

DIVERSIFIED ENVIRONMENTAL SERVICES

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SCIENCE COMMUNITY ENVIRONMENTAL KNOWLEDGE FUND BOREAL CARIBOU TELEMETRY PROGRAM

FIXED-WING TELEMETRY MONITORING FLIGHT - MAY 15-16, 2013

Date: May 16, 2013

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

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 May 14 and 15, 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 May 15-16, 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 seventy-five caribou collar frequencies were scanned during the May 15-16, 2013 monitoring flight, including 158 SCEK collars (112 VHF, 31 ATS Iridium, and 15 Vectronic Vertex), 5 Alberta SRM collars, and 12 previously-deployed MFLNRO collars (11 VHF and 1 ATS Iridium). In addition, the frequencies of 15 Lotek Iridium and 7 Lotek VHF wolf collars were scanned.

Results of the May 15-16, 2013 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 2,603 km. Of 175 caribou collar frequencies scanned, 158 normal VHF signals were detected (indicating live animals) and 10 mortality signals were detected (indicating dead animals). Mortality signals included 9 caribou that appeared to have died since early April and 1 previously-collared MFLNRO caribou that was detected in early April but could not be recovered at that time (BC1006). Of the 9 newly detected mortality signals, 4 were in the Chinchaga Range and 5 were in the Snake-Sahtaneh Range.

The remaining 7 animals were not detected during the monitoring flight. These included one ATS Iridium collar suspected to have failed (SCEK042; Milligan), one previously-deployed VHF collar suspected to have exceeded its battery life (BC1000; Parker), and 1 Alberta VHF collar last found in the Milligan Core. The remaining 4 undetected caribou collars were newly-deployed SCEK VHF collars from the Milligan and Calendar cores.

Twenty-two wolf collar frequencies were scanned during the May 15-16, 2013 monitoring flight, including 15 Iridium collars and 7 VHF collars. Seventeen of 22 wolf collars appeared to be operating normally. Of the remaining 5 wolf collars, 1 Iridium collar (BW012) was transmitting Iridium data but appeared to have no VHF signal. A second Iridium collar (BW011) had a normal VHF signal but has never transmitted Iridium data. Two additional Iridium collars (BW003 and BW006) ceased Iridium data transmission on February 09 and March 13, respectively, and were not heard during the May 15-16 monitoring flight. One VHF wolf collar (BW007) was not detected.

Discussion

As VHF collars have a low incidence of failure, it is assumed the 4 undetected SCEK VHF-collared caribou have made movements beyond the current search area. Flight paths will be extended into Alberta and the Northwest Territories during subsequent monitoring flights.

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 May 15-16, 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	50ppm; double 6th	16-May-13	629819	6651006	normal
SCEK121	Caribou	Calendar	Calendar		ATS-Irid	50ppm; double 6th	16-May-13	627009	6651073	normal
SCEK106	Caribou	Calendar	Calendar		ATS-Irid	50ppm; double 6th	16-May-13	627009	6651073	normal
SCEK136	Caribou	Calendar	Calendar		ATS-Irid	50ppm; double 6th	16-May-13	610971	6612683	normal
SCEK133	Caribou	Calendar	Calendar		ATS-Irid	50ppm; double 6th	16-May-13	654147	6584684	normal
SCEK135	Caribou	Calendar	Calendar		Vectr-Vertex	50 ppm	16-May-13	621192	6620753	normal
SCEK119	Caribou	Calendar	Calendar		Vectr-Vertex	50 ppm	16-May-13	614631	6641035	normal
SCEK113	Caribou	Calendar	Calendar		Lotek-VHF	unknown				not detected
SCEK123	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	610926	6633489	normal
SCEK122	Caribou	Calendar	Calendar		Lotek-VHF	unknown				not detected
SCEK117	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	598183	6613616	normal
SCEK138	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	631569	6624582	normal
SCEK137	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	632975	6631160	normal
SCEK120	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	619598	6638708	normal
SCEK118	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	601702	6624862	normal
SCEK115	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	654930	6627612	normal
SCEK116	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	654705	6642978	normal
SCEK134	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	634623	6635316	normal
SCEK112	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	642933	6637560	normal
SCEK124	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	639897	6621400	normal
SCEK125	Caribou	Calendar	Calendar		Lotek-VHF	60 ppm	16-May-13	641686	6639973	normal
SCEK126	Caribou	Calendar	RRA-C		ATS-Irid	50ppm; double 6th	16-May-13	586362	6633536	normal
SCEK146	Caribou	Calendar	RRA-D		ATS-Irid	50ppm; no double 6th	16-May-13	611741	6635970	normal
SCEK147	Caribou	Calendar	RRA-D		Vectr-Vertex	50 ppm	16-May-13	627009	6651073	normal
SCEK108	Caribou	Calendar	RRA-D		Lotek-VHF	60 ppm	16-May-13	641177	6641214	normal
SCEK107	Caribou	Calendar	RRA-D		Lotek-VHF	60 ppm	16-May-13	627959	6643987	normal
SCEK109	Caribou	Calendar	RRA-D		Lotek-VHF	60 ppm	16-May-13	638013	6622706	normal
SCEK158	Caribou	Chinchaga	Etthithun		Lotek-VHF	120 ppm	15-May-13	661810	6427843	ON MORTALITY
AB148.079	Caribou	Chinchaga	Milligan		unknown	unknown				not detected
SCEK036	Caribou	Chinchaga	Milligan		ATS-Irid	50ppm; double 6th	15-May-13	625378	6341700	normal
SCEK038	Caribou	Chinchaga	Milligan		ATS-Irid	50ppm; double 6th	15-May-13	682924	6300922	normal
SCEK026	Caribou	Chinchaga	Milligan		ATS-Irid	50ppm; double 6th	15-May-13	670046	6292996	normal
SCEK033	Caribou	Chinchaga	Milligan		ATS-Irid	50ppm; double 6th	15-May-13	675416	6317453	normal
SCEK031	Caribou	Chinchaga	Milligan		ATS-Irid	50ppm; double 6th	15-May-13	657006	6327525	normal
SCEK042	Caribou	Chinchaga	Milligan		ATS-Irid	missing				malfunctioned
AB149.391	Caribou	Chinchaga	Milligan		unknown	60 ppm	15-May-13	672246	6363166	normal
SCEK040	Caribou	Chinchaga	Milligan		Vectr-Vertex	50 ppm	15-May-13	659792	6320837	normal
SCEK034	Caribou	Chinchaga	Milligan		Vectr-Vertex	50 ppm	15-May-13	658648	6341130	normal
SCEK055	Caribou	Chinchaga	Milligan		Vectr-Vertex	50 ppm	15-May-13	631051	6360390	normal
AB150.079	Caribou	Chinchaga	Milligan		unknown	60 ppm	15-May-13	616177	6351641	normal
SCEK037	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	665695	6289442	normal
AB150.419	Caribou	Chinchaga	Milligan		unknown	60 ppm	15-May-13	641064	6356273	normal
AB150.470	Caribou	Chinchaga	Milligan		unknown	60 ppm	15-May-13	658823	63636171	normal
SCEK035	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	638850	6359572	normal
SCEK041	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	643391	6358902	normal
SCEK027	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	672167	6294507	normal
SCEK160	Caribou	Chinchaga	Milligan		Lotek-VHF	120 ppm	15-May-13	654743	6355058	ON MORTALITY
SCEK032	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	664212	6360090	normal
SCEK029	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	640036	6339114	normal
SCEK039	Caribou	Chinchaga	Milligan		Lotek-VHF	120 ppm	16-May-13	650127	6296464	ON MORTALITY
SCEK052	Caribou	Chinchaga	Milligan		Lotek-VHF	unknown				not detected

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the May 15-16, 2013 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK053	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	617424	6348854	normal
SCEK030	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	655070	6330431	normal
SCEK056	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	619106	6347303	normal
SCEK058	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	642337	6362964	normal
SCEK054	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	635059	6345063	normal
SCEK057	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	634791	6343596	normal
SCEK059	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	616721	6351887	normal
SCEK061	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	651924	6333782	normal
SCEK060	Caribou	Chinchaga	Milligan		Lotek-VHF	unknown				not detected
SCEK159	Caribou	Chinchaga	Milligan		Lotek-VHF	60 ppm	15-May-13	651753	6363034	normal
SCEK142	Caribou	Chinchaga	RRA-A		Vectr-Vertex	50 ppm	15-May-13	621463	6446898	normal
SCEK139	Caribou	Chinchaga	RRA-A		Vectr-Vertex	50 ppm	15-May-13	644090	6439324	normal
SCEK046	Caribou	Chinchaga	RRA-A		ATS-Irid	50ppm; double 6th	15-May-13	613369	6445804	normal
SCEK047	Caribou	Chinchaga	RRA-A		ATS-Irid	50ppm; double 6th	15-May-13	597024	6452223	normal
SCEK048	Caribou	Chinchaga	RRA-A		Lotek-VHF	60 ppm	15-May-13	593358	6438085	normal
SCEK141	Caribou	Chinchaga	RRA-A		Lotek-VHF	60 ppm	15-May-13	613369	6445804	normal
SCEK140	Caribou	Chinchaga	RRA-A		Lotek-VHF	120 ppm	15-May-13	606197	6448855	ON MORTALITY
SCEK009	Caribou	Fort Nelson	Fort Nelson		ATS-Irid	50 ppm; double 6th	16-May-13	516900	6550957	normal
BC1014	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	15-May-13	470923	6582740	normal
BC1015	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	15-May-13	466189	6574194	normal
SCEK002	Caribou	Maxhamish	Capot-Blanc		ATS-Irid	50ppm; double 6th	15-May-13	470260	6583757	normal
SCEK007	Caribou	Maxhamish	Capot-Blanc		ATS-Irid	50ppm; double 6th	15-May-13	456076	6582287	normal
SCEK001	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	15-May-13	460899	6584678	normal
SCEK076	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	15-May-13	457280	6578347	normal
SCEK066	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	15-May-13	466684	6585490	normal
SCEK067	Caribou	Maxhamish	Capot-Blanc		Lotek-VHF	60 ppm	15-May-13	458083	6580207	normal
BC1033	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	513013	6624462	normal
BC1024	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	537686	6638936	normal
BC1021	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	528057	6571609	normal
SCEK085	Caribou	Maxhamish	Fortune		Vectr-Vertex	50 ppm	16-May-13	531504	6621637	normal
SCEK163	Caribou	Maxhamish	Fortune		Vectr-Vertex	50 ppm	16-May-13	461952	6626775	normal
SCEK130	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	528631	6634073	normal
SCEK084	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	535822	6620262	normal
SCEK078	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	462389	6624926	normal
SCEK128	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	533163	6637309	normal
SCEK086	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	529046	6636851	normal
SCEK129	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	543711	6623129	normal
SCEK087	Caribou	Maxhamish	Fortune		Lotek-VHF	60 ppm	16-May-13	534153	6626690	normal
SCEK003	Caribou	Maxhamish	Kiwigana		ATS-Irid	50 ppm; double 6th	16-May-13	536660	6555713	normal
BC1066	Caribou	Maxhamish	Kiwigana		ATS-Irid	50 ppm	15-May-13	549694	6562100	normal; MFLNRO/Demars 2012 deployment
SCEK063	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	15-May-13	546295	6561783	normal
SCEK064	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	15-May-13	550044	6554279	normal
SCEK004	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	16-May-13	505811	6605351	normal
BC1009	Caribou	Maxhamish	Kiwigana		Lotek-VHF	60 ppm	15-May-13	524934	6572221	normal; old wolf collar
BC1006	Caribou	Maxhamish	Kiwigana		Lotek-VHF	120 ppm	15-May-13	527655	6571537	ON MORTALITY since late March
SCEK005	Caribou	Maxhamish	Kiwigana-OS		ATS-Irid	50 ppm; no double 6th	15-May-13	540994	6563090	malfunctioned
SCEK062	Caribou	Maxhamish	Kiwigana-OS		Lotek-VHF	60 ppm	16-May-13	524829	6569891	normal
SCEK006	Caribou	Maxhamish	Kiwigana-OS		Lotek-VHF	60 ppm	16-May-13	503402	6591607	normal
SCEK016	Caribou	Parker	Parker		ATS-Irid	50 ppm; double 6th	15-May-13	477189	6509290	normal
SCEK014	Caribou	Parker	Parker		ATS-Irid	50 ppm; double 6th	15-May-13	479547	6507680	normal
SCEK013	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	486926	6523409	normal

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ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK010	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	484027	6504080	normal
SCEK011	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	480054	6515969	normal
SCEK012	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	499841	6517090	normal
SCEK015	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	489086	6523606	normal
BC1000	Caribou	Parker	Parker		Lotek-VHF	Missing				old VHF; not found during recruitment survey
BC1001	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	486638	6506569	normal
BC1003	Caribou	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	496595	6519215	normal
SCEK161	Caribou	Prophet	Prophet-OS		ATS-Irid	50 ppm; no double 6th	15-May-13	576010	6440721	normal
SCEK050	Caribou	Prophet	Prophet-OS		ATS-Irid	50 ppm; no double 6th	15-May-13	566704	6443708	normal
SCEK051	Caribou	Prophet	Prophet-OS		Lotek-VHF	60 ppm	15-May-13	565415	6454833	normal
SCEK049	Caribou	Prophet	Prophet-OS		Lotek-VHF	60 ppm	15-May-13	545012	6457151	normal
SCEK045	Caribou	Prophet	Prophet-OS		Lotek-VHF	60 ppm	15-May-13	565415	6454833	normal
SCEK044	Caribou	Prophet	RRA-B		ATS-Irid	50 ppm; double 6th	15-May-13	550332	6456848	normal
SCEK143	Caribou	Prophet	RRA-B		Vectr-Vertex	50 ppm	15-May-13	542198	6466134	normal
SCEK144	Caribou	Prophet	RRA-B		Lotek-VHF	60 ppm	15-May-13	567909	6452763	normal
SCEK043	Caribou	Prophet	RRA-B		Lotek-VHF	60 ppm	15-May-13	556968	6459875	normal
SCEK020	Caribou	Snake-Sahtaneh	Clarke		ATS-Irid	50 ppm; double 6th	15-May-13	585941	6488453	normal
SCEK017	Caribou	Snake-Sahtaneh	Clarke		ATS-Irid	50 ppm; double 6th	15-May-13	542089	6500024	normal
SCEK155	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	120 ppm	15-May-13	561203	6504621	ON MORTALITY
SCEK068	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	565606	6534946	normal
SCEK150	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	606398	6489225	normal
SCEK148	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	589773	6473303	normal
SCEK153	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	537199	6496328	normal
SCEK151	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	556058	6513371	normal
SCEK152	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	574027	6498585	normal
SCEK019	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	578258	6491709	normal
SCEK021	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	558070	6502912	normal
SCEK025	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	585941	6488453	normal
SCEK024	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	573275	6500861	normal
SCEK018	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	539074	6502955	normal
SCEK154	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	567336	6503114	normal
SCEK149	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	574664	6496719	normal
SCEK156	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	558385	6497640	normal
SCEK157	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	558840	6496062	normal
SCEK070	Caribou	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	568450	6504125	normal
SCEK145	Caribou	Snake-Sahtaneh	Clarke-OS		Lotek-VHF	60 ppm	15-May-13	573547	6523839	normal
SCEK100	Caribou	Snake-Sahtaneh	East Kotcho		ATS-Irid	50 ppm; double 6th	16-May-13	635668	6568366	normal
SCEK104	Caribou	Snake-Sahtaneh	East Kotcho		Vectr-Vertex	50 ppm	16-May-13	628447	6554065	normal
SCEK101	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	16-May-13	639382	6572033	normal
SCEK103	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	16-May-13	634018	6555482	normal
SCEK102	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	16-May-13	625768	6554758	normal
SCEK105	Caribou	Snake-Sahtaneh	East Kotcho		Lotek-VHF	60 ppm	16-May-13	635812	6559428	normal
SCEK111	Caribou	Snake-Sahtaneh	North Kotcho		Vectr-Vertex	50 ppm	16-May-13	609074	6579445	normal
SCEK074	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	16-May-13	612338	6560973	normal
SCEK089	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	16-May-13	607801	6572005	normal
SCEK088	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	16-May-13	632208	6555444	normal
SCEK075	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	16-May-13	628254	6554948	normal
SCEK090	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	16-May-13	610061	6559965	normal
SCEK092	Caribou	Snake-Sahtaneh	North Kotcho		Lotek-VHF	60 ppm	16-May-13	611221	6556601	normal
BC1037	Caribou	Snake-Sahtaneh	North Kotcho-OS		Lotek-VHF	60 ppm	16-May-13	567705	6538075	normal
SCEK110	Caribou	Snake-Sahtaneh	North Kotcho-OS		ATS-Irid	50 ppm; double 6th	16-May-13	606774	6557903	normal

Table 1. VHF signal status and location of boreal caribou and wolf collars detected during the May 15-16, 2013 SCEK fixed-wing telemetry monitoring flight cont.

ID	Species	Range	Core	Freq	Collar Type	Status	Date	East	North	Comments
SCEK096	Caribou	Snake-Sahtaneh	Paradise		Lotek-VHF	60 ppm	15-May-13	557039	6527461	normal
SCEK023	Caribou	Snake-Sahtaneh	Paradise		Lotek-VHF	120 ppm	15-May-13	562647	6536407	ON MORTALITY
SCEK095	Caribou	Snake-Sahtaneh	Paradise		Lotek-VHF	120 ppm	15-May-13	571732	6529588	ON MORTALITY
SCEK069	Caribou	Snake-Sahtaneh	Paradise-OS		Vectr-Vertex	100 ppm	15-May-13	572412	6528077	ON MORTALITY
SCEK022	Caribou	Snake-Sahtaneh	Paradise-OS		Lotek-VHF	60 ppm	15-May-13	572115	6504366	normal
SCEK079	Caribou	Snake-Sahtaneh	Tsea		ATS-Irid	50 ppm; double 6th	16-May-13	529582	6599521	normal
SCEK131	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	16-May-13	552290	6590653	normal
SCEK080	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	120 ppm	16-May-13	552840	6585917	ON MORTALITY
SCEK081	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	16-May-13	551513	6593853	normal
SCEK083	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	16-May-13	561889	6603046	normal
SCEK132	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	16-May-13	558274	6596782	normal
SCEK082	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	16-May-13	555518	6593924	normal
SCEK127	Caribou	Snake-Sahtaneh	Tsea		Lotek-VHF	60 ppm	16-May-13	561296	6602507	normal
SCEK071	Caribou	Snake-Sahtaneh	West Kotcho		Vectr-Vertex	50 ppm	16-May-13	585313	6548987	normal
SCEK097	Caribou	Snake-Sahtaneh	West Kotcho		ATS-Irid	50 ppm; double 6th	16-May-13	616756	6571408	normal
SCEK099	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	16-May-13	561680	6537411	normal
SCEK072	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	16-May-13	610977	6554951	normal
SCEK091	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	16-May-13	608757	6576218	normal
SCEK098	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	16-May-13	605453	6579518	normal
SCEK073	Caribou	Snake-Sahtaneh	West Kotcho		Lotek-VHF	60 ppm	16-May-13	594241	6546206	normal
SCEK093	Caribou	Snake-Sahtaneh	West Kotcho-OS		Lotek-VHF	60 ppm	15-May-13	593392	6528492	normal
SCEK094	Caribou	Snake-Sahtaneh	West Kotcho-OS		Lotek-VHF	60 ppm	15-May-13	599223	6531162	normal
BW002	Wolf	Chinchaga	Big Arrow		Lotek-VHF	60 ppm	15-May-13	627616	6327639	normal
BW011	Wolf	Chinchaga	Big Arrow		Lotek-Irid	50 ppm	15-May-13	627616	6327639	normal VHF; no Iridium data function
BW012	Wolf	Chinchaga	Big Arrow		Lotek-Irid	no VHF signal	15-May-13			Iridium data function normal
BW008	Wolf	Fort Nelson	Tsimeh		Lotek-Irid	50 ppm	16-May-13	519145	6537244	normal
BW001	Wolf	Fort Nelson	Tsimeh		Lotek-VHF	60 ppm	16-May-13	519145	6537244	normal
BW009	Wolf	Fort Nelson	Tsimeh		Lotek-Irid	50 ppm	16-May-13	512824	6543169	normal
BW014	Wolf	Fort Nelson	Tsimeh		Lotek-Irid	50 ppm	16-May-13	512824	6543169	normal
BW020	Wolf	Parker	Parker		Lotek-VHF	60 ppm	15-May-13	499513	6514976	normal
BW019	Wolf	Parker	Parker		Lotek-Irid	50 ppm	15-May-13	499513	6514976	normal
BW021	Wolf	Snake-Sahtaneh	Clarke		Lotek-Irid	50 ppm	15-May-13	554940	6505425	normal
BW022	Wolf	Snake-Sahtaneh	Clarke		Lotek-VHF	60 ppm	15-May-13	554940	6505425	normal
BW018	Wolf	Snake-Sahtaneh	Elleh		Lotek-Irid	50 ppm	15-May-13	559404	6491740	normal
BW017	Wolf	Snake-Sahtaneh	Elleh		Lotek-Irid	50 ppm	15-May-13	559404	6491740	normal
BW023	Wolf	Snake-Sahtaneh	Snake		Lotek-VHF	60 ppm	16-May-13	544733	6530137	normal
BW015	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	50 ppm	16-May-13	544733	6530137	normal
BW007	Wolf	Snake-Sahtaneh	Snake		Lotek-VHF	unknown				not detected
BW016	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	50 ppm	16-May-13	544733	6530137	normal
BW006	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	unknown				not detected; last Iridium data Mar 13, 2013
BW010	Wolf	Snake-Sahtaneh	Snake		Lotek-Irid	50 ppm	16-May-13	621339	6536462	normal
BW013	Wolf	Snake-Sahtaneh	West Clarke		Lotek-Irid	50 ppm	15-May-13	514739	6512536	normal
BW004	Wolf	Snake-Sahtaneh	West Clarke		Lotek-VHF	60 ppm	15-May-13	514739	6512536	normal
BW003	Wolf	Snake-Sahtaneh	West Clarke		Lotek-Irid	failed				not detected; last data Feb 09, 2013

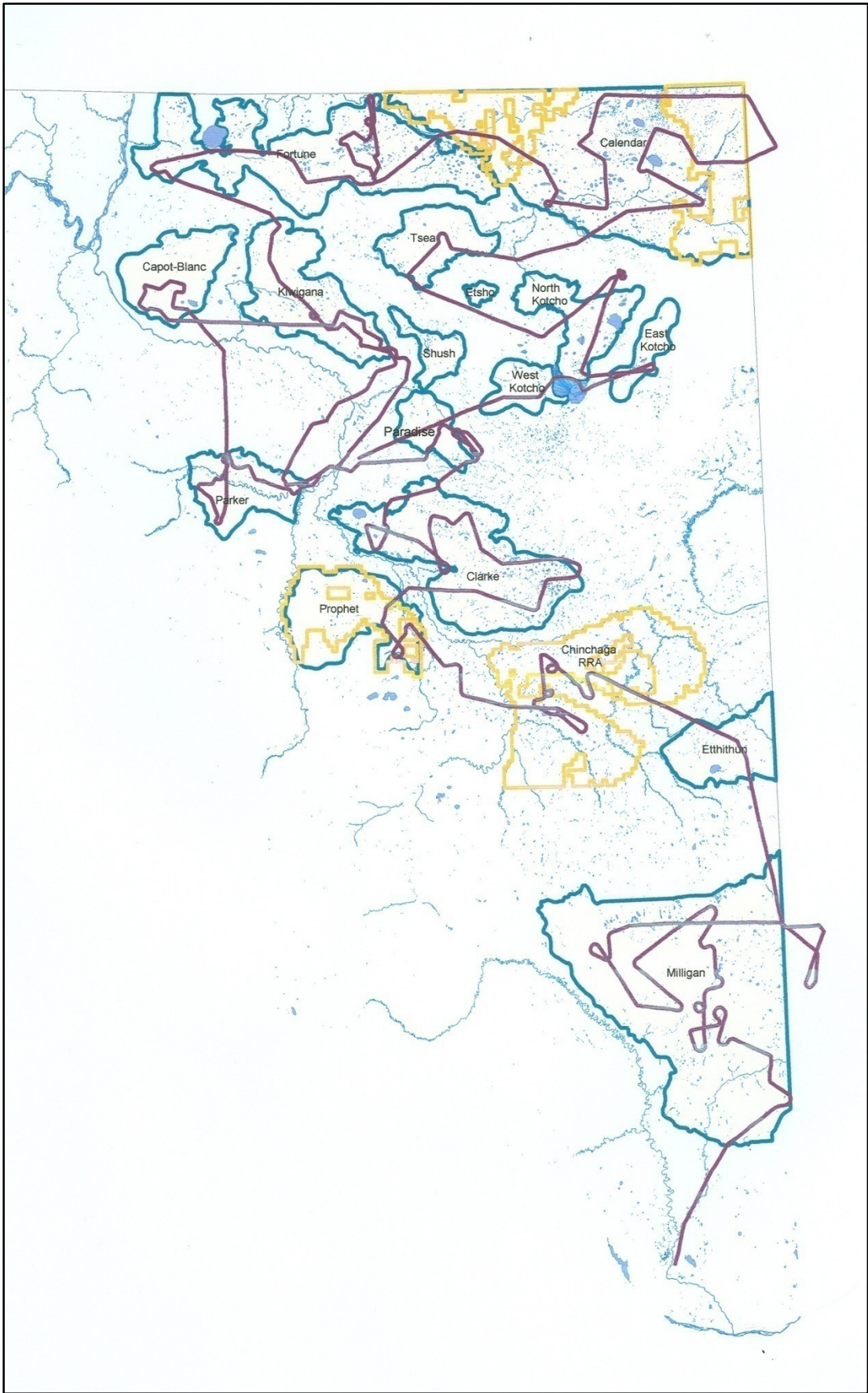


Figure 1. Flight paths flown during the May 15-16, 2013 SCEK fixed-wing boreal caribou and wolf telemetry monitoring flight.