

**2013**

**BC Boreal Caribou Implementation Plan:**

**Mortality Investigation Summary Report No. 5:  
September 07-15, 2013**

## 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 Community Environmental Knowledge Fund (SCEK).

The VHF signal status of each active collar is monitored monthly during regular fixed-wing telemetry monitoring flights and incidental associated surveys. 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 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 for redeployment during the upcoming winter capture season. Adult mortality information is used in conjunction with juvenile recruitment data to estimate population trend.

This summary report pertains to mortality signals detected during the September 05-06, 2013 fixed-wing telemetry monitoring flights, with mortality investigations conducted between September 07 and 15, 2013.

## 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, and other evidence relevant to suspected cause of death. Where available, and when the stage of decomposition allows, biological samples are collected (e.g., leg bones (femur or humerus), lower jaw, tissue samples, and internal organs). Mortality investigation numbers are assigned based on the date of detection, not the date of the ground investigation.

## RESULTS

Seven boreal caribou mortalities were detected during the September 05-06, 2013 telemetry monitoring flight, with mortality site investigations conducted between September 07 and 15, 2013. Caribou mortalities included 1 SCEK Iridium collar, 4 SCEK VHF collars, and 2 previously-deployed Alberta SRM collars. SCEK011 (VHF) was originally collared by MFLNRO (BC1038 Iridium). In addition, 1 previously-identified mortality was investigated in September; MFLNRO caribou BC1003 was identified as a mortality (#009) during the April 01, 2013 late winter recruitment survey of the Parker Range, however a ground investigation was not possible until the snow-free period.

One SCEK-collared caribou mortality was detected in each of the Chinchaga, Snake-Sahtaneh, Calendar, and Parker ranges (Table 1). Both Alberta SRM collars were located in the Milligan Core of the Chinchaga Range (AB, approximate UTM 10.655700.6369954, and AB approximate UTM 10.621154.6355927); no mortality site investigations were conducted for these 2 animals.

Table 1. Summary of SCEK boreal caribou mortality investigations conducted between September 07<sup>th</sup> and 15<sup>th</sup>, 2013, by range, core and collar type, northeastern British Columbia ( $n=5$ ).

Range	Core	Collar Type			Total
		Iridium	Vertex	VHF	
Chinchaga	Milligan - Outside Core			1	1
Snake-Sahtaneh	North/East Kotcho - Outside			1	1
Calendar	Calendar	1		1	2
Parker	Parker			1	1
		1		4	5

Four of the 5 SCEK caribou mortalities investigated were confirmed wolf predation based on the state of the remains and the collars, including crushed and scattered bones, hide consumed, absence of composition odour on the collars, signs of struggle, and the presence of wolf scat (Table 2; Appendix I). Cause of death for the remaining SCEK caribou (SCEK072) was undetermined; however, it appears the caribou died then was scavenged by a black bear. While the collar was not transmitting a mortality signal during the previous monitoring flight, the state of the carcass suggests the caribou may have been dead longer than 1 month. Caribou BC1003 had been dead for an extended period of time but the collar had never entered mortality mode; no evidence of any remains were found at the site and moss had grown over the collar.

The Iridium collar (SCEK121; Calendar Range) was damaged by wolves and will require repair of the belting prior to redeployment. One SCEK VHF collar (SCEK159; Chinchaga Range) was also destroyed by wolves. The remaining 3 SCEK VHF collars retrieved were all in good condition and suitable for redeployment during the winter 2013-2014 capture season.

No wolf mortalities were detected during the September 05-06 monitoring flight. However, West Clarke Pack wolf BW004 was discovered dead by a member of the public prior to the September 05-06 flight (UTM 10.528662.6491866); the collar was turned in to the Fort Nelson Conservation Officer Service.

#### *First Nation Contractors*

There was no First Nations participation during the mortality site investigations conducted between September 07 to 15.

Table 2. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted between September 07<sup>th</sup> and 15<sup>th</sup>, 2013, northeastern British Columbia, (*n*=6).

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 <sup>3</sup>	Comments
009	BC1003	PRK	VHF	06-Mar-08	PRK	PRK	Unknown	Unknown	01-Apr-13 (aerial) and 14-Sept-13	UND	Detected during LW recruitment survey - returned to retrieve during snow-free period; moss growing over collar
042	SCEK121	CAL	Iridium	26-Feb-13	CAL	CAL	41485	30-Jul-13	07-Sep-13	Wolf kill	Collar not at mortality site - no remains found; collar ripped in half with chunk of webbing missing and bite marks
043	SCEK124	CAL	VHF	26-Feb-13	CAL	CAL	Unknown	24-Jul-13	07-Sep-13	Wolf kill	Skeleton disarticulated and scattered, long bones crushed, hide consumed, no odour on collar
044	SCEK072	SNS	VHF	03-Feb-13	WSK	Between NRK & ESK	Unknown	24-Jul-13	07-Sep-13	UND	Appears caribou died and then was scavenged by a bear (bones not scattered, skull intact)
045	SCEK159	CHIN	VHF	04-Mar-13	MLL	MLL - OS	Unknown	25-Jul-13	10-Sep-13	Wolf kill	Confirmed wolf kill - skeleton disarticulated, long bones missing, hide consumed, collar ripped in two and chewed up

Table 2 cont. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted between September 07<sup>th</sup> and 15th, 2013, northeastern British Columbia, (*n*=6).

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 <sup>3</sup>	Comments
046	SCEK011/BC1038	PRK	VHF	07-Jan-13	PRK	PRK	Unknown	25-Jul-13	15-Sep-13	Wolf kill	Signs of struggle and wolf scat at kill site, carcass disarticulated, only remains were patches of hair, lower jaw X 2, and bone fragments

<sup>1</sup> PRK – Parker    CAL – Calendar    SNS – Snake-Sahtaneh    CHIN – Chinchaga

<sup>2</sup> PRK – Parker    CAL – Calendar    WSK - West Kotcho    NRK - North Kotcho    ESK – East Kotcho    MLL – Milligan    OS - Outside Core

<sup>3</sup> UND - undetermined

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

Mortality Investigation #009, BC1003, detected April 01, 2013, investigated September 14, 2013, report and photos.

Mortality Investigation #	009 (presented in both summary reports #1 and #5)
Caribou ID	BC1003
Range	Parker
Date Detected	01-Apr-13
Date Investigated	01-Apr-13 (aerial) and 14-Sept-13
Collar Type	VHF
Date Collared	06-Mar-08
Core Collared	Parker
Capture Site UTM	10.494923.6523557
Core Died	Parker
Date of Death	Unknown
Date Last Known Alive	Unknown
Mortality Site UTM	10.496193.6520206
Cause of Death	Undetermined
Samples	No samples available
Collar Condition	Good
Photos	2734-2737
Investigators	Brad Culling, Diane Culling, Kathy Needlay (FNFN) (March 31) and Brad Culling, Diane Culling (September 14)
Site Investigation Comments	Detected during LW recruitment survey - collar on ground but access restricted (small openings); returned to retrieve during snow-free period; caribou long dead - moss growing over collar; no skeleton/remains at collar location; open black spruce forest



Plate 1. Mortality Site Investigation #009: BC1003 (VHF), Parker Range, (UTM 10.496193.6520206), September 14, 2013. (1/2)



Plate 2. Mortality Site Investigation #009: BC1003 (VHF), Parker Range, (UTM 10.496193.6520206), September 14, 2013. (2/2)



Mortality Investigation #042, SCEK121, September 07, 2013, report and photos.

Mortality Investigation #	042
Caribou ID	SCEK121
Range	Calendar
Date Detected	n/a
Date Investigated	07-Sep-13
Collar Type	Iridium
Date Collared	26-Feb-13
Core Collared	Calendar
Capture Site UTM	10.640764.6639720
Core Died	Calendar
Date of Death	30-Jul-13
Date Last Known Alive	30-Jul-13
Mortality Site UTM	10.610170.6643575
Cause of Death	Wolf kill
Samples	None
Collar Condition	Ripped - belting needs repair
Photos	2643-2651
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	Collar not at mortality site - no remains found; collar ripped in half with chunk of belting missing and bite marks; either repair belting or retire; habitat is open black spruce forest with abundant terrestrial lichen; small lake approx. 100 m to west



Plate 3. Mortality Site Investigation #042: SCEK121 (Iridium), Calendar Range, (UTM 10.610170.6643575), September 07, 2013. (1/2)



Plate 4. Mortality Site Investigation #042: SCEK121 (Iridium), Calendar Range, (UTM 10.610170.6643575), aerial view of habitat, September 07, 2013. (2/2)

Mortality Investigation #043, SCEK124, September 07, 2013, report and photos.

Mortality Investigation #	043
Caribou ID	SCEK124
Range	Calendar
Date Detected	06-Sep-13
Date Investigated	07-Sep-13
Collar Type	VHF
Date Collared	26-Feb-13
Core Collared	Calendar
Capture Site UTM	10.643265.6627135
Core Died	Calendar
Date of Death	Unknown
Date Last Known Alive	24-Jul-13
Mortality Site UTM	10.633234.6613455
Cause of Death	Wolf kill
Samples	None
Collar Condition	Good - no odour, no bite marks
Photos	2652-2664
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	<p>Wolf kill - skeleton disarticulated and scattered, long bones crushed, hide consumed, no odour on collar; carcass not completely consumed but no tissue samples available and no marrow left in remaining pieces of long bone; no wolf scat at site; collar found &lt; 75 m from high-grade road; habitat black spruce forest with abundant terrestrial lichen patches; notable features within approximately 1 km include road, pipeline, compressor station, July Lake camp, and small lake; large patches of terrestrial lichen between mort site and road</p>





Plate 5. Mortality Site Investigation #043: SCEK124 (VHF), Calendar Range, (UTM 10.633234.6613455), September 07, 2013. (1/2)



Plate 6. Mortality Site Investigation #043: SCEK124 (VHF), Calendar Range, (UTM 10.633234.6613455), aerial view of habitat, September 07, 2013. (2/2)

Mortality Investigation #044, SCEK072, September 07, 2013, report and photos.

Mortality Investigation #	044
Caribou ID	SCEK072
Range	Snake-Sahtaneh
Date Detected	06-Sep-13
Date Investigated	07-Sep-13
Collar Type	VHF
Date Collared	03-Feb-13
Core Collared	West Kotcho
Capture Site UTM	10.586632.6547446
Core Died	Between North & East Kotcho
Date of Death	Unknown
Date Last Known Alive	24-Jul-13
Mortality Site UTM	10.617507.6553028
Cause of Death	Undetermined
Samples	Jaw, skull
Collar Condition	Good
Photos	2665-2672
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	Appears caribou died then was scavenged by a bear (bones not scattered, skull intact); collar still on neck; site inundated - collar and part of body in small pool of water; died after losing antlers/new growth commenced; collar was not on mortality mode previous monitoring flight but state of carcass suggests caribou may have been dead > 1 month (i.e., collar movement due to scavenger activity); carcass < 30 m from cutline, but habitat relatively intact (nearest landing opening > 1.8 km distant); habitat black spruce forest; abundant caribou trails throughout peatlands





Plate 7. Mortality Site Investigation #044: SCEK072 (VHF), Snake-Sahtaneh Range, between North Kotcho and East Kotcho cores (UTM 10.617507.6553028), September 07, 2013. (1/2)



Plate 8. Mortality Site Investigation #044: SCEK072 (VHF), Snake-Sahtaneh Range, between North Kotcho and East Kotcho cores (UTM 10.617507.6553028), September 07, 2013. (2/2)

Mortality Investigation #045, SCEK159, September 10, 2013, report and photos.

Mortality Investigation #	045
Caribou ID	SCEK159
Range	Chinchaga
Date Detected	06-Sep-13
Date Investigated	10-Sep-13
Collar Type	VHF
Date Collared	04-Mar-13
Core Collared	Milligan
Capture Site UTM	10.647965.6322116
Core Died	Milligan-OS
Date of Death	Unknown
Date Last Known Alive	25-Jul-13
Mortality Site UTM	10.658501.6374309
Cause of Death	Wolf kill
Samples	Teeth from upper jaw
Collar Condition	Destroyed
Photos	2673-2685-2690
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	Confirmed wolf kill - skeleton disarticulated, long bones missing, hide consumed, collar ripped in half/chewed up; habitat is black spruce forest, little terrestrial lichen but abundant arboreal lichen; carcass approx. 250 m from unnamed lake; abundant caribou trails throughout nearby Sb bog complex





Plate 9. Mortality Site Investigation #045: SCEK159 (VHF), Chinchaga Range, north of Milligan Core (UTM 10.658501.6374309), September 10, 2013. (1/4)



Plate 10. Mortality Site Investigation #045: SCEK159 (VHF), Chinchaga Range, north of Milligan Core (UTM 10.658501.6374309), aerial view of habitat, September 10, 2013. (2/4)





Plate 11. Mortality Site Investigation #045: SCEK159 (VHF), Chinchaga Range, north of Milligan Core (UTM 10.658501.6374309), showing wolf damage to collar, September 10, 2013. (3/4)



Plate 12. Mortality Site Investigation #045: SCEK159 (VHF), Chinchaga Range, north of Milligan Core (UTM 10.658501.6374309), showing wolf damage to collar, September 10, 2013. (4/4)

Mortality Investigation #046, SCEK011/BC1038, September 15, 2013, report and photos.

Mortality Investigation #	046
Caribou ID	SCEK011/ BC1038
Range	Parker
Date Detected	05-Sep-13
Date Investigated	15-Sep-13
Collar Type	VHF
Date Collared	07-Jan-13
Core Collared	Parker
Capture Site UTM	10.492399.6523530
Core Died	Parker
Date of Death	Unknown
Date Last Known Alive	25-Jul-13
Mortality Site UTM	10.477306.6515309
Cause of Death	Wolf kill
Samples	Lower jaw, wolf scat X 1
Collar Condition	OK - bite marks
Photos	2739-2750
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	First collared on Feb 26, 2011 (Iridium) by Thiessen and DeMars; recaptured and replaced with VHF collar on Jan 07, 2013 (SCEK011); confirmed wolf kill - caribou died along deeply incised ungulate trail through black spruce forest; signs of struggle and wolf scat at kill site, carcass disarticulated, only remains were patches of hair, lower jaw X 2, and bone fragments; habitat relatively intact - no openings for > 3 km, regenerated cutline running across large flat





Plate 13. Mortality Site Investigation #046: SCEK011/BC1038 (VHF), Parker Range, (UTM 10.477306.6515309), September 15, 2013. (1/2)



Plate 14. Mortality Site Investigation #046: SCEK011/BC1038 (VHF), Parker Range, (UTM 10.477306.6515309), wolf scat at kill site, September 15, 2013. (2/2)