

# DIVERSIFIED ENVIRONMENTAL SERVICES

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## SCIENCE AND COMMUNITY ENVIRONMENTAL KNOWLEDGE FUND BOREAL CARIBOU TELEMETRY PROGRAM

TELEMETRY MONITORING FLIGHT – Feb 24-27, 2015

**Date:** Feb 28, 2015

**Attention:** Brian Thomson  
Science and Community Environmental Knowledge Fund  
Victoria, BC

### *Executive Summary*

One hundred sixty boreal caribou collar frequencies and 23 wolf collar frequencies were scanned during monthly telemetry monitoring conducted between February 24 and 27, 2015. Although usually conducted by fixed-wing aircraft, the February monitoring flight was completed by helicopter, in conjunction with caribou and wolf collar deployment operations during the same period. One hundred forty-two caribou collars were heard transmitting normal VHF signals, one caribou was transmitting a mortality signal indicating a dead animal (SCEK207) and one was transmitting a false mortality signal but was confirmed alive (SCEK135). One collar (SCEK038) was transmitting a VHF recovery pattern indicating it had detached from a caribou. SCEK026 was transmitting a VHF signal pattern indicating its release mechanism had fired but the collar had failed to detach. The remaining 14 caribou collars were not detected. These included 4 GPS collars believed to have failed and 10 VHF collars believed to be functional but missed due to altitude limitations.

One wolf mortality was detected during the February flight (BW001). Several GPS wolf collars are believed to have exceeded their battery life and continue to go undetected.

### *Background*

Between December 17, 2012 and February 27, 2015, 220 adult boreal caribou were radio-collared in British Columbia's boreal caribou ranges as part of the *British Columbia Boreal Caribou Implementation Plan* (BCIP). On February 24-27, 2015, Diversified Environmental Services (DES) conducted a monthly monitoring flight under contract to the Science and Community Environmental Knowledge Fund (SCEK) on behalf of the Research and Effectiveness Monitoring Board (REMB). Monitoring flights are conducted at monthly intervals throughout the year in order to identify mortality events, which are followed up by ground-based mortality investigations and collar recoveries, as well as to track potential long distance seasonal movements of VHF-collared caribou.

### *Objectives*

The objective of the February 2015 monitoring flight was to determine the approximate location and VHF beacon status of all boreal caribou and wolf collars believed to be active in the survey area. These included caribou collars deployed on behalf of SCEK, caribou and wolf collars deployed on behalf of the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO), and pre-existing collars known to have entered BC's boreal caribou ranges from adjacent jurisdictions.

## *Methods*

Although normally conducted using a Cessna 180 fixed-wing aircraft, the February 2015 telemetry monitoring flight was conducted concurrent with caribou and wolf collar deployment activities, using a Bell 206B helicopter. Collar frequencies were scanned using Lotek™ STR 1000 and Lotek BioTracker telemetry receivers. The flight was conducted at variable speeds and altitudes depending on the level of integration with capture and collaring operations. The VHF beacon status of all detected collars was recorded on hard copy forms. In the case of VHF collars (Lotek LMRT4), status was recorded as either normal (60 pulses per minute (ppm)) or mortality mode (120 ppm) and a location (+/- 1 km) was recorded using a hand-held GPS unit. In the case of GPS/satellite collars (ATS Iridium, Vectronic Vertex, and Lotek LifeCycle), additional diagnostic VHF beacon patterns were recorded where applicable. As GPS/satellite collars are programmed to log multiple daily locations with high precision, additional effort to obtain collar locations after VHF signal detection is not necessary. Therefore, waypoints for GPS/satellite collars were typically recorded at the location from which the collar was heard, with corrections for estimated bearing and distance, unless the VHF beacon status indicated a collar malfunction or mortality. The use of the helicopter during the February 2015 flight allowed immediate investigation of mortalities and confirmation of false mortality signals.

## *Results*

One hundred sixty caribou collar frequencies were scanned during the February 2015 monitoring flight, including 155 SCEK collars (11 ATS Iridium, 58 Vectronic Vertex, 12 Lotek LifeCycle, and 74 Lotek VHF), 2 Alberta VHF collars, and 3 previously-deployed MFLNRO VHF collars. These included 130 previously-deployed collars, 9 new Vectronic GPS collars deployed during the flight to replace failing ATS GPS collars, and 3 Vectronic GPS collars deployed on new animals during the flight.

Results of the February 2015 monitoring flight are presented in Table 1. One hundred forty-two caribou collars were heard transmitting normal VHF signals, one caribou was transmitting a mortality signal indicating a dead animal (SCEK207), and one was transmitting a false mortality signal but was confirmed alive (SCEK135). Collar SCEK038 was transmitting a VHF recovery pattern indicating it had detached from a caribou; the collar was retrieved during the flight. SCEK026's collar was transmitting a VHF signal pattern indicating its release mechanism had fired but failed to detach; this animal could not be recaptured at the time due to lack of suitable forest openings. The remaining 14 caribou collars were not detected. These included 4 GPS collars believed to have failed (Milligan ATS Iridium SCEK042 - failed in May 2013; Calendar ATS Iridium SCEK184 - no data received since September 2014; Calendar ATS Iridium SCEK114 - no data received since November 2014; Clarke ATS Iridium SCEK020 - no VHF signal detected near recent GPS data points) and 10 VHF collars believed to be functional but missed during the February flight due to altitude limitations during concurrent capture operations.

Twenty-three wolf collar frequencies were scanned during the February flight (17 Lotek Iridium and 6 Lotek VHF). These included 6 wolf collars deployed on new animals during and immediately prior to the February flight.

Of the 16 GPS/satellite wolf collars scanned, 5 had normal VHF beacon function and the remaining 11 were not detected. Of these 11, two had previously dispersed to the Northwest Territories beyond VHF range (Snake Pack BW010 and BW028) and the remaining 9 have ceased GPS data transmission and are assumed to have exceeded their battery life.

Of the 7 VHF wolf collars scanned, 4 had normal VHF signals and one was transmitting a mortality signal (BW001; Tsimeh Pack). The sixth collar is assumed to either have failed or the wolf dispersed soon after deployment in 2013 (BW007; Snake Pack), and the seventh is assumed functional but was not detected (BW002; Big Arrow Pack).

There were no opportunities for First Nations field assistance on this monitoring flight.

Cordially,

A handwritten signature in black ink, appearing to read 'Brad Culling'.

Brad Culling, R.P.Bio  
Diversified Environmental Services  
Fort St. John, BC

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the Feb 24-27, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK114	Caribou	Calendar	Calendar	ATS-Irid	not heard	25-Feb-15	n/a	n/a	n/a	No VHF; last data Nov 27 14
SCEK184	Caribou	Calendar	Calendar	ATS-Irid	not heard	25-Feb-15	n/a	n/a	n/a	No VHF; last data Sep 23 14
SCEK185	Caribou	Calendar	Calendar	Lotek-Lifecycle	50 ppm	25-Feb-15	10	582414	6640249	normal
SCEK183	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	26-Feb-15	10	635642	6610004	normal
SCEK180	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	26-Feb-15	10	635632	6609990	normal
SCEK136	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	26-Feb-15	10	628248	6627664	ATS 149.295 replaced
SCEK181	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; no double 6th	26-Feb-15	10	637442	6610029	normal
SCEK135	Caribou	Calendar	Calendar	Vectr-Vertex	100 ppm	26-Feb-15	10	627004	6581011	false mortality; confirmed visual OK
SCEK119	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	26-Feb-15	10	613594	6644566	normal
SCEK146b	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	26-Feb-15	10	652391	6614164	normal
SCEK123	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	26-Feb-15	10	639487	6607845	normal
SCEK122	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	26-Feb-15	10	626193	6638573	normal
SCEK138	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	26-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK137	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	26-Feb-15	10	640949	6609235	normal
SCEK120	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	26-Feb-15	10	640384	6606631	normal
SCEK134	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	26-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK112	Caribou	Calendar	Calendar	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF signal not detected
SCEK113	Caribou	Calendar	Calendar	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF signal not detected
SCEK125	Caribou	Calendar	Calendar	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF signal not detected
SCEK126b	Caribou	Calendar	RRA-C	Vectr-VertexTD	42 ppm	25-Feb-15	10	582633	6640469	ATS 148.654 replaced
SCEK108	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	26-Feb-15	10	637282	6622177	normal
SCEK107	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	26-Feb-15	10	631728	6639697	normal
SCEK195	Caribou	Chinchaga	Etthithun	Vectr-VertexTD	42 ppm	27-Feb-15	10	649642	6402153	normal
SCEK038	Caribou	Chinchaga	Milligan	ATS-Irid	30 ppm	27-Feb-15	10	662037	6302800	collar detached and retrieved
SCEK026	Caribou	Chinchaga	Milligan	ATS-Irid	30 ppm; double 3rd	27-Feb-15	10	681881	6288099	release activated but collar moving
SCEK199	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	27-Feb-15	10	627461	6337923	normal
SCEK198	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	27-Feb-15	10	627481	6348195	normal
SCEK196	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	27-Feb-15	10	626635	6350567	normal
SCEK042	Caribou	Chinchaga	Milligan	ATS-Irid	missing; not heard	27-Feb-15	10	n/a	n/a	failed Iridium and VHF functions
SCEK201	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	27-Feb-15	10	666196	6287057	normal
SCEK197	Caribou	Chinchaga	Milligan	Lotek-Lifecycle	50 ppm	27-Feb-15	10	650946	6321792	normal
AB149.391	Caribou	Chinchaga	Milligan	unknown	not heard	27-Feb-15	10	n/a	n/a	VHF signal not detected
SCEK040	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	27-Feb-15	10	644480	6414852	normal
SCEK034	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	27-Feb-15	10	626914	6347632	normal
SCEK033b	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	27-Feb-15	10	638127	6354197	ATS 148.595 replaced
SCEK055	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	27-Feb-15	10	624733	6352512	normal
AB150.470	Caribou	Chinchaga	Milligan	unknown	60 ppm	27-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK035	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	625477	6362922	normal
SCEK041	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	652826	6336438	normal
SCEK027	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	679813	6289455	normal
SCEK032	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	628741	6361251	normal
SCEK029	Caribou	Chinchaga	Milligan	Lotek-VHF	61 ppm	27-Feb-15	10	654735	6320606	normal
SCEK052	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	643570	6346314	normal
SCEK053	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	634399	6357675	normal
SCEK030	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	633127	6354197	normal
SCEK058	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	638281	6366552	normal
SCEK054	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	656344	6324230	normal
SCEK057	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	654598	6321560	normal
SCEK059	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	627432	6355284	normal
SCEK061	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	632775	6356016	normal
SCEK060	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	27-Feb-15	10	601255	6371945	normal
SCEK036b	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	27-Feb-15	10	601155	6371945	ATS 148.275 replaced
SCEK171	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	26-Feb-15	10	642474	6447351	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Feb 24-27, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK142	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	26-Feb-15	10	616610	6464868	normal
SCEK189	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	26-Feb-15	10	616572	6464866	normal
SCEK170	Caribou	Chinchaga	RRA-A	ATS-Irid	50 ppm; double 6th	26-Feb-15	10	616497	6464795	normal
SCEK213	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	26-Feb-15	10	637749	6441182	normal
SCEK215	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	26-Feb-15	10	586212	6456264	normal
SCEK048	Caribou	Chinchaga	RRA-A	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF not detected
SCEK216	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	26-Feb-15	10	642457	6447356	normal
SCEK172	Caribou	Chinchaga	RRA-A	Lotek-Lifecycle	50 ppm	26-Feb-15	10	635142	6440365	normal
SCEK214	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	26-Feb-15	10	637764	6441312	normal
SCEK166	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	20-Jan-15	10	499064	6559922	normal
SCEK167	Caribou	Fort Nelson	Fort Nelson	Lotek-Lifecycle	50 ppm	20-Jan-15	10	510443	6550537	normal
SCEK009b	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	24-Feb-15	10	499265	6559824	ATS 148.535 replaced
BC1014	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	25-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK001	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	25-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK076	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	25-Feb-15	10	471860	6580945	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	25-Feb-15	10	475789	6581938	normal
SCEK007b	Caribou	Maxhamish	Capot-Blanc	Vectr-VertexTD	42 ppm	25-Feb-15	10	471857	6580950	ATS 149.256 replaced
BC1033	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK178	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	25-Feb-15	10	555197	6608901	normal
SCEK085	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	25-Feb-15	10	548689	6608688	normal
SCEK005b	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	25-Feb-15	10	533517	6619436	normal
SCEK177	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	25-Feb-15	10	530286	6632838	normal
SCEK208	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	25-Feb-15	10	483937	6625502	normal
SCEK175	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	25-Feb-15	10	548638	6608610	normal
SCEK205	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	25-Feb-15	10	540642	6631505	normal
SCEK207	Caribou	Maxhamish	Fortune	Vectr-VertexTD	84 ppm	25-Feb-15	10	537971	6620328	MORTALITY
SCEK179	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	25-Feb-15	10	563299	6602833	normal
SCEK176	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	25-Feb-15	10	485430	6626502	normal
SCEK164	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	529115	6631184	normal
SCEK078	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	467317	6625665	normal
SCEK128	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	525906	6631259	normal
SCEK086	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	569161	6602465	normal
SCEK206	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	25-Feb-15	10	540651	6631497	normal
SCEK129	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	535041	6629904	normal
SCEK087	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	25-Feb-15	10	533850	6630221	normal
SCEK168	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	25-Feb-15	10	499169	6559054	normal
SCEK169	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double 6th	25-Feb-15	10	512003	6573300	normal
SCEK211	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	25-Feb-15	10	529789	6568948	normal
SCEK064	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	25-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK062	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	25-Feb-15	10	526452	6568316	normal
SCEK210	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	25-Feb-15	10	530521	6569832	normal
SCEK004	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	25-Feb-15	10	467228	6626481	normal
BC1009	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	25-Feb-15	10	522831	6570220	normal
SCEK194	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	24-Feb-15	10	488826	6524097	normal
SCEK010	Caribou	Parker	Parker	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK012	Caribou	Parker	Parker	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK015	Caribou	Parker	Parker	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK016b	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	24-Feb-15	10	504873	6521032	ATS 148.136 replaced
SCEK014b	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	24-Feb-15	10	498296	6519242	ATS 148.373 replaced
SCEK161	Caribou	Prophet	Prophet	ATS-Irid	50 ppm; no double 6th	26-Feb-15	10	554750	6461129	normal
SCEK143	Caribou	Prophet	Prophet	Vectr-Vertex	42 ppm	26-Feb-15	10	574289	6419633	normal
SCEK144	Caribou	Prophet	Prophet	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF not detected
SCEK217	Caribou	Prophet	Prophet	Vectr-VertexTD	42 ppm	26-Feb-15	10	554741	6461125	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Feb 24-27, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK051	Caribou	Prophet	Prophet	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF not detected
SCEK049	Caribou	Prophet	Prophet	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF not detected
SCEK045	Caribou	Prophet	Prophet	Lotek-VHF	not heard	26-Feb-15	10	n/a	n/a	VHF not detected
SCEK020	Caribou	Snake-Sahtaneh	Clarke	ATS-Irid	not heard	24-Feb-15	10	n/a	n/a	VHF not detected; last data Feb 21 15
SCEK193	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	24-Feb-15	10	545856	6491535	normal
SCEK212	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	24-Feb-15	10	559011	6503031	normal
SCEK192	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	24-Feb-15	10	606002	6490133	normal
SCEK191	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	24-Feb-15	10	588406	6467098	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK068	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	544417	6501104	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	595867	6487514	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	not heard	24-Feb-15	10	n/a	n/a	VHF not detected
SCEK153	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK152	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK019	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	561080	6503265	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	560568	6506503	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK024	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	560012	6503755	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK156	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK157	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK070	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	24-Feb-15	10	567487	6502988	normal
SCEK220	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	26-Feb-15	10	585876	6489182	Collared during this day
SCEK218	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	24-Feb-15	10	580501	6485169	Collared during this day
SCEK110b	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-Lifecycle	50 ppm	26-Feb-15	10	634639	6552621	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	631067	6557136	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	627849	6553073	normal
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK182	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	626742	6579891	normal
SCEK188	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	605109	6554691	normal
SCEK186	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	601681	6569426	normal
SCEK204	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	26-Feb-15	10	608510	6566982	normal
SCEK097b	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	619099	6566401	normal
SCEK187	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	26-Feb-15	10	634660	6552651	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-Vertex	50 ppm	26-Feb-15	10	608117	6559634	normal
SCEK100b	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	605099	6554690	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	632949	6561567	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	611202	6569512	normal
SCEK096	Caribou	Snake-Sahtaneh	Paradise	Lotek-VHF	60 ppm	26-Feb-15	10	628481	6553816	normal
SCEK203	Caribou	Snake-Sahtaneh	Tsea	Vectr-VertexTD	42 ppm	25-Feb-15	10	555034	6609009	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	25-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK081	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	25-Feb-15	10	547730	6595385	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	25-Feb-15	10	557137	6595894	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	25-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK127	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	25-Feb-15	10	555060	6608805	normal
SCEK079b	Caribou	Snake-Sahtaneh	Tsea	Vectr-VertexTD	42 ppm	25-Feb-15	10	551265	6610845	ATS 149.365 replaced
SCEK173	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Irid	50 ppm; no double 6th	26-Feb-15	10	642075	6575474	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-Vertex	50 ppm	26-Feb-15	10	605350	6554594	normal
SCEK209	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	587454	6549723	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	n/a	n/a	normal ; heard but not located
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	26-Feb-15	10	586404	6549106	normal
SCEK219	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-VertexTD	42 ppm	26-Feb-15	10	587117	6548801	Collared during this day

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Feb 24-27, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
BW034	Wolf	Calendar	July	Lotek VHF	60 ppm	26-Feb-15	10	619449	6635090	normal
BW032	Wolf	Calendar	Petitot	Lotek VHF	not heard	25-Feb-15	10	563760	6616207	normal
BW033	Wolf	Calendar	Petitot	Lotek Iridium	not heard	25-Feb-15	10	563760	6616207	normal
BW002	Wolf	Chinchaga	Big Arrow	Lotek-VHF	not heard	27-Feb-15	10	n/a	n/a	VHF not detected
BW011	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	27-Feb-15	10	n/a	n/a	VHF not detected; no data since deployment
BW012	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	27-Feb-15	10	n/a	n/a	VHF failed; last data Nov 21, 14
BW008	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Aug 07 14
BW001	Wolf	Fort Nelson	Tsimeh	Lotek-VHF	60 ppm	24-Feb-15	10	512860	6547226	MORTALITY
BW009	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Sep 27 14
BW014	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	24-Feb-15	10	503168	6552060	normal
BW036	Wolf	Maxhamish	Fortune	Lotek Iridium	50 ppm	25-Feb-15	10	536573	6625935	Collared during this day
BW035	Wolf	Maxhamish	Fortune	Lotek Iridium	50 ppm	25-Feb-15	10	536573	6625935	Collared during this day
BW037	Wolf	Maxhamish	Fortune	Lotek VHF	60 ppm	25-Feb-15	10	536573	6625935	Collared during this day
BW019	Wolf	Parker	Parker	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Jun 25 14.
BW021	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Jun 30 14.
BW030	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Dec 28 14.
BW017	Wolf	Snake-Sahtaneh	Elleh	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Oct 17, 13.
BW024	Wolf	Snake-Sahtaneh	Kwokullie	Lotek-Irid	50 ppm	26-Feb-15	10	624241	6585825	normal
BW026	Wolf	Snake-Sahtaneh	Kwokullie	Lotek-VHF	60 ppm	26-Feb-15	10	624241	6585825	normal
BW007	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF	not heard	24-Feb-15	n/a	n/a	n/a	not detected; missing since deployment
BW010	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	dispersal to NWT; last data Aug 15 14
BW027	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	VHF not detected; last data Jan 09, 14
BW028	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard	24-Feb-15	n/a	n/a	n/a	dispersal to NT; no movement since Sep 06 14