Death	Wolf kill
Samples	None available
Collar Condition	Destroyed
Photos	3570-3571
Investigators	Brad Culling, Ted Euchner
Site Investigation Comments	Caribou located during recruitment survey Mar 17, mortality detected during wolf collar deployment on 31 March; collar not at kill site - carcass not found; habitat is tamarack fen surrounded by black spruce forest; mean snow depth 47 cm.





Plate 9. Mortality Site Investigation #056: SCEK063 (Lotek VHF), Maxhamish Range, (UTM 10.529098.6572049), March 31, 2014. (1/2)



Plate 10. Mortality Site Investigation #056: SCEK063 (Lotek VHF), Maxhamish Range, (UTM 10.529098.6572049), March 31, 2014. (1/2)