

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 – April 20-21, 2015

Date: April 27, 2015

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

Executive Summary

One hundred fifty-nine boreal caribou collar frequencies and 36 wolf collar frequencies were scanned during a monthly fixed-wing telemetry monitoring flight conducted on April 20-21, 2015. One hundred fifty caribou collars were heard transmitting normal VHF signals and 3 were transmitting mortality signals indicating dead animals. The remaining 6 caribou collars were not detected. No wolf mortality signals were detected.

Background

Between December 17, 2012 and April 01, 2015, 224 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 April 20-21, 2015, 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 April 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 and wolf collars deployed on behalf of SCEK, caribou collars deployed on behalf of the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO), wolf collars deployed for a research program funded by Nexen Inc., 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-nine caribou collar frequencies were scanned during the April 2015 monitoring flight, including 154 SCEK collars (6 ATS Iridium, 63 Vectronic Vertex, 12 Lotek LifeCycle, and 73 Lotek VHF), 2 Alberta VHF collars, and 3 previously-deployed MFLNRO VHF collars. In addition, 36 wolf collar frequencies were scanned during the April flight, including 29 SCEK wolf collars (21 Lotek Iridium, 1 Vectronic Vertex, and 7 Lotek VHF), and 7 Nexen collars (Lotek Iridium). Several of the SCEK Iridium wolf collars are assumed to have exceeded their battery lives and will not be scanned during future flights.

Results of the April 20-21, 2015 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 2,851 km. Of 159 caribou collar frequencies scanned, 150 normal VHF signals and 3 mortality signals were detected (Milligan Lotek VHF SCEK052; Prophet Vectronic GPS SCEK143; North Kotcho Vectronic GPS SCEK188). The VHF signals of the remaining 6 caribou collars were not detected. These include 3 SCEK ATS Iridium collars that have ceased Iridium data transmission and are believed to have failed, one MFLNRO VHF collar, one Alberta VHF collar, and one SCEK VHF collar.

All ATS GPS collars previously transmitting release activation or low battery signals were recovered or replaced during the February-March 2015 capture sessions.

Milligan ATS Iridium collar SCEK042, which failed in May 2013, was confirmed to have prematurely detached when the uncollared animal was identified by its ear tag during the March 2015 recruitment survey.

Thirty-six wolf collar frequencies were scanned during the April 2015 monitoring flight, including 29 Lotek and Vectronic GPS/satellite collars and 7 Lotek VHF collars. No mortalities were detected. Of the 29 GPS/satellite wolf collars scanned, 15 had normal VHF beacon function and the remaining 14 were not detected. The majority of these are believed to have now exceeded their battery lives and will not be scanned during future monitoring flights.

Of the 7 VHF wolf collars scanned, 4 had normal VHF signals, a fifth is assumed to have failed or the wolf dispersed soon after deployment in 2013 (BW007; Snake Pack), and the remaining 2 are assumed operational but were not detected (BW002 – Big Arrow Pack; BW026 – Kwokullie 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 Apr 20-21, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK112	Caribou	Calendar	Calendar	Lotek VHF	not heard	21-Apr-15	10	631706	6633770	normal
SCEK113	Caribou	Calendar	Calendar	Lotek VHF	not heard	21-Apr-15	10	590744	6622647	normal
SCEK114	Caribou	Calendar	Calendar	ATS-Irid	not heard	21-Apr-15	n/a	n/a	n/a	No VHF; last data Nov 27 14
SCEK119	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	21-Apr-15	10	609880	6643419	normal
SCEK120	Caribou	Calendar	Calendar	Lotek VHF	60 ppm	21-Apr-15	10	596330	6626225	normal
SCEK122	Caribou	Calendar	Calendar	Lotek VHF	60 ppm	21-Apr-15	10	624241	6662943	normal
SCEK123	Caribou	Calendar	Calendar	Lotek VHF	60 ppm	21-Apr-15	10	599623	6631819	normal
SCEK125	Caribou	Calendar	Calendar	Lotek VHF	60 ppm	21-Apr-15	10	639638	6649496	normal
SCEK134	Caribou	Calendar	Calendar	Lotek VHF	60 ppm	21-Apr-15	10	620713	6632650	normal
SCEK135	Caribou	Calendar	Calendar	Vectr-Vertex	100 ppm	21-Apr-15	10	642561	6607323	normal
SCEK136b	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	21-Apr-15	10	613656	6607839	normal
SCEK137	Caribou	Calendar	Calendar	Lotek VHF	60 ppm	21-Apr-15	10	637847	6641306	normal
SCEK146b	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	21-Apr-15	10	610476	6636791	normal
SCEK180	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	21-Apr-15	10	609320	6643248	normal
SCEK181	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; no	21-Apr-15	10	617504	6613964	normal
SCEK183	Caribou	Calendar	Calendar	Vectr-VertexTD	42 ppm	21-Apr-15	10	589952	6616901	normal
SCEK184	Caribou	Calendar	Calendar	ATS-Irid	not heard	21-Apr-15	10	n/a	n/a	No VHF; last data Sep 23 14
SCEK185	Caribou	Calendar	Calendar	Lotek-Lifecycle	50 ppm	21-Apr-15	10	600672	6635688	normal
SCEK126b	Caribou	Calendar	RRA-C	Vectr-VertexTD	42 ppm	21-Apr-15	10	592672	6621926	normal
SCEK107	Caribou	Calendar	RRA-D	Lotek VHF	60 ppm	21-Apr-15	10	620098	6648720	normal
SCEK108	Caribou	Calendar	RRA-D	Lotek VHF	60 ppm	21-Apr-15	10	635890	6642002	normal
SCEK195	Caribou	Chinchaga	Etthithun	Vectr-VertexTD	42 ppm	20-Apr-15	10	651959	6402383	normal
SCEK224	Caribou	Chinchaga	Etthithun	Vectr-VertexTD	42 ppm	20-Apr-15	10	631617	6429294	normal
AB149.391	Caribou	Chinchaga	Milligan	unknown	not heard	20-Apr-15	n/a	n/a	n/a	VHF signal not detected
AB150.470	Caribou	Chinchaga	Milligan	unknown	60 ppm	20-Apr-15	10	639914	6334994	normal
SCEK026b	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	661621	6293987	normal
SCEK027	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	657112	6290649	normal
SCEK029	Caribou	Chinchaga	Milligan	Lotek VHF	61 ppm	20-Apr-15	10	642358	6331537	normal
SCEK030	Caribou	Chinchaga	Milligan	Lotek VHF	not heard	20-Apr-15	n/a	n/a	n/a	VHF signal not detected
SCEK032	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	668852	6329785	normal
SCEK033b	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	664589	6334157	normal
SCEK034	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	20-Apr-15	10	641813	6383218	normal
SCEK035	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	612013	6368728	normal
SCEK036b	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	606197	6375940	normal
SCEK040	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	20-Apr-15	10	655592	6431078	normal
SCEK041	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	659658	6334489	normal
SCEK052	Caribou	Chinchaga	Milligan	Lotek VHF	120 ppm	20-Apr-15	10	654781	6300636	MORTALITY
SCEK053	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	634493	6330548	normal
SCEK054	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	671524	6333448	normal
SCEK055	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	20-Apr-15	10	654136	6339100	normal
SCEK057	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	658524	6333148	normal
SCEK058	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	629839	6371944	normal
SCEK059	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	623043	6346754	normal
SCEK060	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	612041	6364626	normal
SCEK061	Caribou	Chinchaga	Milligan	Lotek VHF	60 ppm	20-Apr-15	10	656042	6335053	normal
SCEK196	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	635663	6358720	normal
SCEK197	Caribou	Chinchaga	Milligan	Lotek-Lifecycle	50 ppm	20-Apr-15	10	648917	6337099	normal
SCEK198	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	646799	6300594	normal
SCEK201	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	660589	6288809	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Apr 20-21, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK222	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	636679	6334257	normal
SCEK223	Caribou	Chinchaga	Milligan	Vectr-VertexTD	42 ppm	20-Apr-15	10	641654	6348844	normal
SCEK048	Caribou	Chinchaga	RRA-A	Lotek VHF	60 ppm	20-Apr-15	10	595050	6440556	normal
SCEK142	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	20-Apr-15	10	614967	6452421	normal
SCEK170	Caribou	Chinchaga	RRA-A	ATS-Irid	50 ppm; no	20-Apr-15	10	645361	6440524	normal
SCEK171	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	20-Apr-15	10	601011	6445148	normal
SCEK172	Caribou	Chinchaga	RRA-A	Lotek-Lifecycle	50 ppm	20-Apr-15	10	609960	6441714	normal
SCEK189	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	20-Apr-15	10	609702	6453389	normal
SCEK213	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	20-Apr-15	10	598999	6445342	normal
SCEK214	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	20-Apr-15	10	610293	6442007	normal
SCEK215	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	20-Apr-15	10	586261	6411744	normal
SCEK216	Caribou	Chinchaga	RRA-A	Vectr-VertexTD	42 ppm	20-Apr-15	10	619208	6447474	normal
SCEK009b	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	20-Apr-15	10	516380	6548517	normal
SCEK166	Caribou	Fort Nelson	Fort Nelson	Vectr-VertexTD	42 ppm	20-Apr-15	10	515175	6546287	normal
SCEK167	Caribou	Fort Nelson	Fort Nelson	Lotek-Lifecycle	50 ppm	20-Apr-15	10	515569	6550183	normal
BC1014	Caribou	Maxhamish	Capot-Blanc	Lotek VHF	60 ppm	20-Apr-15	10	468859	6583642	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc	Lotek VHF	60 ppm	20-Apr-15	10	470146	6578287	normal
SCEK007b	Caribou	Maxhamish	Capot-Blanc	Vectr-VertexTD	42 ppm	20-Apr-15	10	457886	6579851	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc	Lotek VHF	60 ppm	20-Apr-15	10	469217	6577943	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc	Lotek VHF	60 ppm	20-Apr-15	10	462019	6577612	normal
BC1033	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	512389	6620165	normal
SCEK005b	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	523884	6624576	normal
SCEK078	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	463870	6625312	normal
SCEK085	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	20-Apr-15	10	560791	6539802	normal
SCEK086	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	525494	6628487	normal
SCEK087	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	527479	6629577	normal
SCEK128	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	529860	6632821	normal
SCEK129	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	542176	6628798	normal
SCEK164	Caribou	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	537361	6619586	normal
SCEK175	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	20-Apr-15	10	550134	6609474	normal
SCEK176	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	20-Apr-15	10	484625	6625062	normal
SCEK177	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	529806	6635498	normal
SCEK178	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	557038	6597101	normal
SCEK179	Caribou	Maxhamish	Fortune	Lotek-Lifecycle	50 ppm	20-Apr-15	10	531359	6638837	normal
SCEK205	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	543791	6628335	normal
SCEK206	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	535063	6624020	normal
SCEK208	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	486991	6623566	normal
SCEK221	Caribou	Maxhamish	Fortune	Vectr-VertexTD	42 ppm	20-Apr-15	10	540422	6623380	normal
BC1009	Caribou	Maxhamish	Kiwigana	Lotek VHF	not heard	20-Apr-15	n/a	n/a	n/a	VHF signal not detected
SCEK004	Caribou	Maxhamish	Kiwigana	Lotek VHF	60 ppm	20-Apr-15	10	473228	6635136	normal
SCEK062	Caribou	Maxhamish	Kiwigana	Lotek VHF	60 ppm	20-Apr-15	10	530380	6565730	normal
SCEK064	Caribou	Maxhamish	Kiwigana	Lotek VHF	60 ppm	20-Apr-15	10	523210	6573116	normal
SCEK168	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	20-Apr-15	10	524828	6569711	normal
SCEK169	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double	20-Apr-15	10	504233	6588603	normal
SCEK210	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	20-Apr-15	10	529968	6571591	normal
SCEK211	Caribou	Maxhamish	Kiwigana	Vectr-VertexTD	42 ppm	20-Apr-15	10	525091	6572050	normal
SCEK010	Caribou	Parker	Parker	Lotek VHF	60 ppm	20-Apr-15	10	482453	6508996	normal
SCEK012	Caribou	Parker	Parker	Lotek VHF	60 ppm	20-Apr-15	10	490727	6512628	normal
SCEK014b	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	20-Apr-15	10	487581	6512587	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Apr 20-21, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK015	Caribou	Parker	Parker	Lotek VHF	60 ppm	20-Apr-15	10	487632	6525228	normal
SCEK016b	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	20-Apr-15	10	481136	6513697	normal
SCEK194	Caribou	Parker	Parker	Vectr-VertexTD	42 ppm	20-Apr-15	10	483887	6516507	normal
SCEK045	Caribou	Prophet	Prophet	Lotek VHF	not heard	20-Apr-15	10	553725	6447642	normal
SCEK049	Caribou	Prophet	Prophet	Lotek VHF	not heard	20-Apr-15	10	556917	6443504	normal
SCEK051	Caribou	Prophet	Prophet	Lotek VHF	not heard	20-Apr-15	10	558801	6458824	normal
SCEK143	Caribou	Prophet	Prophet	Vectr-Vertex	100 ppm	20-Apr-15	10			MORTALITY
SCEK144	Caribou	Prophet	Prophet	Lotek VHF	not heard	20-Apr-15	10	560139	6455003	normal
SCEK161b	Caribou	Prophet	Prophet	Vectr-VertexTD	42 ppm	20-Apr-15	10	556297	6453111	normal
SCEK217	Caribou	Prophet	Prophet	Vectr-VertexTD	42 ppm	20-Apr-15	10	557195	6447296	normal
SCEK019	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	567854	6504988	normal
SCEK020b	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	20-Apr-15	10	594905	6485462	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	558970	6497297	normal
SCEK024	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	566437	6508694	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	558617	6492437	normal
SCEK068	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	563360	6534869	normal
SCEK070	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	562950	6502271	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	557760	6515850	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	603321	6480897	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	557160	6505630	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	604385	6481850	normal
SCEK152	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	557312	6498470	normal
SCEK153	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	543504	6493980	normal
SCEK156	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	552192	6502104	normal
SCEK157	Caribou	Snake-Sahtaneh	Clarke	Lotek VHF	60 ppm	20-Apr-15	10	562471	6490699	normal
SCEK191	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	20-Apr-15	10	602018	6488381	normal
SCEK192	Caribou	Snake-Sahtaneh	Clarke	Lotek-Lifecycle	50 ppm	20-Apr-15	10	605493	6484268	normal
SCEK193	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	20-Apr-15	10	546481	6494139	normal
SCEK212	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	20-Apr-15	10	567269	6503455	normal
SCEK218	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	20-Apr-15	10	561548	6508714	normal
SCEK220	Caribou	Snake-Sahtaneh	Clarke	Vectr-VertexTD	42 ppm	20-Apr-15	10	606053	6476969	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	630503	6556443	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	630628	6555586	normal
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	634477	6571248	normal
SCEK110b	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-Lifecycle	50 ppm	21-Apr-15	10	633851	6571455	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	632459	6560691	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	602116	6575126	normal
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	596169	6586511	normal
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	609755	6578074	normal
SCEK097b	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	21-Apr-15	10	620106	6576237	normal
SCEK100b	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	21-Apr-15	10	622763.3	6567341.009	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-Vertex	50 ppm	21-Apr-15	10	608380	6579194	normal
SCEK182	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	21-Apr-15	10	617775	6580888	normal
SCEK186	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	42 ppm	21-Apr-15	10	607337	6572798	normal
SCEK187	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	21-Apr-15	10	606439	6570278	normal
SCEK188	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-VertexTD	100 ppm	21-Apr-15	10	597938	6574890	MORTALITY
SCEK204	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-Lifecycle	50 ppm	21-Apr-15	10	638587	6569770	normal
SCEK096	Caribou	Snake-Sahtaneh	Paradise	Lotek VHF	60 ppm	21-Apr-15	10	564898	6511284	normal
SCEK079b	Caribou	Snake-Sahtaneh	Tsea	Vectr-VertexTD	42 ppm	20-Apr-15	10	528734.3	6600447.543	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the Apr 20-21, 2015 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK081	Caribou	Snake-Sahtaneh	Tsea	Lotek VHF	60 ppm	20-Apr-15	10	552661	6594034	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea	Lotek VHF	60 ppm	20-Apr-15	10	557897	6592664	normal
SCEK127	Caribou	Snake-Sahtaneh	Tsea	Lotek VHF	60 ppm	20-Apr-15	10	553835	6607518	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea	Lotek VHF	60 ppm	20-Apr-15	10	557803	6590465	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea	Lotek VHF	60 ppm	21-Apr-15	10	558496	6593088	normal
SCEK203	Caribou	Snake-Sahtaneh	Tsea	Vectr-VertexTD	42 ppm	20-Apr-15	10	558989	6609955	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-Vertex	50 ppm	21-Apr-15	10	584209	6549655	normal
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	590551	6549282	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho	Lotek VHF	60 ppm	21-Apr-15	10	612903	6586639	normal
SCEK173	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Irid	not heard	21-Apr-15	n/a	n/a	n/a	VHF not detected; last data Mar 20 15.
SCEK209	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-VertexTD	42 ppm	21-Apr-15	10	562604	6542235	normal
SCEK219	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-VertexTD	42 ppm	21-Apr-15	10	577444.9	6567069.441	normal
BW002	Wolf	Chinchaga	Big Arrow	Lotek VHF	not heard	20-Apr-15	10	n/a	n/a	VHF not detected
BW011	Wolf	Chinchaga	Big Arrow	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; no data since deployment
BW012	Wolf	Chinchaga	Big Arrow	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF failed; last data Nov 21, 14
BW021	Wolf	Snake-Sahtaneh	Clarke	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; last data Jun 30 14.
BW030	Wolf	Snake-Sahtaneh	Clarke	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; last data Dec 28 14.
BW017	Wolf	Snake-Sahtaneh	Elleh	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; last data Oct 17, 13.
BW038	Wolf	Clarke	Elleh	Vectronic	50 ppm	20-Apr-15	10	570872	6490025	normal
BW039	Wolf	Clarke	Elleh	Lotek Iridium	50 ppm	20-Apr-15	10	576502	6493401	normal
BW040	Wolf	Clarke	Elleh	Lotek Iridium	50 ppm	20-Apr-15	10	560576	6500965	normal
BW035	Wolf	Maxhamish	Fortune	Lotek Iridium	50 ppm	20-Apr-15	10	536846	6607521	normal
BW036	Wolf	Maxhamish	Fortune	Lotek Iridium	50 ppm	20-Apr-15	10	536846	6607521	normal
BW037	Wolf	Maxhamish	Fortune	Lotek VHF	60 ppm	20-Apr-15	10	536846	6607521	normal
BW041	Wolf	Maxhamish	Fortune	Lotek Iridium	50 ppm	20-Apr-15	10	536846	6607521	normal
BW034	Wolf	Calendar	July	Lotek VHF	60 ppm	21-Apr-15	10	638348	6599868	normal
BW042	Wolf	Calendar	July	Lotek Iridium	50 ppm	21-Apr-15	10	638348	6599868	normal
BW043	Wolf	Calendar	July	Lotek Iridium	50 ppm	21-Apr-15	10	638348	6599868	normal
BW044	Wolf	Calendar	July	Lotek Iridium	50 ppm	21-Apr-15	10	596797	6632028	normal
BW045	Wolf	Calendar	July	Lotek Iridium	50 ppm	21-Apr-15	10	620771	6624740	normal
BW046	Wolf	Calendar	July	Lotek Iridium	50 ppm	21-Apr-15	10	638348	6599868	normal
BW024	Wolf	Snake-Sahtaneh	Kwokullie	Lotek Iridium	not heard	21-Apr-15	n/a	n/a	n/a	VHF not detected
BW026	Wolf	Snake-Sahtaneh	Kwokullie	Lotek VHF	not heard	21-Apr-15	n/a	n/a	n/a	VHF not detected
BW019	Wolf	Parker	Parker	Lotek Iridium	not heard	21-Apr-15	n/a	n/a	n/a	VHF not detected; last data Jun 25 14.
BW032	Wolf	Fortune/Tsea	Petitot	Lotek VHF	not heard	20-Apr-15	10	569627	6608895	normal
BW033	Wolf	Fortune/Tsea	Petitot	Lotek Iridium	not heard	20-Apr-15	10	569627	6608895	normal
BW047	Wolf	Fortune/Tsea	Petitot	Lotek Iridium	50 ppm	20-Apr-15	n/a	n/a	n/a	VHF not detected
BW049	Wolf	Fortune/Tsea	Petitot	Lotek Iridium	50 ppm	20-Apr-15	10	569627	6608895	normal
BW050	Wolf	Fortune/Tsea	Petitot	Lotek Iridium	50 ppm	20-Apr-15	n/a	n/a	n/a	VHF not detected
BW007	Wolf	Snake-Sahtaneh	Snake	Lotek VHF	not heard	20-Apr-15	10	n/a	n/a	not detected; missing since deployment
BW010	Wolf	Snake-Sahtaneh	Snake	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	dispersal to NWT; last data Aug 15 14
BW027	Wolf	Snake-Sahtaneh	Snake	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; last data Jan 09, 14
BW028	Wolf	Snake-Sahtaneh	Snake	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	dispersal to NT; no movement since Sep 06 14
BW008	Wolf	Fort Nelson	Tsimeh	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; last data Aug 07 14
BW009	Wolf	Fort Nelson	Tsimeh	Lotek Iridium	not heard	20-Apr-15	10	n/a	n/a	VHF not detected; last data Sep 27 14
BW014	Wolf	Fort Nelson	Tsimeh	Lotek Iridium	50 ppm	20-Apr-15	10	506168	6534351	normal
BW048	Wolf	Fort Nelson	Tsimeh	Lotek VHF	60 ppm	20-Apr-15	10	506168	6534351	normal
BW051	Wolf	Fort Nelson	Tsimeh	Lotek Iridium	50 ppm	20-Apr-15	10	506168	6534351	normal

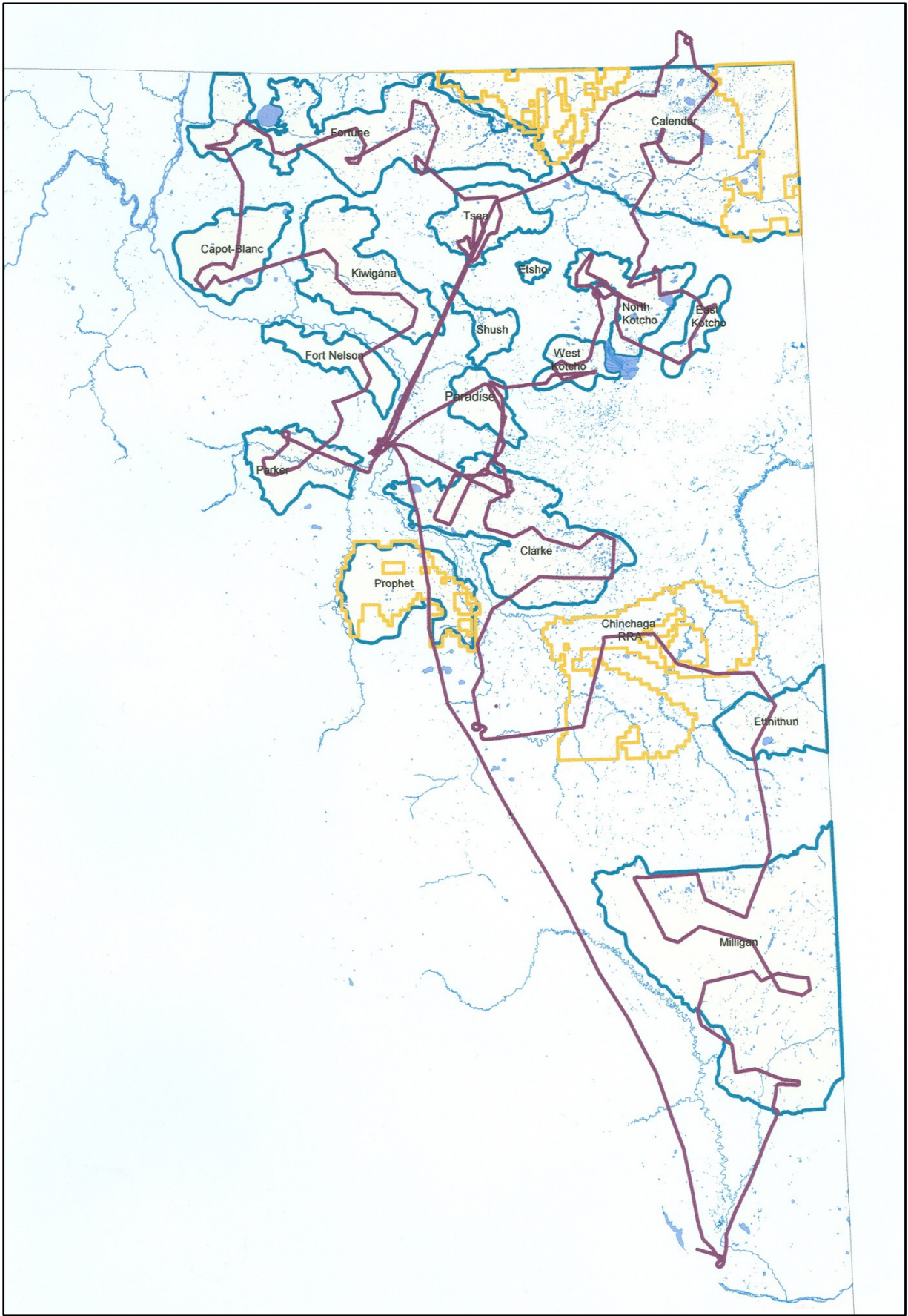


Figure 1. Flight paths flown during the April 20-21, 2015 SCEK boreal caribou and wolf telemetry monitoring flight.