

DIVERSIFIED ENVIRONMENTAL SERVICES

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BC OIL AND GAS RESEARCH AND INNOVATION SOCIETY BOREAL CARIBOU TELEMTRY PROGRAM

FIXED-WING TELEMTRY MONITORING FLIGHT – SEPTEMBER 21-25, 2015

Date: September 30, 2015

Attention: Brian Thomson
BC Oil and Gas Research and Innovation Society
Victoria, BC

Executive Summary

One hundred forty-seven boreal caribou collar frequencies and 27 wolf collar frequencies were scanned during a monthly fixed-wing telemetry monitoring flight conducted between September 21 and 25, 2015. One hundred thirty-nine caribou collars were heard transmitting normal VHF signals and 2 were transmitting mortality signals (West Kotcho VHF SCEK073 and Fortune Lotek LifeCycle SCEK179). The remaining 6 caribou collars were not detected. These included 1 SCEK ATS Iridium collar that has ceased Iridium data transmission and is believed to have failed (SCEK184), 1 MFLNRO VHF collar whose battery may have expired after 7 years of activity (BC1009), 1 SCEK GPS collar whose GPS data transmissions indicated normal activity to the west of boreal caribou range (SCEK014B), 1 SCEK VHF collar assumed active but believed to be north of the search area in the Northwest Territories (SCEK125), and 2 SCEK Vectronic GPS collars whose VHF beacons appeared to be non-functional but whose GPS data transmissions indicated normal activity within the search area (SCEK216 and SCEK201). 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). Between September 21 and 25, 2015, Diversified Environmental Services (DES) conducted a fixed-wing monitoring flight under contract to the BC Oil and Gas Research and Innovation Society (OGRIS; formerly 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, as well as to track potential long distance seasonal movements of VHF-collared caribou.

Objectives

The objective of the September 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 185 fixed-wing aircraft equipped with 1 outward-facing directional antenna affixed to each wing strut. Collar frequencies were scanned using Lotek™ STR 1000 and Lotek BioTracker telemetry receivers. The flight was conducted at 700-1,000 m above ground level at an average speed of 160 km/hr. The VHF beacon status of all detected collars was recorded on hard copy forms. In the case of VHF collars (Lotek LMRT4), status was recorded as either normal (60 pulses per minute (ppm)) or mortality mode (120 ppm), and a location (+/- 1 km) was recorded using a hand-held GPS unit. In the case of GPS/satellite collars (ATS Iridium, Vectronic Vertex, and Lotek LifeCycle), additional diagnostic VHF beacon patterns were recorded where applicable. As GPS/satellite collars are programmed to log multiple daily locations with high precision, additional effort to obtain collar locations after VHF signal detection is not necessary. Therefore, waypoints for GPS/satellite collars were typically recorded at the location from which the collar was heard, with corrections for estimated bearing and distance, unless the VHF beacon status indicated a collar malfunction or mortality, in which case, more precise locations were obtained.

Results

One hundred forty-seven caribou collar frequencies were scanned during the September 21-25, 2015 monitoring flight, including 143 SCEK collars (5 ATS Iridium, 59 Vectronic Vertex, 11 Lotek LifeCycle, and 68 Lotek VHF), 3 previously-deployed MFLNRO VHF collars, and 1 Alberta VHF collar. In addition, 27 wolf collar frequencies were scanned during the August flight, including 20 SCEK wolf collars (12 Lotek Iridium, 1 Vectronic Vertex, and 7 Lotek VHF) and 7 University of Alberta/Nexen collars (Lotek Iridium). Several SCEK Iridium wolf collars assumed to have exceeded their battery lives were not scanned. Fixed-wing monitoring began on September 21 but had to be suspended at the end of the day due to deteriorating weather. The remaining collars were monitored in conjunction with helicopter mortality investigations conducted on September 25 when the weather improved.

Results of the September 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 2,315 km. Of 147 caribou collar frequencies scanned, 139 normal VHF signals and 2 mortality signals were detected (West Kotcho VHF SCEK073 and Fortune Lotek LifeCycle SCEK179). The VHF beacons of the remaining 6 caribou collars were not detected. These included 1 SCEK ATS Iridium collar that has ceased Iridium data transmission and is believed to have failed (Calendar SCEK184), 1 MFLNRO VHF collar whose battery may have expired after 7 years of activity (Kiwigana BC1009), 1 SCEK GPS collar whose GPS data transmissions indicated normal activity in the Tuchodi River drainage to the west of boreal caribou range (Parker SCEK014B), 1 SCEK VHF collar assumed active but believed to be north of the search area in the Northwest Territories (Calendar SCEK125), and 2 SCEK Vectronic GPS collars whose VHF beacons appeared to be non-functional but whose GPS data transmissions indicated normal activity within the search area (Chinchaga RRA SCEK216 and Milligan SCEK201).

Twenty-seven wolf collar frequencies were scanned during the September 2015 monitoring flight, including 20 Lotek and Vectronic GPS/satellite collars and 7 Lotek VHF collars. No mortalities were detected. Of the 20 GPS/satellite wolf collars scanned, 13 normal VHF signals were heard, 1 was not detected but was transmitting GPS data indicating normal activity, and 5 were not detected and had not transmitted recent GPS data.

Of the 7 VHF wolf collars scanned, 1 had a normal VHF signal, a second is assumed to have failed or the wolf dispersed soon after deployment in 2013 (BW007, Snake Pack), and the remaining 5 collars are assumed operational but were not detected.

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". The signature is fluid and cursive, with a prominent initial "B" and a trailing flourish.

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 September 21-25, 2015 OGRIS fixed-wing telemetry monitoring flight.

ID	Species	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK112	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	635617	6638592	normal
SCEK113	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	618853	6619542	normal
SCEK119	Caribou	Calendar	Vectr-Vertex	42 ppm	9/25/2015	10	616613	6640459	normal
SCEK120	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	615280	6637709	normal
SCEK122	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	615693	6643573	normal
SCEK123	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	601041	6639494	normal
SCEK125	Caribou	Calendar	Lotek VHF	not heard	9/25/2015	n/a	n/a	n/a	VHF signal not detected
SCEK134	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	637046	6637831	normal
SCEK135	Caribou	Calendar	Vectr-Vertex	42 ppm	9/25/2015	10	657260	6650726	normal
SCEK136b	Caribou	Calendar	Vectr-VertexTD	42 ppm	9/25/2015	10	616792	6617854	normal
SCEK137	Caribou	Calendar	Lotek VHF	60 ppm	9/25/2015	10	636449	6636997	normal
SCEK146b	Caribou	Calendar	Vectr-VertexTD	42 ppm	9/25/2015	10	611096	6633907	normal
SCEK180	Caribou	Calendar	Vectr-VertexTD	42 ppm	9/25/2015	10	628874	6632546	normal
SCEK181	Caribou	Calendar	ATS-Irid	50 ppm; no double 6th	9/25/2015	10	618197	6612597	normal
SCEK183	Caribou	Calendar	Vectr-VertexTD	42 ppm	9/25/2015	10	604179	6629594	normal
SCEK184	Caribou	Calendar	ATS-Irid	not heard	9/25/2015	n/a	n/a	n/a	failed; last data Sep 23 14
SCEK185	Caribou	Calendar	Lotek-Lifecycle	50 ppm	9/25/2015	10	583455	6636758	normal
SCEK126b	Caribou	RRA-C	Vectr-VertexTD	42 ppm	9/25/2015	10	617729	6642157	normal
SCEK107	Caribou	RRA-D	Lotek VHF	60 ppm	9/25/2015	10	605423	6636991	normal
SCEK108	Caribou	RRA-D	Lotek VHF	60 ppm	9/25/2015	10	623568	6629427	normal
SCEK195	Caribou	Etthithun	Vectr-VertexTD	42 ppm	9/21/2015	10	644989	6407405	normal
SCEK224	Caribou	Etthithun	Vectr-VertexTD	42 ppm	9/21/2015	10	634219	6428593	normal
AB149.391	Caribou	Milligan	unknown	60 ppm	9/21/2015	10	652704	6351538	normal
SCEK026b	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	634345	6318182	normal
SCEK027	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	668381	6295396	normal
SCEK029	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	648092	6342921	normal
SCEK032	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	652695	6361179	normal
SCEK033b	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	636690	6318521	normal
SCEK034	Caribou	Milligan	Vectr-Vertex	42 ppm	9/21/2015	10	637103	6326590	normal
SCEK035	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	639547	6351743	normal
SCEK036b	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	613333	6365743	normal
SCEK040	Caribou	Milligan	Vectr-Vertex	42 ppm	9/21/2015	10	644155	6406522	normal
SCEK041	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	642810	6343147	normal
SCEK053	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	635442	6338514	normal
SCEK054	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	646728	6359147	normal
SCEK055	Caribou	Milligan	Vectr-Vertex	42 ppm	9/21/2015	10	645119	6341924	normal
SCEK057	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	632338	6324000	normal
SCEK059	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	619703	6342546	normal
SCEK060	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	619366	6351751	normal
SCEK061	Caribou	Milligan	Lotek VHF	60 ppm	9/21/2015	10	657959	6315330	normal
SCEK196	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	628635	6360501	normal
SCEK197	Caribou	Milligan	Lotek-Lifecycle	50 ppm	9/21/2015	10	619884	6382928	normal
SCEK198	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	635509	6323809	normal
SCEK201	Caribou	Milligan	Vectr-VertexTD	not heard	9/21/2015	10	662591	6288034	no VHF signal; GPS activity normal
SCEK222	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	658918	6374466	normal
SCEK223	Caribou	Milligan	Vectr-VertexTD	42 ppm	9/21/2015	10	632686	6333933	normal
SCEK048	Caribou	RRA-A	Lotek VHF	60 ppm	9/21/2015	10	604844	6414576	normal
SCEK142	Caribou	RRA-A	Vectr-Vertex	42 ppm	9/21/2015	10	607119	6454344	normal
SCEK170	Caribou	RRA-A	ATS-Irid	50 ppm; double 6th	9/21/2015	10	644099	6434654	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the September 21-25, 2015 OGRIS fixed-wing telemetry monitoring flight.

ID	Species	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK172	Caribou	RRA-A	Lotek-Lifecycle	50 ppm	9/21/2015	10	599465	6435659	normal
SCEK189	Caribou	RRA-A	Vectr-VertexTD	42 ppm	9/21/2015	10	604286	6447593	normal
SCEK213	Caribou	RRA-A	Vectr-VertexTD	42 ppm	9/21/2015	10	606454	6452247	normal
SCEK214	Caribou	RRA-A	Vectr-VertexTD	42 ppm	9/21/2015	10	608437	6429357	normal
SCEK215	Caribou	RRA-A	Vectr-VertexTD	42 ppm	9/21/2015	10	616988	6450376	normal
SCEK216	Caribou	RRA-A	Vectr-VertexTD	not heard	9/21/2015	10	614179	6444301	VHF not heard since Apr 2015; GPS activity normal
SCEK009b	Caribou	Fort Nelson	Vectr-VertexTD	42 ppm	9/21/2015	10	518870	6549464	normal
SCEK166	Caribou	Fort Nelson	Vectr-VertexTD	42 ppm	9/21/2015	10	519863	6540703	normal
SCEK167	Caribou	Fort Nelson	Lotek-Lifecycle	50 ppm	9/21/2015	10	517885	6539140	normal
BC1014	Caribou	Capot-Blanc	Lotek VHF	60 ppm	9/21/2015	10	469172	6582449	normal
SCEK007b	Caribou	Capot-Blanc	Vectr-VertexTD	42 ppm	9/21/2015	10	455645	6581561	normal
SCEK066	Caribou	Capot-Blanc	Lotek VHF	60 ppm	9/21/2015	10	454736	6581831	normal
SCEK076	Caribou	Capot-Blanc	Lotek VHF	60 ppm	9/21/2015	10	460280	6588724	normal
BC1033	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	527512	6632941	normal
SCEK005b	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	485338	6613687	normal
SCEK078	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	464200	6626121	normal
SCEK085	Caribou	Fortune	Vectr-Vertex	84 ppm	9/21/2015	10	528048	6638933	normal
SCEK086	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	531797	6632918	normal
SCEK087	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	547912	6626688	normal
SCEK128	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	533223	6633639	normal
SCEK129	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	547811	6626164	normal
SCEK164	Caribou	Fortune	Lotek VHF	60 ppm	9/21/2015	10	544470	6627736	normal
SCEK175	Caribou	Fortune	Lotek-Lifecycle	50 ppm	9/21/2015	10	505123	6628222	normal
SCEK176	Caribou	Fortune	Lotek-Lifecycle	50 ppm	9/21/2015	10	488186	6625855	normal
SCEK177	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	530682	6637109	normal
SCEK178	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	546024	6623542	normal
SCEK179	Caribou	Fortune	Lotek-Lifecycle	100 ppm	9/21/2015	10	528955	6629228	MORTALITY
SCEK205	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	542950	6627437	normal
SCEK206	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	541282	6623308	normal
SCEK208	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	477860	6630574	normal
SCEK221	Caribou	Fortune	Vectr-VertexTD	42 ppm	9/21/2015	10	540161	6627890	normal
BC1009	Caribou	Kiwigana	Lotek VHF	not heard	9/21/2015	n/a	n/a	n/a	VHF signal not detected
SCEK004	Caribou	Kiwigana	Lotek VHF	60 ppm	9/21/2015	10	464131	6624879	normal
SCEK062	Caribou	Kiwigana	Lotek VHF	60 ppm	9/21/2015	10	521374	6566007	normal
SCEK064	Caribou	Kiwigana	Lotek VHF	60 ppm	9/21/2015	10	549568	6584881	normal
SCEK168	Caribou	Kiwigana	Vectr-VertexTD	42 ppm	9/21/2015	10	555793	6562686	normal
SCEK169	Caribou	Kiwigana	ATS-Irid	50 ppm; double 6th	9/21/2015	10	503325	6593031	normal
SCEK211	Caribou	Kiwigana	Vectr-VertexTD	42 ppm	9/21/2015	10	522712	6567322	normal
SCEK010	Caribou	Parker	Lotek VHF	60 ppm	9/21/2015	10	483663	6514632	normal
SCEK012	Caribou	Parker	Lotek VHF	60 ppm	9/21/2015	10	494853	6513053	normal
SCEK014b	Caribou	Parker	Vectr-VertexTD	not heard	9/21/2015	10	461750	6469690	VHF out of range (Tuchodi River); GPS normal
SCEK015	Caribou	Parker	Lotek VHF	60 ppm	9/21/2015	10	493908	6520224	normal
SCEK016b	Caribou	Parker	Vectr-VertexTD	42 ppm	9/21/2015	10	483039	6516274	normal
SCEK194	Caribou	Parker	Vectr-VertexTD	42 ppm	9/21/2015	10	488815	6526684	normal
SCEK045	Caribou	Prophet	Lotek VHF	60 ppm	9/21/2015	10	558325	6452513	normal
SCEK049	Caribou	Prophet	Lotek VHF	60 ppm	9/21/2015	10	556044	6459110	normal
SCEK051	Caribou	Prophet	Lotek VHF	60 ppm	9/21/2015	10	535612	6481175	normal
SCEK161b	Caribou	Prophet	Vectr-VertexTD	42 ppm	9/21/2015	10	566978	6453041	normal
SCEK217	Caribou	Prophet	Vectr-VertexTD	42 ppm	9/21/2015	10	557540	6456399	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the September 21-25, 2015 OGRIS fixed-wing telemetry monitoring flight.

ID	Species	Core	Collar Type	Status	Date	Zone	East	North	Comments
SCEK019	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	575107	6507216	normal
SCEK020b	Caribou	Clarke	Vectr-VertexTD	42 ppm	9/21/2015	10	563507	6471842	normal
SCEK021	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	558236	6500076	normal
SCEK024	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	557839	6540723	normal
SCEK025	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	553686	6492254	normal
SCEK068	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	557010	6543710	normal
SCEK070	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	570437	6507209	normal
SCEK145	Caribou	Clarke	Lotek VHF	60 ppm	9/25/2015	10	595189	6547979	normal
SCEK148	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	605130	6483175	normal
SCEK149	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	578071	6499416	normal
SCEK150	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	603365	6482521	normal
SCEK152	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	576715	6496322	normal
SCEK153	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	540089	6494636	normal
SCEK156	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	538841	6499556	normal
SCEK157	Caribou	Clarke	Lotek VHF	60 ppm	9/21/2015	10	567912	6498070	normal
SCEK191	Caribou	Clarke	Lotek-Lifecycle	50 ppm	9/21/2015	10	599237	6478896	normal
SCEK192	Caribou	Clarke	Lotek-Lifecycle	50 ppm	9/21/2015	10	603172	6479901	normal
SCEK193	Caribou	Clarke	Vectr-VertexTD	42 ppm	9/21/2015	10	532414	6504066	normal
SCEK212	Caribou	Clarke	Vectr-VertexTD	42 ppm	9/21/2015	10	559816	6499599	normal
SCEK218	Caribou	Clarke	Vectr-VertexTD	42 ppm	9/21/2015	10	556767	6542609	normal
SCEK220	Caribou	Clarke	Vectr-VertexTD	42 ppm	9/21/2015	10	602775	6484326	normal
SCEK102	Caribou	East Kotcho	Lotek VHF	60 ppm	9/25/2015	10	631233	6557066	normal
SCEK103	Caribou	East Kotcho	Lotek VHF	60 ppm	9/25/2015	10	625846	6552571	normal
SCEK105	Caribou	East Kotcho	Lotek VHF	60 ppm	9/25/2015	10	639441	6575537	normal
SCEK088	Caribou	North Kotcho	Lotek VHF	60 ppm	9/25/2015	10	625196	6552142	normal
SCEK089	Caribou	North Kotcho	Lotek VHF	60 ppm	9/25/2015	10	610125	6575450	normal
SCEK090	Caribou	North Kotcho	Lotek VHF	60 ppm	9/25/2015	10	601590	6588734	normal
SCEK092	Caribou	North Kotcho	Lotek VHF	60 ppm	9/25/2015	10	607002	6578568	normal
SCEK097b	Caribou	North Kotcho	Vectr-VertexTD	42 ppm	9/25/2015	10	606729	6576189	normal
SCEK100b	Caribou	North Kotcho	Vectr-VertexTD	42 ppm	9/25/2015	10	620988	6554625	normal
SCEK111	Caribou	North Kotcho	Vectr-Vertex	42 ppm	9/25/2015	10	602234	6584862	normal
SCEK182	Caribou	North Kotcho	Vectr-VertexTD	42 ppm	9/25/2015	10	612226	6578693	normal
SCEK186	Caribou	North Kotcho	Vectr-VertexTD	42 ppm	9/25/2015	10	619653	6568439	normal
SCEK187	Caribou	North Kotcho	Lotek-Lifecycle	50 ppm	9/25/2015	10	607541	6553829	normal
SCEK204	Caribou	North Kotcho	Lotek-Lifecycle	50 ppm	9/25/2015	10	638132	6568608	normal
SCEK096	Caribou	Paradise	Lotek VHF	60 ppm	9/21/2015	10	558414	6541504	normal
SCEK079b	Caribou	Tsea	Vectr-VertexTD	42 ppm	9/21/2015	10	553204	6588684	normal
SCEK081	Caribou	Tsea	Lotek VHF	60 ppm	9/21/2015	10	562767	6602672	normal
SCEK082	Caribou	Tsea	Lotek VHF	60 ppm	9/21/2015	10	555150	6592815	normal
SCEK127	Caribou	Tsea	Lotek VHF	60 ppm	9/21/2015	10	560723	6600810	normal
SCEK131	Caribou	Tsea	Lotek VHF	60 ppm	9/21/2015	10	555917	6595933	normal
SCEK132	Caribou	Tsea	Lotek VHF	60 ppm	9/21/2015	10	557327	6594861	normal
SCEK203	Caribou	Tsea	Vectr-VertexTD	42 ppm	9/21/2015	10	559700	6606820	normal
SCEK071	Caribou	West Kotcho	Vectr-Vertex	42 ppm	9/25/2015	10	591328	6550220	normal
SCEK073	Caribou	West Kotcho	Lotek VHF	120 ppm	9/25/2015	10	591329	6544700	MORTALITY
SCEK091	Caribou	West Kotcho	Lotek VHF	60 ppm	9/25/2015	10	604842	6578840	normal
SCEK173	Caribou	West Kotcho	ATS-Irid	50 ppm; no double 6th	9/25/2015	10	621048	6581493	normal
SCEK209	Caribou	West Kotcho	Vectr-VertexTD	42 ppm	9/25/2015	10	510708	6574384	normal
SCEK219	Caribou	West Kotcho	Vectr-VertexTD	42 ppm	9/21/2015	10	558797	6608368	normal

Table 1 cont. VHF signal status and location of boreal caribou and wolf collars detected during the September 21-25, 2015 OGRIS fixed-wing telemetry monitoring flight.

ID	Species	Core	Collar Type	Status	Date	Zone	East	North	Comments
BW034	Wolf	July	Lotek VHF	not heard	9/25/2015	n/a	n/a	n/a	VHF not detected
BW042	Wolf	July	Lotek Iridium	50 ppm	9/25/2015	10	628890	6635830	VHF normal; GPS data normal
BW043	Wolf	July	Lotek Iridium	50 ppm	9/25/2015	10	628890	6635830	VHF normal; GPS data normal
BW044	Wolf	July	Lotek Iridium	50 ppm	9/25/2015	10	625456	6621224	VHF normal; GPS data normal
BW045	Wolf	July	Lotek Iridium	50 ppm	9/25/2015	10	628537	6634703	VHF normal; GPS data normal
BW046	Wolf	July	Lotek Iridium	50 ppm	9/25/2015	10	625456	6621224	VHF normal; GPS data normal
BW002	Wolf	Big Arrow	Lotek VHF	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected
BW038	Wolf	Elleh	Vectronic	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected
BW039	Wolf	Elleh	Lotek Iridium	50 ppm	9/21/2015	10	551943	6488064	VHF normal; GPS data normal
BW040	Wolf	Elleh	Lotek Iridium	50 ppm	9/21/2015	10	559065	6491692	VHF normal; GPS data normal
BW014	Wolf	Tsimeh	Lotek Iridium	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected; last data Sep 17, 15
BW048	Wolf	Tsimeh	Lotek VHF	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected
BW051	Wolf	Tsimeh	Lotek Iridium	50 ppm	9/21/2015	10	496859	6563103	VHF normal; GPS data normal
BW032	Wolf	Petitot	Lotek VHF	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected
BW033	Wolf	Petitot	Lotek Iridium	50 ppm	9/21/2015	10	563256	6607675	VHF normal; GPS data normal
BW047	Wolf	Petitot	Lotek Iridium	50 ppm	9/21/2015	10	555063	6590179	VHF normal; GPS data normal
BW049	Wolf	Petitot	Lotek Iridium	50 ppm	9/21/2015	10	563256	6607675	VHF normal; GPS data normal
BW050	Wolf	Petitot	Lotek Iridium	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected; GPS activity normal
BW035	Wolf	Fortune	Lotek Iridium	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected; last data Jul 25, 15
BW036	Wolf	Fortune	Lotek Iridium	50 ppm	9/21/2015	10	550903	6632939	VHF normal; GPS data normal
BW037	Wolf	Fortune	Lotek VHF	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected
BW041	Wolf	Fortune	Lotek Iridium	50 ppm	9/21/2015	10	565398	6628153	VHF normal; GPS data normal
BW030	Wolf	Clarke	Lotek Iridium	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected; last data Dec 28 14.
BW024	Wolf	Kwokullie	Lotek Iridium	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected; last data Feb 28 15
BW026	Wolf	Kwokullie	Lotek VHF	not heard	9/25/2015	n/a	n/a	n/a	VHF not detected
BW007	Wolf	Snake	Lotek VHF	not heard	9/25/2015	n/a	n/a	n/a	not detected; missing since deployment
BW027	Wolf	Snake	Lotek Iridium	not heard	9/21/2015	n/a	n/a	n/a	VHF not detected; last data Jan 09, 14

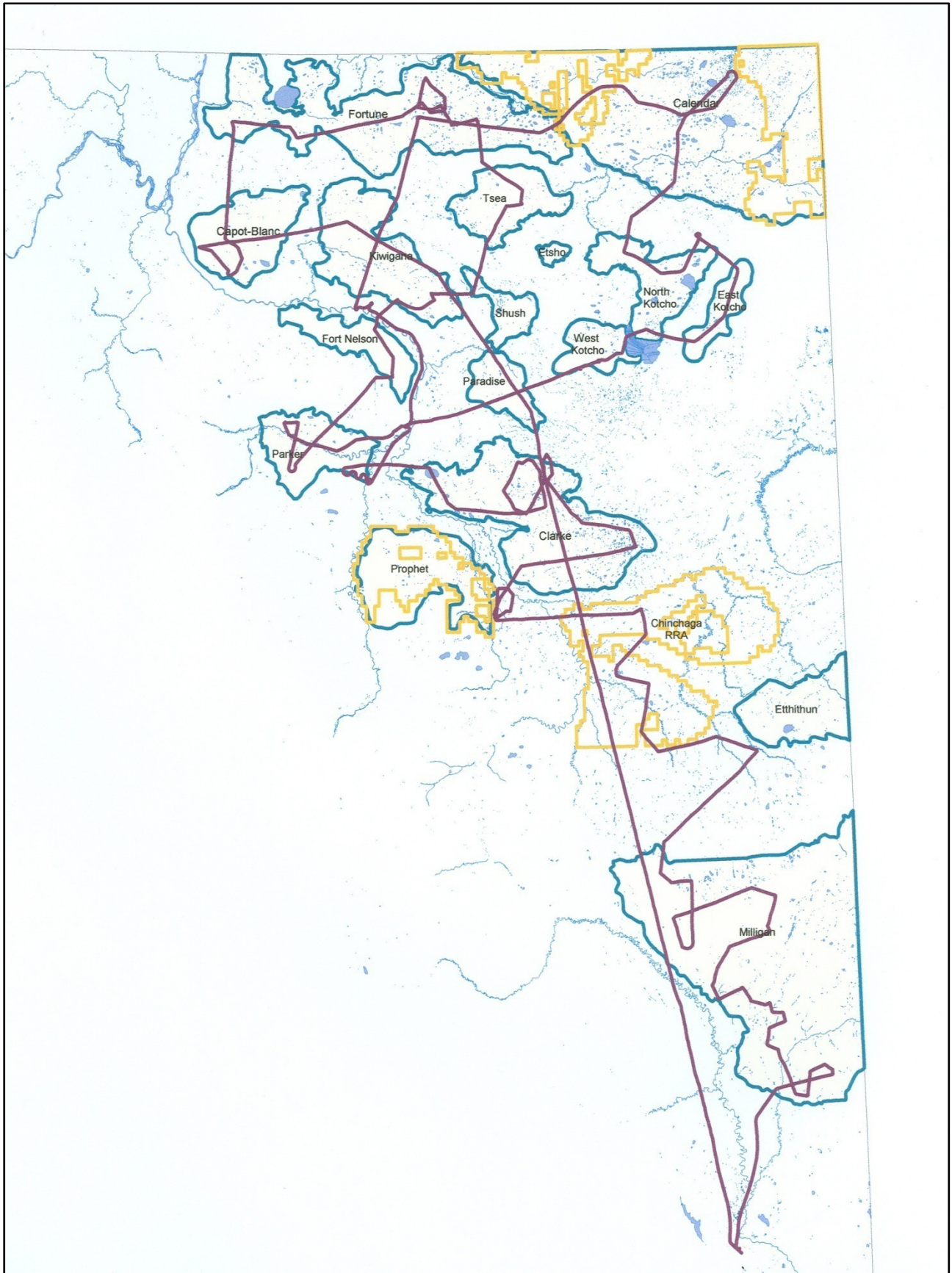


Figure 1. Flight paths flown during the September 21-25, 2015 OGRIS boreal caribou and wolf telemetry monitoring flight.