

DIVERSIFIED ENVIRONMENTAL SERVICES

BOX 6263, FORT ST. JOHN, B.C. V1J 4H7 PHONE/FAX (250) 787-9101

SCIENCE AND COMMUNITY ENVIRONMENTAL KNOWLEDGE FUND BOREAL CARIBOU TELEMETRY PROGRAM

FIXED-WING TELEMETRY MONITORING FLIGHT – Nov 23-24, 2014

Date: Nov 30, 2014

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

Executive Summary

One hundred forty-eight boreal caribou collar frequencies and 17 wolf collar frequencies were scanned during a monthly fixed-wing telemetry monitoring flight conducted on November 23-24, 2014. One hundred thirty-six caribou collars were heard transmitting normal VHF signals, 2 were transmitting mortality signals (SCEK003/BC1051 and SCEK044), 1 was transmitting an activated release mechanism signal (SCEK002/BC1048), 2 were transmitting false mortality signals (SCEK100 and SCEK110), and 7 were not detected. No wolf mortality signals were detected, although several GPS wolf collars are presumed to have reached the end of their battery life.

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 November 23 and 24, 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 November 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 forty-eight caribou collar frequencies were scanned during the monitoring flight, including 142 SCEK collars (27 ATS Iridium, 30 Vectronic Vertex, 11 Lotek LifeCycle, and 74 Lotek VHF), 2 Alberta VHF collars, and 4 previously-deployed MFLNRO VHF collars. In addition, 17 wolf collar frequencies were scanned during the November flight (13 Lotek Iridium and 4 Lotek VHF).

Results of the November 23-24, 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 2,020 km. Of 148 caribou collar frequencies scanned, 136 normal VHF signals, 2 mortality signals, and 1 activated release signal were detected. Mortality indications included SCEK003/BC1051 (Kiwigana; ATS Iridium) and SCEK044 (Prophet; ATS Iridium). The ATS Iridium collar deployed on caribou SCEK002/BC1048 was transmitting an activated release signal indicating it had detached from the animal when its low voltage threshold was reached at the end of its expected battery life. Two additional ATS Iridium collars (SCEK100 and SCEK 110) were transmitting false mortality signals and were subsequently confirmed to be attached to live caribou; both these collars are approaching the end of their expected battery life.

Three collars are assumed to have failed in the field and appear no longer trackable. These include Milligan ATS Iridium SCEK042 (failed in May 2013), Calendar ATS Iridium SCEK184 (no data received since September 2014), and Parker MFLNRO VHF BC1001 (believed to have exceeded its normal battery life). The remaining 4 VHF collars were not detected during the November flight. Two of these could not be approached due to localized weather conditions.

At the time of the November monitoring flight, Calendar caribou SCEK125 (Lotek VHF) was assumed to be north of the NT/BC border but was not detected.

Seventeen wolf collar frequencies were scanned during the November 23-24, 2014 monitoring flight, including 13 Lotek Iridium and 4 Lotek VHF. Of the 13 GPS/satellite wolf collars scanned, 4 had normal VHF beacon function and the remaining 9 were not detected. Of these 9, two had previously dispersed to the Northwest Territories beyond VHF range; one stopped transmitting GPS data on August 15, 2014 (BW010; Snake Pack) and the other is believed to have died in early September (BW028; Snake Pack). The remaining 7 undetected GPS collars have ceased GPS data transmission and are nearing the end of their expected 2-year battery life. Of the 4 VHF wolf collars scanned, 2 had normal VHF signals, a third is assumed to have failed or the wolf dispersed soon after deployment in 2013 (BW007; Snake Pack), and the fourth is assumed operational but could not be detected due to weather conditions (BW002; Big Arrow Pack).

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

Cordially,



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 Nov 23-24, 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; double 6th	24-Nov-14	10	624270	6623315	normal
SCEK184	Caribou	Calendar	Calendar	ATS-Irid	not heard	24-Nov-14	n/a	n/a	n/a	No VHF; last data Sep 23 14
SCEK185	Caribou	Calendar	Calendar	Lotek-Lifecycle	50 ppm	24-Nov-14	10	602255	6618485	normal
SCEK183	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	24-Nov-14	10	643918	6606790	normal
SCEK180	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	24-Nov-14	10	627953	6629465	normal
SCEK136	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	648386	6621799	normal
SCEK181	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; no double 6th	24-Nov-14	10	616431	6603020	normal
SCEK135	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	24-Nov-14	10	621742	6578055	normal
SCEK119	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	24-Nov-14	10	614635	6644641	normal
SCEK123	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	650126	6622301	normal
SCEK122	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	658641	6649617	normal
SCEK138	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	623425	6618906	normal
SCEK137	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	632752	6637158	normal
SCEK120	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	625100	6622573	normal
SCEK134	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	646276	6619729	normal
SCEK112	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	642306	6608522	normal
SCEK113	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	24-Nov-14	10	625651	6610796	normal
SCEK125	Caribou	Calendar	Calendar	Lotek-VHF	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected
SCEK126	Caribou	Calendar	RRA-C	ATS-Irid	50 ppm; no double 6th	24-Nov-14	10	610231	6613261	normal
SCEK146	Caribou	Calendar	RRA-D	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	646900	6620788	normal VHF; no sat comm
SCEK108	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	24-Nov-14	10	622366	6610723	normal
SCEK107	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	24-Nov-14	10	625918	6649821	normal
SCEK195	Caribou	Chinchaga	Etthithun	Vectr-VertexTD	42 ppm	23-Nov-14	10	651901	6397657	normal
SCEK036	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	23-Nov-14	10	606501	6374684	normal
SCEK038	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	23-Nov-14	10	660614	6306678	normal
SCEK026	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	23-Nov-14	10	655808	6296156	normal
SCEK033	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	23-Nov-14	10	648691	6356441	normal
SCEK199	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	23-Nov-14	10	666663	6349170	normal
SCEK198	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	23-Nov-14	10	652777	6318640	normal
SCEK196	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	23-Nov-14	10	642595	6358631	normal
SCEK042	Caribou	Chinchaga	Milligan	ATS-Irid	missing; not heard	23-Nov-14	n/a	n/a	n/a	Failed Iridium and VHF functions
SCEK201	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	23-Nov-14	10	661207	6303259	normal
SCEK197	Caribou	Chinchaga	Milligan	Lotek-Lifecycle	50 ppm	23-Nov-14	10	670262	6344671	normal
AB149.391	Caribou	Chinchaga	Milligan	unknown	60 ppm	23-Nov-14	10	668372	6335864	normal
SCEK040	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	23-Nov-14	10	649853	6389082	normal
SCEK034	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	23-Nov-14	10	666236	6344419	normal
SCEK055	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	23-Nov-14	10	668041	6345175	normal
AB150.470	Caribou	Chinchaga	Milligan	unknown	60 ppm	23-Nov-14	10	668960	6337626	normal
SCEK035	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	640804	6357228	normal
SCEK041	Caribou	Chinchaga	Milligan	Lotek-VHF	not heard	23-Nov-14	n/a	n/a	n/a	VHF not detected
SCEK027	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	658140	6297428	normal
SCEK032	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	664740	6351120	normal
SCEK029	Caribou	Chinchaga	Milligan	Lotek-VHF	61 ppm	23-Nov-14	10	666627	6339036	normal
SCEK052	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	669853	6319191	normal
SCEK053	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	643877	6355492	normal
SCEK030	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	665721	6346423	normal
SCEK058	Caribou	Chinchaga	Milligan	Lotek-VHF	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected
SCEK054	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	663257	6348542	normal
SCEK057	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	667877	6341848	normal
SCEK059	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	663748	6344002	normal
SCEK061	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	23-Nov-14	10	671122	6316929	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Nov 23-24, 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	23-Nov-14	10	634253	6356124	normal
SCEK171	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	23-Nov-14	10	616461	6449228	normal
SCEK142	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	23-Nov-14	10	626364	6460073	normal
SCEK189	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	23-Nov-14	10	639847	6443409	normal
SCEK170	Caribou	Chinchaga	RRA-A	ATS-Irid	50 ppm; no double 6th	23-Nov-14	10	643102	6442869	normal
SCEK048	Caribou	Chinchaga	RRA-A	Lotek-VHF	60 ppm	23-Nov-14	10	610780	6444698	normal
SCEK172	Caribou	Chinchaga	RRA-A	Lotek-Lifecycle	50 ppm	23-Nov-14	10	620059	6452746	normal
SCEK009	Caribou	Fort Nelson	Fort Nelson	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	511813	6549489	normal
SCEK166	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	24-Nov-14	10	511521	6550974	normal
SCEK167	Caribou	Fort Nelson	Fort Nelson	Lotek-Lifecycle	50 ppm	24-Nov-14	10	511687	6550073	normal
BC1014	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	24-Nov-14	10	471905	6579535	normal
SCEK002	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	30 ppm	24-Nov-14	10	473724	6579152	RELEASED
SCEK007	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; no double 6th	24-Nov-14	10	462131	6578548	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	24-Nov-14	10	470412	6579924	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	24-Nov-14	10	466029	6582271	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	24-Nov-14	10	471216	6579680	normal
BC1033	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	535543	6623225	normal
SCEK178	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	24-Nov-14	10	568365	6607354	normal
SCEK085	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	24-Nov-14	10	557624	6593166	normal
SCEK005b	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	24-Nov-14	10	534829	6621848	normal
SCEK177	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	24-Nov-14	10	529886	6634193	normal
SCEK175	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	24-Nov-14	10	557789	6592254	normal
SCEK179	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	24-Nov-14	10	566374	6607102	normal
SCEK176	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	24-Nov-14	10	487050	6622683	normal
SCEK164	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	533725	6624094	normal
SCEK078	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	469384	6619429	normal
SCEK128	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	533656	6628471	normal
SCEK086	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	561042	6605006	normal
SCEK129	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	541845	6626737	normal
SCEK087	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	24-Nov-14	10	562974	6604422	normal
SCEK168	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	24-Nov-14	10	541544	6565683	normal
SCEK003	Caribou	Maxhamish	Kiwigana	ATS-Irid	30 ppm; double 2nd	24-Nov-14	10	541717	6554343	MORTALITY
SCEK169	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	515325	6573717	normal
SCEK064	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	24-Nov-14	10	540819	6567361	normal
SCEK062	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	24-Nov-14	10	539552	6566011	normal
SCEK004	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	24-Nov-14	10	468696	6617967	normal
BC1009	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	24-Nov-14	10	517384	6571733	normal; old wolf collar
SCEK016	Caribou	Parker	Parker	ATS-Irid	50 ppm; no double 6th	24-Nov-14	10	491632	6520681	normal
SCEK014	Caribou	Parker	Parker	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	491991	6525988	normal
SCEK194	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	24-Nov-14	10	488019	6525708	normal
SCEK010	Caribou	Parker	Parker	Lotek-VHF	60 ppm	24-Nov-14	10	490054	6522239	normal
SCEK012	Caribou	Parker	Parker	Lotek-VHF	60 ppm	24-Nov-14	10	489930	6524907	normal
SCEK015	Caribou	Parker	Parker	Lotek-VHF	60 ppm	24-Nov-14	10	493883	6522533	normal
BC1001	Caribou	Parker	Parker	Lotek-VHF	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected, assumed failed
SCEK044	Caribou	Prophet	Prophet	ATS-Irid	30 ppm; double 2nd	23-Nov-14	10	558781	6440973	MORTALITY
SCEK161	Caribou	Prophet	Prophet	ATS-Irid	50 ppm; no double 6th	23-Nov-14	10	553445	6465083	normal
SCEK143	Caribou	Prophet	Prophet	Vectr-Vertex	50 ppm	23-Nov-14	10	553403	6464996	normal
SCEK144	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	23-Nov-14	10	577593	6434956	normal
SCEK051	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	23-Nov-14	10	553325	6443499	normal
SCEK049	Caribou	Prophet	Prophet	Lotek-VHF	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected
SCEK045	Caribou	Prophet	Prophet	Lotek-VHF	60 ppm	23-Nov-14	10	545056	6450359	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Nov 23-24, 2014 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK020	Caribou	Snake-	Clarke	ATS-Irid	50 ppm; no double 6th	23-Nov-14	10	567447	6498098	normal
SCEK193	Caribou	Snake-	Clarke	Vectr-VertexTD	42 ppm	23-Nov-14	10	572509	6506846	normal
SCEK192	Caribou	Snake-	Clarke	Lotek-Lifecycle	50 ppm	23-Nov-14	10	609084	6484353	normal
SCEK191	Caribou	Snake-	Clarke	Lotek-Lifecycle	50 ppm	23-Nov-14	10	601614	6483010	normal
SCEK145	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	569672	6509486	normal
SCEK068	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	582873	6492851	normal
SCEK150	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	605452	6481306	normal
SCEK148	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	606184	6485637	normal
SCEK153	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	540164	6502684	normal
SCEK152	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	582783	6489635	normal
SCEK019	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	561477	6504611	normal
SCEK021	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	565177	6499067	normal
SCEK025	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	557912	6499353	normal
SCEK024	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	568576	6502102	normal
SCEK149	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	568513	6495694	normal
SCEK156	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	562088	6500818	normal
SCEK157	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	567906	6497036	normal
SCEK070	Caribou	Snake-	Clarke	Lotek-VHF	60 ppm	23-Nov-14	10	562553	6504637	normal
SCEK100	Caribou	Snake-	East Kotcho	ATS-Irid	30 ppm; double 2nd	24-Nov-14	10	627436	6568588	false mortality
SCEK103	Caribou	Snake-	East Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	634409	6560229	normal
SCEK102	Caribou	Snake-	East Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	632149	6556091	normal
SCEK105	Caribou	Snake-	East Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	630238	6565538	normal
SCEK182	Caribou	Snake-	North Kotcho	Vectr-VertexTD	42 ppm	24-Nov-14	10	627505	6574712	normal
SCEK188	Caribou	Snake-	North Kotcho	Vectr-VertexTD	42 ppm	24-Nov-14	10	616811	6578150	normal
SCEK186	Caribou	Snake-	North Kotcho	Vectr-VertexTD	42 ppm	24-Nov-14	10	626857	6576155	normal
SCEK110	Caribou	Snake-	North Kotcho	ATS-Irid	30 ppm; double 2nd	24-Nov-14	10	615787	6566660	false mortality
SCEK204	Caribou	Snake-	North Kotcho	Lotek-Lifecycle	50 ppm	24-Nov-14	10	629991	6566695	normal
SCEK187	Caribou	Snake-	North Kotcho	Lotek-Lifecycle	50 ppm	24-Nov-14	10	633895	6558297	normal
SCEK111	Caribou	Snake-	North Kotcho	Vectr-Vertex	50 ppm	24-Nov-14	10	610202	6573152	normal
SCEK089	Caribou	Snake-	North Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	611756	6563794	normal
SCEK088	Caribou	Snake-	North Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	615814	6574884	normal
SCEK090	Caribou	Snake-	North Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	615675	6577803	normal
SCEK092	Caribou	Snake-	North Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	621819	6568884	normal
SCEK096	Caribou	Snake-	Paradise	Lotek-VHF	60 ppm	24-Nov-14	10	611368	6565309	normal
SCEK203	Caribou	Snake-	Tsea	Vectr-VertexTD	42 ppm	24-Nov-14	10	565627	6601127	normal
SCEK079	Caribou	Snake-	Tsea	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	562069	6598248	normal
SCEK131	Caribou	Snake-	Tsea	Lotek-VHF	60 ppm	24-Nov-14	10	566626	6599931	normal
SCEK081	Caribou	Snake-	Tsea	Lotek-VHF	60 ppm	24-Nov-14	10	564801	6601428	normal
SCEK132	Caribou	Snake-	Tsea	Lotek-VHF	60 ppm	24-Nov-14	10	563814	6601229	normal
SCEK082	Caribou	Snake-	Tsea	Lotek-VHF	60 ppm	24-Nov-14	10	559630	6594974	normal
SCEK127	Caribou	Snake-	Tsea	Lotek-VHF	60 ppm	24-Nov-14	10	564024	6604790	normal
SCEK173	Caribou	Snake-	West Kotcho	ATS-Irid	50 ppm; no double 6th	24-Nov-14	10	627581	6569808	normal
SCEK071	Caribou	Snake-	West Kotcho	Vectr-Vertex	42 ppm	24-Nov-14	10	609792	6558078	normal
SCEK097	Caribou	Snake-	West Kotcho	ATS-Irid	50 ppm; double 6th	24-Nov-14	10	623038	6579403	normal
SCEK091	Caribou	Snake-	West Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	605034	6579449	normal
SCEK073	Caribou	Snake-	West Kotcho	Lotek-VHF	60 ppm	24-Nov-14	10	583709	6550449	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Nov 23-24, 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	not heard	23-Nov-14	n/a	n/a	n/a	VHF not detected
BW011	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	23-Nov-14	n/a	n/a	n/a	VHF not detected; no data since deployment
BW012	Wolf	Chinchaga	Big Arrow	Lotek-Irid	not heard	23-Nov-14	n/a	n/a	n/a	VHF failed; data ceased Nov 21 14
BW008	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected; last data Aug 07 14
BW001	Wolf	Fort Nelson	Tsimeh	Lotek-VHF	60 ppm	24-Nov-14	10	519776	6555292	normal
BW009	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected; last data Sep 27 14
BW014	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	24-Nov-14	10	519776	6555292	normal; satellite data current
BW019	Wolf	Parker	Parker	Lotek-Irid	not heard	24-Nov-14	n/a	n/a	n/a	VHF not detected; last data Jun 25 14.
BW021	Wolf	Snake-	Clarke	Lotek-Irid	not heard	23-Nov-14	n/a	n/a	n/a	VHF not detected; last data Jun 30 14.
BW030	Wolf	Snake-	Clarke	Lotek-Irid	50 ppm	23-Nov-14	10	536719	6504769	normal; satellite data current
BW017	Wolf	Snake-	Elleh	Lotek-Irid	not heard	23-Nov-14	n/a	n/a	n/a	VHF not detected; last data Oct 17, 13.
BW024	Wolf	Snake-	Kwokullie	Lotek-Irid	50 ppm	24-Nov-14	10	617881	6596260	normal
BW026	Wolf	Snake-	Kwokullie	Lotek-VHF	60 ppm	24-Nov-14	10	617881	6596260	normal
BW007	Wolf	Snake-	Snake	Lotek-VHF	not heard	24-Nov-14	n/a	n/a	n/a	not detected; missing since deployment
BW010	Wolf	Snake-	Snake	Lotek-Irid	not heard	24-Nov-14	n/a	n/a	n/a	dispersal to NWT; last data Aug 15 14
BW027	Wolf	Snake-	Snake	Lotek-Irid	50 ppm	23-Nov-14	10	528456	6520480	normal
BW028	Wolf	Snake-	Snake	Lotek-Irid	not heard	24-Nov-14	n/a	n/a	n/a	dispersal to NT; no movement since Sep 06

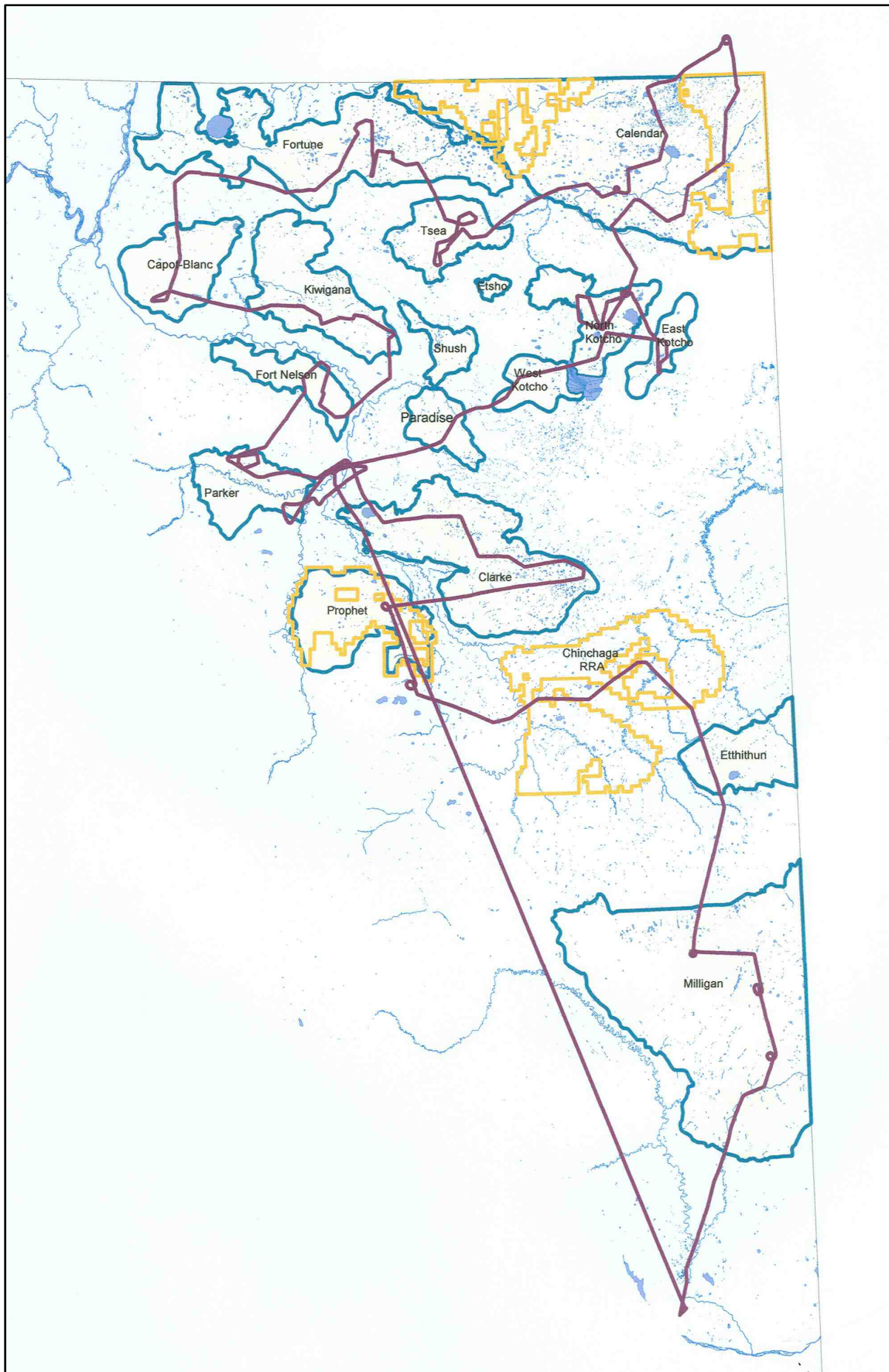


Figure 1. Flight paths flown during the November 23-24, 2014 SCEK boreal caribou and wolf telemetry monitoring flight.