

# DIVERSIFIED ENVIRONMENTAL SERVICES

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

### FIXED-WING TELEMETRY MONITORING FLIGHT – September 14-15, 2014

**Date:** September 30, 2014

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

#### *Executive Summary*

One hundred fifty boreal caribou collar frequencies and 18 wolf collar frequencies were scanned during a monthly fixed-wing telemetry monitoring flight conducted on September 14-15, 2014. One hundred forty-five caribou collars were heard transmitting normal VHF signals, 1 was transmitting a mortality signal (SCEK013/BC1042), 1 was transmitting a false mortality signal (SCEK071), and 3 were not detected. One wolf collar mortality signal was also detected (BW031).

#### *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 September 14-15, 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 September 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, with

corrections for estimated bearing and distance, unless the VHF beacon status indicated a collar malfunction or mortality, in which case, more precise locations were obtained.

### *Results*

One hundred fifty caribou collar frequencies were scanned during the September 14-15, 2014 monitoring flight, including 144 SCEK collars (27 ATS Iridium, 30 Vectronic Vertex, 11 Lotek LifeCycle, and 76 Lotek VHF), 2 Alberta VHF collars, and 4 previously-deployed MFLNRO VHF collars. In addition, 18 wolf collar frequencies were scanned during the September flight (14 Lotek Iridium and 4 Lotek VHF). One Vectronic Vertex wolf collar was recovered from a hunter-killed wolf in early September, prior to the September 14-15 monitoring flight.

Results of the September 14-15, 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 2,761 km. Of 150 caribou collar frequencies scanned, 145 normal VHF signals, 1 mortality signal, and 1 false mortality signal were detected. Incoming satellite GPS data from the collar transmitting the false mortality signal (SCEK071) confirmed the animal was moving normally at the time of the flight. SCEK013/BC1042 (Parker; Lotek VHF) was the only caribou mortality detected in September 2014. The remaining 3 caribou collars included one GPS believed to have failed in May 2013, shortly after deployment (SCEK042, Milligan, ATS Iridium), as well as 2 VHF collars that were not detected (BC1001; Parker and SCEK120; Calendar).

At the time of the September 2014 monitoring flight, 4 Calendar caribou were located north of the BC/NT border (SCEK122, SCEK125, SCEK126, and SCEK180).

Eighteen wolf collar frequencies were scanned during the September 14-15, 2014 monitoring flight, including 14 Lotek Iridium and 4 Lotek VHF. Of the 14 GPS/satellite wolf collars scanned, 5 had normal VHF beacon function and 1 was transmitting a mortality signal (BW031; Clarke Pack). The remaining 8 GPS wolf collars were not detected. Of these, 2 had previously dispersed to the Northwest Territories beyond VHF range; one stopped transmitting GPS data on August 15 (BW010; Snake Pack) and the other is believed to have died in early September (BW028; Snake Pack). The remaining 6 undetected collars include one with a failed VHF signal that has recently re-commenced GPS data transmission, and 5 collars that have not transmitted data recently. These likely include collars that are nearing the end of their 2-year battery life.

Of the 4 VHF wolf collars scanned, 3 had normal VHF signals and the fourth is assumed to have failed or dispersed soon after deployment in 2013 (BW007; Snake Pack).

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

Cordially,



Brad Culling, R.P.Bio  
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Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the September 14-15, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK114	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; no double 6th	15-Sep-14	10	622768	6643567	normal
SCEK184	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	595724	6621632	normal
SCEK185	Caribou	Calendar	Calendar	Lotek-Lifecycle	50 ppm	15-Sep-14	10	584812	6639536	normal
SCEK183	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	15-Sep-14	10	588821	6620610	normal
SCEK180	Caribou	Calendar	Calendar	Vectr-VertexTD	43 ppm	15-Sep-14	10	604085	6667125	normal
SCEK136	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	614174	6617587	normal
SCEK181	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	631422	6623634	normal
SCEK135	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	15-Sep-14	10	619191	6641900	normal
SCEK119	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	15-Sep-14	10	613913	6644221	normal
SCEK123	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	603458	6620969	normal
SCEK122	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	626967	6676546	normal
SCEK138	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	634725	6620040	normal
SCEK137	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	625582	6619854	normal
SCEK120	Caribou	Calendar	Calendar	Lotek-VHF	not heard	15-Sep-14	n/a	n/a	n/a	not detected
SCEK134	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	633545	6636449	normal
SCEK112	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	636763	6641483	normal
SCEK113	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	616492	6610548	normal
SCEK125	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	15-Sep-14	10	643608	6672876	normal
SCEK126	Caribou	Calendar	RRA-C	ATS-Irid	50 ppm; no double 6th	15-Sep-14	10	600502	6660899	normal
SCEK146	Caribou	Calendar	RRA-D	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	611942	6636526	normal VHF; no sat comm
SCEK108	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	15-Sep-14	10	632929	6640079	normal
SCEK107	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	15-Sep-14	10	610578	6642133	normal
SCEK195	Caribou	Chinchaga	Etthithun	Vectr-VertexTD	42 ppm	14-Sep-14	10	644502	6409508	normal
SCEK036	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	614523	6348092	normal
SCEK038	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	675059	6299174	normal
SCEK026	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	14-Sep-14	10	670483	6298342	normal
SCEK033	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	14-Sep-14	10	632455	6335366	normal
SCEK199	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	14-Sep-14	10	650598	6308903	normal
SCEK198	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	14-Sep-14	10	651089	6307654	normal
SCEK196	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	14-Sep-14	10	635263	6358261	normal
SCEK042	Caribou	Chinchaga	Milligan	ATS-Irid	missing; not heard	14-Sep-14	n/a	n/a	n/a	Failed Iridium and VHF functions
SCEK201	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	14-Sep-14	10	658719	6292989	normal
SCEK197	Caribou	Chinchaga	Milligan	Lotek-Lifecycle	50 ppm	14-Sep-14	10	646220	6357175	normal
AB149.391	Caribou	Chinchaga	Milligan	unknown	60 ppm	14-Sep-14	10	674574	6343874	normal
SCEK040	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	14-Sep-14	10	641326	6409636	normal
SCEK034	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	14-Sep-14	10	645774	6342900	normal
SCEK055	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	14-Sep-14	10	642879	6338218	normal
AB150.470	Caribou	Chinchaga	Milligan	unknown	60 ppm	14-Sep-14	10	661679	6369983	normal
SCEK035	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	625340	6366513	normal
SCEK041	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	642055	6352730	normal
SCEK027	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	668848	6296063	normal
SCEK032	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	662438	6367520	normal
SCEK029	Caribou	Chinchaga	Milligan	Lotek-VHF	61 ppm	14-Sep-14	10	638805	6334161	normal
SCEK052	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	657330	6303988	normal
SCEK053	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	631384	6336170	normal
SCEK030	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	673924	6340265	normal
SCEK058	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	666082	6365889	normal
SCEK054	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	649432	6340927	normal
SCEK057	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	639323	6336909	normal
SCEK059	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	616416	6339507	normal
SCEK061	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	658886	6337547	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the September 14-15, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK060	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	14-Sep-14	10	608870	6367078	normal
SCEK171	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	14-Sep-14	10	598208	6433827	normal
SCEK142	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	14-Sep-14	10	602708	6453529	normal
SCEK189	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	14-Sep-14	10	609296	6454606	normal
SCEK170	Caribou	Chinchaga	RRA-A	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	646176	6454102	normal
SCEK048	Caribou	Chinchaga	RRA-A	Lotek-VHF	60 ppm	14-Sep-14	10	595728	6438414	normal
SCEK172	Caribou	Chinchaga	RRA-A	Lotek-Lifecycle	50 ppm	14-Sep-14	10	588618	6436337	normal
SCEK009	Caribou	Fort Nelson	Fort Nelson	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	517804	6550659	normal
SCEK166	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	14-Sep-14	10	517972	6545720	normal
SCEK167	Caribou	Fort Nelson	Fort Nelson	Lotek-Lifecycle	50 ppm	14-Sep-14	10	493373	6561909	normal
BC1014	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	14-Sep-14	10	470374	6579054	normal
SCEK002	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	476400	6580709	normal
SCEK007	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	453482	6583174	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	14-Sep-14	10	469514	6578151	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	14-Sep-14	10	454592	6581861	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	14-Sep-14	10	467838	6578017	normal
BC1033	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	514919	6621051	normal
SCEK178	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	14-Sep-14	10	542776	6624457	normal
SCEK085	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	14-Sep-14	10	525983	6625735	normal
SCEK005b	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	14-Sep-14	10	484331	6613337	normal
SCEK177	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	14-Sep-14	10	528394	6635793	normal
SCEK175	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	14-Sep-14	10	493498	6631631	normal
SCEK179	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	14-Sep-14	10	537999	6622354	normal
SCEK176	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	14-Sep-14	10	484413	6628083	normal
SCEK164	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	545276	6620517	normal
SCEK078	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	466106	6616487	normal
SCEK128	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	527159	6632696	normal
SCEK086	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	527722	6627142	normal
SCEK129	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	540709	6629244	normal
SCEK087	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	14-Sep-14	10	529718	6628592	normal
SCEK168	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	15-Sep-14	10	551905	6563292	normal
SCEK003	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double 6th	14-Sep-14	10	525056	6568351	normal
SCEK169	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double 6th	14-Sep-14	10	511023	6569720	normal
SCEK064	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	14-Sep-14	10	505052	6583819	normal
SCEK062	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	14-Sep-14	10	526350	6570486	normal
SCEK004	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	14-Sep-14	10	499748	6613941	normal
BC1009	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	14-Sep-14	10	514254	6579857	normal; old wolf collar
SCEK016	Caribou	Parker	Parker	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	481262	6515986	normal
SCEK014	Caribou	Parker	Parker	ATS-Irid	50 ppm; double 6th	14-Sep-14	10	506599	6509788	normal
SCEK194	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	14-Sep-14	10	487785	6524511	normal
SCEK013	Caribou	Parker	Parker	Lotek-VHF	120 ppm	14-Sep-14	10	484568	6516024	MORTALITY
SCEK010	Caribou	Parker	Parker	Lotek-VHF	60 ppm	14-Sep-14	10	484432	6506773	normal
SCEK012	Caribou	Parker	Parker	Lotek-VHF	60 ppm	14-Sep-14	10	488377	6522921	normal
SCEK015	Caribou	Parker	Parker	Lotek-VHF	60 ppm	14-Sep-14	10	489252	6523855	normal
BC1001	Caribou	Parker	Parker	Lotek-VHF	not heard	14-Sep-14	n/a	n/a	n/a	VHF not detected
SCEK044	Caribou	Prophet	Prophet	ATS-Irid	50 ppm; double 6th	14-Sep-14	10	567867	6446883	normal
SCEK161	Caribou	Prophet	Prophet	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	562127	6453450	normal
SCEK143	Caribou	Prophet	Prophet	Vectr-Vertex	50 ppm	14-Sep-14	10	552200	6448804	normal
SCEK144	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	14-Sep-14	10	570429	6442378	normal
SCEK051	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	14-Sep-14	10	539458	6478101	normal
SCEK049	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	14-Sep-14	10	544471	6450264	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the September 14-15, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK045	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	14-Sep-14	10	542971	6445186	normal
SCEK020	Caribou	Snake-Sahtaneh	Clarke	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	569089	6471338	normal
SCEK193	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	14-Sep-14	10	563241	6499210	normal
SCEK192	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	14-Sep-14	10	601772	6487421	normal
SCEK191	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	14-Sep-14	10	598023	6484230	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	15-Sep-14	10	592949	6545843	normal
SCEK068	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	15-Sep-14	10	569568	6523494	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	603748	6487215	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	602023	6479435	normal
SCEK153	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	560043	6477093	normal
SCEK152	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	558655	6495081	normal
SCEK019	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	574741	6507198	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	557740	6503287	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	546601	6498787	normal
SCEK024	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	564879	6501681	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	578289	6500129	normal
SCEK156	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	539926	6501715	normal
SCEK157	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	561747	6492965	normal
SCEK070	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	14-Sep-14	10	572246	6501926	normal
SCEK100	Caribou	Snake-Sahtaneh	East Kotcho	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	624230	6559137	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	631999	6557290	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	625129	6551478	normal
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	644028	6569285	normal
SCEK182	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	15-Sep-14	10	608470	6576064	normal
SCEK188	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	15-Sep-14	10	603489	6571504	normal
SCEK186	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	15-Sep-14	10	603501.7	6574623	normal
SCEK110	Caribou	Snake-Sahtaneh	North Kotcho	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	610543	6565523	normal
SCEK204	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	15-Sep-14	10	611942	6563271	normal
SCEK187	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	15-Sep-14	10	606694	6558437	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-Vertex	50 ppm	15-Sep-14	10	604229	6563433	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	607758	6580035	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	629423	6553069	normal
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	604642	6576946	normal
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	608000	6573436	normal
SCEK096	Caribou	Snake-Sahtaneh	Paradise	Lotek-VHF	60 ppm	15-Sep-14	10	603819	6570576	normal
SCEK203	Caribou	Snake-Sahtaneh	Tsea	Vectr-VertexTD	42 ppm	15-Sep-14	10	554062	6613709	normal
SCEK079	Caribou	Snake-Sahtaneh	Tsea	ATS-Irid	50 ppm; no double 6th	14-Sep-14	10	524301	6603038	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	15-Sep-14	10	557763	6594346	normal
SCEK081	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	15-Sep-14	10	550310	6600141	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	15-Sep-14	10	550385	6591318	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	15-Sep-14	10	552431	6591479	normal
SCEK127	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60 ppm	15-Sep-14	10	558431	6606535	normal
SCEK173	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Irid	50 ppm; no double 6th	15-Sep-14	10	589845	6531428	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-Vertex	100 ppm	15-Sep-14	10	587154	6548672	false mortality signal
SCEK097	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Irid	50 ppm; double 6th	15-Sep-14	10	623681	6577073	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	609821	6577971	normal
SCEK094	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	593579	6544175	normal
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	15-Sep-14	10	589443	6545111	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the September 14-15, 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	14-Sep-14	10	631267	6331092	normal
BW011	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	14-Sep-14	n/a	n/a	n/a	not detected; no data since deployment
BW012	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	14-Sep-14	10	639604	6322072	VHF failed; satellite data current
BW008	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	not heard	15-Sep-14	n/a	n/a	n/a	VHF not detected; last data Aug 07 14
BW001	Wolf	Fort Nelson	Tsimeh	Lotek-VHF	60 ppm	15-Sep-14	10	509014	6541909	normal
BW009	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	15-Sep-14	10	520306	6539041	normal
BW014	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	15-Sep-14	10	520306	6539041	normal
BW019	Wolf	Parker	Parker	Lotek-Irid	not heard	14-Sep-14	n/a	n/a	n/a	VHF not detected; last data Jun 25 14.
BW021	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	not heard	14-Sep-14	n/a	n/a	n/a	VHF not detected; last data Jun 30 14.
BW031	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	80 ppm	14-Sep-14	10	575078	6509772	MORTALITY
BW030	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	50 ppm	14-Sep-14	10	539857	6500941	normal
BW017	Wolf	Snake-Sahtaneh	Elleh	Lotek-Irid	not heard	14-Sep-14	10	n/a	n/a	VHF not detected; last data Oct 17, 13.
BW024	Wolf	Snake-Sahtaneh	Kwokullie	Lotek-Irid	50 ppm	15-Sep-14	10	619964	6596932	normal
BW026	Wolf	Snake-Sahtaneh	Kwokullie	Lotek-VHF	60 ppm	15-Sep-14	10	629123	6570070	normal
BW007	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF	not heard	15-Sep-14	n/a	n/a	n/a	not detected; missing since deployment
BW010	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard		n/a	n/a	n/a	dispersal to NWT; last data Aug 15 14
BW027	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	50 ppm	15-Sep-14	10	527531	6525775	normal
BW028	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	not heard		n/a	n/a	n/a	dispersal to NT; no movement since Sep 06 14

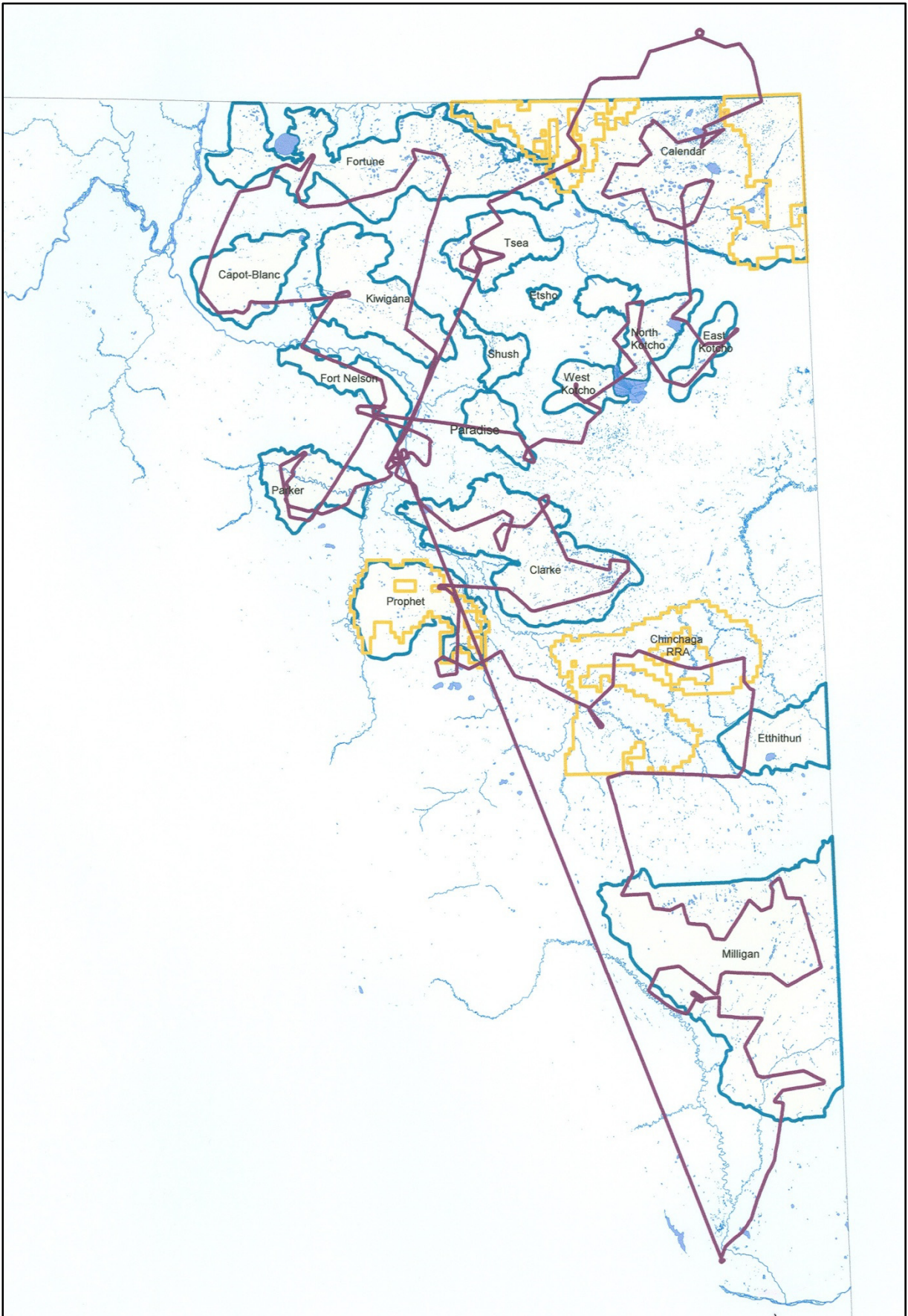


Figure 1. Flight paths flown during the September 14-15, 2014 SCEK boreal caribou and wolf telemetry monitoring flight.