

## **Preliminary Data Report – Prairie Creek Caribou Research**

Note to File: Mackenzie Valley Review Board

File No.: MVRB EA 1415-01, Canadian Zinc All-Season Road

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### Disclaimer –

*The information presented in this note to file is intended for display purposes only. Map figures are screen shot captures from Google Earth plots of the capture locations, and initial collar data displays from the Lotek Wireless website. This is preliminary data; the project has a planned three year time window. Analysis of results and more accurate maps will be included in future reports, and these will be made available to interested parties.*

### Overview -

The following report is a summary of preliminary data collected from a caribou collaring project initiated by Nahanni National Park Reserve. This work is referred to in the Parks Canada Agency review of Canadian Zinc Corporation's Developer's Assessment Report (DAR) and DAR Addendum, and the associated Information Requests (MVRB EA 1415-01). To make this information available to the Review Board, the proponent, and other parties participating in the review, Parks Canada wishes to submit this information to the public registry.

A total of 18 female caribou, Northern Mountain Population, were fitted with GPS satellite collars. The work was carried out under Wildlife Research Permit WL500295 (GNWT), WL500381 (GNWT) and NAH 2015-17937 (Parks Canada). The first capture session deployed six (6) collars in February 2015; the remaining 12 collars were deployed in December 2015. One caribou was killed by wolves in May 2015; the other 17 collars remain active as of February 2016.

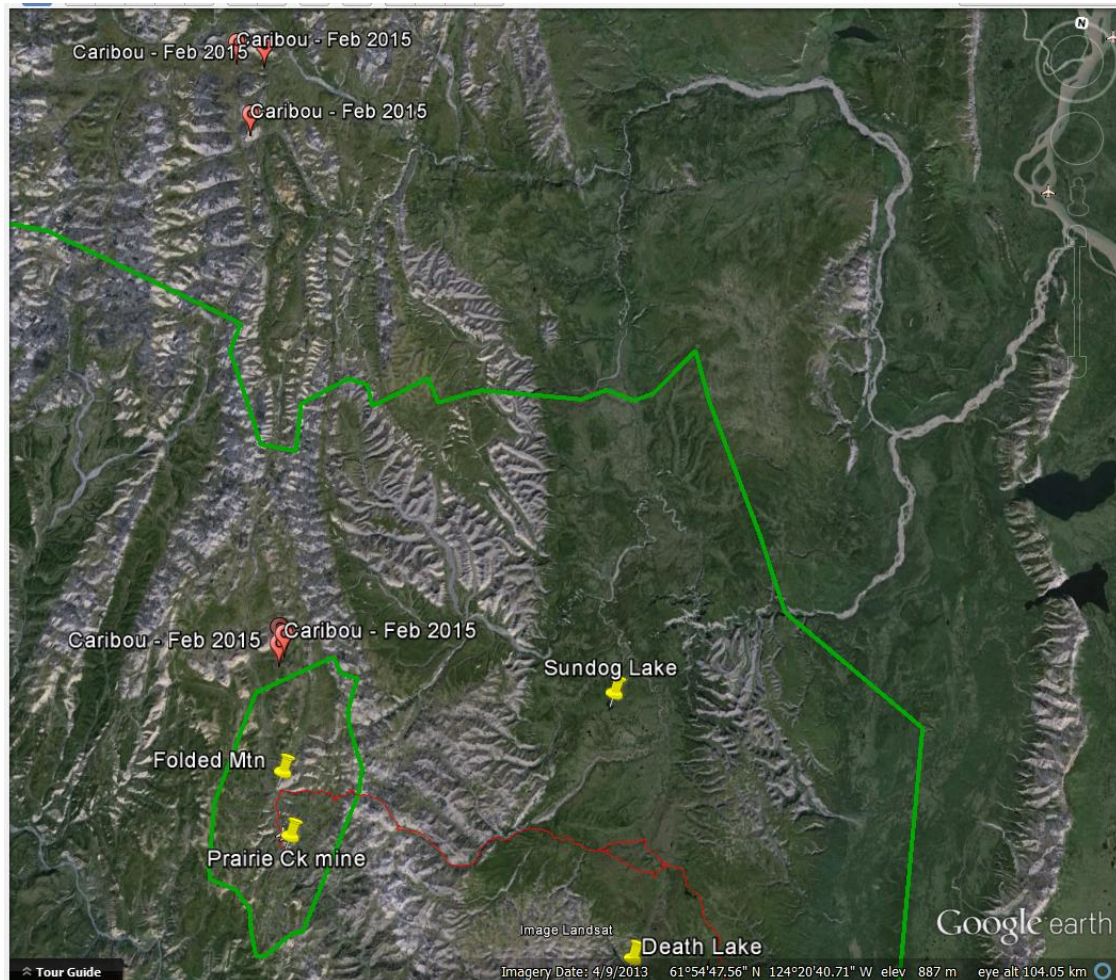
Observational data from the capture flights and subsequent transmissions of location data from the deployed collars has shown occurrence of caribou to the south, west, north and north-east of the proposed mine site and access road. Some individual caribou spent nearly the entire year within the Prairie Creek watershed, and travel through the project area, including crossing the proposed access road, was documented.

Some additional information has been gathered from park staff observations and remote wildlife cameras placed in the project area, documenting use of the project area by caribou over several months of the year.

### Collar Deployments –

During the period 21-24 February, 2015, six (6) GPS satellite collars (Lotek) were placed on female caribou. Three (3) of these were deployed in Nahanni National Park Reserve and within the Prairie Creek watershed, north of the mine site (Fig. 1).

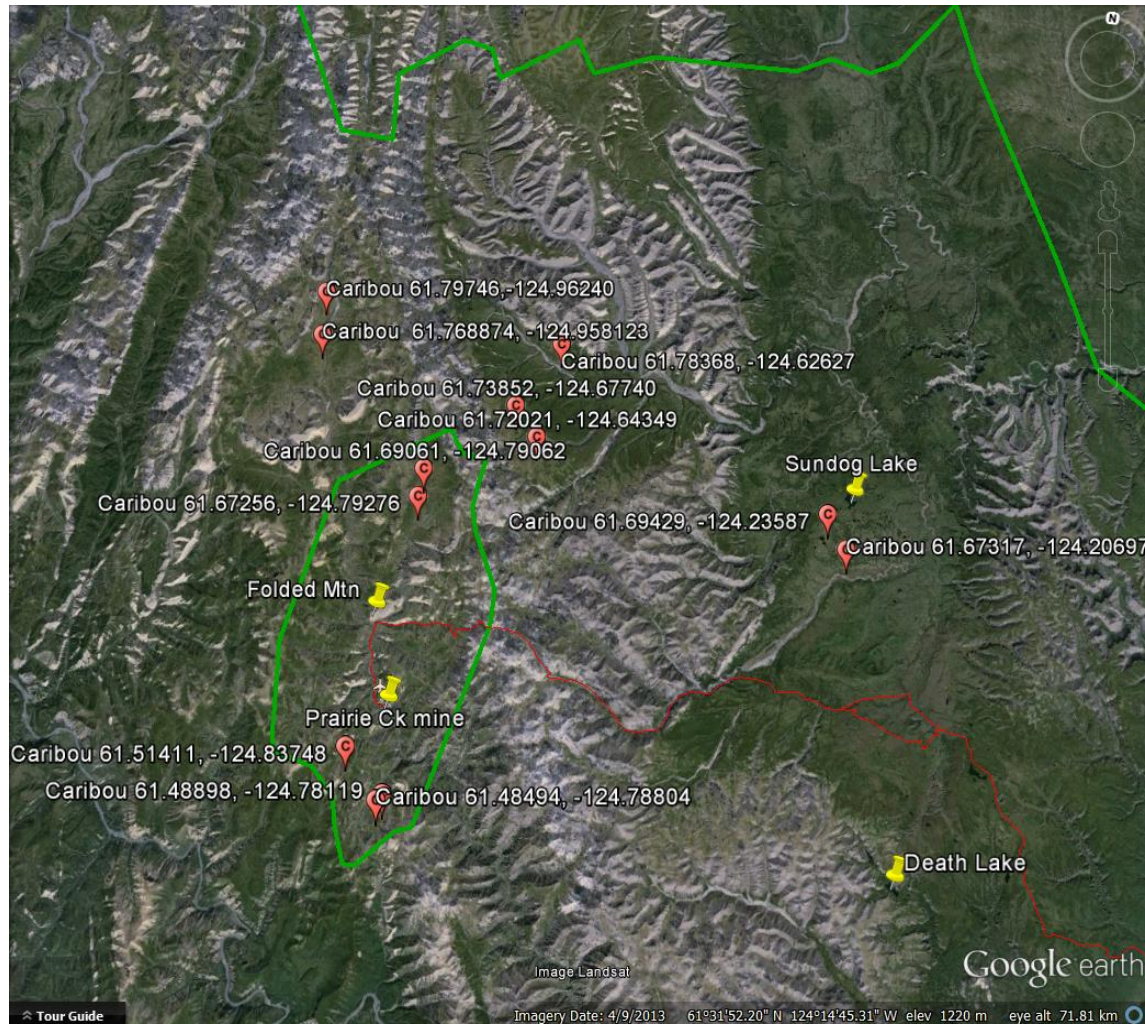
Local weather conditions and difficulty finding caribou in suitable capture locations led to an expansion of the search area. An additional three (3) collars were placed on caribou found north of the park boundary, in the North Nahanni River watershed (Fig. 1). This area appears to have a natural migration corridor linking the two watersheds, and the relationship between caribou in the Prairie Creek area and the Redstone herd to the north and west is of interest.



*Figure 1. Capture locations of Prairie Creek Caribou, February 2015; the first six (6) animals were collared at the sites marked by red pins. The red line shows the approximate proposed alignment for the Prairie Creek access road; green lines are the Nahanni National Park Reserve boundary.*



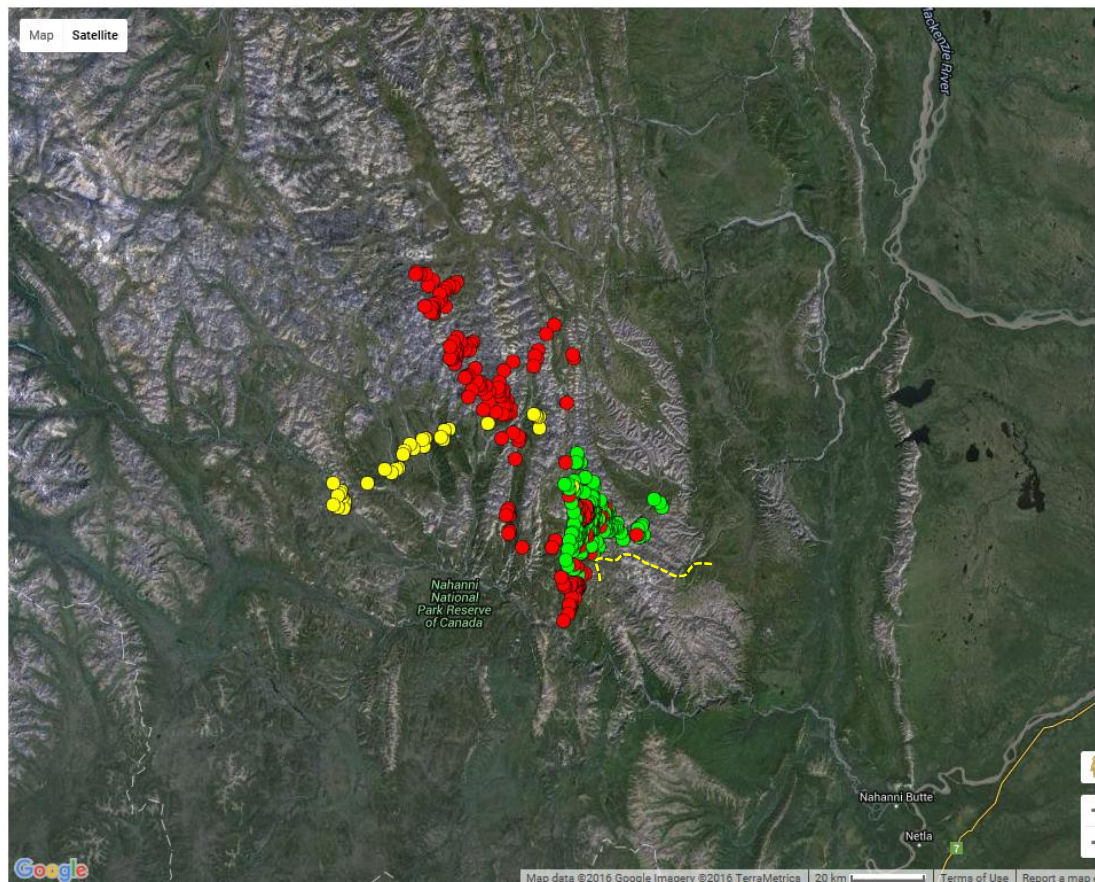
A subsequent collaring effort from 15-17 December, 2015, deployed an additional 12 collars on female caribou in the Prairie Creek, Fast Creek (tributary of Prairie Creek), Sundog Creek and upper Ram River watersheds (Fig. 2).



*Figure 2. Capture locations of Prairie Creek Caribou, December 2015; these 12 animals were collared at the sites marked by red pins. The red line shows the approximate proposed alignment for the Prairie Creek access road; green lines are the Nahanni National Park Reserve boundary.*

#### Preliminary Movement Data –

These caribou capture locations, and subsequent movement data from the collared animals (Fig. 3 & 4), indicate there is caribou use of the area north, south and north-east of the proposed mine and access road in winter. Figure 3 also shows that some caribou may spend the entire year within Prairie Creek watershed, in the vicinity of the project area.

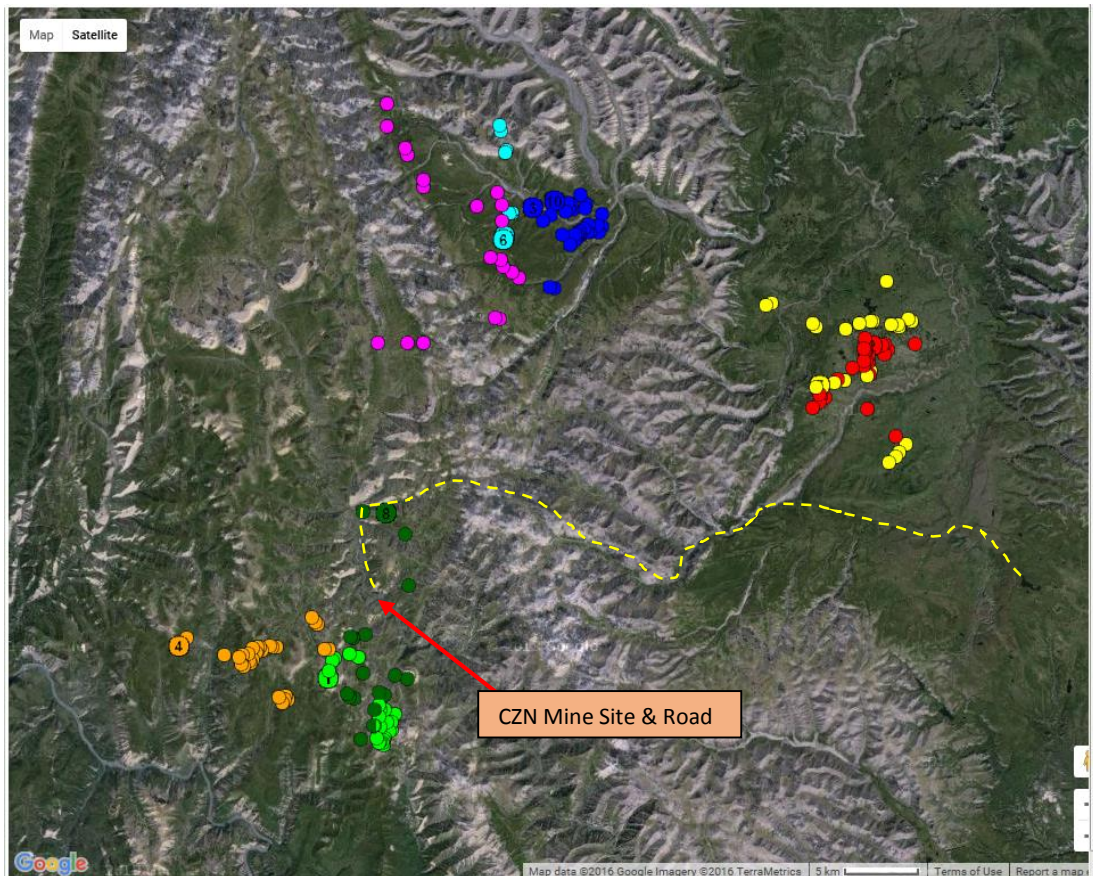


*Figure 3. Movements of three female caribou, February 2015 - January 2016. One caribou (ID 37697; green dots) remained within the Prairie Creek watershed for almost the entire year. The yellow dashed line shows the approximate proposed alignment for the Prairie Creek access road, ~km 0 – 40; park boundary is not shown.*

Two other collared caribou have remained east of Tundra Ridge, in the Sundog Lake area since collaring (Fig 4; yellow & red dots). This is another area of potential interaction with the proposed road, particularly in the Polje Bypass area. These relatively sedentary animals with small home ranges may be more susceptible to disturbance from road construction and use.

In contrast to the above-noted animals that appear to remain very local to the project area, there were other collared animals which travelled longer distances. One female (ID 37685; red dots; Fig 5) was captured in the North Nahanni River drainage north of Prairie Creek in February 2015, and migrated over 250 km straight-line distance to a presumed calving location near MacMillan Pass on the Yukon border. Another female made a similar trip north-west to the O'Grady Lake area, headwaters of the Keele River (ID 37683; yellow dots; Fig 5). Both of these females returned to the South Nahanni River watershed, west and north-west of Prairie Creek, for the fall & winter of 2015-2016.





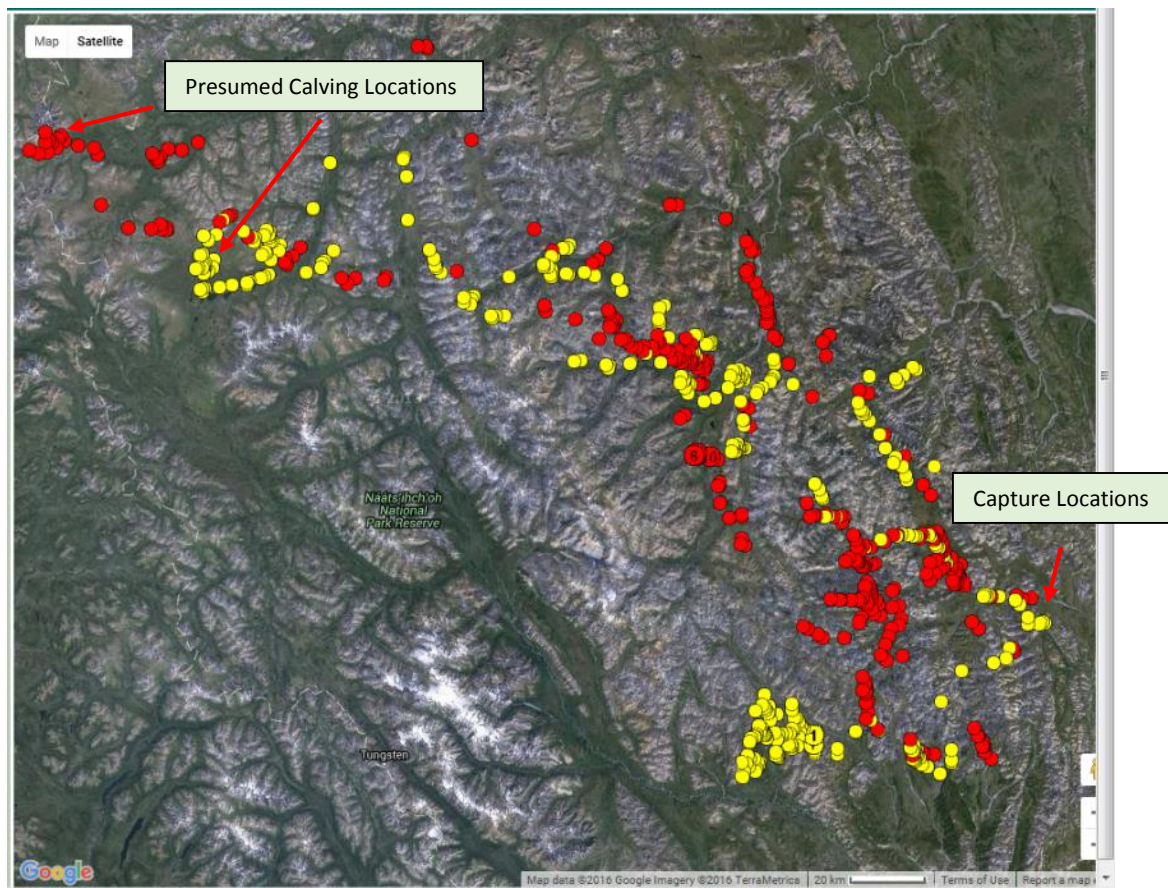
*Figure 4. Movements of eight female caribou, December 2015 – January 2016. One caribou (ID 37698; dark green dots) travelled past the mine site and subsequently across the proposed access road. The yellow dotted line shows the approximate proposed alignment for the Prairie Creek access road (~km 0 – 60) and arrow shows location of mine site; park boundary is not shown.*

#### Additional Data Sources –

Observations of caribou and sign (tracks & cratering) from the capture operation and scouting flights showed additional areas of caribou use, including the mountain range due west of the Prairie Creek mine site. One particularly noteworthy sighting was during the collaring operations in the Fast Creek valley on 16 December 2015, where an estimated 100-200 head of caribou were seen (A. Steedman, pers. comm). Fast Creek is a tributary of Prairie Creek, entering from the north-east, and the headwater valley where the observation was made is only about 10 km long x 3 km wide. This is a significant concentration of caribou, and the site is only about 8 km north of the proposed road alignment.

Interestingly, there are other sources to back up this type of occurrence. In conversation with Mike Suitor (former NNPR staff), Mr. Jim Lancaster of Nahanni Butte Outfitters once mentioned that they would see significant numbers of caribou moving through the upper Prairie Creek watershed at certain times in the fall (M. Suitor, pers. comm).





*Figure 5. Movements of two female caribou, February 2015 – January 2016. Both females were captured in the North Nahanni River drainage north of Prairie Creek, and travelled extensive distances northwest, returning close to the capture sites the following winter.*

Other information on caribou use of the project area comes from remote wildlife cameras. In summer 2012, three cameras were placed by Nahanni National Park Reserve staff at approximately km 17, km 23, and km 26 of the proposed road alignment within the park. Screening of images from these cameras showed caribou right on the road alignment in several months of the year (June, July, August and September), including bulls (Fig. 6) and females with calves.



*Figure 6. Remote camera image of a bull caribou on the proposed Prairie Creek road alignment, km 23, on 28 July 2012.*