

DIVERSIFIED ENVIRONMENTAL SERVICES

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SCIENCE COMMUNITY ENVIRONMENTAL KNOWLEDGE FUND BOREAL CARIBOU TELEMETRY PROGRAM

FIXED-WING TELEMETRY MONITORING FLIGHT – July 24-25, 2013

Date: July 25, 2013

Attention: Megan Watters
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Background

During the winter of 2012-13, 164 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 July 24-25, 2013, 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 July 24-25, 2013 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 700-1000 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 ppm) or mortality (120 ppm) and a location (+/- 1 km) was recorded with 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 fifty-eight caribou collar frequencies were scanned during the July 24-25, 2013 monitoring flight, including 143 SCEK collars (99 VHF, 30 ATS Iridium, and 14 Vectronic Vertex), 5 Alberta SRM

collars, and 10 previously-deployed MFLNRO collars (9 VHF and 1 ATS Iridium). In addition, the frequencies of 15 Lotek Iridium and 7 Lotek VHF wolf collars were scanned.

Results of the July 24-25 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 2,703 km. Of 158 caribou collar frequencies scanned, 136 normal VHF signals and 3 false mortality signals (ATS Iridium SCEK121 and Vectronic SCEK034 and SCEK163) were detected. Eight mortality signals were detected, indicating dead animals. All 8 mortality signals appeared to be associated with animals killed subsequent to the June 28-July 03 monitoring flight and included 5 SCEK VHF collars, 2 SCEK Iridium collars, and 1 previously-deployed Alberta SRM collar. Four of the caribou mortalities were located in the Snake-Sahtaneh Range, 3 in the Calendar Range, and 1 in the Chinchaga Range.

The remaining 11 animals were not detected during the monitoring flight. These included 1 ATS Iridium collar suspected to have failed (SCEK042; Milligan), 1 previously-deployed VHF collar suspected to have exceeded its battery life (BC1000; Parker), and 2 Alberta VHF collars last found in the Milligan Core. The remaining 7 undetected caribou collars included 6 newly-deployed SCEK VHF collars from the Chinchaga and Calendar ranges and 1 previously-deployed MFLNRO VHF collar from the North Kotcho Core, detected last flight in the Paradise Core.

Twenty-two wolf collar frequencies were scanned during the July 24-25, 2013 monitoring flight, including 15 Iridium collars and 7 VHF collars. Of the 7 VHF wolf collars, 4 had normal VHF signals and 3 could not be located, including 1 wolf in each of the Snake, Clarke, and West Clarke packs. Of the 15 Iridium collars, 8 appeared to have normal VHF and Iridium function and 1 was in mortality mode (BW006). Of the remaining 6 Iridium wolf collars BW011 had a normal VHF signal but has never transmitted Iridium data and BW012 ceased transmitting Iridium data on June 30 and appeared to have no VHF signal. BW003 stopped transmitting data on Feb 09 and appeared to have no VHF signal. VHF signals from BW013 and BW021 could not be detected; both collars stopped transmitting Iridium data on June 30, 2013. BW010 was last reported approximately 60 km north of the Northwest Territories border but stopped transmitting Iridium data on June 29, 2013.


Discussion

Four SCEK VHF collars from the Calendar Range continued to go undetected during the July 24-25 flight. A search of the Bistcho Lake caribou range, approximately 40 km into Alberta, failed to locate any of the collars. These collars have a low likelihood of failure and search patterns further into the southern Northwest Territories will be conducted during the August monitoring flight. A more intensive search for the missing Chinchaga RRA SCEK VHF collar will also be conducted during the August flight.

Some Vectronic Vertex satellite collars continue to transmit occasional false mortality alerts, while incoming GPS data indicates normal movement.

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 July 24-25, 2013 SCEK fixed-wing telemetry monitoring flight.

ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK114	Caribou	Calendar	Calendar		ATS-Irid	50 ppm; double 6th	24-Jul-13	626677	6645587	normal
SCEK121	Caribou	Calendar	Calendar		ATS-Irid	30 ppm double	24-Jul-13	599478	6640032	false mortality; collar moving
SCEK106	Caribou	Calendar	Calendar		ATS-Irid	30 ppm double	24-Jul-13	615217	6606215	ON MORTALITY
SCEK136	Caribou	Calendar	Calendar		ATS-Irid	50 ppm; double 6th	24-Jul-13	611072	6613871	normal
SCEK133	Caribou	Calendar	Calendar		ATS-Irid	30 ppm double	24-Jul-13	656042	6585533	ON MORTALITY
SCEK135	Caribou	Calendar	Calendar		Vectr-Vertex	50 ppm	24-Jul-13	623171	6634245	normal
SCEK119	Caribou	Calendar	Calendar		Vectr-Vertex	50 ppm	24-Jul-13	622207	6642773	normal
SCEK113	Caribou	Calendar	Calendar		Lotek-VHF	unknown				not detected
SCEK123	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	604401	6624245	normal
SCEK122	Caribou	Calendar	Calendar		Lotek-VHF	unknown				not detected
SCEK117	Caribou	Calendar	Calendar		Lotek-VHF	120 ppm	24-Jul-13	595630	6615568	ON MORTALITY
SCEK138	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	630120	6625415	normal
SCEK137	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	630091	6629875	normal
SCEK120	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	603268	6635683	normal
SCEK116	Caribou	Calendar	Calendar		Lotek-VHF	unknown				not detected
SCEK134	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	632370	6644562	normal
SCEK112	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	637535	6646730	normal
SCEK124	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	24-Jul-13	636415	6618520	normal
SCEK125	Caribou	Calendar	Calendar		Lotek-VHF	unknown				not detected
SCEK126	Caribou	Calendar	RRA-C		ATS-Irid	50 ppm; no double 6th	24-Jul-13	593698	6654907	normal
SCEK146	Caribou	Calendar	RRA-D		ATS-Irid	50 ppm; double 6th	24-Jul-13	653537	6637207	normal
SCEK147	Caribou	Calendar	RRA-D		Vectr-Vertex	50 ppm	24-Jul-13	636347	6648947	normal
SCEK108	Caribou	Calendar	RRA-D		Lotek-VHF	60 ppm	24-Jul-13	628257	6634976	normal
SCEK107	Caribou	Calendar	RRA-D		Lotek-VHF	60 ppm	24-Jul-13	613369	6635550	normal
AB148.079	Caribou	Chinchaga	Milligan		unknown	unknown				not detected
SCEK036	Caribou	Chinchaga	Milligan		ATS-Irid	50 ppm; no double 6th	25-Jul-13	612998	6364234	normal
SCEK038	Caribou	Chinchaga	Milligan		ATS-Irid	50 ppm; double 6th	25-Jul-13	318137	6303606	normal
SCEK026	Caribou	Chinchaga	Milligan		ATS-Irid	50 ppm; double 6th	25-Jul-13	674442	6291693	normal
SCEK033	Caribou	Chinchaga	Milligan		ATS-Irid	50 ppm; double 6th	25-Jul-13	626134	6343718	normal
SCEK042	Caribou	Chinchaga	Milligan		ATS-Irid	failed				malfunctioned
AB149.391	Caribou	Chinchaga	Milligan		unknown					not detected
SCEK040	Caribou	Chinchaga	Milligan		Vectr-Vertex	50 ppm	25-Jul-13	642998	6415873	normal
SCEK034	Caribou	Chinchaga	Milligan		Vectr-Vertex	100 ppm	25-Jul-13	636558	6367450	temporary false mortality
SCEK055	Caribou	Chinchaga	Milligan		Vectr-Vertex	off	25-Jul-13	650195	6347180	after 1600hrs; Iridium data normal
AB150.079	Caribou	Chinchaga	Milligan		unknown	60 ppm	25-Jul-13	618798	6361332	normal
SCEK037	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	670291	6295697	normal
AB150.419	Caribou	Chinchaga	Milligan		unknown	120 ppm	25-Jul-13	644475	6351916	ON MORTALITY
AB150.470	Caribou	Chinchaga	Milligan		unknown	60 ppm	25-Jul-13	661130	6373091	normal
SCEK035	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	631362	6365706	normal
SCEK041	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	640455	6366834	normal
SCEK027	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	677414	6292560	normal
SCEK032	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	664139	6366776	normal
SCEK029	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	639504	6335700	normal
SCEK052	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	655776	6308313	normal
SCEK053	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	618323	6346993	normal
SCEK030	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	667959	6334619	normal
SCEK056	Caribou	Chinchaga	Milligan		Lotek-VHF	unknown				not detected
SCEK058	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	592572	6451677	normal
SCEK054	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	644948	6354180	normal
SCEK057	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	642496	6334459	normal
SCEK059	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	618898	6340146	normal

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the July 24-25, 2013 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK061	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	320688	6353342	normal
SCEK060	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	633823	6349335	normal
SCEK159	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	25-Jul-13	660507	6367814	normal
SCEK142	Caribou	Chinchaga	RRA-A		Vectr-Vertex	50 ppm	25-Jul-13	611254	6451848	normal
SCEK139	Caribou	Chinchaga	RRA-A		Vectr-Vertex	50 ppm	25-Jul-13	643366	6454574	normal
SCEK046	Caribou	Chinchaga	RRA-A		ATS-Irid	50 ppm; double 6th	25-Jul-13	600061	6458521	normal
SCEK047	Caribou	Chinchaga	RRA-A		ATS-Irid	50 ppm; double 6th	25-Jul-13	591312	6454947	normal
SCEK048	Caribou	Chinchaga	RRA-A		Lotek-VHF	unknown				not detected
SCEK141	Caribou	Chinchaga	RRA-A		Lotek-VHF	60 ppm	25-Jul-13	609866	6448068	normal
SCEK009	Caribou	Fort Nelson	Fort Nelson		ATS-Irid	50 ppm; double 6th	25-Jul-13	519723	6552994	normal
BC1014	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	25-Jul-13	470613	6581023	normal
BC1015	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	25-Jul-13	465929	6580991	normal
SCEK002	Caribou	Maxhamish	Capot-Blanc		ATS-Irid	50 ppm; no double 6th	25-Jul-13	472931	6580485	normal
SCEK007	Caribou	Maxhamish	Capot-Blanc		ATS-Irid	50 ppm; double 6th	25-Jul-13	459296	6573312	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	25-Jul-13	461854	6578795	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	25-Jul-13	455736	6582425	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	25-Jul-13	442541	6571150	normal
SCEK067	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	25-Jul-13	441713	6569948	normal
BC1033	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	505352	6622966	normal
BC1024	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	535096	6638430	normal
SCEK085	Caribou	Maxhamish	Fortune		Vectr-Vertex	50 ppm	25-Jul-13	533159	6621568	normal
SCEK163	Caribou	Maxhamish	Fortune		Vectr-Vertex	100 ppm	25-Jul-13	460349	6617318	temporary false mortality
SCEK130	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	537072	6623265	normal
SCEK084	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	541471	6625298	normal
SCEK078	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	461391	6623768	normal
SCEK128	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	524826	6631832	normal
SCEK086	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	529176	6632793	normal
SCEK129	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	543075	6629353	normal
SCEK087	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	25-Jul-13	547393	6624091	normal
SCEK003	Caribou	Maxhamish	Kiwigana		ATS-Irid	50 ppm; no double 6th	25-Jul-13	530761	6568694	normal
BC1066	Caribou	Maxhamish	Kiwigana		ATS-Irid	50 ppm; double 6th	25-Jul-13	550198	6564367	normal; MFLNRO 2012 deployment
SCEK063	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	25-Jul-13	539086	6564213	normal
SCEK064	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	25-Jul-13	509776	6577061	normal
SCEK004	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	25-Jul-13	498646	6608629	normal
BC1009	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	25-Jul-13	522581	6572275	normal; old wolf collar
SCEK005	Caribou	Maxhamish	Kiwigana-OS		ATS-Irid	50 ppm; no double 6th	25-Jul-13	501368	6600023	normal VHF; last data Mar 24
SCEK062	Caribou	Maxhamish	Kiwigana-OS		Lotek-VHF	60 ppm	25-Jul-13	522674	6571302	normal
SCEK006	Caribou	Maxhamish	Kiwigana-OS		Lotek-VHF	60 ppm	25-Jul-13	502675	6594200	normal
SCEK016	Caribou	Parker	Parker		ATS-Irid	50 ppm; double 6th	25-Jul-13	479716	6514075	normal
SCEK014	Caribou	Parker	Parker		ATS-Irid	50 ppm; double 6th	25-Jul-13	479177	6510217	normal
SCEK013	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	490993	6513959	normal
SCEK010	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	476815	6510984	normal
SCEK011	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	478436	6513363	normal
SCEK012	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	486967	6508590	normal
SCEK015	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	485428	6524570	normal
BC1000	Caribou	Parker	Parker		Lotek-VHF	Missing				old VHF; not detected
BC1001	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	487912	6507336	normal
BC1003	Caribou	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	496166	6521429	normal
SCEK161	Caribou	Prophet	Prophet-OS		ATS-Irid	50 ppm; double 6th	25-Jul-13	652904	6357478	normal
SCEK050	Caribou	Prophet	Prophet-OS		ATS-Irid	50 ppm; double 6th	24-Jul-13	550796	6450067	normal
SCEK051	Caribou	Prophet	Prophet-OS		Lotek-VHF	60 ppm	24-Jul-13	538089	6479037	normal

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the July 24-25, 2013 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK049	Caribou	Prophet	Prophet-OS		Lotek-VHF	60 ppm	24-Jul-13	543412	6454434	normal
SCEK045	Caribou	Prophet	Prophet-OS		Lotek-VHF	60 ppm	24-Jul-13	550325	6459731	normal
SCEK044	Caribou	Prophet	RRA-B		ATS-Irid	50 ppm; no double 6th	25-Jul-13	559238	6459466	normal
SCEK143	Caribou	Prophet	RRA-B		Vectr-Vertex	50 ppm	24-Jul-13	537752	6480669	normal
SCEK144	Caribou	Prophet	RRA-B		Lotek-VHF	60 ppm	25-Jul-13	570593	6452698	normal
SCEK043	Caribou	Prophet	RRA-B		Lotek-VHF	60 ppm	24-Jul-13	535327	6482855	normal
SCEK020	Caribou	Snake-Sahtaneh	Clarke		ATS-Irid	50 ppm; double 6th	25-Jul-13	571679	6467025	normal
SCEK017	Caribou	Snake-Sahtaneh	Clarke		ATS-Irid	50 ppm; double 6th	25-Jul-13	538759	6503677	normal
SCEK068	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	24-Jul-13	563241	6536675	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	605861	6486818	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	609863	6488082	normal
SCEK153	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	24-Jul-13	534915	6492875	normal
SCEK151	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	557272	6515588	normal
SCEK152	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	558310	6500350	normal
SCEK019	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	575424	6507242	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	556233	6502709	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	584332	6485781	normal
SCEK024	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	24-Jul-13	556775	6539677	normal
SCEK018	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	24-Jul-13	534454	6499997	normal
SCEK154	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	559398	6498643	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	572417	6499958	normal
SCEK156	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	24-Jul-13	536070	6495442	normal
SCEK157	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	562028	6499281	normal
SCEK070	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	25-Jul-13	571500	6498092	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke-OS		Lotek-VHF	60 ppm	24-Jul-13	587742	6547030	normal
SCEK100	Caribou	Snake-Sahtaneh	East Kotcho		ATS-Irid	50 ppm; double 6th	24-Jul-13	637754	6567065	normal
SCEK104	Caribou	Snake-Sahtaneh	East Kotcho		Vectr-Vertex	50 ppm	24-Jul-13	613117	6548910	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	24-Jul-13	633583	6561424	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	24-Jul-13	625164	6550710	normal
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	24-Jul-13	638075	6578602	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho		Vectr-Vertex	off	24-Jul-13	603645	6582221	after 1600hrs; Iridium data normal
SCEK074	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	24-Jul-13	616436	6555943	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	24-Jul-13	599245	6569555	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	24-Jul-13	631240	6557735	normal
SCEK075	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	120 ppm	24-Jul-13	629047	6553185	ON MORTALITY
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	24-Jul-13	611473	6555776	normal
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	24-Jul-13	603566	6597513	normal
BC1037	Caribou	Snake-Sahtaneh	North Kotcho-OS		Lotek-VHF	unknown				not detected
SCEK110	Caribou	Snake-Sahtaneh	North Kotcho-OS		ATS-Irid	50 ppm; double 6th	24-Jul-13	612284	6553489	normal
SCEK096	Caribou	Snake-Sahtaneh	Paradise		Lotek-VHF	60 ppm	24-Jul-13	558376	6538512	normal
SCEK022	Caribou	Snake-Sahtaneh	Paradise-OS		Lotek-VHF	120 ppm	24-Jul-13	554606	6538987	ON MORTALITY
SCEK079	Caribou	Snake-Sahtaneh	Tsea		ATS-Irid	50 ppm; double 6th	28-Jul-13	526228	6598319	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	24-Jul-13	554672	6593839	normal
SCEK081	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	24-Jul-13	548098	6599591	normal
SCEK083	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	24-Jul-13	560025	6605970	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	24-Jul-13	553107	6597412	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	24-Jul-13	551941	6595523	normal
SCEK127	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	24-Jul-13	559161	6605738	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho		Vectr-Vertex	50 ppm	24-Jul-13	585550	6546226	normal
SCEK097	Caribou	Snake-Sahtaneh	West Kotcho		ATS-Irid		24-Jul-13	609616	6571776	normal
SCEK099	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	120 ppm	24-Jul-13	559203	6538483	ON MORTALITY

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the July 24-25, 2013 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK072	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	24-Jul-13	611275	6552308	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	24-Jul-13	603314	6580837	normal
SCEK098	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	120 ppm	24-Jul-13	602976	6596073	ON MORTALITY
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	24-Jul-13	590243	6547912	normal
SCEK094	Caribou	Snake-Sahtaneh	West Kotcho-OS		Lotek-VHF	60 ppm	28-Jul-13	576847	6534654	normal
BW002	Wolf	Chinchaga	Big Arrow		Lotek-VHF	60 ppm	25-Jul-13	627969	6336191	normal
BW011	Wolf	Chinchaga	Big Arrow		Lotek-Irid	50 ppm	25-Jul-13	627969	6336191	normal VHF; no Iridium data function
BW012	Wolf	Chinchaga	Big Arrow		Lotek-Irid	no VHF signal				last Iridium data Jun 30
BW008	Wolf	Fort Nelson	Tsimeh		Lotek-Irid	50 ppm	25-Jul-13	518014	6542903	normal
BW001	Wolf	Fort Nelson	Tsimeh		Lotek-VHF	60 ppm	25-Jul-13	518014	6542903	normal
BW009	Wolf	Fort Nelson	Tsimeh		Lotek-Irid	50 ppm	25-Jul-13	518014	6542903	normal
BW014	Wolf	Fort Nelson	Tsimeh		Lotek-Irid	50 ppm	25-Jul-13	518014	6542903	normal
BW020	Wolf	Parker	Parker		Lotek-VHF	60 ppm	25-Jul-13	506237	6514947	normal
BW019	Wolf	Parker	Parker		Lotek-Irid	50 ppm	25-Jul-13	506237	6514947	normal
BW021	Wolf	Snake-Sahtaneh	Clarke		Lotek-Irid	unknown				not detected; Iridium ceased Jun 30
BW022	Wolf	Snake-Sahtaneh	Clarke		Lotek-VHF	unknown				not detected
BW018	Wolf	Snake-Sahtaneh	Elleh		Lotek-Irid	50 ppm	25-Jul-13	563441	6494558	normal
BW017	Wolf	Snake-Sahtaneh	Elleh		Lotek-Irid	50 ppm	25-Jul-13	562028	6499281	normal
BW023	Wolf	Snake-Sahtaneh	Snake		Lotek-VHF	60 ppm	24-Jul-13	545475	6532415	normal
BW015	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	50 ppm	24-Jul-13	545475	6532415	normal
BW007	Wolf	Snake-Sahtaneh	Snake		Lotek-VHF	unknown				not detected
BW016	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	50 ppm	24-Jul-13	545475	6532415	normal
BW006	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	100 ppm	25-Jul-13	550444	6534372	ON MORTALITY
BW010	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	unknown				dispersal to NWT; last data Jun 29
BW013	Wolf	Snake-Sahtaneh	West Clarke		Lotek-Irid	unknown				not detected; last data Jun 30
BW004	Wolf	Snake-Sahtaneh	West Clarke		Lotek-VHF	unknown				not detected
BW003	Wolf	Snake-Sahtaneh	West Clarke		Lotek-Irid	failed				not detected; last data Feb 09, 2013

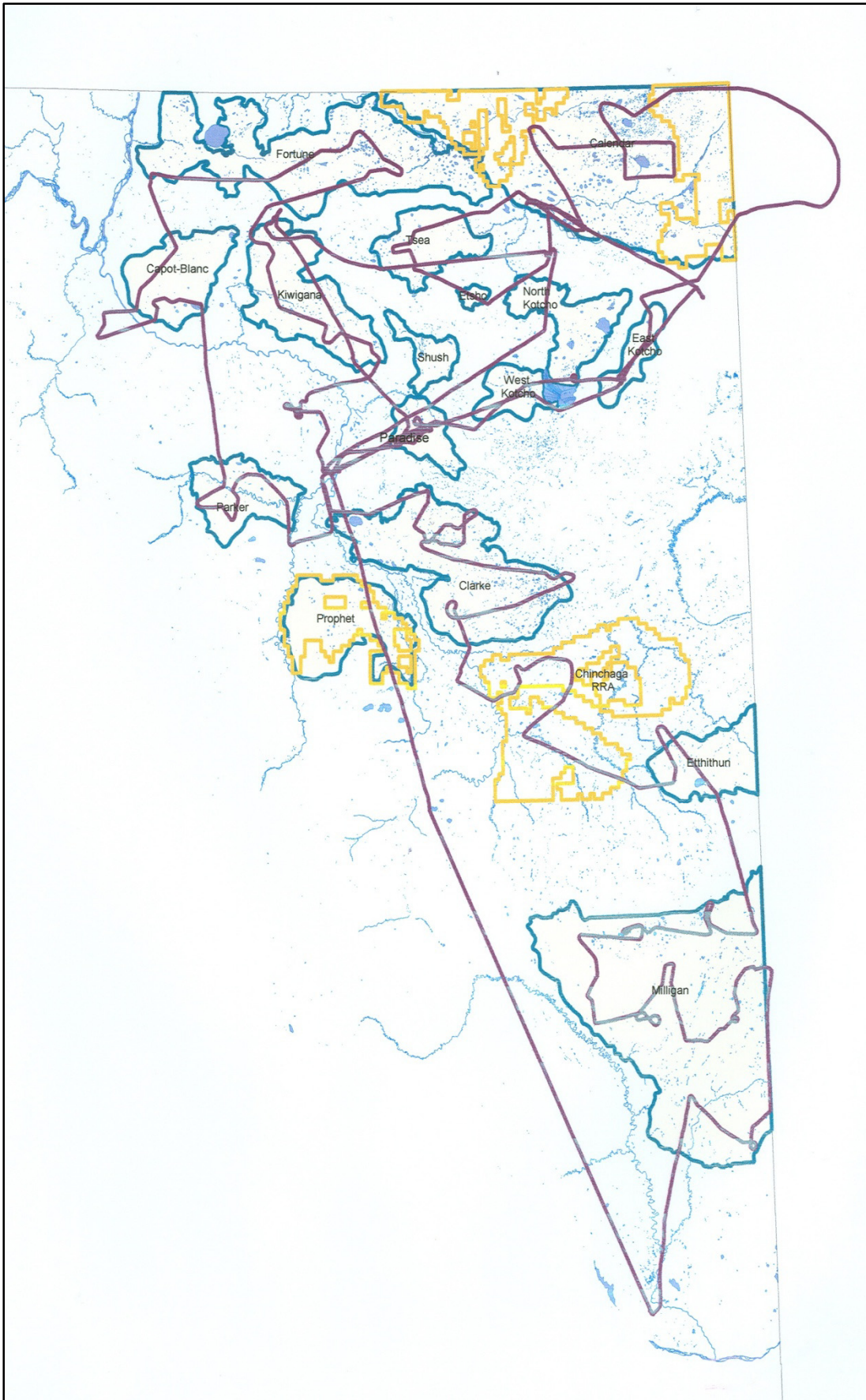


Figure 1. Flight paths flown during the July 24-25, 2013 SCEK fixed-wing boreal caribou and wolf telemetry monitoring flight.