

2017

BC Boreal Caribou Implementation Plan:

**Mortality Investigation Summary Report No. 31:
November 2016 through April 2017**

EXECUTIVE SUMMARY

As a component of the British Columbia Boreal Caribou Implementation Plan (BCIP), 240 individual boreal caribou (*hereafter*, SCEK caribou) were radio-collared in British Columbia's boreal caribou ranges between December 2012 and March 2016. The fate of these animals, as well as boreal caribou previously collared by the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO), is monitored through transmitted GPS/satellite data and periodic telemetry monitoring flights to track adult survival and collect information on causes of caribou mortality. This summary report (#31) provides details of boreal caribou mortality events detected and investigated from November 2016 through April 30, 2017, as well as radio-collared wolf mortalities detected during the monitoring period.

Eight new caribou mortalities were detected between November 2016 and April 30, 2017, including 4 confirmed wolf kills (SCEK227 [Milligan]; SCEK012/ BC1041 [Parker], SCEK051/BC1060 [Prophet], and SCEK081[Tsea]). One animal (SCEK004/BC1050; Fortune) died of apparent poor condition or disease; the intact carcass was retrieved and delivered to frozen storage in Fort St. John pending a necropsy by the Provincial Wildlife Veterinarian. Three new VHF mortalities were documented but not investigated from the ground (SCEK053 [Milligan], SCEK010/BC1039 [Parker], and SCEK045/BC1045 [Prophet]), and a ground investigation was conducted for one previously identified VHF mortality (SCEK108; Calendar; M.I. #105).

One hundred and eight radio-collared boreal caribou (101 SCEK, 7 MFLNRO) died between commencement of BCIP monitoring, in December 2012, and April 30, 2017. The majority (75%) of caribou deaths were due to predation, including 70 confirmed wolf kills, 8 suspected wolf kills, and 3 wolverine kills (Table 2). Five caribou deaths were related to poor condition or disease, 2 animals were harvested, and 1 died accidentally. The cause of death could not be conclusively determined for 15 animals and site investigations were not conducted for 4 VHF-collared caribou.

On April 30, 2017, 106 boreal caribou collars remained functional within BC's boreal caribou ranges, including 54 Vectronic Vertex GPS, and 52 Lotek VHF.

Twenty-one wolf collar frequencies were being monitored at the beginning of the November 2016 through April 2017 monitoring period. One mortality was detected (Nexen/University of Alberta wolf BW045). At the end of the monitoring period, on April 30, 2017, 4 wolf collars were known to be still active and the status of the remaining collars was undetermined, with the majority assumed to have exceeded their battery lives.

BACKGROUND

Between December 2012 and March 2016, a total of 240 individual caribou (239F, 1M¹) were radio-collared in British Columbia's boreal caribou ranges. Caribou collaring and monitoring activities were administered and funded through the BC Oil and Gas Research and Innovation Society (OGRIS²). The fate of all SCEK caribou, as well as boreal caribou previously collared by MFLNRO, was monitored using a combination of mortality notifications from transmitted GPS/satellite data and periodic fixed-wing telemetry flights. Upon notification or detection of a mortality signal for a GPS-collared caribou, a ground-based mortality investigation was conducted to determine the cause of death, collect biological samples, and recover the radio-collar. Commencing in May 2016, mortality investigations involving VHF collars were discontinued; a proportion of these collars were later recovered from the field opportunistically in conjunction with related fieldwork.

Wolf collars active within and adjacent to B.C.'s boreal caribou ranges were also monitored for approximate location and mortality status during fixed-wing telemetry flights. These include wolf collars deployed by associated research projects.

Information on adult female caribou mortality and survival is used in conjunction with annual calf recruitment surveys to assess population trend. Biological samples collected from mortality investigation sites support associated research on boreal caribou health in British Columbia.

METHODS

Mortality investigation numbers were assigned sequentially, based on date of detection. Between December 2012 and April 30, 2016, all mortality signals for GPS or VHF-collared caribou were investigated as soon as possible after detection by either GPS data transmission or fixedwing telemetry flight. Commencing in May 2016, only mortality indications involving GPS/satellite collars were investigated at the time of detection, with site investigation for VHF collared caribou mortalities conducted incidental to future related fieldwork (i.e., mortality investigations of GPS-collared caribou or recruitment surveys).

¹ Male caribou BC1037 was collared by MFLNRO in March 2010, then recaptured and fitted with a GPS collar (ID: SCEK173) in March 2014.

² The telemetry program was initially funded and administered through the Science and Community Environmental Knowledge Fund (SCEK). To provide consistency, animal identification numbers (IDs) have followed the SCEK format for the duration of the project.

Mortality sites in the Milligan and Etthithun Core Areas of the Chinchaga Range were typically accessed by helicopter from the Fort St. John airport, with mortalities in the southern portion of the Milligan Core Area accessed by road where possible. Access for all other Ranges and Core Areas was staged from the Fort Nelson airport.

Information collected during mortality site investigations included: animal ID, collar frequency, collar condition, GPS coordinates, condition of remains, confirmed or suspected cause of death, habitat type and extent of habitat disturbance in the vicinity, and site photographs (including aerial). Biological samples were collected where available, including caribou remains (tissue, bone, hair, rumen, etc.) and parasites, as well as predator and scavenger fecal samples.

RESULTS

Eight new caribou mortalities were detected between November 2016 and April 30, 2017 (Table 1). Site investigations were conducted for 5 (1 GPS, 4 VHF), with an additional 3 new VHF mortalities documented but not investigated from the ground due to access or timing constraints (SCEK053 [Milligan], SCEK010/BC1039 [Parker], and SCEK045/BC1045 [Prophet]). One previously identified VHF mortality (M.I. #105) was also investigated during this period; a mortality beacon was detected for SCEK108 (Calendar) on the June 2016 telemetry flight but the site visit and collar recovery was deferred until frozen ground conditions allowed access (see Mortality Investigation Summaries #29 and #30).

Four of the 6 mortalities investigated during winter 2016-2017 were confirmed wolf kills, including SCEK227 (Vertex GPS; Milligan), SCEK012/BC1041 (Lotek VHF; Parker), SCEK051/BC1060 (Lotek VHF; Prophet), and SCEK081 (Lotek VHF; Tsea). A ground investigation for SCEK108 (Lotek VHF) was made during the March recruitment survey of the Calendar Range, however the radio-collar and the majority of the caribou remains were frozen into ice in an inundated black spruce bog. The carcass was partially consumed but it was not possible to determine if death was due to predation or if the caribou died and was later scavenged. A mortality signal for SCEK004/BC1050 (Lotek VHF; Fortune) was detected and investigated during the March 30 recruitment survey of the Maxhamish Range. The emaciated carcass was found intact, suggesting the caribou died of poor condition or disease. The intact carcass was retrieved on April 1, 2017 and delivered to frozen storage in Fort St. John, pending a necropsy by the Provincial Wildlife Veterinarian.

Further details of radio-collared boreal caribou mortality investigations conducted during the November 2016 through April 2017 monitoring period are presented in Appendix I.

Twenty-one wolf collar frequencies were being monitored at the beginning of the November 2016 through April 2017 monitoring period. One mortality associated with a related study was detected. Nexen/University of Alberta wolf BW045 was heard transmitting a VHF mortality beacon on the April 25 telemetry flight; transmitted GPS data indicated that the animal died on April 18, 2017. Monitoring of 5 GPS wolf collars which hadn't transmitted data since the end of 2015 was discontinued during the monitoring period. At the end of the monitoring period, on April 30, 2017, 4 wolf collars were known to be still active and the status of the remaining 11 was undetermined, although most were assumed to have expired.

First Nation Sub-contractors

Wally Attachie, of Doig River First Nation, and William Needlay, of Fort Nelson First Nation, participated in caribou mortality site investigations between November 2016 and April 2017.

Table 2. Summary of SCEK and MFLNRO radio-collared boreal caribou mortalities detected during the November 2016 through April 2017 monitoring period, northeastern British Columbia ($n=8$).

Mort Invest #	Caribou ID	Range	Collar Type	Date Collared	Core Collared	Core Died	Date of Death	Date Investigated	Cause of Death	Site Investigation Comments
105	SCEK108	CAL	Lotek VHF	24-Feb-13	CAL	CAL	Unknown	7-Oct-16 (aerial) and 31-Mar-17 (ground)	UND	VHF mortality detected during May 31-June 1, 2016 telemetry flight; attempted collar recovery in Oct 2016, deferred until frozen ground conditions permitted access (see Mort Investigation Summaries # 29 and 30); accessed site during March 2017 recruitment survey; mortality site in patch of black spruce forest within larger black spruce/tamarack wetland; multiple cutlines within 1000 m.
110	SCEK227	CHIN	Vectronic Vertex GPS	19-Feb-16	MLL	MLL	25-Feb-17	01-Mar-17	Wolf Kill	Potential mortality detected by GPS/satellite data transmission on February 28, 2017 and confirmed March 1; habitat Sb forest (mature Sb and LP) within perimeter of large 2016 wildfire in Osborn drainage; kill site ~ 50 m from an older gas lease and pipeline RoW; ploughed road/RoW in vicinity.
111	SCEK053	CHIN	Lotek VHF	30-Jan-13	MLL	MLL	Unknown	21-Mar-17 (aerial)	Unknown	VHF mortality detected and investigated during March 2017 recruitment survey; no suitable landing location; relatively intact black spruce forest.

Table 2 cont. Summary of SCEK and MFLNRO radio-collared boreal caribou mortalities detected during the November 2016 through April 2017 monitoring period, northeastern British Columbia (n=8).

Mort Invest #	Caribou ID	Range	Collar Type	Date Collared	Core Collared	Core Died	Date of Death	Date Investigated	Cause of Death	Site Investigation Comments
112	SCEK012/BC1041	WSR	Lotek VHF	7-Jan-2013	PRK	PRK	Unknown	28-Mar-17	Wolf kill	VHF mortality detected and investigated during March 2017 recruitment survey; originally collared by MFLNRO in Feb 2011, recaptured and recollared in Jan 2013; kill site on small lake in black spruce bog, approximately 300 m from lease and road.
113	SCEK010/BC1039	WSR	Lotek VHF	7-Jan-2013	PRK	PRK	Unknown	28-Mar-17 (aerial)	Unknown	VHF mortality detected and investigated aurally during March 2017 recruitment survey (no suitable landing location therefore site not investigated from ground); originally collared by MFLNRO in Feb 2011, recaptured and recollared in Jan 2013; mortality site in black spruce forest with regenerating cutlines.
114	SCEK051/BC1060	WSR	Lotek VHF	26-Jan-13	PPH	PPH	Unknown	29-Mar-17	Wolf Kill	VHF mortality detected and investigated during March 2017 recruitment survey; originally collared by MFLNRO in March 2011, recaptured and recollared in Jan 2013; kill site in relatively intact black spruce forest with cutline < 100 m.

Table 2 cont. Summary of SCEK and MFLNRO radio-collared boreal caribou mortalities detected during the November 2016 through April 2017 monitoring period, northeastern British Columbia (n=8).

Mort Invest #	Caribou ID	Range	Collar Type	Date Collared	Core Collared	Core Died	Date of Death	Date Investigated	Cause of Death	Site Investigation Comments
115	SCEK004/BC1050	MAX	Lotek VHF	18-Dec-12	KWG	FRT	Unknown	30-Mar-17 (investigated); 01-April-17 (retrieved carcass)	Non-predation natural death; necropsy results pending	VHF mortality detected and investigated during March 2017 recruitment survey; originally collared by MFLNRO in Feb 2011, recaptured and recollared in Dec 2012; caribou carcass found intact but emaciated, carcass in bedded position; retrieved intact body on April 1, 2017 (necropsy by Provincial Wildlife Veterinarian pending); mortality site in black spruce forest; multiple cutlines (pipeline RoW/seismic lines/roads), leases and snowmobile tracks
116	SCEK081	SNS	Lotek VHF	5-Feb-2013	TSE	TSE	Unknown	30-Mar-2017	Wolf Kill	Mortality detected and investigated during March 2017 recruitment survey; kill site in young black spruce forest with intersecting cutlines within approximately 100 m.
117	SCEK045/BC1045	WSR	Lotek VHF	25-Jan-13	PPH	PPH	Unknown	Not Investigated	Unknown	VHF mortality signal detected during April 2017 fixedwing telemetry flight - mortality documented but not investigated; originally collared by MFLNRO in Feb 2011, recaptured and recollared in Jan

SUMMARY

One hundred and eight radio-collared boreal caribou (101 SCEK, 7 MFLNRO) died between the commencement of BCIP monitoring in December 2012 and April 30, 2017. The majority (75%) of caribou deaths were due to predation, including 70 confirmed wolf kills, 8 suspected wolf kills, and 3 wolverine kills (Table 2). Five non-predation deaths were related to poor condition or disease, including 2 animals that were retrieved intact and delivered to the Provincial Wildlife Veterinarian for necropsies (results of second still pending). Two caribou were apparently harvested by indigenous hunters from Fort Liard, Northwest Territories, and one animal suffered accidental death. The cause of death could not be confirmed for 15 animals, including 4 that likely died from poor condition or disease but that state of the carcass did not allow confirmation. In several cases it was not possible to determine whether death was the result of predation or if the caribou died and later scavenged, including 5 sites where evidence of bear (5) foraging was found. Site investigations and collar recovery for 4 VHF-collared caribou, including SCEK027 (Milligan), SCEK053 (Milligan), SCEK010/BC1039 (Parker), and SCEK045/BC1045 (Prophet), were not conducted.

On April 30, 2017, 105 boreal caribou collars were known to be fully functional within BC's boreal caribou ranges, including 53 Vectronic Vertex GPS and 52 Lotek VHF. An additional Vertex collar (SCEK232; Maxhamish) logged intermittent data throughout Year V.

Table 2. Cause of death of radio-collared boreal caribou in northeastern British Columbia, December 17, 2012 to April 30, 2017 ($n=108$).

Cause of Death	SCEK	MFLNRO	Total
Wolf kill	66	4	70
Suspected wolf kill	8		8
Wolverine kill	2	1	3
Poor Condition/Disease - Confirmed ¹	4	1	5
Indigenous Harvest (Fort Liard, NT)	2		2
Accidental	1		1
Undetermined - ambiguous	14	1	15
Undetermined - no ground investigation	4		4
Total Radio-collared Caribou Mortalities	101	7	108

¹ Including 2 necropsies (results of one pending)

APPENDIX I
Caribou Mortality Investigation Reports
November 2016 through April 2017

Mortality Investigation #105: SCEK108, October 7, 2016 and March 31, 2017, report and photos.

Mortality Investigation #	105
Caribou ID	SCEK108
Range	Calendar
Date Detected	1-Jun-16 (telemetry flight)
Date Investigated	7-Oct-16 (aerial) and 31-Mar-17 (ground)
Collar Type	Lotek VHF
Date Collared	24-Feb-13
Core Collared	Calendar
Capture Site UTM	10.653999.6637066
Core Died	Calendar
Date of Death	May 2016 (VHF collar therefore exact date unknown)
Mortality Site UTM	10.657960.6652881
Cause of Death	Undetermined
Samples	Hair, vertebrae (putrid), segment of pelvis
Collar Condition	Undetermined (unable to retrieve collar as it was frozen into the substrate under 20 cm ice)
Photos	P1030100 to P1030113
Investigators	Brad Culling, Diane Culling, William Needlay
Site Investigation Comments	<p>Detected during the May 31-June 1, 2016 fixed-wing telemetry flight; as of May 1, 2016, only mortality indications involving GPS/satellite collars are to be investigated at the time of detection, therefore collar recovery was deferred to future related fieldwork (see Mort Investigation Summary #29); returned to site on October 7, 2016 but area was inundated and closest helicopter landing site was 18 km distant, therefore collar retrieval was further deferred until frozen ground conditions permitted access (see Mort Investigation Summary #30); accessed site during March 31, 2017 Calendar Range late winter recruitment survey; could not retrieve collar as was frozen into over 20 cm of ice; the caribou remains were frozen into ice at the base of a mature black spruce; cause of death could not be determined - carcass was partially consumed but it is unknown if death was due to predation or if the caribou died and was later scavenged; mortality site was in a patch of black spruce forest within a black spruce/tamarack wetland; habitat fairly intact but there were multiple cutlines within 1000 m of the site.</p>



Plate 1. Mortality Site Investigation #105: SCEK108 (Lotek VHF),
Calendar Range (UTM 10.657960.6652881), March 31, 2017. (1/2)



Plate 2. Mortality Site Investigation #105: SCEK108 (Lotek VHF),
Calendar Range (UTM 10.657960.6652881), March 31, 2017. (2/2)

Mortality Investigation #110: SCEK227, March 1, 2017, report and photos.

Mortality Investigation #	110
Caribou ID	SCEK227
Range	Chinchaga
Date Detected	28-Feb-17
Date Investigated	01-Mar-17
Collar Type	Vectronic Vertex
Date Collared	19-Feb-16
Core Collared	Milligan
Capture Site UTM	10.625514.6352363
Core Died	Milligan
Date of Death	25-Feb-17
Mortality Site UTM	10.673974.6290883
Cause of Death	Wolf Kill
Samples	Piece of hide, hip socket, mort site hair, wolf scat
Collar Condition	Damaged (chewed)
Photos	P1020871 to P1020879
Investigators	Brad Culling, Diane Culling
Site Investigation Comments	Potential mortality detected by GPS/satellite data transmission on February 28, 2017 and confirmed March 1; carcass consumed - found large piece of hide and hip socket; collar was not at kill site; confirmed wolf kill; collar webbing chewed through; kill site was approx. 50 m from an older gas lease and pipeline RoW; ploughed road/RoW in vicinity; habitat Sb forest (mature Sb and LP) within perimeter of large 2016 wildfire in Osborn drainage ; 40 cm accumulated snow with very hard crust at 12 cm depth (12 cm of fresh snow within past 48 hours covered carcass).



Plate 3. Mortality Site Investigation #110: SCEK227 (Vectronic Vertex),
Chinchaga Range (UTM 10.673974.6290883), March 1, 2017. (1/2)



Plate 4. Mortality Site Investigation #110: SCEK227 (Vectronic Vertex),
Chinchaga Range (UTM 10.673974.6290883), March 1, 2017. (2/2)

Mortality Investigation #111: SCEK053, March 21, 2017, report.

Mortality Investigation #	111
Caribou ID	SCEK053
Range	Chinchaga
Date Detected	21-Mar-17
Date Investigated	21-Mar-17 (aerial inspection only)
Collar Type	Lotek VHF
Date Collared	30-Jan-13
Core Collared	Milligan
Capture Site UTM	10.629238.6347513
Core Died	Milligan
Date of Death	Unknown (Winter 2016-2017)
Mortality Site UTM	10.672457.6348436
Cause of Death	Unconfirmed (suspected wolf kill)
Samples	None
Collar Condition	Unknown
Photos	n/a
Investigators	Brad Culling, Diane Culling, Wally Attachie (DRFN)
Site Investigation Comments	Mortality detected and site inspected from air (helicopter) on March 21, 2017 during late winter recruitment survey of Chinchaga Range; no landing site in vicinity; carcass appeared to be consumed based on low-level aerial inspection; relatively intact black spruce forest.

Mortality Investigation #112: SCEK012/BC1041, March 28, 2017, report and photos.

Mortality Investigation #	112
Caribou ID	SCEK012/BC1041
Range	Westside Fort Nelson
Date Detected	28-Mar-17
Date Investigated	28-Mar-17
Collar Type	Lotek VHF
Date Collared	07-Jan-13
Core Collared	Parker
Capture Site UTM	10.491211.6522817
Core Died	Parker
Date of Death	Unknown (Winter 2016-2017)
Mortality Site UTM	10.494224.6521021
Cause of Death	Wolf Kill
Samples	Skull; piece of hide
Collar Condition	Damaged (chewed)
Photos	P1030053to P1030056
Investigators	Brad Culling, Diane Culling, William Needlay (FNFN)
Site Investigation Comments	Mortality detected and investigated during March 28, 2017 recruitment survey; carcass consumed (remains include patches of hide, skull/antlers); 52 cm accumulated snow with 12 cm fresh snow since kill; no wolf tracks or scat found; kill site on small wetland in black spruce bog, approximately 300 m from lease and road; originally collared by FLNRO on Feb 26, 2011 (BC1041; UTM 10.508706.6518657); recaptured and recollared in Jan 2013.



Plate 5. Mortality Site Investigation #112: SCEK012/BC1041 (Lotek VHF),
Westside Fort Nelson Range (UTM 10.494224.6521021), March 28, 2017. (1/2)

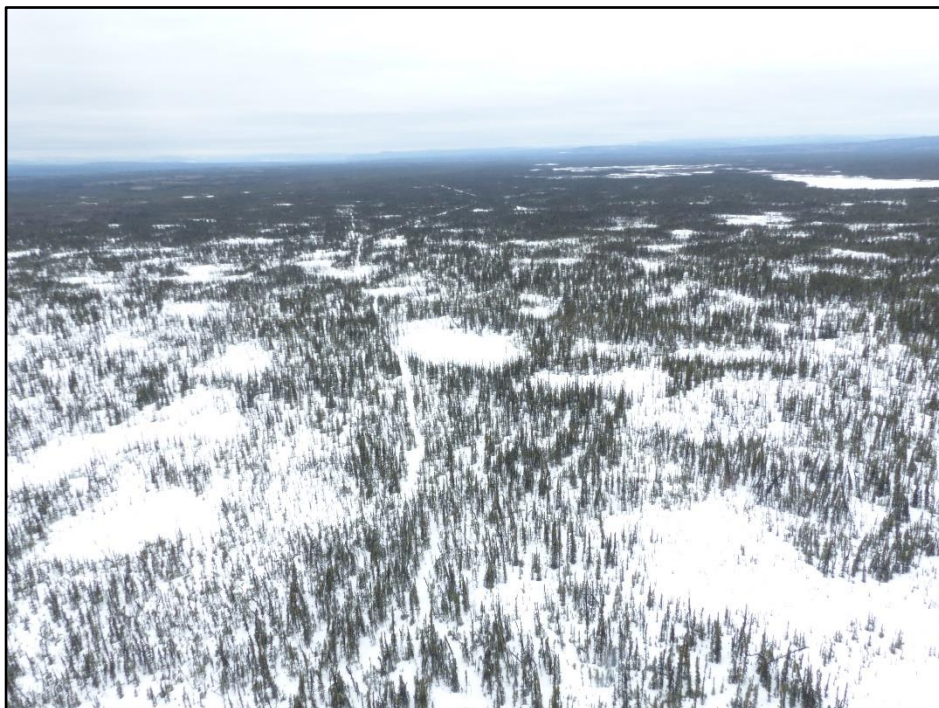


Plate 6. Mortality Site Investigation #112: SCEK012/BC1041 (Lotek VHF),
Westside Fort Nelson Range (UTM 10.494224.6521021), March 28, 2017. (2/2)

Mortality Investigation #113: SCEK010/BC1039, March 28, 2017, report and photo.

Mortality Investigation #	113
Caribou ID	SCEK010/BC1039
Range	Westside Fort Nelson
Date Detected	28-Mar-17
Date Investigated	28-Mar-17
Collar Type	Lotek VHF
Date Collared	07-Jan-13
Core Collared	Parker
Capture Site UTM	10.493473.6523525
Core Died	Parker
Date of Death	Unknown (Winter 2016-2017)
Mortality Site UTM	10.477595.6516365
Cause of Death	Unknown (aerial investigation)
Samples	n/a
Collar Condition	n/a
Photos	P1030051 to P1030052 (aerial view)
Investigators	Brad Culling, Diane Culling, William Needlay (FNFN)
Site Investigation Comments	Mortality detected and investigated aurally during March 28, 2017 recruitment survey (no suitable landing locations therefore site not investigated from ground); originally collared by MFLNRO in Parker Core on Feb 26, 2011 (BC1039; ATS Iridium 149.023; UTM 10.494986.6523552); recaptured to replace Iridium 149.023 on Jan 7, 2013 (SCEK010).



Plate 7. Mortality Site Investigation #113: SCEK010/BC1039 (Lotek VHF),
Westside Fort Nelson Range (UTM 10.477595.6516365), March 28, 2017. (1/1)

Mortality Investigation #114: SCEK051/BC1060, March 29, 2017, report and photos.

Mortality Investigation #	114
Caribou ID	SCEK051/BC1060
Range	Westside Fort Nelson
Date Detected	29-Mar-17
Date Investigated	29-Mar-17
Collar Type	Lotek VHF
Date Collared	26-Jan-13
Core Collared	Prophet
Capture Site UTM	10.567522.6450343
Core Died	Prophet
Date of Death	Unknown (Winter 2016-2017)
Mortality Site UTM	10.572310.6442809
Cause of Death	Wolf Kill
Samples	Pieces of hide, tissue, mort site hair, wolf scat
Collar Condition	Damaged (chewed)
Photos	P1030057 to P1030063
Investigators	Brad Culling, Diane Culling, William Needlay
Site Investigation Comments	Mortality detected and investigated during March 29, 2017 recruitment survey; originally collared by MFLNRO in Prophet on March 2, 2011 (BC1060; ATS Iridium 149.033; UTM 10.544049.6471233 by Thiessen/Demars); recaptured to replace Iridium 149.033 on Jan 26, 2013 (SCEK051); date of death estimated within the previous month based on snow conditions (48 cm accumulated snow with 2 recent snowfall events (at 10 cm and 15 cm depth) on top of remains; kill site in black spruce forest approx. 150 m from wetland (beaver-impounded seepage); habitat relatively intact but cutline < 100 m.



Plate 8. Mortality Site Investigation #114: SCEK051/BC1060 (Lotek VHF),
Westside Fort Nelson Range (UTM 10.572310.6442809), March 29, 2017. (1/2)



Plate 9. Mortality Site Investigation #114: SCEK051/BC1060 (Lotek VHF),
Westside Fort Nelson Range (UTM 10.572310.6442809), March 29, 2017. (2/2)

Mortality Investigation #115: SCEK004/BC1050, March 30, 2017, report and photos.

Mortality Investigation #	115
Caribou ID	SCEK004/BC1050
Range	Maxhamish
Date Detected	30-Mar-17
Date Investigated	30-Mar-17 (investigated) and 01-April-17 (retrieved carcass)
Collar Type	Lotek VHF
Date Collared	18-Dec-12
Core Collared	KWG
Capture Site UTM	10.521572.6571094
Core Died	Fortune
Date of Death	Unknown (Winter 2016-2017)
Mortality Site UTM	10.490272.6629837
Cause of Death	Non-predation natural death ("Sleeping Caribou"); necropsy by Provincial Wildlife Veterinarian pending
Samples	Body retrieved intact
Collar Condition	Good
Photos	5412 to 5456 and P1030073 to P1030084
Investigators	Brad Culling, Diane Culling, William Needlay
Site Investigation Comments	Originally collared by MFLNRO in Kiwigana on Feb 28, 2011 (BC1050; ATS Iridium 149.133; UTM 10.524752.6563977 by Thiessen/Demars); recaptured in Kiwigana to replace Iridium 149.133 on Dec 18, 2012 (SCEK004); VHF beacon last heard on Nov 28, 2016 telemetry flight; mortality detected and investigated during March 30, 2017 recruitment survey of Fortune, caribou carcass found intact but emaciated, carcass in bedded position (i.e., "Sleeping Caribou"); returned on April 1, 2017 to sling intact body to nearby road and transport to frozen storage in Fort St. John (necropsy by Provincial Wildlife Veterinarian pending); confirmed ample collar fit; no hair loss along collar line or on body; 72 cm snow with 37 cm accumulated since caribou died; mortality site in black spruce forest; multiple cutlines (pipeline RoW and seismic lines) and leases and snowmobile tracks in immediate area.



Plate 10. Mortality Site Investigation #115: SCEK004/BC1050 (Lotek VHF), Maxhamish Range (UTM 10.490272.6629837), March 30/April 1, 2017. (1/4)



Plate 11. Mortality Site Investigation #115: SCEK004/BC1050 (Lotek VHF), Maxhamish Range (UTM 10.490272.6629837), March 30/April 1, 2017. (2/4)



Plate 12. Mortality Site Investigation #115: SCEK004/BC1050 (Lotek VHF), Maxhamish Range (UTM 10.490272.6629837), March 30/April 1, 2017. (3/4)



Plate 13. Mortality Site Investigation #115: SCEK004/BC1050 (Lotek VHF), Maxhamish Range (UTM 10.490272.6629837), March 30/April 1, 2017. (4/4)

Mortality Investigation #116: SCEK081, March 30, 2017, report and photos.

Mortality Investigation #	116
Caribou ID	SCEK081
Range	Snake-Sahtaneh
Date Detected	30-Mar-17
Date Investigated	30-Mar-17
Collar Type	Lotek VHF
Date Collared	05-Feb-13
Core Collared	Tsea
Capture Site UTM	10.555651.6585665
Core Died	Tsea
Date of Death	Unknown (Winter 2016-2017)
Mortality Site UTM	10.548318.6594625
Cause of Death	Wolf Kill
Samples	Rumen sample, caribou hair
Collar Condition	Damaged (chewed)
Photos	P1030090- P1030097
Investigators	Brad Culling, Diane Culling, William Needlay
Site Investigation Comments	Mortality detected and investigated during March 30, 2017 recruitment survey of Tsea Core; carcass consumed (only rumen and patches of hair remain); kill site in young black spruce forest with intersecting cutlines within approximately 100 m; 72 cm snow with 32 cm accumulated on carcass.



Plate 16. Mortality Site Investigation #116: SCEK081 (Lotek VHF), Snake-Sahtaneh Range (UTM 10.548318.6594625), March 30, 2017. (1/2)

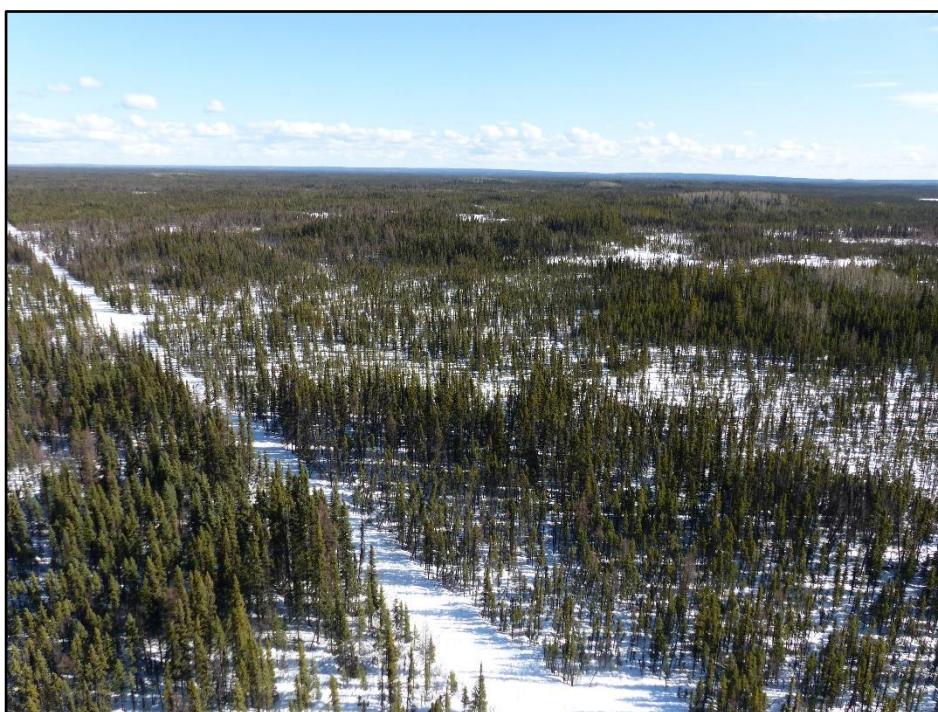


Plate 17. Mortality Site Investigation #116: SCEK0810 (Lotek VHF), Snake-Sahtaneh Range (UTM 10.548318.6594625), March 30, 2017. (2/2)

Mortality Investigation #117: SCEK045/BC1045, April 24, 2017, report.

Mortality Investigation #	117
Caribou ID	SCEK045/BC1045
Range	Westside Fort Nelson
Date Detected	24-Apr-17
Date Investigated	Not Investigated
Collar Type	Lotek VHF
Date Collared	25-Jan-13
Core Collared	Prophet
Capture Site UTM	10.555356.6446726
Core Died	Prophet
Date of Death	Unknown (April 2017)
Mortality Site UTM	10.569545.6448529 (high-altitude fixedwing wpt; within ± 1000 m)
Cause of Death	Not Investigated
Samples	n/a
Collar Condition	n/a
Photos	n/a
Investigators	Brad Culling (fixedwing telemetry flight)
Site Investigation Comments	Originally collared by MFLNRO in Prophet on Feb 25, 2011 (BC1045; ATS Iridium 149.154; UTM 10.545673.6466583 by Thiessen/Demars); recaptured in Prophet to replace Iridium 149.154 on Jan 25, 2013 (SCEK045); mortality signal detected during April 2017 fixedwing telemetry flight; VHF mortality documented but not investigated; mortality UTM derived from high-altitude fixedwing flight therefore within ± 1000 m.