2015

BC Boreal Caribou Implementation Plan:

Mortality Investigation Summary Report No. 23: July 2015

Diversified Environmental Services
Fort St. John, BC

EXECUTIVE SUMMARY

As a component of the *British Columbia Boreal Caribou Implementation Plan* (BCIP), 224 individual boreal caribou were radio-collared in British Columbia's boreal caribou ranges between December 2012 and April 2015. 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.

One hundred fifty-one boreal caribou collar frequencies were scanned during the July 2015 monthly fixed-wing telemetry monitoring flight. Two mortality signals were detected during the flight, including Maxhamish caribou SCEK001 (Lotek VHF) and Chinchaga RRA caribou SCEK058 (Lotek VHF). A third mortality was detected through examination of satellite-transmitted GPS data (SCEK171, Chinchaga RRA, Vectronic GPS). Mortality investigations were conducted on July 16, 2015. Cause of death was confirmed as wolf predation for SCEK001 and SCEK058. SCEK171 was a non-predation natural mortality.

Twenty-seven wolf collar frequencies were scanned during the July monitoring flight; no wolf mortalities were detected.

Eighty-three radio-collared boreal caribou (76 SCEK, 7 MFLNRO) died between the commencement of BCIP monitoring in December 2012 and the end of July 2015. Fifty-five caribou mortalities were confirmed wolf kills (66%), with an additional 7 cases of suspected wolf predation, 3 cases of wolverine predation, 4 non-predation deaths related to condition, and one accidental death. Cause of death for the remaining 13 animals could not be determined. SCEK171 was the first radio-collared caribou to die of natural, non-predation causes since the summer of 2013, which followed an atypically severe late winter and spring.

BACKGROUND

During the winter of 2012-2013, 164 adult female caribou were radio-collared in British Columbia's boreal caribou ranges as part of the BCIP. The sample size was augmented during the winters of 2013-2014 and 2014-2015, with a total of 224 individual boreal caribou collared by April 1, 2015. Caribou collaring activities were administered and funded through the Science and Community Environmental

Knowledge Fund (SCEK). The fate of all SCEK-collared caribou, as well as boreal caribou previously collared by MFLNRO, is monitored to track adult survival.

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. Information on adult mortality and juvenile recruitment is used to determine population trend.

This summary report pertains to mortality signals investigated during the July 2015 monitoring period.

METHODS

For the Milligan and Etthithun cores of the Chinchaga Range, mortality sites are accessed by helicopter from the Fort St. John airport. Access is from the Fort Nelson airport for 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-one boreal caribou collar frequencies were scanned during the monthly fixed-wing telemetry monitoring flight conducted on July 15-16, 2015. Two mortality signals were detected during the July flight, including Maxhamish caribou SCEK001 (Lotek VHF) and Chinchaga RRA caribou SCEK058 (Lotek VHF). At the time of the fixed-wing monitoring flight, GPS data from Chinchaga RRA caribou

SCEK171 (Vectronic GPS) indicated a potential mortality, however, the VHF beacon was not on mortality during the July 15 fixedwing overflight. All 3 mortality indications were investigated by helicopter on July 16; SCEK071 was found to have died shortly after the previous day's fixed-wing monitoring flight.

Both SCEK001 and SCEK058 died as a result of wolf predation. All tissues had been consumed, including hide, with only bone fragments remaining. Both kills occurred in intact open black spruce habitat.

SCEK171 was estimated to have died within 12 hours of the July 16 site investigation. The carcass was intact, with no external injuries or abnormalities. GPS data indicates that the animal stopped moving on July 11, approximately 5 days prior to its death on July 16. Ground disturbance patterns suggested that the she had “peddled” in tight circles over an extended period, while unable to right herself. Details of the mortality site investigations are presented in Table 1 and Appendix I.

Twenty-seven wolf collar frequencies were scanned during the July 2015 monitoring flight. No wolf mortalities were detected in July, either through aerial monitoring or GPS data.

First Nation Sub-contractors

There were no opportunities for First Nations participation in the July 2015 mortality site investigations.

Table 1. Summary of SCEK and MFLNRO radio-collared boreal caribou mortality investigations conducted in July 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
090	SCEK001	MAX	Lotek VHF	17-Dec-12	CPB	CPG	07-Jun-15	16-Jul-15	Wolf kill	Kill site in open black spruce forest; habitat intact.
091	SCEK058	CHIN	Lotek VHF	31-Jan-13	CHIN RRA	CHIN RRA	Unk	16-Jul-15	Wolf kill	Kill site in open black spruce forest; habitat intact.
092	SCEK171	CHIN	Vectronic Vertex GPS	01-Mar-14	CHIN RRA	CHIN RRA	15 or 16 July, 2015	16-Jul-15	Natural non-predation death	Mortality site in largely intact black spruce forest, approximately 500 m from cutline

[1] MAX - Maxhamish CHIN Chinchaga RRA
[2] CPB - Capot-Blanc CHIN RRA - Chinchaga RRA

APPENDIX I:

JULY 2015

CARIBOU MORTALITY INVESTIGATION REPORTS

Mortality Investigation #090: SCEK001, July 16, 2015, report and photos.

Mortality Investigation #	090
Caribou ID	SCEK001
Range	Maxhamish
Date Detected	15 July-15
Date Investigated	16-Jun-15
Collar Type	Lotek VHF
Date Collared	17-Dec-12
Core Collared	Capot-Blanc
Capture Site UTM	10.476981.6587377
Core Died	Capot-Blanc
Date of Death	Unknown
Mortality Site UTM	10.472130.6580004
Cause of Death	Wolf kill
Samples	Lower jaw (x2), mort site hair, wolf scat (x1)
Collar Condition	Good (a few bite marks)
Photos	0466-0471
Investigators	Brad Culling, Diane Culling, Matt Mumma
Site Investigation Comments	Mortality detected during July 15 telemetry flight; carcass consumed; kill site on trail through a young mixedwood stand (spruce, paper birch, alder, with Labrador tea understory) within 450 m of an unnamed lake; habitat relatively intact.

Plate 1. Mortality Site Investigation #090; SCEK001 (Lotek VHF), Maxhamish Range (UTM 10.472130.6580004), July 16, 2015. (1/2)

Plate 2. Mortality Site Investigation #090; SCEK001 (Lotek VHF), Maxhamish Range (UTM 10.472130.6580004), June 16, 2015. (2/2)

Mortality Investigation #091: SCEK058, July 16, 2015, report and photos.

Mortality Investigation #	091
Caribou ID	SCEK058
Range	Chinchaga RRA
Date Detected	15 July-15
Date Investigated	16-Jun-15
Collar Type	Lotek VHF
Date Collared	31-Jan-13
Core Collared	Chinchaga RRA
Capture Site UTM	10.609201.6351543
Core Died	Chinchaga RRA
Date of Death	Unknown
Mortality Site UTM	10.602323.6439914
Cause of Death	Wolf kill
Samples	Scapula, bone shards, piece of hide, rumen sample
Collar Condition	Good (a few bite marks)
Photos	0472-0479
Investigators	Brad Culling, Diane Culling, Matt Mumma
Site Investigation Comments	Mortality detected during July 15 telemetry flight; carcass consumed; kill site in open black spruce forest; habitat intact.

Plate 3. Mortality Site Investigation #091; SCEK058 (Lotek VHF), Chinchaga Range (UTM 10.602323.6439914), July 16, 2015. (1/2)

Plate 4. Mortality Site Investigation #091; SCEK058 (Lotek VHF), Chinchaga Range (UTM 10.602323.6439914), July 16, 2015. (2/2)

Mortality Investigation #092: SCEK171, July 16, 2015, report and photos.

Mortality Investigation #	092
Caribou ID	SCEK171
Range	Chinchaga RRA
Date Detected	16 July-15
Date Investigated	16-Jun-15
Collar Type	Vectronic Vertex
Date Collared	01-Mar-14
Core Collared	Chinchaga RRA
Capture Site UTM	10.606560.6441908
Core Died	Chinchaga RRA
Date of Death	July 16, 2015 (body cavity still warm)
Mortality Site UTM	10.598152.6411225
Cause of Death	Natural, non-predation death
Samples	Head, internal organs, tissue samples, long bone, fluid sample from udder, thoracic blood sample, "chicken-fat" clot samples from major arteries
Collar Condition	Good
Photos	0480-0504
Investigators	Brad Culling, Diane Culling, Matt Mumma
Site Investigation Comments	Prior to the July monitoring flight, GPS data indicated a potential mortality, however, the VHF beacon was not transmitting a mortality signal during the July 15 flight; returned by helicopter on July 16 to confirm status and found caribou recently dead; carcass was intact, with no external injuries or abnormalities; animal had thrashed around at the mortality site for some time; necropsy performed: caribou very thin, body cavity still warm (caribou dead less than 12 hrs), "chicken-fat" clots found in major arteries, GI tract almost empty except for clear fluid; caribou appeared to have been lactating (sample of viscous milky fluid taken), but no sign of calf in vicinity; mortality site in largely intact black spruce forest, approximately 500 m from cutline; GPS data indicates that the animal stopped moving on July 11 .

Plate 5. Mortality Site Investigation #092; SCEK171 (Vectronic Vertex), Chinchaga Range (UTM 10.598152.6411225), July 16, 2015. (1/4)

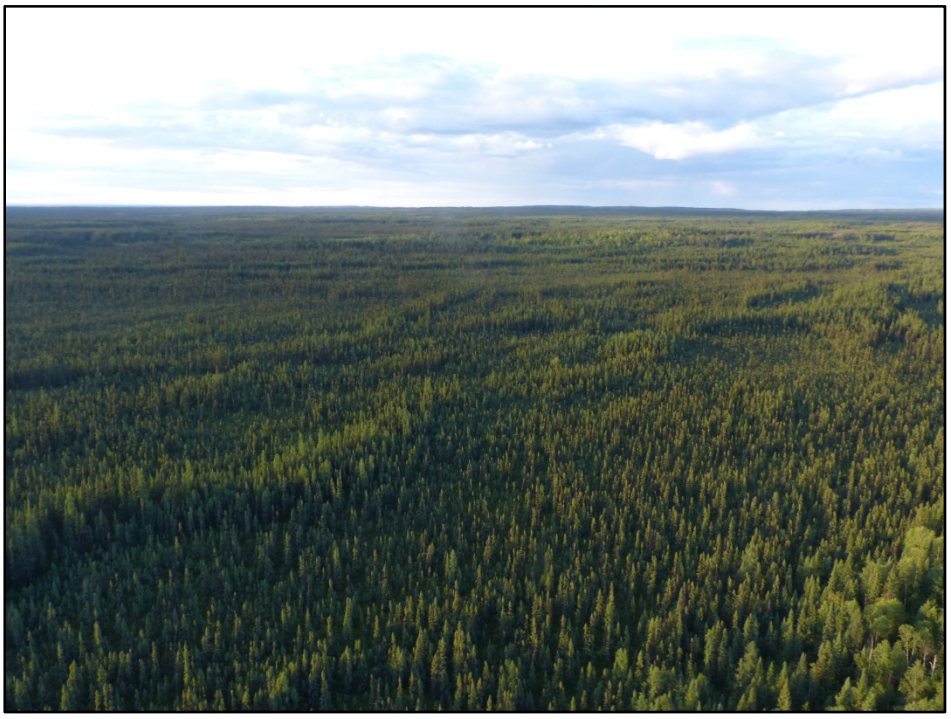

Plate 6. Mortality Site Investigation #092; SCEK171 (Vectronic Vertex), Chinchaga Range (UTM 10.598152.6411225), July 16, 2015. (2/4)

Plate 7. Mortality Site Investigation #092; SCEK171 (Vectronic Vertex), Chinchaga Range (UTM 10.598152.6411225), July 16, 2015. (3/4)

Plate 8. Mortality Site Investigation #092; SCEK171 (Vectronic Vertex), Chinchaga Range (UTM 10.598152.6411225), July 16, 2015. (4/4)