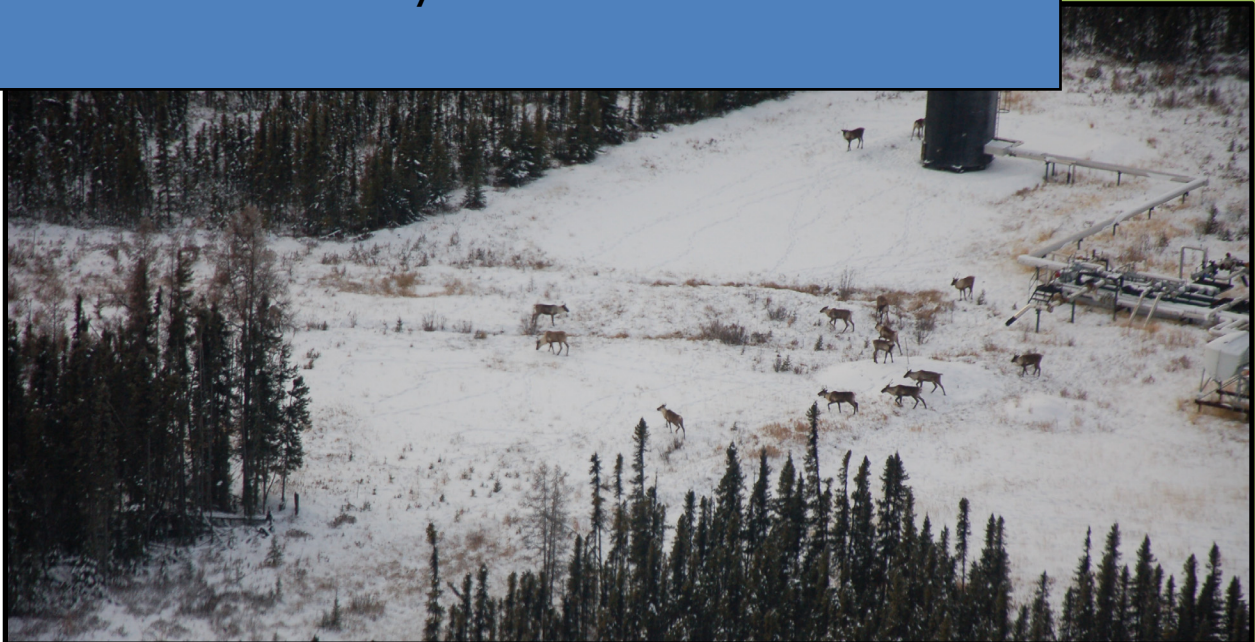


2013

**BC Boreal Caribou Implementation Plan:
2013 Fall Calf Survey**



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BC Boreal Caribou Implementation Plan: 2013 Fall Calf Survey

Prepared for:

BC Science and Community Environmental Knowledge (SCEK) Fund
Victoria, BC

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British Columbia's boreal caribou ranges fall within the traditional lands of the Treaty 8 First Nations; we appreciate the support of the Treaty 8 Chiefs and Communities for the project.

EXECUTIVE SUMMARY

The BC population of boreal caribou is *Red-listed* by the Province and federally designated as *Threatened* by the Committee on the Status of Endangered Wildlife in Canada. The *Implementation Plan for the Ongoing Management of Boreal Caribou (Rangifer tarandus caribou pop. 14) in British Columbia* (BCIP; MOE 2011) was prepared to address provincial commitments to manage threatened boreal caribou populations. To evaluate the current condition of BC's boreal caribou population, including adult survival and recruitment, a telemetry monitoring program was established in 2012, with a goal of maintaining a radio-collared sample of approximately 15% of the estimated population of each BC boreal caribou herd. Funding for the program was provided by the British Columbia Science and Community Environmental Knowledge (SCEK) Fund.

In the winter of 2012-13, 161 individual adult female boreal caribou were fitted with GPS or VHF radio-collars. As early results of the telemetry program revealed an unexpectedly high mortality rate for radio-collared caribou, that was not associated with predation, a study of boreal caribou health was initiated by the BC Provincial Wildlife Veterinarian and funded by the SCEK Fund.

Fall calf surveys were conducted on all boreal caribou herds between November 19 and 25, 2013 to determine whether individual radio-collared females had a calf at heel at the onset of winter 2013-14. Data collected will support analysis of adult female health and survival. Serum progesterone samples were used to determine pregnancy status of caribou captured and fitted with SCEK radio-collars during winter 2012-13. Of the 131 SCEK collars still active at the time of the November 19-25 survey, 22 caribou were not pregnant the previous winter, 22 caribou had a calf at heel, 81 had no calf, and the status of 6 animals was unknown.

A total of 668 boreal caribou in 118 groups were observed, with group sizes ranging from 1 to 18 caribou (mean 5.7 ± 3.6 SD). A total of 68 calves were found during the survey. Recruitment to 6 months in all boreal caribou ranges combined was 14 calves/100 females, which falls below Environment Canada's (2008) threshold of 28.9 calves/100 cows for population stability. With the exception of the Chinchaga RRA (32 calves/100 females), recruitment to 6 months in all individual ranges was below the Environment Canada threshold.

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1 INTRODUCTION

Within British Columbia, boreal ecotype woodland caribou (boreal caribou; *Rangifer tarandus caribou*) inhabit the Boreal Plains and Taiga Plains ecoprovinces, in the northeastern corner of the province. The BC population of boreal caribou (population #14; Designatable Unit DU8) is *Red-listed* by the Province and Federally designated as *Threatened* by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2011, Environment Canada 2011). The *Implementation Plan for the Ongoing Management of Boreal Caribou (Rangifer tarandus caribou pop. 14) in British Columbia* (BCIP; MOE 2011) was prepared to address provincial commitments to manage threatened boreal caribou populations.

The BCIP outlines several objectives to allow long-term (50 year) recovery of boreal caribou populations. To evaluate the current condition of BC's boreal caribou population, including adult survival and juvenile recruitment, a telemetry monitoring program was established with a goal of maintaining a radio-collared sample of approximately 15% of the estimated population of each BC boreal caribou herd. Funding for the program was provided by the British Columbia Science and Community Environmental Knowledge (SCEK) Fund.

In the winter of 2012-13, 161 GPS and VHF radio-collars were fitted on adult female boreal caribou (Culling and Culling 2013). As early results of the telemetry program revealed an unexpectedly high mortality rate for adult caribou, that was not associated with predation, a study of boreal caribou health was initiated by the BC Provincial Wildlife Veterinarian and funded by SCEK.

Between November 19 and 25, 2013, radio-collared caribou known to have been pregnant in winter 2012-13 were relocated by helicopter, with the objective of determining whether individual females had a calf at heel at the onset of winter 2013-14. While data collected will provide information on calf recruitment to 6 months, the primary objective of the survey was to support analysis of adult female health and survival.

2 METHODS

2.1 Study Area

The British Columbia distribution of boreal caribou encompasses the northeastern portion of the province, on the Alberta Plateau physiographic area. The area is bounded by the Northwest Territories (NT) border (N60° latitude) to the north, the Alberta (AB) border (W120° longitude) to the east, the northern Rocky Mountain Foothills to the west (roughly W124°), and the northern limit of the agricultural zone to the south (roughly N57°; Fig. 1).

There are currently 6 boreal caribou ranges recognized, including the Chinchaga, Snake-Sahtaneh, Calendar, Maxhamish, Prophet, and Parker, encompassing 16 associated core habitats¹ (MOE 2010). Recent observations and telemetry data support the inclusion of an additional area of caribou habitat outside the defined ranges in future revisions of BC's boreal caribou range map (*hereafter*, Fort Nelson Core). This was described as an “area of interest” warranting further investigation in the original range delineation process in 2004 (Culling *et al.* 2004).

Within the boreal caribou ranges, 4 Resource Review Areas (RRAs) have been designated, including 1 in the northwestern portion of the Chinchaga Range (RRA-A), 1 overlapping portions of the Prophet Range (RRA-B), and 2 in the Calendar Range (RRA-C and RRA-D). The Chinchaga RRA (RRA-A) is treated as a separate entity from the Chinchaga Range as it is relatively remote from the main areas of caribou activity in the Milligan and Etthithun cores.

The Chinchaga Range is in the Boreal Plains (BOP) ecoprovince, with the remaining BC boreal ranges lying within the Taiga Plains (TAP) ecoprovince. All ranges are in the Boreal White and Black Spruce (BWBS) biogeoclimatic zone. A complete description of the ranges is found in Culling and Culling (2013), with additional information on individual ranges found in the *Science Update for the Boreal Caribou (Rangifer tarandus caribou pop. 14) in British Columbia* (MOE 2010) and Cichowski *et al.* (2012).

¹ 16 core habitats include Calendar, Prophet and Parker, which are considered both ranges and core areas.

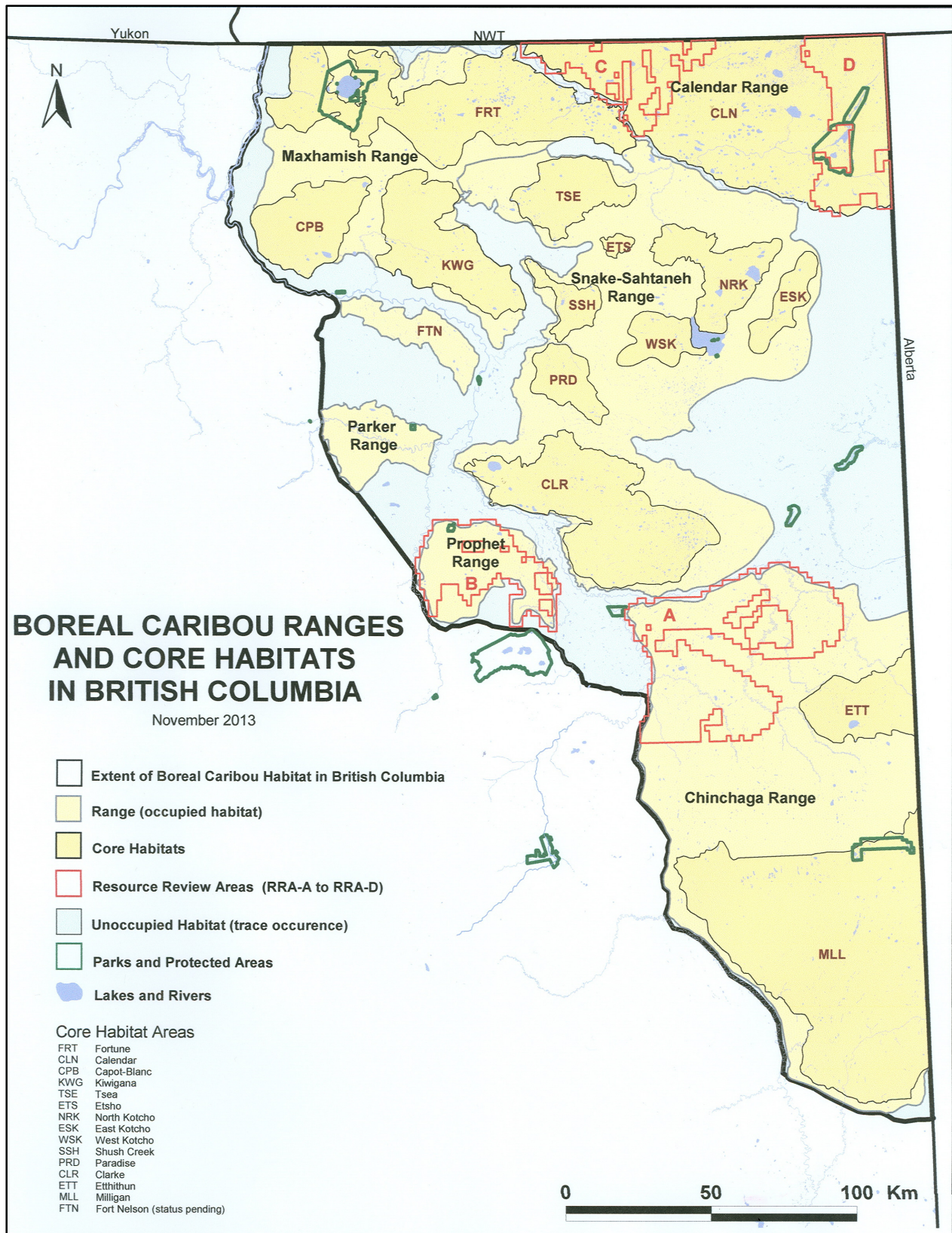


Figure 1. British Columbia boreal caribou ranges, core habitats, and Resource Review Areas (RRAs).

2.2 Fall Calf Surveys

We used a Bell 206B helicopter to locate active SCEK radio-collared caribou believed to be pregnant in winter 2012-13, based on serum progesterone analysis. We also located collared caribou that were not pregnant or were of unknown pregnancy status (i.e., BC MFLNRO collared animals) that were in active search areas or within groups with pregnant SCEK-collared females. We confirmed whether individual collared caribou had a calf at heel, then counted and classified all caribou in each group by sex and age class using criteria defined by the Resources Inventory Standards Committee (RIC 2002), including adult females (>1 year), adult males (>1 year), calves, and unclassified adults. We also classified incidentally sighted unmarked caribou groups. For purposes of survey cost-efficiency, no effort was expended to locate non-pregnant animals outside active search areas, extreme outliers distant from active search areas (pregnant or non-pregnant), or Alberta-collared caribou. Where possible, the calf status of pregnant caribou not located during the November 2013 survey will be determined during upcoming winter fieldwork.

3 RESULTS

A total of 143 radio-collared caribou were potentially present within BC's boreal caribou ranges in November 2013, including 131 SCEK (27 ATS Iridium, 14 Vectronic Vertex, and 90 VHF), 10 animals previously collared by MFLNRO (1 ATS, 9 VHF), and 2 Alberta radio-collared caribou. Of these, 141 were believed to have functioning VHF beacons at the time of the fall calf survey and 2 were assumed to have previously failed.

The survey was conducted between November 19 and 25, 2013. One hundred, twenty-six of the 141 active caribou collars were located. Based on serum progesterone analysis, 22 caribou were not pregnant in the winter of 2012-13. Of these, 14 were located within or near other groups and calf status confirmed. The remaining 8 were outliers, which were not located. Snake-Sahtaneh caribou BC1037, which was collared by MFLNRO as a yearling female in March 2012, was confirmed to be a bull.

A total of 668 boreal caribou in 118 groups were observed, including 16 unmarked groups (49 caribou). Mean group size was 5.7 ± 3.6 SD (range 1-18; Table 1). A total of 68 calves were found during the survey. Based on the subsample of located caribou, overall recruitment to 6 months was 14 calves/100 females.

Table 1. Group size, total caribou observed, and age-sex classification by range for SCEK boreal caribou fall calf surveys, northeastern British Columbia, November 19-25, 2013.

| Range | No. of Groups | Mean Group Size (\pm SD) | Min Group Size | Max Group Size | Total Caribou Observed | Classification | | | | |
|----------------------|---------------|-----------------------------|----------------|----------------|------------------------|----------------|----|-----|---------|---------------------------|
| | | | | | | F | M | Juv | Unclass | Mature Males ¹ |
| Chinchaga | 18 | 8.1 \pm 4.8 | 1 | 18 | 145 | 116 | 16 | 13 | 0 | 11 |
| Chinchaga RRA | 6 | 6.0 \pm 2.6 | 3 | 9 | 36 | 25 | 3 | 8 | 0 | 0 |
| Snake-Sahtaneh | 39 | 5.7 \pm 3.2 | 1 | 13 | 222 | 167 | 31 | 20 | 4 | 25 |
| Calendar | 24 | 4.9 \pm 3.2 | 1 | 13 | 118 | 68 | 24 | 10 | 16 | 16 |
| Maxhamish | 20 | 4.8 \pm 3.5 | 2 | 13 | 95 | 66 | 15 | 14 | 0 | 11 |
| Prophet ² | 3 | 6.3 \pm 4.9 | 3 | 12 | 19 | 16 | 3 | 0 | 0 | 2 |
| Parker | 7 | 4.3 \pm 1.7 | 2 | 6 | 30 | 22 | 4 | 3 | 1 | 2 |
| Fort Nelson Core | 1 | 3.0 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 0 |
| Total | 118 | 5.7 \pm 3.6 | 1 | 18 | 668 | 483 | 96 | 68 | 21 | 67 |

¹ Mature males defined as Class II or III bulls (RIC 2002)

² Prophet Range includes RRA-B and 1 collared caribou (SCEK051) in a group of 3 located outside the range

Only 2 of 118 groups (6 caribou) were found outside currently recognized ranges, including 1 group (3 caribou) in the Fort Nelson “core” and 1 group (3 caribou) east of the Prophet Range. In addition, SCEK125 was known to be in the Northwest Territories, north of the Calendar Range, at the time of the survey. Of the remaining 116 groups located within boreal caribou ranges, 4 groups (25 caribou) were found outside core habitats within the Snake-Sahtaneh Range. Figure 2 shows the distribution of all groups encountered and helicopter flight lines flown during the fall calf survey.

3.2 Range Summaries

3.2.1 Chinchaga Range

Twenty-five radio-collared caribou, including 23 SCEK and 2 Alberta collars, were assumed to be active in the Chinchaga Range during the November 25, 2013 survey. A 26th caribou (SCEK058) was collared in the Milligan Core in January 2013, then moved to the Chinchaga RRA-A between May 16 and July 02. This caribou was located during the Chinchaga RRA survey on Nov 19. With the exception of SCEK040, all 25 collared caribou were within the Milligan Core. Three of 4 SCEK caribou not pregnant in late winter 2013 were located within or close to other groups and confirmed not to have calves. The fourth animal (SCEK040) moved to the Etthithun Core in June 2013 and was not located.

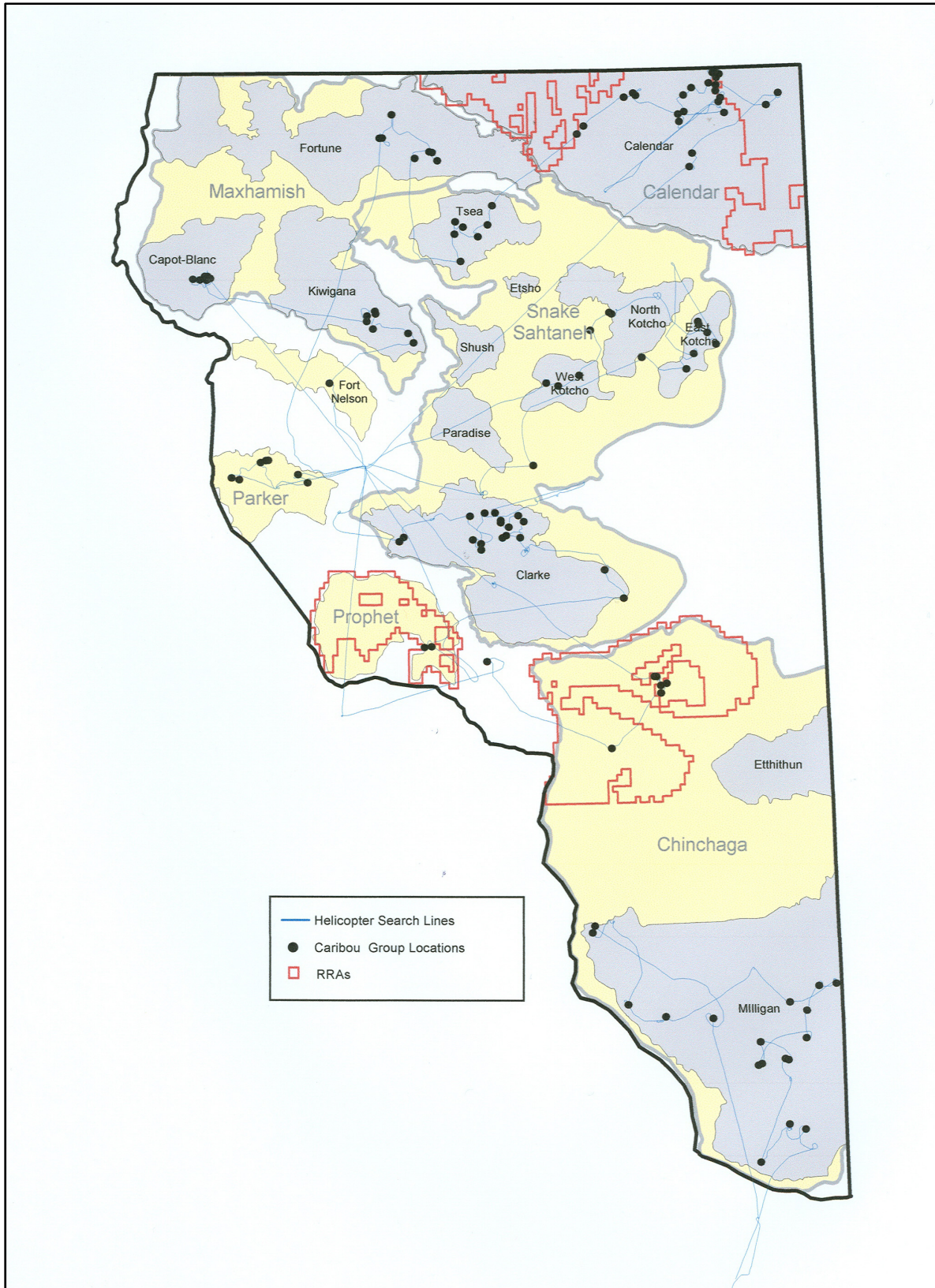


Figure 2. Location of 118 groups of boreal caribou observed during the November 19-25, 2013 SCEK fall calf survey, northeastern British Columbia ($n=668$ caribou).

SCEK042 was not heard; it is assumed that the collar has failed. The 2 Alberta collars were transmitting normal VHF signals but were not located.

A total of 145 caribou (116F, 16M, 13 calves) were counted in 18 groups in the Milligan Core on November 25, 2013, including 21 SCEK-collared animals (Table 2; Appendix I). No unmarked groups were encountered. Based on this sample, recruitment to 6 months was 11 calves/100 females.

Table 2. Total caribou observed and age-sex classification by range, core habitat, and RRA during the SCEK boreal caribou fall calf survey, northeastern British Columbia, November 19-25, 2013.

| Range | Core | Adult Females | Adult Males | Calves | Unclass | Mature Males ¹ | Total |
|------------------|------------------------|---------------|-------------|--------|---------|---------------------------|-------|
| Chinchaga | Milligan | 116 | 16 | 13 | 0 | 11 | 145 |
| | Etthithun | n/a | n/a | n/a | n/a | n/a | n/a |
| | RRA-A | 25 | 3 | 8 | 0 | 0 | 36 |
| | | 141 | 19 | 21 | 0 | 11 | 181 |
| Snake-Sahtaneh | Clarke | 62 | 9 | 5 | 0 | 7 | 76 |
| | Clarke-OS ² | 3 | 3 | 1 | 0 | 3 | 7 |
| | East Kotcho | 27 | 9 | 2 | 2 | 6 | 40 |
| | North Kotcho | 18 | 1 | 4 | 0 | 1 | 23 |
| | Tsea | 30 | 5 | 5 | 2 | 4 | 42 |
| | West Kotcho | 23 | 4 | 3 | 0 | 4 | 30 |
| | West Kotcho-OS | 4 | 0 | 0 | 0 | 0 | 4 |
| | | 167 | 31 | 20 | 4 | 25 | 222 |
| Calendar | Calendar ³ | 37 | 7 | 6 | 12 | 4 | 62 |
| | RRA-C | 7 | 2 | 1 | 0 | 1 | 10 |
| | RRA-D | 24 | 15 | 3 | 4 | 11 | 46 |
| | | 68 | 24 | 10 | 16 | 16 | 118 |
| Maxhamish | Capot-Blanc | 13 | 0 | 4 | 0 | 0 | 17 |
| | Fortune | 30 | 9 | 8 | 0 | 6 | 47 |
| | Kiwigana | 23 | 6 | 2 | 0 | 5 | 31 |
| | | 66 | 15 | 14 | 0 | 11 | 95 |
| Prophet | RRA-B | 13 | 3 | 0 | 0 | 2 | 16 |
| | Prophet-OS | 3 | 0 | 0 | 0 | 0 | 3 |
| | | 16 | 3 | 0 | 0 | 2 | 19 |
| Parker | Parker | 22 | 4 | 3 | 1 | 2 | 30 |
| | | 22 | 4 | 3 | 1 | 2 | 30 |
| Undifferentiated | Fort Nelson | 3 | 0 | 0 | 0 | 0 | 3 |
| | | 3 | 0 | 0 | 0 | 0 | 3 |
| | | 483 | 96 | 68 | 21 | 67 | 668 |

¹ Mature males defined as Class II or III bulls (RIC 2002)

² OS - outside range or core

³ Calendar Range excluding portions encompassed by RRA-C and RRA-D

3.2.2 Chinchaga RRA

Seven SCEK-collared caribou were active in the Chinchaga RRA on November 19, 2013. SCEK058 was collared in the Milligan Core on January 31, 2013 and moved to the Chinchaga RRA-A between May 16 and July 02, 2013.

A total of 36 caribou (25F, 3M, 8 calves) were located in 6 groups, including 2 unmarked groups (Table 2; Appendix II). Three groups, representing 11 caribou, were found in the “excluded area” within the central portion of the RRA. Based on the sample of 25 females, recruitment to 6 months was 32 calves/100 females.

3.2.3 Snake-Sahtaneh Range

Forty-five radio-collared caribou were active in the Snake-Sahtaneh Range during the November 20-22, 2013 survey. Eight collared caribou were not pregnant in late winter 2013 and BC1037 was confirmed to be a bull. Six of 8 females not pregnant were located within or close to other groups of collared caribou and were confirmed not to have calves. The remaining 2 were outliers and were heard transmitting normal VHF signals, but not located. SCEK097 was transmitting a normal VHF beacon during the November 14, 2013 telemetry monitoring flight, but was not heard during the fall calf survey.

A total of 222 Snake-Sahtaneh caribou (167F, 31M, 20 calves, 4 unclassified) were located in 39 groups, including 15 caribou in 5 unmarked groups (Table 2, Appendix III). Four groups (25 caribou) were located outside core areas within the range, including 2 groups west of the North Kotcho Core. The remaining 2 groups appeared to be travelling between the East Kotcho and North Kotcho cores and the Paradise and Clarke cores. Based on the sample of 167 females, recruitment to 6 months was 12 calves/100 females.

3.2.4 Calendar Range Including RRA-C and RRA-D

Nineteen of 27 SCEK caribou originally collared in the Calendar Range were active at the time of the November 21, 2013 survey; 18 were located. The nineteenth (SCEK125) was known to be in the Northwest Territories at the time of the survey; its VHF beacon was not heard.

One hundred, eighteen caribou (68F, 24M, 10 calves, 16 unclassified) were counted in 24 groups, including 19 caribou in 6 unmarked groups (Table 2, Appendix IV). A total of 56 caribou (47 %) were found in 8 groups within the 2 Calendar RRAs, including 10 in RRA-C (1 group) and 46 in RRA-D

(7 groups). Based on the sample of 68 females, Calendar Range recruitment to 6 months was 15 calves/100 females.

3.2.5 Maxhamish Range

Twenty-two of 25 SCEK collars deployed in the Maxhamish Range during winter 2012-13 and 7 previously-deployed MFLNRO collars were active at the time of the November 20-21, 2013 survey. A total of 24 of the 29 active collars were located (17 SCEK, 7 MFLNRO). Four SCEK caribou were not pregnant; 2 were located in a group with a pregnant collared female and 2 were not located. Three potentially pregnant caribou were not located, including 2 extreme outliers and 1 animal whose VHF beacon shut down at 16:00 hours, before it could be found.

A total of 95 Maxhamish caribou (66F, 15M, 14 calves) were located in 20 groups, including 4 caribou in 2 unmarked groups (Table 2, Appendix V). All 95 caribou were within the 3 core habitats of the Maxhamish Range. Based on this sample of 66 females, recruitment to 6 months was 21 calves/100 females.

3.2.6 Prophet Range Including RRA-B

All 9 SCEK collars deployed within and adjacent to the Prophet Range in winter 2012-13 were active at the time of the November 19-20, 2013 survey. Two of 3 caribou that were not pregnant were heard but not located. SCEK144 was transmitting a normal VHF beacon during the November 10, 2013 telemetry monitoring flight, but could not be located during the fall calf survey.

A total of 19 Prophet caribou (16F, 3M, 0 calves) were located in 3 groups (Table 2, Appendix VI). Based on this limited sample, there was no calf recruitment to 6 months in the Prophet Range in 2013.

3.2.7 Parker Range

Six of 7 SCEK collars deployed in the Parker Range during winter 2012-13 and 1 previously-deployed MFLNRO collar were active at the time of the November 22, 2013 survey; all 8 were located.

A total of 30 Parker caribou (22F, 3M, 3 calves, 1 unclassified) were located in 7 groups, including 4 caribou in 1 unmarked group (Table 2, Appendix VII). Based on this sample, recruitment to 6 months was 14 calves/100 females.

3.2.8 Fort Nelson Core

Only 1 of 3 caribou collared in the undifferentiated Fort Nelson Core in winter 2012-13 was still alive in November 2013. SCEK009 was located in a group of 3 females (Table 2, Appendix VIII). There were no incidental observations of uncollared groups within the Fort Nelson Core.

3.3 Additional Observations

Five observations of radio-collared wolf (*Canis lupus*) packs and 1 incidental observation of an unmarked pack were made during the boreal caribou fall calf survey (Table 3).

A total of 90 moose (*Alces americanus*), in approximately 50 groups, were observed within the boreal caribou ranges and adjacent river corridors during the November 2013 survey (Fig. 3; Appendix IX). One coyote (*Canis latrans*), several sets of river otter (*Lontra canadensis*) tracks, and numerous flocks of sharp-tailed grouse (*Tympanuchus phasianellus*) were also observed.

Table 3. Observations of radio-collared and unmarked wolf packs within BC boreal caribou ranges during the 2013 boreal caribou fall calf survey, November 19-25, 2013.

| Range ¹ | Species | Date | Zn | Easting | Northing | No. Observ. | Comments |
|--------------------|---------|-----------|----|---------|----------|-------------|--|
| SNS | M-CALU | 19-Nov-13 | 10 | 566318 | 6483337 | (1) | Elleh Pack; a minimum of 1 wolf was present (Wolf BW017), but no visual obtained |
| SNS | M-CALU | 20-Nov-13 | 10 | 577786 | 6494237 | (2) | Elleh Pack; a minimum of 2 wolves present (Wolves BW017 and BW018) but obtained visual on 1 only |
| OS-SNS | M-CALU | 20-Nov-13 | 10 | 588631 | 6513584 | 7 | Incidental observation of an uncollared pack NE of Clarke Core, near Sierra EnCana |
| SNS | M-CALU | 20-Nov-13 | 10 | 546859 | 6504544 | 4 | Clarke Pack; including Wolves BW021 and BW022; 3 BLK and 1 GR |
| PRK | M-CALU | 22-Nov-13 | 10 | 495511 | 6515171 | 4 | Parker Pack; including Wolves BW019 and BW020 |
| SNS | M-CALU | 22-Nov-13 | 10 | 562348 | 6514100 | 9 | Snake Pack; including Wolves BW015 and BW023 |

¹ SNS – Snake-Sahtaneh, OS-SNS – Outside Snake-Sahtaneh Range, PRK – Parker

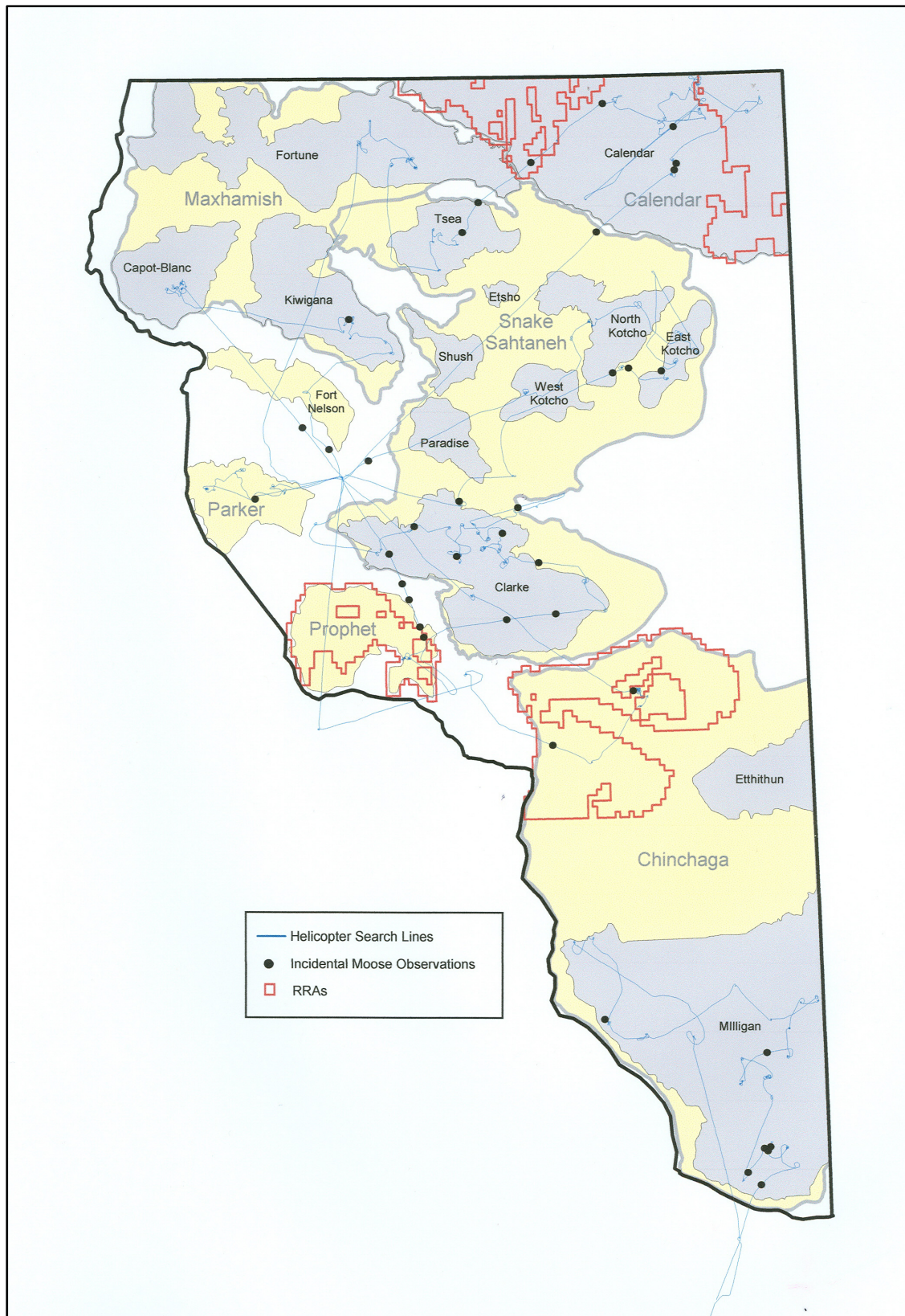


Figure 3. Incidental observations of moose made during the SCEK 2013 fall calf survey, November 19-25, 2013, northeast British Columbia ($n = 90$).

4 SUMMARY

Serum progesterone samples were used to determine pregnancy status of boreal caribou captured and fitted with SCEK radio-collars during winter 2012-13 (Culling and Culling 2013). Of the 131 SCEK collars still active at the time of the November 19-25 survey, 22 caribou were not pregnant the previous winter, 22 caribou had a calf at heel, 81 had no calf, and the status of the remaining 6 animals is unknown.

With the exception of the Chinchaga RRA, recruitment to 6 months in all boreal caribou ranges fell below Environment Canada's (2008) recommended threshold of a minimum annual recruitment rate of 28.9 calves/100 females. Boreal caribou recruitment to 10 months will be assessed during a late winter composition survey conducted in March 2014.

Three groups, representing 11 caribou were found in the interior portion of the Chinchaga RRA, within a polygon excluded from the resource review area. The RRA currently represents relatively intact caribou habitat, which would be compromised by future industrial development of excluded areas within the broader RRA polygon.

Boreal caribou exhibited a high degree of habituation to oilfield infrastructure throughout all ranges. In the Snake-Sahtaneh Range, a group of 11 caribou, including 2 large-antlered bulls, were observed readily crossing under an elevated pipeline at a compressor station in response to the helicopter (UTM 10.564527.6602052).

4.1 Recommendations

During the winter 2013-14 collar deployment sessions, effort will be made to search areas outside the recognized core habitats to ensure all high quality boreal caribou habitat is delineated. Based on observations from the 2013 fall calf survey, 3 areas that warrant further effort include:

- east of the current Prophet Range boundary, between Chinchaga RRA-A and Prophet RRA-B,
- within and adjacent to the southwest boundary of the Etthithun Core,
- within Calendar RRA-C, and
- north of the West Kotcho Core.

Observations made during the 2013 fall calf survey confirmed that Snake-Sahtaneh caribou BC1037 is an adult male. The animal was erroneously collared as a yearling female in March 2010. This caribou will

need to be recaptured to remove the collar, which will become too tight as the animal matures. This presents a potential opportunity to collect data on movements of an adult male boreal caribou by replacing the original collar with a properly-fitted Iridium collar.

Capot Blanc caribou SCEK066 was captured as a large yearling in February 2013. The collar fit should be assessed during winter 2014 capture activities to determine if recapture and adjustment is required.

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APPENDIX I: CHINCHAGA RANGE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/2
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: CHINCHAGA

Obs Date: 25 November 2013

| Obs Day: 1/1 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|--------------|-------|---------------------|---------------|-------|--------|--------------------------------|--------------|
| Start | 09:55 | Unbroken Clouds (4) | Light Air (1) | - 6 C | None | 6-25 cm (3) | 76-100 % (6) |
| End | 14:25 | Unbroken Clouds (4) | Light Air (1) | - 5 C | None | Days since 5 cm Snow: < 14 (3) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Russell Vilkers

Observer: Maxine Davis

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|----------|-------------------|------|-------------------|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|------------------|--|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK026 | MLL | I | No | 3 | 5 | 3 | 2 | 0 | 0 | 2 | 484 | 654727 | 6291912 | UV | On lease |
| SCEK027 | MLL | V | No | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 481 | 664126 | 6304526 | BB | |
| SCEK029 | MLL | V | No | 11 | 10 | 9 | 1 | 0 | 0 | 0 | 493 | 673770 | 6350274 | TR | On cutline through Sb |
| SCEK030 | MLL | V | No | 5 | 7 | 6 | 1 | 0 | 0 | 0 | 486 | 662635 | 6326140 | BB | |
| SCEK032 | MLL | V | No | 8 | 15 | 12 | 2 | 1 | 0 | 2 | 489 | 653917 | 6323981 | UV | On lease; grp includes SCEK054 |
| SCEK033 | MLL | I | No | 15 | 16 | 15 | 1 | 0 | 0 | 1 | 497 | 611086 | 6343878 | UV | On lease with compressor stn; grp includes SECK053; photos |
| SCEK034 | MLL | G | No | 10 | 10 | 7 | 3 | 0 | 0 | 2 | 492 | 669804 | 6342133 | BL | In patch of mature LP; 1 bull lost antlers |
| SCEK035 | MLL | V | No | 14 | 4 | 4 | 0 | 0 | 0 | 0 | 496 | 623385 | 6339891 | TR | On cutline through Sb |
| SCEK036 | MLL | I | No | 16 | 8 | 8 | 0 | 0 | 0 | 0 | 499S | 599356 | 6367633 | TC | On railway tracks; photos |
| SCEK037 | MLL | V | NP | 1 | 14 | 8 | 3 | 3 | 0 | 3 | 478 | 669480 | 6302829 | FE | Confirmed no calf; grp includes SECK038 |
| SCEK038 | MLL | I | NP | (1) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (478) | 669480 | 6302829 | FE | Confirmed no calf; grp includes SECK037 |
| SCEK040 | ETT | G | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Not pregnant/outlier (Etthithun) – not relocated |
| SCEK041 | MLL | V | No | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 487 | 654560 | 6331708 | TR | On cutline through LP forest |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 2/2
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: CHINCHAGA

Obs Date: 20-21 November 2013

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|-----------|-------------------|------|--|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|------------------|--|
| F | M | Juv | Unc | mm | | | | | | | | | | | |
| SCEK042 | MLL | I | UNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Not heard, collar assumed failed |
| SCEK052 | MLL | V | Yes | 9 | 4 | 3 | 0 | 1 | 0 | 0 | 491 | 669532 | 6333064 | TR | On cutline through Sb |
| SCEK053 | MLL | V | NP | (15) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (497) | 611086 | 6343878 | UV | Confirmed no calf; on lease with compressor strn; grp includes SECK033; photos |
| SCEK054 | MLL | V | No | (8) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (489) | 653917 | 6323981 | UV | On lease; grp includes SCEK032 |
| SCEK055 | MLL | G | No | 13 | 4 | 4 | 0 | 0 | 0 | 0 | 495 | 664274 | 6344872 | FE | |
| SCEK056 | MLL | V | Yes | 12 | 6 | 4 | 0 | 2 | 0 | 0 | 494 | 679381 | 6351034 | BB | |
| SCEK057 | MLL | V | Yes | 18 | 4 | 2 | 0 | 2 | 0 | 0 | 501 | 639041 | 6339362 | BB | |
| SCEK058 | CHIN RRA | V | (No) | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | C1 |
| SCEK059 | MLL | V | No | 4 | 6 | 4 | 1 | 1 | 0 | 1 | 485 | 663710 | 6325776 | TR | On pipeline |
| SCEK060 | MLL | V | No | 17 | 7 | 4 | 2 | 1 | 0 | 0 | 500 | 600089 | 6369891 | BB | |
| SCEK061 | MLL | V | No | 7 | 18 | 16 | 0 | 2 | 0 | 0 | 488 | 655009 | 6324514 | BB | |
| AB149.391 | MLL | Unk | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Heard (OK); not relocated |
| AB150.470 | MLL | Unk | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Heard (OK); not relocated |
| Obs # | UTM | | Additional Observations | | | | | | | | | | | | |
| C1 | n/a | | SCEK058 collared in Milligan on Jan 31, 2013 (pregnant), moved to Chinchaga RRA-A in spring 2013; located without calf on Nov 19 in CHIN RRA-A | | | | | | | | | | | | |

¹ MLL – Milligan, ETT – Etthithun, CHIN RRA – Chinchaga RRA-A

² NP – not pregnant

³ Broad Ecosystem Unit (BEU): BB - Black Spruce Bog, BP - Boreal White Spruce-Lodgepole Pine, FE - Sedge Fen, TC – Transmission Corridor, TR – Transmission Corridor, UV - Unvegetated

APPENDIX II: CHINCHAGA RRA (RRA-A)

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/1
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: CHINCHAGA RRA

Obs Date: 19 November 2013

| Obs Day: 1/1 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|--------------|-------|-----------|------------------|--------|----------|-------------------------------|--------------|
| Start | 10:13 | > 50% (3) | Light Breeze (2) | - 17 C | None (N) | 6-25 cm (3) | 76-100 % (6) |
| End | 11:04 | > 50% (3) | Light Breeze (2) | - 17 C | None (N) | Days since 5 cm Snow: < 3 (2) | |

Navigator/Observer: Brad Culling **Recorder/Observer:** Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needley

| Field ID | Core ¹ | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | UTM Zone 10 | | BEU ² | Comments |
|----------|-------------------|--|------|-------|---------|----------------|-------|-------|-------|-------|-------|-------------|---------|------------------|--|
| | | | | | | F | M | Juv | Unc | mm | | East | North | | |
| SCEK046 | CHIN RRA | I | No | 6 | 8 | 7 | 0 | 1 | 0 | 0 | 331 | 605525 | 6428661 | FE | |
| SCEK047 | CHIN RRA | I | Yes | 1 | 9 | 4 | 2 | 3 | 0 | 0 | 326 | 619665 | 6452650 | FE | |
| SCEK048 | n/a | V | Yes | 4 | 4 | 2 | 1 | 1 | 0 | 0 | 329 | 623641 | 6450334 | FE | In excluded area(C1) |
| SCEK058 | CHIN RRA | V | No | 2 | 8 | 8 | 0 | 0 | 0 | 0 | 327 | 620342 | 6452657 | FE | Collared in Milligan (C2); grp includes SCEK139, SCEK141, SCEK 142 |
| SCEK139 | CHIN RRA | G | No | (2) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (327) | 620342 | 6452657 | FE | Grp includes SCEK058, SCEK141, SCEK 142 |
| SCEK141 | CHIN RRA | V | No | (2) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (327) | 620342 | 6452657 | FE | Grp includes SCEK058, SCEK139, SCEK 142 |
| SCEK142 | CHIN RRA | G | No | (2) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (327) | 620342 | 6452657 | FE | Grp includes SCEK058, SCEK139, SCEK 141 |
| Uncoll#1 | n/a | n/a | n/a | 3 | 4 | 2 | 0 | 2 | 0 | 0 | 328 | 621739 | 6449668 | FE | In excluded area(C1) |
| Uncoll#2 | n/a | n/a | n/a | 5 | 3 | 2 | 0 | 1 | 0 | 0 | 330 | 621829 | 6447203 | FE | In excluded area(C1) |
| Obs # | UTM | Additional Observations | | | | | | | | | | | | | |
| C1 | n/a | 3 groups (11 caribou) were located in the central polygon excluded from the surrounding RRA-A but within the Chinchaga Range | | | | | | | | | | | | | |
| C2 | n/a | SCEK058 collared in Milligan, moved to Chinchaga RRA-A between May 16 and July 02, 2013 | | | | | | | | | | | | | |

¹ Chin-RRA – Chinchaga RRA-A

² Broad Ecosystem Unit (BEU): FE - Sedge Fen

APPENDIX III: SNAKE-SAHTANEH RANGE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/4
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: SNAKE-SAHTANEH

Obs Date: 20-22 November 2013

| Obs Day: 1/3 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|---------------------|-------------|------------|---------------------|------|-----------|--------------------------------|--------------|
| Start (November 20) | 09:30 (CLR) | Clear (1) | Calm (0) | -22 | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 20) | 12:45 (CLR) | Clear (1) | Light Air (1) | -26 | None | Days since 5 cm Snow: < 14 (3) | |
| Obs Day: 2/3 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
| Start (November 21) | 12:15 (TSE) | < 50 % (2) | Calm (0) | - 28 | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 21) | 12:45 (TSE) | < 50 % (2) | Light Air (1) | - 28 | None | Days since 5 cm Snow: < 14 (3) | |
| Obs Day: 3/3 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
| Start (November 22) | 09:50 (PRD) | > 50 % (3) | Light Air (1) | - 20 | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 22) | 13:05 (PRD) | > 50 % (3) | Moderate Breeze (4) | - 22 | Low cloud | Days since 5 cm Snow: < 14 (3) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needley

| Field ID | Core | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU | Comments |
|----------|------|------|------|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|-----|---|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK017 | CLK | I | No | 14 | 4 | 3 | 0 | 1 | 0 | 0 | 367 | 562516 | 6496459 | BB | |
| SCEK018 | CLK | V | No | 17 | 7 | 5 | 1 | 1 | 0 | 1 | 373 | 537003 | 6498435 | BB | |
| SCEK019 | OS | V | No | 39 | 7 | 3 | 3 | 1 | 0 | 3 | 474 | 579726 | 6522390 | BB | Found north of Clarke Core on Day 2 of SNS survey |
| SCEK020 | CLK | I | No | 13 | 5 | 5 | 0 | 0 | 0 | 0 | 366 | 562589 | 6494389 | BB | Grp includes SCEK025 |
| SCEK021 | CLK | V | NP | 15 | 6 | 4 | 2 | 0 | 0 | 2 | 369 | 559776 | 6497696 | BB | Confirmed no calf |
| SCEK024 | CLK | V | No | 8 | 3 | 3 | 0 | 0 | 0 | 0 | 355 | 571599 | 6501976 | BB | |
| SCEK025 | CLK | V | No | (13) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (366) | 562589 | 6494389 | BB | Grp includes SCEK020 |
| SCEK068 | CLK | V | Yes | 5 | 2 | 1 | 0 | 1 | 0 | 0 | 351 | 575344 | 6498466 | FE | |
| SCEK070 | CLK | V | No | 3 | 4 | 4 | 0 | 0 | 0 | 0 | 348 | 570773 | 6499114 | FE | |
| SCEK071 | WSK | G | No | 27 | 5 | 5 | 0 | 0 | 0 | 0 | 459 | 587867 | 6548795 | BB | |
| SCEK073 | WSK | V | Yes | 28 | 13 | 12 | 0 | 1 | 0 | 0 | 460 | 594708 | 6552215 | BB | Grp includes SCEK145 |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 2/4
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: SNAKE-SAHTANEH

Obs Date: 20-22 November 2013

| Field ID | Core | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU | Comments |
|----------|-------|------|------|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|-----|--|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK074 | NRK | V | NP | 29 | 3 | 3 | 0 | 0 | 0 | 0 | 461 | 598465 | 6567152 | BB | Confirmed no calf; grp includes SCEK104 |
| SCEK079 | TSE | I | No | 23 | 8 | 6 | 1 | 1 | 0 | 1 | 432 | 553927 | 6603016 | BB | |
| SCEK081 | TSE | V | No | 25 | 8 | 7 | 0 | 1 | 0 | 0 | 434 | 555750 | 6589894 | BB | |
| SCEK082 | TSE | V | No | 20 | 11 | 7 | 3 | 1 | 0 | 2 | 428 | 564527 | 6602052 | UV | On lease; grp includes SCEK083; caribou readily crossed under pipe |
| SCEK083 | TSE | V | No | (20) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (428) | 564527 | 6602052 | UV | On lease; grp includes SCEK082 |
| SCEK088 | ESK | V | No | 37 | 9 | 7 | 1 | 1 | 0 | 1 | 470 | 630065 | 6554422 | UV | On lease; grp includes SCEK102 |
| SCEK089 | ESK | V | NP | 33 | 6 | 5 | 0 | 1 | 0 | 0 | 465 | 633823 | 6570070 | BB | Confirmed no calf; grp includes SCEK103 |
| SCEK090 | NRK | V | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Signal heard (OK), not pregnant – did not attempt to find |
| SCEK091 | NRK | V | No | 30 | 11 | 8 | 1 | 2 | 0 | 1 | 462 | 604615 | 6573038 | BB | |
| SCEK092 | NRK | V | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Signal heard (OK), not pregnant – did not attempt to find |
| SCEK094 | OS | V | No | 38 | 4 | 4 | 0 | 0 | 0 | 0 | 472 | 615369 | 6558196 | BB | East of WSK; grp includes old VHF collar, purple/red left eartag |
| SCEK096 | CLK | V | No | 11 | 6 | 6 | 0 | 0 | 0 | 0 | 358 | 567096 | 6506650 | BB | Grp includes SCEK156 |
| SCEK097 | (NRK) | I | UNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Signal not heard |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 3/4
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: SNAKE-SAHTANEH

Obs Date: 20-22 November 2013

| Field ID | Core | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU | Comments |
|----------|------|------|------|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|-----|---|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK100 | ESK | I | NP | 35 | 4 | 3 | 1 | 0 | 0 | 0 | 467 | 639915 | 6562673 | BB | Confirmed no calf; grp includes SCEK110 |
| SCEK102 | ESK | V | No | (37) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (470) | 630065 | 6554422 | UV | On lease; grp includes SCEK088 |
| SCEK103 | ESK | V | No | (33) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (465) | 633823 | 6570070 | TR | On cutline; grp includes SCEK089 |
| SCEK104 | NRK | G | NP | (29) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (461) | 598465 | 6567152 | BB | Grp includes SCEK074 |
| SCEK105 | ESK | V | No | 36 | 13 | 12 | 1 | 0 | 0 | 1 | 468 | 632484 | 6559479 | BB | |
| SCEK110 | ESK | I | No | (35) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (467) | 639915 | 6562673 | BB | Grp includes SCEK100; |
| SCEK111 | NRK | G | No | 31 | 9 | 7 | 0 | 2 | 0 | 0 | 463 | 605573 | 6571876 | BB | |
| SCEK127 | TSE | V | Yes | 21 | 6 | 4 | 1 | 1 | 0 | 1 | 430 | 561423 | 6598107 | TR | On cutline through Sb forest |
| SCEK131 | TSE | V | No | 22 | 3 | 2 | 0 | 1 | 0 | 0 | 431 | 556442 | 6601230 | TR | On cutline through Sb forest |
| SCEK132 | TSE | V | No | 24 | 4 | 4 | 0 | 0 | 0 | 0 | 433 | 553653 | 6598908 | BB | |
| SCEK145 | WSK | V | NP | (28) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (460) | 594708 | 6552215 | BB | Grp includes SCEK073 |
| SCEK148 | CLK | V | No | 1 | 7 | 5 | 2 | 0 | 0 | 1 | 343 | 609495 | 6478538 | BB | 1 bull lost antlers |
| SCEK149 | CLK | V | No | 6 | 3 | 3 | 0 | 0 | 0 | 0 | 352 | 576478 | 6503727 | BB | |
| SCEK150 | CLK | V | No | 2 | 4 | 4 | 0 | 0 | 0 | 0 | 345 | 603202 | 6487910 | BB | |
| SCEK151 | CLK | V | Yes | 16 | 6 | 3 | 2 | 1 | 0 | 1 | 370 | 558842 | 6505537 | BB | |
| SCEK152 | CLK | V | No | 12 | 7 | 7 | 0 | 0 | 0 | 0 | 364 | 563676 | 6506555 | BB | |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 4/4
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: SNAKE-SAHTANEH

Obs Date: 20-22 November 2013

| Field ID | Core | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU | Comments |
|----------|-------------------|------|--|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|-----|--------------------------------|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK153 | CLK | V | Yes | 18 | 2 | 1 | 0 | 1 | 0 | 0 | 374 | 535566 | 6497034 | BB | |
| SCEK154 | CLK | V | No | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 350 | 569574 | 6498360 | BB | |
| SCEK156 | CLK | V | No | (11) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (358) | 567096 | 6506650 | BB | Grp includes SCEK096 |
| SCEK157 | CLK | V | No | 9 | 4 | 4 | 0 | 0 | 0 | 0 | 356 | 568952 | 6503367 | BB | |
| BC1037 | WSK | V | n/a | 26 | 12 | 6 | 4 | 2 | 0 | 4 | 458 | 583940 | 6549693 | UV | C1; on lease; confirmed bull |
| Uncoll#1 | CLK | n/a | n/a | 7 | 1 | 1 | 0 | 0 | 0 | 0 | 354 | 574678 | 6505740 | BB | |
| Uncoll#2 | CLK | n/a | n/a | 10 | 4 | 2 | 2 | 0 | 0 | 2 | 357 | 568931 | 6504145 | BB | Both bulls lost antlers |
| Uncoll#3 | TSE | n/a | n/a | 19 | 2 | 0 | 0 | 0 | 2 | 0 | 427 | 566091 | 6608347 | UV | On lease |
| Uncoll#4 | ESK | n/a | n/a | 32 | 6 | 0 | 6 | 0 | 0 | 4 | 464 | 634179 | 6569113 | UV | On lease; 4 bulls lost antlers |
| Uncoll#5 | ESK | n/a | n/a | 34 | 2 | 0 | 0 | 0 | 2 | 0 | 466 | 636937 | 6566431 | BB | |
| Obs # | UTM | | Additional Observations | | | | | | | | | | | | |
| C1 | 10.583940.6549693 | | Confirmed adult male erroneously collared as yearling on 27 March 2010; replace or remove collar in Winter 2014 capture season | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

¹ CLR – Clarke, PRD – Paradise, WSK - West Kotcho, ESK - East Kotcho, NRK - North Kotcho, TSE – Tsea, OS - Outside range or core

² NP – not pregnant, UNK - calf status undetermined

³ Broad Ecosystem Unit (BEU): BB - Black Spruce Bog, BP - Boreal White Spruce-Lodgepole Pine, FE - Sedge Fen, TR – Transmission Corridor, UV - Unvegetated

APPENDIX IV: CALENDAR RANGE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/2
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: CALENDAR

Obs Date: 21 November 2013

| Obs Day: 1/1 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|--------------|-------|-----------|---------------|------|--------|--------------------------------|--------------|
| Start | 08:40 | Clear (1) | Light Air (1) | -27 | None | 6-25 cm (3) | 76-100 % (6) |
| End | 12:05 | Clear (1) | Light Air (1) | -30 | None | Days since 5 cm Snow: < 14 (3) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needley

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|----------|-------------------|------|-------------------|-------|---------|----------------|-----|-----|-----|-----|-----|--------|---------|------------------|--------------------------------------|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK107 | CAL | V | NP | 15 | 2 | 2 | 0 | 0 | 0 | 0 | 411 | 627281 | 6638770 | BB | Confirmed no calf |
| SCEK108 | CAL | V | No | 16 | 6 | 4 | 2 | 0 | 0 | 2 | 412 | 627670 | 6636364 | UV | On lease |
| SCEK112 | CAL | V | Yes | 19 | 3 | 2 | 0 | 1 | 0 | 0 | 417 | 642485 | 6639331 | UV | On lease |
| SCEK113 | RRA-D | V | No | 4 | 9 | 5 | 3 | 1 | 0 | 2 | 400 | 656261 | 6641932 | BB | Both bulls lost antlers |
| SCEK114 | CAL | I | No | 12 | 2 | 2 | 0 | 0 | 0 | 0 | 408 | 631686 | 6647588 | BB | |
| SCEK116 | RRA-D | V | No | 3 | 7 | 5 | 2 | 0 | 0 | 0 | 399 | 660060 | 6645989 | BB | |
| SCEK119 | CAL | G | Yes | 21 | 2 | 1 | 0 | 1 | 0 | 0 | 419 | 613260 | 6644972 | BB | |
| SCEK120 | RRA-D | V | Yes | 17 | 8 | 4 | 3 | 1 | 0 | 3 | 413 | 641208 | 6644292 | BB | |
| SCEK122 | RRA-D | V | Yes | 5 | 11 | 7 | 3 | 1 | 0 | 2 | 401 | 639827 | 6650967 | BB | In NWT on previous telemetry flight |
| SCEK123 | RRA-D | V | No | 9 | 4 | 3 | 1 | 0 | 0 | 1 | 405 | 639648 | 6648451 | BB | |
| SCEK125 | CAL | V | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | In NWT; signal not heard |
| SCEK126 | RRA-C | I | No | 24 | 10 | 7 | 2 | 1 | 0 | 1 | 423 | 593998 | 6632138 | BB | |
| SCEK134 | CAL | V | Yes | 18 | 13 | 9 | 3 | 1 | 0 | 0 | 416 | 640587 | 6642964 | BB | |
| SCEK135 | CAL | G | No | 14 | 3 | 2 | 0 | 1 | 0 | 0 | 410 | 629212 | 6639618 | TR | On cutline |
| SCEK136 | CAL | I | No | 2 | 4 | 4 | 0 | 0 | 0 | 0 | 398 | 631970 | 6625858 | TR | On cutline |
| SCEK137 | CAL | V | No | 7 | 3 | 3 | 0 | 0 | 0 | 0 | 403 | 640002 | 6652342 | BB | Approx. 100 m from boundary of RRA-D |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 2/2
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: CALENDAR

Obs Date: 21 November 2013

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|----------|-------------------|------|---|-------|---------|----------------|---|-----|-----|----|-----|--------|---------|------------------|----------------------------------|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK138 | CAL | V | NP | 1 | 3 | 2 | 1 | 0 | 1 | 1 | 395 | 631066 | 6621373 | BB | Confirmed no calf |
| SCEK146 | CAL | I | No | 20 | 4 | 3 | 1 | 0 | 0 | 1 | 418 | 612429 | 6645736 | BB | |
| SCEK147 | CAL | G | Yes | 11 | 5 | 3 | 0 | 2 | 0 | 0 | 407 | 637297 | 6649123 | BB | |
| Uncoll#1 | CAL | n/a | n/a | 6 | 5 | 0 | 0 | 0 | 5 | 0 | 402 | 638621 | 6652515 | BB | |
| Uncoll#2 | RRA-D | n/a | n/a | 8 | 4 | 0 | 0 | 0 | 4 | 0 | 404 | 640756 | 6652059 | BB | |
| Uncoll#3 | RRA-D | n/a | n/a | 10 | 3 | 0 | 3 | 0 | 0 | 3 | 406 | 639577 | 6646562 | BB | 2 bulls bald/1 still had antlers |
| Uncoll#4 | CAL | n/a | n/a | 13 | 2 | 0 | 0 | 0 | 2 | 0 | 409 | 628993 | 6645154 | BB | |
| Uncoll#5 | CAL | n/a | n/a | 22 | 4 | 0 | 0 | 0 | 4 | 0 | 420 | 609405 | 6644382 | BB | |
| Uncoll#6 | CAL | n/a | n/a | 23 | 1 | 0 | 0 | 0 | 1 | 0 | 422 | 596169 | 6634807 | BB | |
| Obs # | UTM | | Additional Observations | | | | | | | | | | | | |
| C1 | n/a | | Abundant use of lakes (including tracks) throughout range | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

¹ CLN - Calendar Range excluding RRA-C and RRA-D (i.e., central portion), RRA-C – Calendar RRA (west), RRA-D – Calendar RRA (east), OS - Outside core

² NP – not pregnant

³ Broad Ecosystem Unit (BEU): BB - Black Spruce Bog, TR – Transmission Corridor, UV - Unvegetated

APPENDIX V: MAXHAMISH RANGE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/3
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: MAXHAMISH

Obs Date: 20-21 November 2013

| Obs Day: 1/2 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|---------------------|-------------|------------|---------------|--------|--------|-------------------------------|--------------|
| Start (November 20) | 13:50 (KWG) | Clear (1) | Light Air (1) | - 24 C | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 20) | 15:45 (KWG) | Clear (1) | Light Air (1) | - 24 C | None | Days since 5 cm Snow: < 3 (2) | |
| Obs Day: 2/2 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
| Start (November 21) | 13:15 (FRT) | < 50 % (2) | Light Air (1) | - 26 C | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 21) | 14:10 (FRT) | > 50 % (3) | Light Air (1) | - 26 C | None | Days since 5 cm Snow: < 3 (2) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needley

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|----------|-------------------|------|-------------------|-------|---------|----------------|-----|-----|-----|-----|-----|--------|---------|------------------|---|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK001 | CPB | V | No | 9 | 4 | 3 | 0 | 1 | 0 | 0 | 388 | 472268 | 6583448 | BB | Grp includes SCEK066 & BC1014 |
| SCEK002 | CPB | I | Yes | 8 | 5 | 4 | 0 | 1 | 0 | 0 | 387 | 470007 | 6583549 | BB | |
| SCEK003 | KWG | I | Yes | 5 | 4 | 3 | 0 | 1 | 0 | 0 | 382 | 527523 | 6573299 | BB | |
| SCEK004 | FRT | V | UNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Outlier – not relocated (C1) |
| SCEK005 | FRT | I | NP | 20 | 4 | 4 | 0 | 0 | 0 | 0 | 445 | 529849 | 6630673 | BB | Confirmed no calf; grp includes SCEK086 and SCEK128 |
| SCEK006 | KWG | V | No | 7 | 4 | 2 | 2 | 0 | 0 | 2 | 386 | 524851 | 6569961 | BB | Both bulls lost antlers |
| SCEK007 | CPB | I | UNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Heard (signal OK) but collar shut off (16:00 hrs) before visual could be obtained |
| SCEK062 | KWG | V | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Not pregnant; heard (OK) not located |
| SCEK063 | KWG | V | No | 2 | 3 | 3 | 0 | 0 | 0 | 0 | 379 | 538459 | 6566011 | BB | |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 2/3
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: MAXHAMISH

Obs Date: 20-21 November 2013

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|----------|-------------------|------|-------------------|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|------------------|---|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK064 | KWG | V | No | 3 | 11 | 8 | 3 | 0 | 0 | 2 | 380 | 526888 | 6567433 | BB | 2 large bulls still with antlers |
| SCEK066 | CPB | V | No | (9) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (388) | 472268 | 6583448 | BB | Grp includes SCEK001 & BC1014 |
| SCEK067 | CPB | V | No | 10 | 2 | 2 | 0 | 0 | 0 | 0 | 389 | 467745 | 6583784 | BB | |
| SCEK076 | CPB | V | Yes | 12 | 2 | 1 | 0 | 1 | 0 | 0 | 391 | 471713 | 6584767 | BB | |
| SCEK078 | FRT | V | UNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Outlier – not relocated (C1) |
| SCEK085 | FRT | G | No | 17 | 12 | 5 | 5 | 2 | 0 | 3 | 440 | 546293 | 6625951 | BL | Grp includes SCEK129 |
| SCEK086 | FRT | V | No | (20) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (445) | 529849 | 6630673 | BB | Grp includes SCEK005 and SCEK128 |
| SCEK087 | FRT | V | No | 16 | 13 | 10 | 2 | 1 | 0 | 2 | 438 | 547998 | 6623215 | BP | In mature Sw |
| SCEK128 | FRT | V | NP | (20) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (445) | 529849 | 6630673 | BB | Confirmed no calf; grp includes SCEK005 and SCEK086 |
| SCEK129 | FRT | V | No | (20) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (440) | 546293 | 6625951 | BL | Grp includes SCEK085 |
| SCEK130 | FRT | V | Yes | 15 | 3 | 1 | 1 | 1 | 0 | 1 | 437 | 545313 | 6626161 | TR | On cutline through Sb forest |
| SCEK163 | FRT | G | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Not pregnant; outlier - not relocated |
| SCEK164 | FRT | V | Yes | 19 | 8 | 6 | 0 | 2 | 0 | 0 | 444 | 528959 | 6630628 | BB | Grp includes BC1033 |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 3/3
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: MAXHAMISH

Obs Date: 20-21 November 2013

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ³ | Comments |
|----------|-------------------|------|--|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|------------------|--|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| BC1009 | KWG | V | Yes | 6 | 5 | 4 | 0 | 1 | 0 | 0 | 384 | 524933 | 6571749 | BB | Old wolf collar; hanging upside down on neck |
| BC1014 | CPB | V | Yes | (9) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | 388 | 472268 | 6583448 | BB | Grp includes SCEK001 & SCEK066 |
| BC1015 | CPB | V | No | 13 | 2 | 2 | 0 | 0 | 0 | 0 | 392 | 473493 | 6584113 | BB | |
| BC1024 | FRT | V | No | 18 | 2 | 1 | 1 | 0 | 0 | 0 | 443 | 532925 | 6638398 | BB | Purple/or red left ear-tag |
| BC1031 | FRT | V | Yes | 14 | 5 | 3 | 0 | 2 | 0 | 0 | 435 | 540596 | 6623962 | BB | |
| BC1033 | FRT | V | Yes | (19) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (444) | 528959 | 6630628 | BB | Grp includes SCEK164 |
| BC1066 | KWG | I | No | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 378 | 540315 | 6562911 | BB | |
| UNKN#1 | CPB | V | Yes | 11 | 2 | 1 | 0 | 1 | 0 | 0 | 390 | 472568 | 6584739 | BB | Old VHF (no signal), red right eartag |
| Uncoll#1 | KWG | n/a | n/a | 4 | 2 | 1 | 1 | 0 | 0 | 1 | 381 | 527746 | 6572470 | BB | |
| Obs # | UTM | | Additional Observations | | | | | | | | | | | | |
| C1 | n/a | | SCEK004 (pregnant), SCEK078 (pregnant), and SCEK 163 (not pregnant) outliers; not relocated due to distance from main search areas | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

¹ CPB - Capot-Blanc FRT - Fortune KWG - Kiwigana OS - Outside core or range

² NP – not pregnant, UNK - calf status undetermined

³ Broad Ecosystem Unit (BEU): BB - Black Spruce Bog, BP - Boreal White Spruce-Lodgepole Pine, BL- Black Spruce-Lodgepole Pine, TR – Transmission Corridor, UV - Unvegetated

APPENDIX VI: PROPHET RANGE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/2
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: PROPHET

Obs Date: 19-20 November 2013

| Obs Day: 1/2 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|---------------------|-------|------------|---------------|------|--------|-------------------------------|--------------|
| Start (November 19) | 11:15 | > 50 % (3) | Light Air (1) | -18 | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 19) | 12:05 | > 50 % (3) | Light Air (1) | -19 | None | Days since 5 cm Snow: < 3 (2) | |
| Obs Day: 1/2 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
| Start (November 20) | 08:50 | Clear (1) | Calm (0) | - 22 | None | 6-25 cm (3) | 76-100 % (6) |
| End (November 20) | 09:20 | Clear (1) | Calm (0) | - 22 | None | Days since 5 cm Snow: < 3 (2) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needley

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | UTM Zone 10 | | BEU ³ | Comments |
|----------|-------------------|------|-------------------|-------|---------|----------------|-------|-------|-------|-------|-------|-------------|---------|------------------|--|
| | | | | | | F | M | Juv | Uncl | mm | | East | North | | |
| SCEK043 | RRA-B | V | No | 2 | 12 | 10 | 2 | 0 | 0 | 2 | 339 | 546258 | 6462404 | BB | Grp includes SCEK049 and SCEK161; both bulls have lost antlers |
| SCEK044 | RRA-B | I | No | 3 | 4 | 3 | 1 | 0 | 0 | 0 | 340 | 543939 | 6462159 | BB | |
| SCEK045 | RRA-B | V | No | (3) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (340) | 543939 | 6462159 | BB | |
| SCEK049 | RRA-B | V | NP | (2) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (339) | 546258 | 6462404 | BB | Grp includes SCEK043 and SCEK161 |
| SCEK050 | n/a | I | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Heard (OK), not relocated (C2) |
| SCEK051 | OS | V | No | 1 | 3 | 3 | 0 | 0 | 0 | 0 | 333 | 564508 | 6457472 | BB | Outside range/RRA-B - between Prophet and Chin RRAs |
| SCEK143 | n/a | G | NP | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Heard (OK), not relocated (C2) |

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 2/2
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: PROPHET

Obs Date: 19-20 November 2013

| Field ID | Core ¹ | Type | Calf ² | Grp # | Grp Tot | Classification | | | | | WPT | UTM Zone 10 | | BEU ³ | Comments |
|----------|-------------------|------|--|-------|---------|----------------|-------|-------|-------|-------|-------|-------------|---------|------------------|----------------------------------|
| | | | | | | F | M | Juv | Uncl | mm | | East | North | | |
| SCEK144 | n/a | V | UNK | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Not heard |
| SCEK161 | RRA-B | I | No | (2) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (339) | 546258 | 6462404 | BB | Grp includes SCEK043 and SCEK049 |
| Obs # | UTM | | Additional Observations | | | | | | | | | | | | |
| C1 | n/a | | Survey aborted after Grp #1 due to mechanical malfunction; resumed following day (Nov 20) | | | | | | | | | | | | |
| C2 | n/a | | Caribou outside immediate search area, signal heard and confirmed active but not relocated; not pregnant in late winter 2013 | | | | | | | | | | | | |

¹ RRA-B – Prophet RRA, OS - Outside Range

² NP – not pregnant, UNK - calf status undetermined

³ Broad Ecosystem Unit (BEU): BB - Black Spruce Bog

APPENDIX VII: PARKER RANGE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/1
Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: PARKER

Obs Date: 22 November 2013

| Obs Day: 1/1 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|--------------|-------|---------------------|------------------|------|--------|-------------------------------|--------------|
| Start | 08:25 | < 50 % (2) | Light Breeze (2) | -23 | None | 6-25 cm (3) | 76-100 % (6) |
| End | 09:20 | Unbroken Clouds (4) | Light Breeze (2) | -23 | None | Days since 5 cm Snow: < 3 (2) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needle

| Field ID | Core ¹ | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ² | Comments |
|----------|-------------------|------|---|-------|---------|----------------|-------|-------|-------|-------|-------|--------|---------|------------------|----------------------------------|
| | | | | | | F | M | Juv | Unc | mm | | | | | |
| SCEK010 | PRK | V | No | 7 | 6 | 4 | 0 | 1 | 1 | 0 | 456 | 480527 | 6518047 | BB | |
| SCEK012 | PRK | V | No | 1 | 6 | 4 | 2 | 0 | 0 | 2 | 448 | 502270 | 6519219 | BB | Along Creek; 1 bull lost antlers |
| SCEK013 | PRK | V | Yes | 5 | 3 | 2 | 0 | 1 | 0 | 0 | 454 | 492505 | 6523913 | BB | |
| SCEK014 | PRK | I | No | 2 | 6 | 6 | 0 | 0 | 0 | 0 | 449 | 505446 | 6516555 | UV | On lease; grp includes BC1001 |
| SCEK015 | PRK | V | No | 3 | 3 | 2 | 1 | 0 | 0 | 0 | 452 | 490003 | 6523098 | BB | |
| SCEK016 | PRK | I | No | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 455 | 482992 | 6517467 | BB | |
| BC1001 | PRK | V | No | (2) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (dpl) | (449) | 505446 | 6516555 | UV | On lease; grp includes SCEK014 |
| BC1000 | n/a | V | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Old VHF collar; not heard |
| Uncoll#1 | PRK | n/a | n/a | 4 | 4 | 2 | 1 | 1 | 0 | 0 | 453 | 491741 | 6523832 | BB | |
| Obs # | UTM | | Additional Observations | | | | | | | | | | | | |
| C1 | 10.495511.6515171 | | Parker Pack wolves x 4 on elk kill on Muskwa River, including BW020 (Wpt 451) | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

¹ PRK - Parker Range/Core

² Broad Ecosystem Unit (BEU): BB - Black Spruce Bog, UV - Unvegetated

APPENDIX VIII: FORT NELSON CORE

Animal Observation Form – BOREAL CARIBOU FALL CALF SURVEY - NOVEMBER 2013
Page: 1/1

Project: SCEK Boreal Caribou

Survey: Fall Calf Survey

Study Area: FORT NELSON CORE

Obs Date: 20 November 2013

| Obs Day: 1/1 | Time | CC | Wind | Temp | Precip | Snow Depth | Snow Cover |
|--------------|-------|-----------|---------------|------|--------|--------------------------------|--------------|
| Start | 13:30 | Clear (1) | Light Air (1) | -24 | None | 6-25 cm (3) | 76-100 % (6) |
| End | 13:43 | Clear (1) | Light Air (1) | -24 | None | Days since 5 cm Snow: < 14 (3) | |

Navigator/Observer: Brad Culling

Recorder/Observer: Diane Culling

Pilot/Observer: Keith Lawrence

Observer: Eva Needley

| Field ID | Core ¹ | Type | Calf | Grp # | Grp Tot | Classification | | | | | WPT | East | North | BEU ² | Comments |
|----------|-------------------|-------------------------|------|-------|---------|----------------|---|-----|-----|----|-----|--------|---------|------------------|----------|
| SCEK009 | FN | I | No | 1 | 3 | F | M | Juv | Unc | mm | 377 | 512613 | 6549549 | BB | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Obs # | UTM | Additional Observations | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

¹ FN – Fort Nelson “area of interest”, official status not yet confirmed

² Broad Ecosystem Unit (BEU): BB - Black Spruce Bog

APPENDIX IX: INCIDENTAL MOOSE OBSERVATIONS

| Range | Species | Date | Zn | Easting | Northing | No. Observed | Comments |
|----------|---------|-----------|----|---------|----------|-----------------|---|
| CHIN | M-ALAL | 25-Nov-13 | 10 | 660926 | 6290673 | 5 | |
| CHIN | M-ALAL | 25-Nov-13 | 10 | 663097 | 6301841 | 1 | |
| CHIN | M-ALAL | 25-Nov-13 | 10 | 663947 | 6303198 | 1 | |
| CHIN | M-ALAL | 25-Nov-13 | 10 | 661971 | 6302705 | 1 | |
| CHIN | M-ALAL | 25-Nov-13 | 10 | 656631 | 6294704 | 1 | |
| CHIN | M-ALAL | 25-Nov-13 | 10 | 662847 | 6333976 | 2 | |
| CHIN | M-ALAL | 25-Nov-13 | 10 | 609973 | 6344812 | 1 | |
| CHIN-RRR | M-ALAL | 19-Nov-13 | 10 | 619058 | 6452164 | 2 | |
| CHIN-RRR | M-ALAL | 19-Nov-13 | 10 | 592987 | 6434350 | 1 | |
| SNS | M-ALAL | 20-Nov-13 | 10 | 588241 | 6494144 | 2 | |
| SNS | M-ALAL | 20-Nov-13 | 10 | 576450 | 6503787 | 1 | |
| SNS | M-ALAL | 20-Nov-13 | 10 | 581471 | 6512172 | 2 | |
| SNS | M-ALAL | 20-Nov-13 | 10 | 561601 | 6496167 | 5 | In 2 groups |
| SNS | M-ALAL | 20-Nov-13 | 10 | 547773 | 6505847 | 1 | |
| SNS | M-ALAL | 21-Nov-13 | 10 | 563288 | 6602041 | 2 | |
| SNS | M-ALAL | 22-Nov-13 | 10 | 532878 | 6527255 | 4 | |
| SNS | M-ALAL | 22-Nov-13 | 10 | 628185 | 6556950 | 1 | |
| SNS | M-ALAL | 22-Nov-13 | 10 | 617450 | 6557862 | 2 | |
| SNS | M-ALAL | 22-Nov-13 | 10 | 612289 | 6556307 | 1 | |
| SNS | M-ALAL | 22-Nov-13 | 10 | 562348 | 6514100 | 2 | Cow and calf 800 m from Snake Pack (9 wolves observed, including BW023 (148.425) and BW015 (148.430)) |
| CAL | M-ALAL | 21-Nov-13 | 10 | 606966 | 6602312 | 3 | |
| CAL | M-ALAL | 21-Nov-13 | 10 | 632264 | 6622708 | 2 | |
| CAL | M-ALAL | 21-Nov-13 | 10 | 632894 | 6624857 | 1 | |
| CAL | M-ALAL | 21-Nov-13 | 10 | 631949 | 6636852 | 8 | Couple of groups |
| CAL | M-ALAL | 21-Nov-13 | 10 | 608877 | 6644369 | 1 | |
| CAL | M-ALAL | 21-Nov-13 | 10 | 585600 | 6625013 | 4 | |
| CAL | M-ALAL | 21-Nov-13 | 10 | 568421 | 6611866 | 1 | |
| MAX | M-ALAL | 20-Nov-13 | 10 | 526406 | 6573540 | 5 | |
| MAX | M-ALAL | 20-Nov-13 | 10 | 511434 | 6538048 | 2 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 539529 | 6496819 | 2 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 543863 | 6487213 | 1 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 546160 | 6481962 | 2 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 549625 | 6472994 | 3 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 550903 | 6469646 | 2 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 577843 | 6475461 | 2 | |
| PPH | M-ALAL | 20-Nov-13 | 10 | 593864 | 6477448 | 2 | |
| PRK | M-ALAL | 22-Nov-13 | 10 | 496136 | 6514729 | 2 | |
| OS | M-ALAL | 20-Nov-13 | 10 | 520077 | 6530937 | 9 | In 3 groups |