

# DIVERSIFIED ENVIRONMENTAL SERVICES

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

### FIXED-WING TELEMETRY MONITORING FLIGHT – May 10-11, 2014

**Date:** May 12, 2014

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

#### *Executive Summary*

One hundred sixty-three boreal caribou collar frequencies and 25 wolf collar frequencies were scanned during a monthly fixed-wing telemetry monitoring flight conducted on May 10-11, 2014. One hundred fifty-seven caribou collars were transmitting normal VHF signals, 3 were transmitting mortality signals (SCEK065, SCEK104, and SCEK190), and 3 were not detected. No wolf mortalities were detected.

#### *Background*

During the winters of 2012-13 and 2013-14, 204 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 May 10-11, 2014, Diversified Environmental Services (DES) conducted a fixed-wing monitoring flight under contract to the Science and Community Environmental Knowledge Fund (SCEK), on behalf of the Research and Effectiveness Monitoring Board (REMB). Fixed-wing monitoring flights are conducted at monthly intervals throughout the year in order to identify mortality events to be followed up by ground-based mortality investigations and collar recoveries and to track potential long distance seasonal movements of VHF-collared caribou.

#### *Objectives*

The objective of the May 2014 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*

The monitoring flight was conducted using a Cessna 180 fixed-wing aircraft equipped with 1 outward-facing directional antenna affixed to each wing strut. Collar frequencies were scanned using Lotek™ STR 1000 and Lotek BioTracker telemetry receivers. The flight was conducted at 700-1,000 m above ground level at an average speed of 160 km/hr. 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, unless the VHF beacon status indicated a collar malfunction or mortality, in which case, more precise locations were obtained.

### *Results*

One hundred sixty-three caribou collar frequencies were scanned during the May 10-11, 2014 monitoring flight, including 157 SCEK collars (29 ATS Iridium, 34 Vectronic Vertex, 12 Lotek LifeCycle, and 82 VHF), 2 Alberta VHF collars, and 4 previously-deployed MFLNRO VHF collars. In addition, 25 wolf collar frequencies were scanned during the May 2014 flight (16 Lotek Iridium, 1 Vectronic Vertex, and 8 Lotek VHF).

Results of the May 10-11, 2014 monitoring flight are presented in Table 1. Flight paths searched within and adjacent to each core habitat area are shown in Figure 1. Total flight line distance was 2,517 km. Of 163 caribou collar frequencies scanned, 157 normal VHF signals and 3 mortality signals were detected.

Caribou mortality indications included SCEK065 (Milligan, Lotek VHF), SCEK104 (West Kotcho, Vectronic Vertex), and SCEK190 (Chinchaga RRA, Lotek LifeCycle). The SCEK190 mortality was originally detected by GPS data review in April, however a ground-based investigation on April 27 was aborted due to active bear activity at the kill site.

The remaining 3 caribou collars were not detected. These included 2 ATS Iridium collars in the Chinchaga RRA (SCEK046 and SCEK047) and Milligan ATS Iridium SCEK042. SCEK046 and SCEK047 were observed during the late March recruitment survey but suddenly ceased GPS data transmission on April 05 and April 07, respectfully. SCEK042 is believed to have experienced a failure of both Iridium and VHF functions in May 2013, shortly after deployment.

At the time of the May monitoring flight, 4 of the 7 SCEK caribou located in the Northwest Territories (NT) during February and March had moved back into British Columbia. SCEK125, who was 60 km north of the border in March, had moved south to within 15 km by May 11, 2014.

Twenty-five wolf collar frequencies were scanned during the May 10-11, 2014 monitoring flight, including 16 Lotek Iridium, 1 Vectronic Vertex, and 8 Lotek VHF.

Of the 17 GPS/satellite wolf collars scanned, 12 had normal VHF beacon function and an additional 2 had current Iridium data function but had moved northward into the NT beyond VHF reception range (BW010 and BW028; Snake Pack). Of the 3 remaining Iridium wolf collars, 2 are suspected to have failed in 2013 (BW012; Big Arrow Pack and BW017; Elleh Pack) and the third ceased Iridium data transmission in February 2014 (BW018; Elleh Pack).

Of the 8 VHF wolf collars scanned, 6 had normal VHF signals, 1 could not be located (BW023; Snake Pack), and 1 has not been located since soon after deployment in February 2013 and is assumed to have failed or the animal dispersed (BW007; Snake Pack).

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

Cordially,



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Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the May 10-11, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK112	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	635809	6632658	normal
SCEK113	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	613336	6612042	normal
SCEK114	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	11-May-14	10	622091	6646964	normal
SCEK119	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	11-May-14	10	613405	6643765	normal
SCEK120	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	608686	6642424	normal
SCEK122	Caribou	Calendar	Calendar	Lotek-VHF	61 ppm	11-May-14	10	630250	6657783	normal
SCEK123	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	607420	6638716	normal
SCEK125	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	660569	6670114	normal
SCEK134	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	611073	6638913	normal
SCEK135	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	11-May-14	10	647056	6621489	normal
SCEK136	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	11-May-14	10	609588	6607217	normal
SCEK137	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	637745	6639178	normal
SCEK138	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	11-May-14	10	634250	6623269	normal
SCEK180	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	11-May-14	10	624943	6631449	normal
SCEK181	Caribou	Calendar	Calendar	ATS-Iridium	50 ppm; double 6th	11-May-14	10	614577	6608204	normal
SCEK183	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	11-May-14	10	590430	6619007	normal
SCEK184	Caribou	Calendar	Calendar	ATS-Iridium	50 ppm; double 6th	11-May-14	10	591623	6625396	normal
SCEK185	Caribou	Calendar	Calendar	Lotek-Lifecycle	50 ppm	11-May-14	10	584769	6641276	normal
SCEK126	Caribou	Calendar	RRA-C	ATS-Irid	50 ppm; no double 6th	11-May-14	10	589491	6622545	normal
SCEK107	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	11-May-14	10	620093	6644950	normal
SCEK108	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	11-May-14	10	647380	6670265	normal
SCEK146	Caribou	Calendar	RRA-D	ATS-Irid	50 ppm; double 6th	11-May-14	10	629220	6625607	normal VHF; no sat comm
SCEK147	Caribou	Calendar	RRA-D	Vectr-Vertex	50 ppm	11-May-14	10	627036	6652974	normal
SCEK195	Caribou	Chinchaga	Etthithun	Vectr-VertexTD	42 ppm	10-May-14	10	638970	6404768	normal
AB 149.391	Caribou	Chinchaga	Milligan	unknown	60 ppm	10-May-14	10	660830	6329781	normal
AB 150.470	Caribou	Chinchaga	Milligan	unknown	60 ppm	10-May-14	10	659492	6370532	normal
SCEK026	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	10-May-14	10	667957	6292470	normal
SCEK027	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	670937	6291878	normal
SCEK029	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	650081	6335802	normal
SCEK030	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	663634	6329682	normal
SCEK032	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	655425	6366065	normal
SCEK033	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; no double 6th	10-May-14	10	638774	6363509	normal
SCEK034	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	10-May-14	10	639082	6366425	normal
SCEK035	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	642380	6375616	normal
SCEK036	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	10-May-14	10	607651	6351108	normal
SCEK038	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	10-May-14	10	676135	6303954	normal
SCEK040	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	10-May-14	10	649816	6403662	normal
SCEK041	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	639879	6349828	normal
SCEK042	Caribou	Chinchaga	Milligan	ATS-Irid	not heard	10-May-14	n/a	n/a	n/a	Failed Iridium and VHF functions
SCEK052	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	661498	6306516	normal
SCEK053	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	614431	6342097	normal
SCEK054	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	650509	6357909	normal
SCEK055	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	10-May-14	10	654332	6349685	normal
SCEK056	Caribou	Chinchaga	Milligan	Lotek-VHF	120 ppm	10-May-14	10	666474	6325347	MORTALITY SIGNAL
SCEK057	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	635216	6336806	normal
SCEK058	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	598091	6434625	normal
SCEK059	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	622407	6337706	normal
SCEK060	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	603665	6360120	normal
SCEK061	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	10-May-14	10	663892	6338099	normal
SCEK196	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	10-May-14	10	633352	6359355	normal
SCEK197	Caribou	Chinchaga	Milligan	Lotek-Lifecycle	50 ppm	10-May-14	10	645902	6361067	normal
SCEK198	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	10-May-14	10	651944	6309704	normal
SCEK199	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	10-May-14	10	658336	6307545	normal
SCEK200	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	10-May-14	10	661214	6373486	normal
SCEK201	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	10-May-14	10	657526	6287707	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the May 10-11, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK046	Caribou	Chinchaga	RRA-A	ATS-Irid	not heard	10-May-14	n/a	n/a	n/a	VHF not heard
SCEK047	Caribou	Chinchaga	RRA-A	ATS-Irid	not heard	10-May-14	n/a	n/a	n/a	VHF not heard
SCEK048	Caribou	Chinchaga	RRA-A	Lotek-VHF	60 ppm	10-May-14	10	606433	6417801	normal
SCEK141	Caribou	Chinchaga	RRA-A	Lotek-VHF	60 ppm	10-May-14	10	622166	6443118	normal
SCEK142	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	10-May-14	10	609756	6453556	normal
SCEK170	Caribou	Chinchaga	RRA-A	ATS-Iridium	50 ppm; double 6th	10-May-14	10	635162	6437153	normal
SCEK171	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	10-May-14	10	596493	6414024	normal
SCEK172	Caribou	Chinchaga	RRA-A	Lotek-Lifecycle	50 ppm	10-May-14	10	594266	6436833	normal
SCEK189	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	10-May-14	10	610480	6453943	normal
SCEK190	Caribou	Chinchaga	RRA-A	Lotek-Lifecycle	80 ppm	10-May-14	10	618990	6438331	MORTALITY SIGNAL
SCEK009	Caribou	Fort Nelson	Fort Nelson	ATS-Irid	50 ppm; no double 6th	11-May-14	10	520274	6547265	normal
SCEK166	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	11-May-14	10	517164	6544500	normal
SCEK167	Caribou	Fort Nelson	Fort Nelson	Lotek-Lifecycle	50 ppm	10-May-14	10	521866	6547797	normal
BC1014	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	11-May-14	10	457645	6577516	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	11-May-14	10	465334	6571914	normal
SCEK002	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; double 6th	11-May-14	10	479562	6579276	normal
SCEK007	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; double 6th	11-May-14	10	455335	6581774	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	11-May-14	10	473150	6579493	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	11-May-14	10	455509	6577995	normal
BC1033	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	505297	6622988	normal
SCEK005	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	11-May-14	10	514672	6620205	normal
SCEK078	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	464046	6623424	normal
SCEK085	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	11-May-14	10	514726	6620189	normal
SCEK086	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	527921	6636839	normal
SCEK087	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	542879	6621974	normal
SCEK128	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	532405	6633427	normal
SCEK129	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	542812	6624886	normal
SCEK163	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	11-May-14	10	461800	6618031	normal
SCEK164	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	11-May-14	10	533104	6623570	normal
SCEK175	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	11-May-14	10	493402	6631527	normal
SCEK176	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	11-May-14	10	485903	6624681	normal
SCEK177	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	11-May-14	10	528680	6633193	normal
SCEK178	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	11-May-14	10	552710	6608985	normal
SCEK179	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	11-May-14	10	533986	6633271	normal
BC1009	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	11-May-14	10	517853	6570004	normal; old wolf collar
SCEK003	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double 6th	11-May-14	10	530813	6568082	normal
SCEK004	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	11-May-14	10	508464	6605922	normal
SCEK006	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	11-May-14	10	500919	6596068	normal
SCEK062	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	11-May-14	10	521974	6569594	normal
SCEK064	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	11-May-14	10	511031	6577450	normal
SCEK168	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	11-May-14	10	545200	6559657	normal
SCEK169	Caribou	Maxhamish	Kiwigana	ATS-Iridium	50 ppm; no double 6th	11-May-14	10	503113	6585228	normal
BC1001	Caribou	Parker	Parker	Lotek-VHF	60 ppm	10-May-14	10	489518	6502438	normal
SCEK010	Caribou	Parker	Parker	Lotek-VHF	60 ppm	10-May-14	10	490033	6505334	normal
SCEK012	Caribou	Parker	Parker	Lotek-VHF	60 ppm	10-May-14	10	493351	6513501	normal
SCEK013	Caribou	Parker	Parker	Lotek-VHF	60 ppm	10-May-14	10	490436	6515707	normal
SCEK014	Caribou	Parker	Parker	ATS-Irid	50 ppm; double 6th	10-May-14	10	483342	6506104	normal
SCEK015	Caribou	Parker	Parker	Lotek-VHF	60 ppm	10-May-14	10	488550	6519496	normal
SCEK016	Caribou	Parker	Parker	ATS-Irid	50 ppm; no double 6th	10-May-14	10	482555	6506241	normal
SCEK194	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	10-May-14	10	480094	6523601	normal
SCEK043	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	10-May-14	10	556426	6460615	normal
SCEK044	Caribou	Prophet	Prophet	ATS-Irid	50 ppm; double 6th	10-May-14	10	559234	6460217	normal
SCEK045	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	10-May-14	10	545877	6459471	normal
SCEK049	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	10-May-14	10	555088	6440312	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the May 10-11, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK051	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	10-May-14	10	538925	6474662	normal
SCEK143	Caribou	Prophet	Prophet	Vectr-Vertex	50 ppm	10-May-14	10	560572	6426163	normal
SCEK144	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	10-May-14	10	566978	6451265	normal
SCEK161	Caribou	Prophet	Prophet	ATS-Irid	50 ppm; double 6th	10-May-14	10	571945	6448289	normal
SCEK019	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	573925	6504123	normal
SCEK020	Caribou	Snake-Sahtaneh	Clarke	ATS-Irid	50 ppm; double 6th	10-May-14	10	569772	6464732	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	556244	6496333	normal
SCEK024	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	571030	6502396	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	558467	6495830	normal
SCEK068	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	558469	6537117	normal
SCEK070	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	568014	6508198	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	11-May-14	10	592403	6545787	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	599983	6492049	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	573659	6497516	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	611835	6483048	normal
SCEK152	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	557753	6504469	normal
SCEK153	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	561808	6480284	normal
SCEK156	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	540011	6496939	normal
SCEK157	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	566757	6506662	normal
SCEK191	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	10-May-14	10	592168	6485248	normal
SCEK192	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	10-May-14	10	608916	6488211	normal
SCEK193	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	10-May-14	10	554181	6499961	normal
SCEK100	Caribou	Snake-Sahtaneh	East Kotcho	ATS-Irid	50 ppm; double 6th	11-May-14	10	636570	6568341	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	11-May-14	10	627938	6552405	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	11-May-14	10	630150	6556072	normal
SCEK104	Caribou	Snake-Sahtaneh	East Kotcho	Vectr-Vertex	100 ppm	11-May-14	10	583953	6570889	MORTALITY SIGNAL
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	11-May-14	10	632800	6563830	normal
SCEK074	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	11-May-14	10	613622	6576421	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	11-May-14	10	629486	6555005	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	11-May-14	10	605065	6559763	normal
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	11-May-14	10	601702	6583524	normal
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	11-May-14	10	606208	6582037	normal
SCEK110	Caribou	Snake-Sahtaneh	North Kotcho	ATS-Irid	50 ppm; double 6th	11-May-14	10	608801	6568518	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-Vertex	50 ppm	11-May-14	10	598046	6565679	normal
SCEK182	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	11-May-14	10	599000	6584665	normal
SCEK186	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	11-May-14	10	599067	6573693	normal
SCEK187	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	11-May-14	10	622132	6558130	normal
SCEK188	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	11-May-14	10	573903	6581158	normal
SCEK204	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	11-May-14	10	613802	6562931	normal
SCEK096	Caribou	Snake-Sahtaneh	Paradise	Lotek-VHF	60 ppm	10-May-14	10	567588	6503837	normal
SCEK079	Caribou	Snake-Sahtaneh	Tsea	ATS-Irid	50 ppm; double 6th	11-May-14	10	529810	6599300	normal
SCEK081	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	11-May-14	10	551042	6604279	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	11-May-14	10	552697	6597952	normal
SCEK083	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	11-May-14	10	560068	6604505	normal
SCEK127	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	11-May-14	10	556863	6603698	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	11-May-14	10	550814	6593571	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	11-May-14	10	555142	6595263	normal
SCEK203	Caribou	Snake-Sahtaneh	Tsea	Vectr-VertexTD	42 ppm	11-May-14	10	566485	6608045	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-Vertex	50 ppm	11-May-14	10	586890	6548699	normal
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	11-May-14	10	592794	6546809	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	11-May-14	10	607670	6579490	normal
SCEK094	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	11-May-14	10	586852	6538040	normal
SCEK097	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Irid	50 ppm; double 6th	11-May-14	10	604682	6574755	normal
SCEK173	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Iridium	50 ppm; no double 6th	11-May-14	10	583604	6519019	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the May 10-11, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
BW002	Wolf	Chinchaga	Big Arrow	Lotek-VHF	60 ppm	10-May-14	10	625161	6329509	normal
BW011	Wolf	Chinchaga	Big Arrow	Lotek-Irid	50 ppm	10-May-14	10	628335	6329460	normal VHF; no Iridium data function
BW012	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	10-May-14	n/a	n/a	n/a	VHF failed; no data since Jun 30, 13
BW001	Wolf	Fort Nelson	Tsimeh	Lotek-VHF	60 ppm	10-May-14	10	516426	6544109	normal
BW008	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	10-May-14	10	516426	6544109	normal
BW009	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	10-May-14	10	516426	6544109	normal
BW014	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	10-May-14	10	516426	6544109	normal
BW019	Wolf	Parker	Parker	Lotek-Irid	50 ppm	10-May-14	10	463821	6499498	normal
BW020	Wolf	Parker	Parker	Lotek-VHF	60 ppm	10-May-14	10	495581	6514039	normal
BW021	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	50 ppm	10-May-14	10	552825	6500965	normal
BW022	Wolf	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	10-May-14	10	545156	6506972	normal
BW030	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	50 ppm	10-May-14	10	539104	6509784	normal
BW031	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	50 ppm	10-May-14	10	541898	6504179	normal
BW017	Wolf	Snake-Sahtaneh	Elleh	Lotek-Irid	not heard	10-May-14	n/a	n/a	n/a	VHF not detected; last data Oct 17, 13.
BW018	Wolf	Snake-Sahtaneh	Elleh	Lotek-Irid	not heard	10-May-14	n/a	n/a	n/a	VHF not detected;t data Feb 7, 14.
BW024	Wolf	Snake-Sahtaneh	Kwokullie	Lotek-Irid	50 ppm	11-May-14	10	616410	6597252	normal
BW025	Wolf	Snake-Sahtaneh	Kwokullie	Vectronic	50 ppm	11-May-14	10	616410	6597252	normal
BW026	Wolf	Snake-Sahtaneh	Kwokullie	Lotek-VHF	60 ppm	11-May-14	10	616410	6597252	normal
BW007	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF	not heard	11-May-14	n/a	n/a	n/a	not detected; missing since deployment
BW010	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard	11-May-14	n/a	n/a	n/a	dispersal to NWT; Irid data current
BW016	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF	60 ppm	11-May-14	10	546549	6533670	normal; formerly Iridium 148.590
BW023	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF	not heard	11-May-14	n/a	n/a	n/a	not detected
BW027	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	50 ppm	11-May-14	10	543527	6541190	normal
BW028	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard	11-May-14	n/a	n/a	n/a	dispersal to NWT; Irid data current
BW029	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	50 ppm	11-May-14	10	518453	6527572	normal

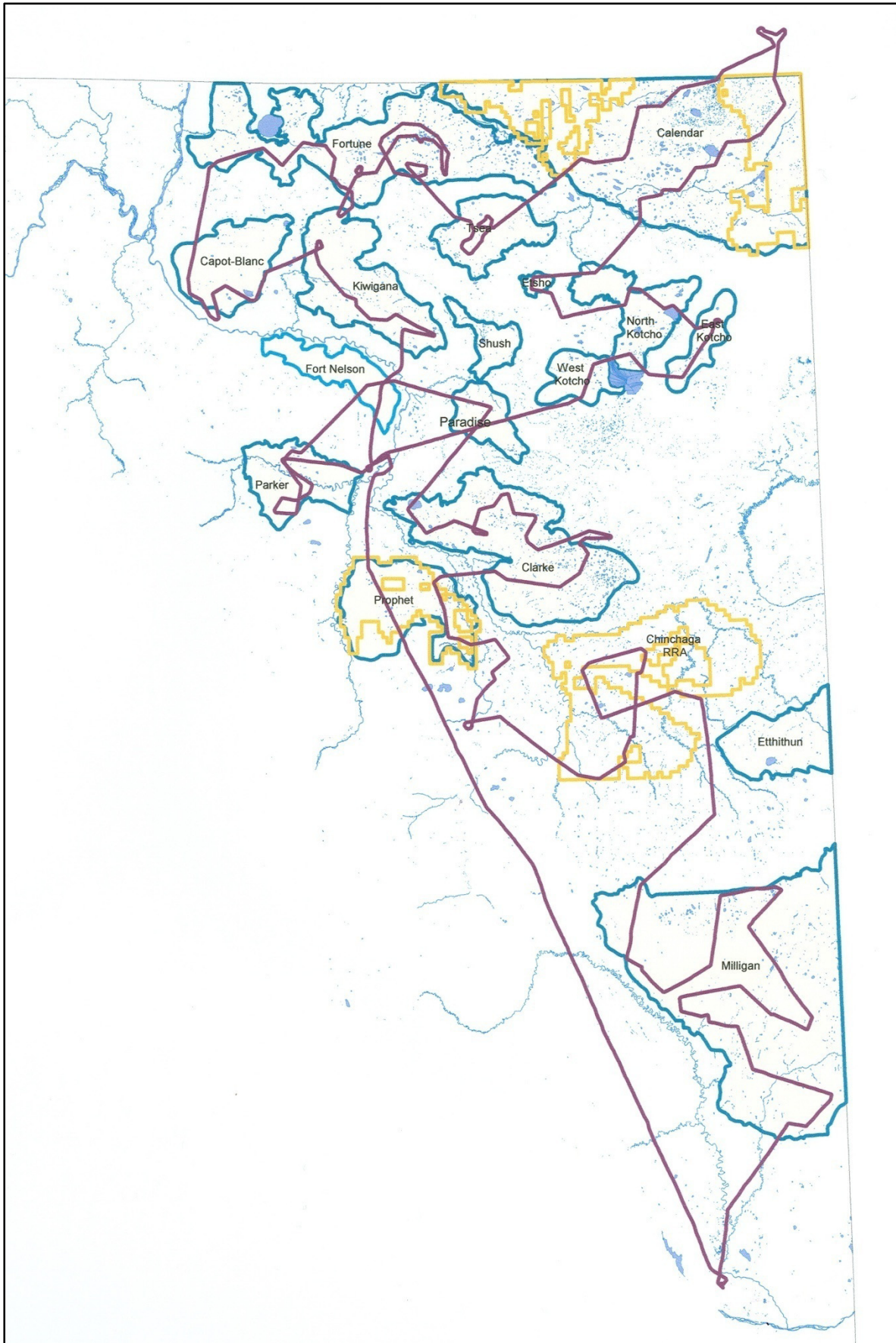


Figure 1. Flight paths flown during the May 10-11, 2014 SCEK fixed-wing boreal caribou and wolf telemetry monitoring flight.