

2015

**BC Boreal Caribou Implementation Plan:
Mortality Investigation Summary Report No. 19:
March 2015**

**Diversified Environmental Services
Fort St. John, BC**

EXECUTIVE SUMMARY

A total of 220 boreal caribou were radio-collared between December 2012 and February 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.

March 2015 telemetry monitoring was completed in conjunction with the annual late winter caribou recruitment survey, conducted between March 23 and April 1, 2015. One hundred fifty-eight boreal caribou collar frequencies and 30 wolf collar frequencies were scanned. Three SCEK-collared caribou mortalities were detected and investigated, including SCEK199 (Milligan; Vectronic Vertex), SCEK030 (Milligan; Lotek VHF), and SCEK138 (Calendar; Lotek VHF). SCEK199 and SCEK138 died of wolverine and wolf predation, respectively. Cause of death for SCEK030 was unspecified predation; although wolves consumed the carcass, the animal may have been killed by either wolves or a wolverine.

Seventy-four radio-collared boreal caribou (67 SCEK, 7 MFLNRO) died from natural causes between the commencement of BCIP monitoring in December 2012 and April 1, 2015. The majority of caribou deaths were confirmed wolf kills (47), with an additional 7 cases of suspected wolf kills, 3 confirmed wolverine kills, and one accidental death. Three caribou died of apparent poor condition. It was not possible to determine the cause of death for the remaining 13 animals.

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 220 individual boreal caribou collared by February 28, 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 March 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-eight boreal caribou collar frequencies and 30 wolf collar frequencies were scanned during the annual late winter recruitment survey conducted between March 23 and April 01, 2015. Three caribou mortalities were detected, including 2 Chinchaga caribou (SCEK199 and SCEK030) and 1 Calendar caribou (SCEK138).

SCEK199 (Milligan; Vectronic Vertex) was discovered transmitting a mortality signal on March 23. The partially-consumed carcass was found at the base of a tree in open black spruce forest, immediately adjacent to a seismic line. Cause of death was wolverine predation. The collar was redeployed on Etthithun caribou SCEK224 on April 1, 2015.

SCEK030 (Lotek VHF) was also heard transmitting a mortality signal during the March 23 survey of the Milligan Core. The collar was located under several cm of snow in mature, open-canopy, black spruce-lodgepole pine forest. The carcass appeared to be completely consumed; the only remains found was a small patch of sheared off hair exposed by melting snow at the base of a large spruce tree. While the cause of death could not be determined, the absence of remains and the sheared hair was typical of wolf predation sites.

Calendar caribou SCEK138 (Lotek VHF) was heard transmitting a mortality signal on the March 29 survey. The collar was found in a patch of hair on a small peatland lake. The cause of death was confirmed wolf predation.

No wolf mortality signals were detected during the March 2015 monitoring period.

Details of radio-collared boreal caribou mortality investigations conducted during the March 2015 monitoring period are presented in Table 1 and Appendix I.

First Nation Sub-contractors

Eva Needlay, of the Fort Nelson First Nation, and Maxine Davis, of the Doig River First Nation, participated in caribou mortality site investigations during the March 2015 monitoring period.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted during March 2015, northeastern British Columbia ($n=3$).

Mort Invest #	Caribou ID	Range ¹	Collar Type	Date Collared	Core Collared ²	Core Died ²	Date of Death	Date Investigated	Cause of Death	Site Investigation Comments
081	SCEK199	CHIN	Vectronic Vertex GPS	06-Mar-14	MLL	MLL	15-Mar-15	23-Mar-15	Wolverine kill	Mortality identified during March 23, 2015 SCEK caribou recruitment survey; kill site in open black spruce forest immediately adjacent to a cutline, abundant lichen and evidence of cratering.
082	SCEK030	CHIN	Lotek VHF	17-Jan-13	MLL	MLL	Unk	23-Mar-15	Suspected wolf kill	Mortality identified during March 23, 2015 SCEK caribou recruitment survey; kill site in mature, open canopy black spruce-lodgepole pine forest; 50-75 cm snow with firm crust.
083	SCEK138	CAL	Lotek VHF	28-Feb-13	CAL	CAL	Unk	29-Mar-15	Wolf kill	Mortality identified during March 29, 2015 SCEK caribou recruitment survey; kill site on small lake in black spruce peatland habitat.

¹ CHIN - Chinchaga CAL - Calendar

² MLL - Milligan CAL - Calendar

APPENDIX I: Caribou Mortality Investigation Reports

Mortality Investigation #081: SCEK199, March 23, 2015, report and photos.

Mortality Investigation #	081
Caribou ID	SCEK199
Range	Chinchaga
Date Detected	23-Mar-15
Date Investigated	23-Mar-15
Collar Type	Vectronic Vertex
Date Collared	06-Mar-14
Core Collared	Milligan
Capture Site UTM	10.647427.6311820
Core Died	Milligan
Date of Death	15-Mar-15
Mortality Site UTM	10.628098.6335952
Cause of Death	Wolverine kill
Samples	Vertebrae, ribs (X2), hide, unidentified scat (X1)
Collar Condition	Good - a few teeth marks and chewed areas (minor)
Photos	0964-0985
Investigators	Brad Culling, Diane Culling, Maxine Davis
Site Investigation Comments	Mortality identified during March 23, 2015 SCEK caribou recruitment survey; carcass partially consumed, wolverine tracks at site, evidence of hemorrhaging under skin (prior to death), several puncture/bite marks on shoulders, spine/rib cage found at base of small Sb; no wolf tracks in vicinity; kill site in open black spruce forest immediately adjacent to a cutline, abundant lichen and evidence of cratering; collar redeployed on SCEK224 (Etthitun Core) on April 01, 2015.



Plate 1. Mortality Site Investigation #81: SCEK199 (Vectronic Vertex), Chinchaga Range (UTM 10.628098.6335952), March 23, 2015. (1/2)



Plate 2. Mortality Site Investigation #81: SCEK199 (Vectronic Vertex), Chinchaga Range (UTM 10.628098.6335952), March 23, 2015. (2/2)

Mortality Investigation #082: SCEK030, March 23, 2015, report and photos.

Mortality Investigation #	082
Caribou ID	SCEK030
Range	Chinchaga
Date Detected	23-Mar-15
Date Investigated	23-Mar-15
Collar Type	Lotek VHF
Date Collared	17-Jan-13
Core Collared	Milligan
Capture Site UTM	10.644271.6333617
Core Died	Milligan
Date of Death	Unknown
Mortality Site UTM	10.626655.6349419
Cause of Death	Undetermined predation (suspected wolf kill)
Samples	None available
Collar Condition	Good - no bite marks
Photos	0985-0993
Investigators	Brad Culling, Diane Culling, Maxine Davis
Site Investigation Comments	Mortality detected during March 23 recruitment survey; collar located under several cm of snow in mature, open-canopy, black spruce-lodgepole pine forest; carcass appeared to be completely consumed, only remains found was a small patch of sheared off hair exposed by melting snow at the base of a large spruce tree; wolf predation suspected based on location and sheared hair; approximately 50-75 cm snow with firm crust.



Plate 1. Mortality Site Investigation #82: SCEK030 (Vectronic Vertex),
Chinchaga Range (UTM 10.626655.6349419), March 23, 2015. (1/2)



Plate 2. Mortality Site Investigation #82: SCEK030 (Vectronic Vertex),
Chinchaga Range (UTM 10.626655.6349419), March 23, 2015. (2/2)

Mortality Investigation #083: SCEK138, March 29, 2015, report and photos.

Mortality Investigation #	083
Caribou ID	SCEK138
Range	Calendar
Date Detected	29-Mar-15
Date Investigated	29-Mar-15
Collar Type	Lotek VHF
Date Collared	28-Feb-13
Core Collared	Calendar
Capture Site UTM	10.620607.6620359
Core Died	Calendar
Date of Death	Unknown
Mortality Site UTM	10.653636.6609085
Cause of Death	Wolf kill
Samples	Piece of hide
Collar Condition	Good
Photos	P1010129-P1010132
Investigators	Brad Culling, Diane Culling, Eva Needlay
Site Investigation Comments	Mortality detected during March 29, 2015 recruitment survey; carcass consumed, only hair and a small piece of hide remaining; caribou was killed by wolves on a lake in black spruce peatlands.



Plate 1. Mortality Site Investigation #83: SCEK138 (Lotek VHF),
Calendar Range (UTM 10.653636.6609085), March 29, 2015. (1/2)



Plate 2. Mortality Site Investigation #83: SCEK138 (Lotek VHF),
Calendar Range (UTM 10.653636.6609085), March 29, 2015. (2/2)