

DIVERSIFIED ENVIRONMENTAL SERVICES

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

SCIENCE COMMUNITY ENVIRONMENTAL KNOWLEDGE FUND BOREAL CARIBOU TELEMETRY PROGRAM

FIXED-WING TELEMETRY MONITORING FLIGHT – January 21-22, 2014

Date: January 23, 2014

Attention: Megan Watters
Ecosystems Biologist
Ministry of Forests, Lands & Natural Resource Operations
Fort St. John, BC

Background

During the winter of 2012-13, 164 adult female boreal caribou were radio-collared in British Columbia's boreal caribou ranges as part of the *British Columbia Boreal Caribou Implementation Plan* (BCIP). On January 21-22, 2014, Diversified Environmental Services (DES) conducted a fixed-wing monitoring flight under contract to the Science 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/collar recoveries and to track potential long distance seasonal movements of VHF-collared caribou.

Objectives

The objective of the January 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 at the time of the flight. These included caribou collars deployed on behalf of SCEK, caribou and wolf collars deployed on behalf of 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 a Lotek™ STR 1000 telemetry receiver. 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 (120 ppm) and a location (+/- 1 km) was recorded using a hand-held GPS unit. In the case of GPS/satellite collars (ATS Iridium and Vectronic Vertex), additional diagnostic VHF beacon patterns were recorded where applicable. As GPS/satellite collars are programmed to log multiple daily locations with high precision, efforts to obtain collar locations during fixed-wing flights are 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 forty-two caribou collar frequencies were scanned during the January 21-22, 2014 monitoring flight, including 131 SCEK collars (27 ATS Iridium, 14 Vectronic Vertex, and 90 VHF), 2 Alberta SRM collars, and 9 previously-deployed MFLNRO collars (1 ATS Iridium and 8 VHF). In addition, the frequencies of 13 Lotek Iridium and 6 Lotek VHF wolf collars were scanned.

Results of the January 21-22, 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 2,268 km. Of 142 caribou collar frequencies scanned, 137 normal VHF signals and 1 weak and intermittent signal (SCEK017; Clarke) were detected. One mortality signal (SCEK116;Calendar) was detected, indicating a dead animal. The remaining 3 animals were not detected during the monitoring flight. These included 1 SCEK ATS Iridium collar suspected to have failed early in the year (SCEK042; Milligan), 1 SCEK ATS Iridium collar which has not been detected nor has transmitted satellite data recently (SCEK050; Prophet), and 1 previously-deployed VHF collar suspected to have exceeded its battery life (BC1000; Parker).

Eighteen wolf collar frequencies were scanned during the January 21-22, 2014 monitoring flight, including 12 Iridium collars and 6 VHF collars. Of the 12 Iridium wolf collars, 7 had normal VHF beacon function, and 1 was transmitting a VHF low battery signal (BW016; Snake pack). VHF signals from the remaining 4 Iridium wolf collars were not detected. Two of the 4 undetected Iridium wolf collars were previously suspected to have failed, including BW03 (West Clarke pack) and BW12 (Big Arrow pack). Of the remaining 2 undetected Iridium wolf collars, 1 has not transmit recent satellite data (BW17; Elleh pack) and the other has current satellite transmission function but has dispersed north of the search area, approximately 60 km into the Northwest Territories (BW10; Snake pack). Of the 6 VHF wolf collars scanned, 5 had normal VHF signals and 1 could not be located (BW007; Snake Pack). The undetected VHF wolf collar has not been located since soon after deployment in February 2013 and is assumed to have failed or the animal dispersed.

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

Cordially,

A handwritten signature in black ink, appearing to read 'Brad Culling', with a period at the end.

Brad Culling, R.P.Bio
Diversified Environmental Services
Fort St. John, BC
Email: brad.culling@diversifiedenviro.ca

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the January 21-22, 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	21-Jan-14	10	629779	6644822	normal
SCEK136	Caribou	Calendar	Calendar	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	639123	6636366	normal
SCEK135	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	21-Jan-14	10	622114	6647348	normal
SCEK119	Caribou	Calendar	Calendar	Vectr-Vertex	50 ppm	21-Jan-14	10	614690	6641104	normal
SCEK113	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	664846	6644757	normal
SCEK123	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	598526	6628298	normal
SCEK122	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	646437	6650678	normal
SCEK138	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	644299	6624934	normal
SCEK137	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	633471	6655722	normal
SCEK120	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	620212	6646642	normal
SCEK116	Caribou	Calendar	Calendar	Lotek-VHF	MORT	21-Jan-14	10	652050	6652927	120 ppm
SCEK134	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	597279	6626216	normal
SCEK112	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	649212	6662205	normal
SCEK125	Caribou	Calendar	Calendar	Lotek-VHF	60 ppm	21-Jan-14	10	650657	6681504	normal
SCEK126	Caribou	Calendar	RRA-C	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	589751	6627691	normal
SCEK146	Caribou	Calendar	RRA-D	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	620664	6638411	normal
SCEK147	Caribou	Calendar	RRA-D	Vectr-Vertex	50 ppm	21-Jan-14	10	629482	6654334	normal
SCEK108	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	21-Jan-14	10	636318	6627368	normal
SCEK107	Caribou	Calendar	RRA-D	Lotek-VHF	60 ppm	21-Jan-14	10	644069	6652172	normal
SCEK036	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	628887	6340241	normal
SCEK038	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	22-Jan-14	10	664059	6285945	normal
SCEK026	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	22-Jan-14	10	667214	6299021	normal
SCEK033	Caribou	Chinchaga	Milligan	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	628618	6339386	normal
SCEK042	Caribou	Chinchaga	Milligan	ATS-Irid						not heard; suspected malfunction
AB149.391	Caribou	Chinchaga	Milligan	unknown	60 ppm	22-Jan-14	10	671305	6334322	normal
SCEK040	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	22-Jan-14	10	649863	6406779	normal
SCEK034	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	21-Jan-14	10	639638	6344971	normal
SCEK055	Caribou	Chinchaga	Milligan	Vectr-Vertex	50 ppm	21-Jan-14	10	632655	6359397	normal
SCEK037	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	664220	6286863	normal
AB150.470	Caribou	Chinchaga	Milligan	unknown	60 ppm	22-Jan-14	11	326913	6347483	normal
SCEK035	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	21-Jan-14	10	628030	6356784	normal
SCEK041	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	650598	6326936	normal
SCEK027	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	663059	6285945	normal
SCEK032	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	21-Jan-14	10	635611	6337241	normal
SCEK029	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	11	330085	6360586	normal
SCEK052	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	21-Jan-14	10	633008	6340975	normal
SCEK053	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	633195	6348284	normal
SCEK030	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	650796	6328565	normal
SCEK056	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	664674	6336698	normal
SCEK058	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	615637	6459921	normal
SCEK054	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	21-Jan-14	10	634875	6339691	normal
SCEK057	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	627505	6344965	normal
SCEK059	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	21-Jan-14	10	631875	6342691	normal
SCEK061	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	22-Jan-14	10	659190	6342819	normal
SCEK060	Caribou	Chinchaga	Milligan	Lotek-VHF	60 ppm	21-Jan-14	10	617274	6361536	normal
SCEK142	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	22-Jan-14	10	597121	6451061	normal
SCEK139	Caribou	Chinchaga	RRA-A	Vectr-Vertex	50 ppm	22-Jan-14	10	642915	6452986	normal
SCEK046	Caribou	Chinchaga	RRA-A	ATS-Irid	50 ppm; double 6th	22-Jan-14	10	603611	6452917	normal
SCEK047	Caribou	Chinchaga	RRA-A	ATS-Irid	50 ppm; double 6th	22-Jan-14	10	590462	6451754	normal
SCEK048	Caribou	Chinchaga	RRA-A	Lotek-VHF	60 ppm	22-Jan-14	10	592642	6453587	normal

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the January 21-22, 2014 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK141	Caribou	Chinchaga	RRA-A	Lotek-VHF	60 ppm	22-Jan-14	10	620319	6460593	normal
SCEK009	Caribou	Fort Nelson	Fort Nelson	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	501201	6557288	normal
BC1014	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	21-Jan-14	10	472768	6576857	normal
BC1015	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	21-Jan-14	10	468317	6579114	normal
SCEK002	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	473551	6577868	normal
SCEK007	Caribou	Maxhamish	Capot-Blanc	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	457324	6594078	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	21-Jan-14	10	471928	6575743	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	21-Jan-14	10	467392	6584189	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	21-Jan-14	10	468353	6575837	normal
SCEK067	Caribou	Maxhamish	Capot-Blanc	Lotek-VHF	60 ppm	21-Jan-14	10	469265	6581734	normal
BC1031	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	540766	6623878	normal
BC1033	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	524769	6632137	normal
SCEK085	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	21-Jan-14	10	540247	6626229	normal
SCEK163	Caribou	Maxhamish	Fortune	Vectr-Vertex	50 ppm	21-Jan-14	10	463307	6625046	normal
SCEK130	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	540443	6626607	normal
SCEK164	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	538388	6620755	normal
SCEK078	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	463337	6623871	normal
SCEK128	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	537311	6628582	normal
SCEK086	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	539778	6621268	normal
SCEK129	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	540682	6624708	normal
SCEK087	Caribou	Maxhamish	Fortune	Lotek-VHF	60 ppm	21-Jan-14	10	537275	6621530	normal
SCEK003	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	526018	6571581	normal
BC1066	Caribou	Maxhamish	Kiwigana	ATS-Irid	50 ppm; no double 6th	21-Jan-14	10	528006	6566445	normal; MFLNRO 2012 deployment
SCEK063	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	21-Jan-14	10	526807	6570787	normal
SCEK064	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	21-Jan-14	10	526689	6568017	normal
SCEK004	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	21-Jan-14	10	476603	6634062	normal
BC1009	Caribou	Maxhamish	Kiwigana	Lotek-VHF	60 ppm	21-Jan-14	10	526468	6574027	normal; old wolf collar
SCEK005	Caribou	Maxhamish	Kiwigana-OS	ATS-Irid	50 ppm; no double 6th	21-Jan-14	10	521544	6632066	VHF normal; Iridium failed
SCEK062	Caribou	Maxhamish	Kiwigana-OS	Lotek-VHF	60 ppm	21-Jan-14	10	526407	6569304	normal
SCEK006	Caribou	Maxhamish	Kiwigana-OS	Lotek-VHF	60 ppm	21-Jan-14	10	525756	6569919	normal
SCEK016	Caribou	Parker	Parker	ATS-Irid	50 ppm; no double 6th	22-Jan-14	10	509617	6516480	normal
SCEK014	Caribou	Parker	Parker	ATS-Irid	50 ppm; double 6th	22-Jan-14	10	504091	6518721	normal
SCEK013	Caribou	Parker	Parker	Lotek-VHF	60 ppm	22-Jan-14	10	490988	6521937	normal
SCEK010	Caribou	Parker	Parker	Lotek-VHF	60 ppm	22-Jan-14	10	510687	6519107	normal
SCEK012	Caribou	Parker	Parker	Lotek-VHF	60 ppm	22-Jan-14	10	510057	6517541	normal
SCEK015	Caribou	Parker	Parker	Lotek-VHF	60 ppm	22-Jan-14	10	489331	6524659	normal
BC1000	Caribou	Parker	Parker	Lotek-VHF		22-Jan-14				old VHF; not detected
BC1001	Caribou	Parker	Parker	Lotek-VHF	60 ppm	22-Jan-14	10	507571	6516969	normal
SCEK161	Caribou	Prophet	Prophet-OS	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	548884	6453142	normal
SCEK050	Caribou	Prophet	Prophet-OS	ATS-Irid						VHF not detected; no recent GPS data
SCEK051	Caribou	Prophet	Prophet-OS	Lotek-VHF	60 ppm	21-Jan-14	10	542645	6456712	normal
SCEK049	Caribou	Prophet	Prophet-OS	Lotek-VHF	60 ppm	21-Jan-14	10	548108	6462641	normal
SCEK045	Caribou	Prophet	Prophet-OS	Lotek-VHF	60 ppm	21-Jan-14	10	542024	6459079	normal
SCEK044	Caribou	Prophet	RRA-B	ATS-Irid	50 ppm; no double 6th	21-Jan-14	10	545327	6454585	normal
SCEK143	Caribou	Prophet	RRA-B	Vectr-Vertex	50 ppm	21-Jan-14	10	556655	6424387	normal
SCEK144	Caribou	Prophet	RRA-B	Lotek-VHF	60 ppm	21-Jan-14	10	556056	6425543	normal
SCEK043	Caribou	Prophet	RRA-B	Lotek-VHF	60 ppm	21-Jan-14	10	544571	6454477	normal
SCEK020	Caribou	Snake-Sahtaneh	Clarke	ATS-Irid	50 ppm; no double 6th	22-Jan-14	10	578831	6497881	normal
SCEK017	Caribou	Snake-Sahtaneh	Clarke	ATS-Irid	50 ppm; no double 6th	22-Jan-14	10	561166	6503936	weak VHF; no recent GPS data

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the January 21-22, 2014 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK068	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	561444	6506836	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	587186	6486673	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	599475	6476905	normal
SCEK153	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	532844	6505602	normal
SCEK151	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	551070	6491339	normal
SCEK152	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	585921	6488515	normal
SCEK019	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	585513	6483678	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	586488	6487714	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	547129	6489414	normal
SCEK024	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	580046	6486688	normal
SCEK018	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	531487	6506924	normal
SCEK154	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	559470	6507369	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	22-Jan-14	10	581546	6484532	normal
SCEK156	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	559349	6498427	normal
SCEK157	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	551284	6492525	normal
SCEK070	Caribou	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	558506	6497766	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke-OS	Lotek-VHF	60 ppm	21-Jan-14	10	585752	6551111	normal
SCEK100	Caribou	Snake-Sahtaneh	East Kotcho	ATS-Irid	50 ppm; double 6th	21-Jan-14	10	630315	6549268	normal
SCEK104	Caribou	Snake-Sahtaneh	East Kotcho	Vectr-Vertex	50 ppm	22-Jan-14	10	595369	6582673	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	632529	6558075	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	622329	6549400	normal
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	625587	6546916	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho	Vectr-Vertex	50 ppm	22-Jan-14	10	611948	6553337	normal
SCEK074	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	611968	6556875	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	613481	6562193	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	631455	6559346	normal
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	22-Jan-14	10	606881	6575795	normal
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho	Lotek-VHF	60 ppm	22-Jan-14	10	594226	6577025	normal
BC1037	Caribou	Snake-Sahtaneh	North Kotcho-OS	Lotek-VHF	60 ppm	22-Jan-14	10	582504	6564355	normal
SCEK110	Caribou	Snake-Sahtaneh	North Kotcho-OS	ATS-Irid	50 ppm; double 6th	22-Jan-14	10	609276	6562120	normal
SCEK096	Caribou	Snake-Sahtaneh	Paradise	Lotek-VHF	60ppm	21-Jan-14	10	560170	6499046	normal
SCEK079	Caribou	Snake-Sahtaneh	Tsea	ATS-Irid	50 ppm; no double 6th	22-Jan-14	10	556185	6580476	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60ppm	22-Jan-14	10	562351	6587212	normal
SCEK081	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60ppm	22-Jan-14	10	562813	6598122	normal
SCEK083	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60ppm	22-Jan-14	10	563160	6600216	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60ppm	22-Jan-14	10	558294	6586060	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60ppm	22-Jan-14	10	559234	6581926	normal
SCEK127	Caribou	Snake-Sahtaneh	Tsea	Lotek-VHF	60ppm	22-Jan-14	10	561230	6596102	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho	Vectr-Vertex	50 ppm	22-Jan-14	10	588165	6549422	normal
SCEK097	Caribou	Snake-Sahtaneh	West Kotcho	ATS-Irid	50 ppm; no double 6th	22-Jan-14	10	612787	6516821	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	22-Jan-14	10	595483	6583768	normal
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho	Lotek-VHF	60 ppm	21-Jan-14	10	587266	6549797	normal
SCEK094	Caribou	Snake-Sahtaneh	West Kotcho-OS	Lotek-VHF	60 ppm	21-Jan-14	10	591388	6553634	normal
BW002	Wolf	Chinchaga	Big Arrow	Lotek-VHF	60 ppm	21-Jan-14	10	629246	6323350	normal
BW011	Wolf	Chinchaga	Big Arrow	Lotek-Irid	50 ppm	21-Jan-14	10	629246	6323350	normal VHF; no Iridium data function
BW012	Wolf	Chinchaga	Big Arrow	Lotek-Irid						no VHF; no data since Jun 30
BW008	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	21-Jan-14	10	516762	6548264	normal
BW001	Wolf	Fort Nelson	Tsimeh	Lotek-VHF	60 ppm	21-Jan-14	10	516762	6548264	normal
BW009	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	21-Jan-14	10	516762	6548264	normal

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the January 21-22, 2014 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Collar Type	Status	Date	Zone	East	North	Comments
BW014	Wolf	Fort Nelson	Tsimeh	Lotek-Irid	50 ppm	21-Jan-14	10	516762	6548264	normal
BW020	Wolf	Parker	Parker	Lotek-VHF	60 ppm	22-Jan-14	10	488207	6523659	normal
BW019	Wolf	Parker	Parker	Lotek-Irid	50 ppm	22-Jan-14	10	486654	6522286	normal
BW021	Wolf	Snake-Sahtaneh	Clarke	Lotek-Irid	50 ppm	21-Jan-14	10	548533	6502546	normal
BW022	Wolf	Snake-Sahtaneh	Clarke	Lotek-VHF	60 ppm	21-Jan-14	10	548915	6504504	normal
BW018	Wolf	Snake-Sahtaneh	Elleh	Lotek-Irid	50 ppm	21-Jan-14	10	548362	6496317	normal
BW017	Wolf	Snake-Sahtaneh	Elleh	Lotek-Irid						VHF not detected
BW023	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF	60 ppm	21-Jan-14	10	540285	6540818	normal
BW007	Wolf	Snake-Sahtaneh	Snake	Lotek-VHF						not detected; missing
BW016	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid	50 ppm	21-Jan-14	10	540285	6540818	low battery mode; no data since Aug 15
BW010	Wolf	Snake-Sahtaneh	Snake	Lotek-Irid						dispersal to NWT; Irid data current
BW003	Wolf	Snake-Sahtaneh	West Clarke	Lotek-Irid						not heard; suspected malfunction

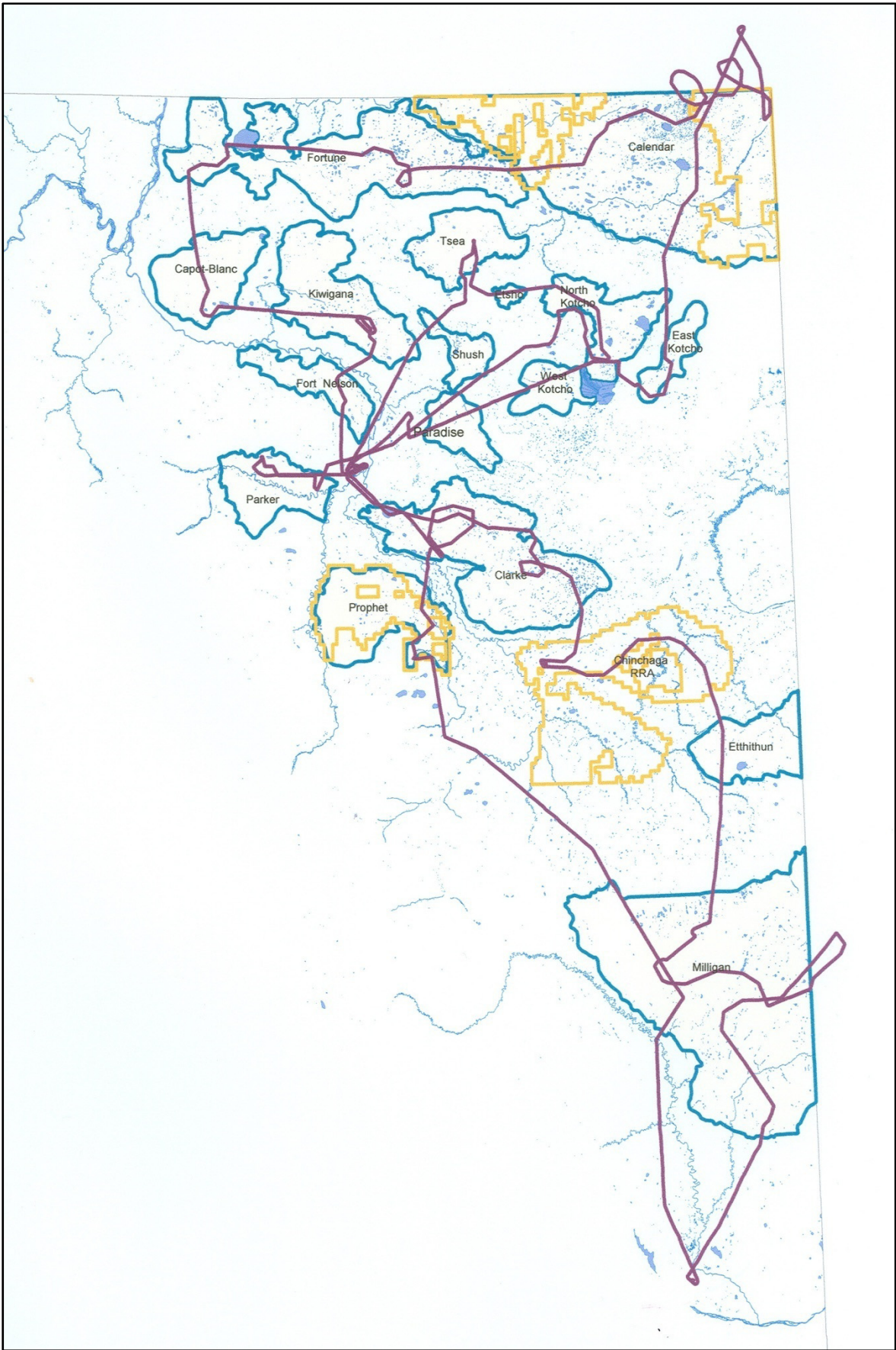


Figure 1. Flight paths flown during the January 21-22, 2014 SCEK fixed-wing boreal caribou and wolf telemetry monitoring flight.