

**2015**

**BC Boreal Caribou Implementation Plan:  
Mortality Investigation Summary Report No. 20:  
April 2015**

## EXECUTIVE SUMMARY

Two hundred twenty-four individual boreal caribou were radio-collared between December 17, 2012 and April 1, 2015 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.

One hundred fifty-nine boreal caribou collar frequencies and 36 wolf collar frequencies were scanned during a monthly fixed-wing telemetry monitoring flight conducted on April 20-21, 2015. Three SCEK-collared caribou mortalities were detected and investigated, including SCEK143 (Prophet; Vectronic Vertex), SCEK188 (North Kotcho; Vectronic Vertex), and SCEK052 (Milligan; Lotek VHF). Cause of death for all 3 animals was confirmed as wolf predation.

No wolf mortalities were detected during the April 2015 monitoring flight.

Seventy-seven radio-collared boreal caribou (70 SCEK, 7 MFLNRO) died from natural causes between the commencement of BCIP monitoring in December 2012 and the end of April 2015. Fifty caribou mortalities were confirmed wolf kills (65%), with an additional 7 cases of suspected wolf kills, 3 wolverine kills, and one accidental death. Three caribou died of apparent poor condition. Cause of death for the remaining 13 animals could not be determined.

## 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). The sample size was augmented during the winters of 2013-14 and 2014-15, with a total of 224 individual boreal caribou collared by April 01, 2015. 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 April 2015 monitoring period.

## 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

One hundred fifty-nine boreal caribou collar frequencies were scanned during the April 20-21, 2015 telemetry monitoring flight, including 12 Lotek LifeCycle GPS, 6 ATS Iridium GPS, 63 Vectronic Vertex GPS, and 78 Lotek VHF. Three caribou mortalities were detected; all 3 animals died as a result of wolf predation. Prophet caribou SCEK143 was killed in mature upland spruce in the Boat Creek valley, several km from suitable boreal caribou habitat. GPS data suggests the caribou was chased to this location. Snake-Sahtaneh caribou SCEK188 was killed in black spruce peatland habitat in the North Kotcho Core, approximately 10 m from a seismic line. Chinchaga caribou SCEK052 was killed in an area of relatively high industrial disturbance in the Milligan Core.

Thirty-six wolf collar frequencies were scanned during the April 2014 monitoring flight, including 28 Lotek Iridium GPS, 1 Vectronic Vertex GPS, and 7 Lotek VHF. No wolf mortalities were detected.

Table 1 summarizes total caribou mortalities by collar type from the commencement of the project to the end of April 2015 (Year III). Details of radio-collared boreal caribou mortality investigations conducted during the April 2015 monitoring period are presented in Table 2 and Appendix I.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortalities between December 18, 2012 and April 30, 2015, northeastern British Columbia.

Dec 2012-April 2015	Collar Type				Total
	ATS Iridium GPS	Vectronic Vertex GPS	Lotek Lifecycle GPS	Lotek VHF	
MFLNRO	1			6	7
SCEK	11	13	2	44	70
Total	12	13	2	50	77

### *First Nation Sub-contractors*

Maxine Davis, of the Doig River First Nation, participated in caribou mortality site investigations during the April 2015 monitoring period.

Table 2. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted in April 2015, northeastern British Columbia ( $n=3$ ).

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 Investigated	Cause of Death	Site Investigation Comments
084	SCEK143	PPH	Vectronic Vertex GPS	01-Mar-13	PPH	PPH	09-Apr-15	21-Apr-15	Wolf kill	Kill site not found; collar located in mature upland white spruce on east slope of Boat Creek valley approximately 60 m from hair patch immediately adjacent to Boat Creek; no suitable caribou habitat for several km - GPS data suggests caribou was chased to this location.
085	SCEK188	SNS	Vectronic Vertex GPS	04-Mar-14	NRK	NRK-OS	03-Apr-15	21-Apr-15	Wolf kill	Kill site in black spruce peatland, approximately 10 m from seismic line.
086	SCEK052	CHIN	Lotek VHF	30-Jan-13	MLL	MLL	Unk	26-Apr-15	Wolf kill	Kill site immediately adjacent to hand-cut seismic line through black spruce forest, approximately 60 m from mulcher line, < 150 m from older cat-cut line with Sb regen to 1 m, and 330 m from lease/road.

<sup>1</sup> PPH - Prophet SNS - Snake-Sahtaneh CHIN - Chinchaga

<sup>2</sup> PPH - Prophet NRK - North Kotcho MLL - Milligan

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

Mortality Investigation #084: SCEK143, April 21, 2015, report and photos.

Mortality Investigation #	084
Caribou ID	SCEK143
Range	Prophet
Date Detected	20-April-15
Date Investigated	21-Apr-15
Collar Type	Vectronic Vertex
Date Collared	01-Mar-13
Core Collared	Prophet
Capture Site UTM	10.534754.6476071
Core Died	Prophet
Date of Death	09-Apr-15
Mortality Site UTM	10.557219.6418609
Cause of Death	Wolf kill
Samples	None available
Collar Condition	Damaged (chewed) - not reusable
Photos	P1010282-P1010284
Investigators	Brad Culling, Ted Euchner
Site Investigation Comments	Last seen alive during March 25, 2015 late winter recruitment survey (no calf at heel); mortality detected during April 2015 telemetry flight; collar not at kill site; only remains found were patches of hair on side bar of Boat Creek (approximately 60 m from collar); caribou was possibly killed on melting ice or in the creek; habitat is mature upland white spruce on east slope of Boat Creek valley - no suitable caribou habitat for several km; GPS data suggests caribou was chased to this location.



Plate 1. Mortality Site Investigation #84: SCEK143 (Vectronic Vertex),  
Prophet Range (UTM 10.557219.6418609), April 21, 2015. (1/2)



Plate 2. Mortality Site Investigation #84: SCEK43 (Vectronic Vertex),  
Prophet Range (UTM 10. 557219.6418609), April 21, 2015. (2/2)

Mortality Investigation #085: SCEK188, April 21, 2015, report and photos.

Mortality Investigation #	085
Caribou ID	SCEK188
Range	Snake-Sahtaneh
Date Detected	21-Apr-15
Date Investigated	21-Apr-15
Collar Type	Vectronic Vertex
Date Collared	04-Mar-14
Core Collared	North Kotcho
Capture Site UTM	10.612830.6568219
Core Died	North Kotcho (outside core)
Date of Death	03-Apr-15
Mortality Site UTM	10.597801.6574975
Cause of Death	Wolf kill
Samples	Piece of hide (with abundant adult winter ticks)
Collar Condition	Good
Photos	P1010285-P1010289
Investigators	Brad Culling, Ted Euchner
Site Investigation Comments	Last seen alive during March 31, 2015 late winter recruitment survey (no calf at heel); mortality detected during April 2015 telemetry flight; carcass consumed - only hair and piece of hide remaining; abundant adult winter ticks found under hide; kill site in black spruce peatland, approximately 10 m from seismic line.





Plate 1. Mortality Site Investigation #85: SCEK188 (Vectronic Vertex), Snake-Sahtaneh Range (UTM 10.597801.6574975), April 21, 2015. (1/2)



Plate 2. Mortality Site Investigation #85: SCEK188 (Vectronic Vertex), Snake-Sahtaneh Range (UTM 10.597801.6574975), April 21, 2015. (2/2)

Mortality Investigation #086: SCEK052, April 26, 2015, report and photos.

Mortality Investigation #	086
Caribou ID	SCEK052
Range	Chinchaga
Date Detected	20-Apr-15
Date Investigated	26-Apr-15
Collar Type	Lotek VHF
Date Collared	30-Jan-13
Core Collared	Milligan
Capture Site UTM	10.629507.6345144
Core Died	Milligan
Date of Death	Unknown
Mortality Site UTM	10.652172.6299476
Cause of Death	Wolf kill
Samples	Lower jaw (X1), partial spine/ribs, pelvis, bone shards, hide; adult winter ticks (X2), scat (unid X1)
Collar Condition	Good (few bite marks)
Photos	P1010290-P1010305
Investigators	Brad Culling, Diane Culling, Maxine Davis
Site Investigation Comments	Last seen alive during March 23, 2015 late winter recruitment survey (no calf at heel); mortality detected during April 2015 telemetry flight; carcass mainly consumed (remains include lower jaw, partial spine/ribs, pelvis, scapula (X1), bone shards, hide); adult winter ticks on hide (voucher sample), unidentified scat (voucher sample); kill site immediately adjacent to hand-cut seismic line through black spruce forest, approximately 60 m from mulcher line, < 150 m from older cat-cut line with Sb regen to 1 m, and 330 m from lease.





Plate 1. Mortality Site Investigation #86: SCEK052 (Lotek VHF), Chinchaga Range (UTM 10.652172.6299476), April 26, 2015. (1/2)



Plate 2. Mortality Site Investigation #83: SCEK138 (Lotek VHF), Chinchaga Range (UTM 10.652172.6299476), April 26, 2015. (2/2)