



Chillborne
Fort St. John
250.787.5518

April 2007 Wildlife Reconnaissance Prairie Creek Mine Winter Road and Alternate



**Prepared For
Canadian Zinc Corporation
By
Brian Churchill, R.P.Bio.
Chillborne Environmental Fort St. John.
May 2007**

Table of Contents

EXECUTIVE SUMMARY	4
1 INTRODUCTION	5
2 STUDY AREA AND METHODS	6
2.1 METHODS	7
3 RESULTS.....	8
3.1 ANIMALS SEEN	8
<i>Total Animals seen were.....</i>	<i>10</i>
3.2 UNGULATE TRACKS.....	10
3.2.1 MOOSE	10
3.2.2 Caribou	11
3.2.3 Other Tracks.....	11
4 DISCUSSION.....	12
5 RECOMMENDATIONS	12

Acknowledgements

This work was undertaken under direction of David Harpley, Canadian Zinc Corporation Suite 1710, 650 West Georgia St. Vancouver, B.C. V6B 4N9. Chris Schmidt, B.Sc., R.P.Bio., provided professional background. Field work was assisted by Ed Cholo of the Deh Cho from Liidli Koe (Fort Simpson) and Brant Churchill, B.Sc. Project coordination and methods were the responsibility of the author. Special thanks to Colin Munro of Great Slave Helicopters our pilot and coordinator.

Brian Churchill, R.P.Bio. (# 128 British Columbia)

Executive Summary

In late March of 2007, Chillborne was contacted to do a late winter wildlife reconnaissance aerial survey of the historic (pre 1982) winter access road to Canadian Zinc Corporation's Prairie Creek Mine. Chillborne was also asked to extend the survey to include a potential alternate route. Late March and early April are at the very tail end of the winter season, but seasonal snowmelt had not commenced and a survey was planned and conducted on April 7, 2007.

The method was to fly along approximately ¼ to ½ a kilometer to the side of the plotted access routes, with adjustments for visibility and flying conditions, at approximately 100m above ground. Three observers and the pilot all searched for visible animals or tracks and waypoints and records were made for each "occurrence". Each "occurrence" for animals was sighting of animal or bird, each "occurrence" for tracks was a track or a series of tracks that appeared to be associated with each other in a 100 to 200 meter area below our flight path. Weather in the area, which is about halfway between Fort Simpson and Fort Liard, had remained cold throughout March and highs stayed well below zero Celsius until April 4. High for April 7, our flight day, was +10 °C in the afternoon after freezing overnight temperatures. Flight times were 9AM to 4PM. The day was partially overcast with bright light conditions for the entire flight with moderate winds. Snowfall had been frequent during March with snowfalls recorded at Fort Simpson airport on March 3,5,6,7,8,9,10,11,15,16,17,18,19 and 20th. Snow depths at Lindberg Landing (Blackstone) were measured at 65 cm on April 7, 2007 prior to our flight.

We identified 124 locations of animals or animal track "occurrences" along the 237 kilometers of winter access route (182km) and alternate route (55km). While observations of animals were modest (Moose 8, Caribou 5, Sheep 2, Ptarmigan 4), the clumping of tracks indicates general areas of use during late winter snow conditions. Our results are presented here in map form but electronic (shape files) are available on request.

Actual observations of moose and caribou are thus conservative. This would also likely apply to bison. The fairly long period since snowfall was offset by the windy conditions that had eliminated most old tracks in the light fluffy snow. The distribution and number of occurrences of tracks appeared to provide a reasonable distribution of animals at this time of year. As this survey was conducted without a habitat mapping base not much can be discussed about habitat utilization. However the tracks seemed to be clumped in some forest types and appeared to indicate predictable patterns to the observers.

Recommendations:

1. A basic habitat map would aid in the interpretation of the distribution of wildlife along the route. Of particular interest would be identifying preferred habitats used by caribou in the winter where you might expect crossings or high use.
2. Overall winter distribution would be documented with 2-3 surveys spread out over the winter.
3. We noted there were areas where sheep could have potentially significant crossing areas in the Grainger Gap and Funeral Creek areas. These potential crossings would require investigation of sheep use to design mitigation strategies.

1 INTRODUCTION

In late March of 2007, Chillborne was contacted to do a late winter wildlife reconnaissance aerial survey of the historic (pre 1982) winter access road to Canadian Zinc Corporation's Prairie Creek Mine. Chillborne was also asked to extend the survey to include a potential alternate route. Late March and early April are at the very tail end of the winter season, but seasonal snowmelt had not commenced and a survey was planned and conducted on April 7, 2007.

"The Prairie Creek Mine is located in the South Nahanni Mining District of the Northwest Territories near the Yukon border, at 61°33' N latitude and 124°48' W longitude. The nearest communities include Nahanni Butte 90 kilometers southeast, Fort Liard 170 kilometers south, Fort Simpson 185 kilometers east, and Yellowknife 550 kilometers east, all in the Northwest Territories. The town of Fort Nelson, British Columbia, is located 340 kilometers south and is the nearest point of access to B.C. Rail.

The minesite is located on the east side of Prairie Creek, approximately 48 kilometers upstream from its confluence with the South Nahanni River. The Nahanni National Park Reserve boundary lies 32 kilometers downstream of the mine. Year round access is presently by charter aircraft, generally from Fort Nelson or Fort Simpson, which are serviced by scheduled commercial airlines. The mine is accessed by a 1,000 meter gravel airstrip that is located on the flood plain of Prairie Creek, approximately 1 kilometer north of the site. Previous access in the 1980's was via a 170 kilometer long winter road from the Blackstone crossing on the Liard Highway. This road was utilized to transport the bulk of the building materials and equipment into the site and is still in reasonable condition and capable of early re-activation

The mine and mill were originally developed by Cadillac Explorations Ltd. ("Cadillac") on a 2 million ton reserve, aimed at the production of a copper/lead/silver concentrate, as part of the attempt by the Hunt brothers of Texas to control the silver market. In 1982, Cadillac went into receivership, leaving a \$100 million infrastructure in today's dollars, including 5 kilometers of underground development on three levels, a 200-man camp and a 1,000 ton per day mill, which has never been used for production. In August 1991, San Andreas Resources Corporation (subsequently re-named Canadian Zinc Corporation in 1999) entered into an agreement to purchase the mine and worked to extend the known resource. The Prairie Creek Mine is located on land claimed by the Nahanni Butte Dene Band (the "Nahanni") of the Deh Cho First Nations ("DCFN") as their traditional territory. The DCFN are engaged in ongoing negotiations with the Government of Canada and the Government of the Northwest Territories in what is referred to as the Deh Cho Process. The negotiations are currently at the Interim Measures and Agreement In Principle stage. The outcome of the negotiations is expected to be a Final Agreement that will provide, amongst other things, for the implementation of a Deh Cho form of government to oversee the delivery of programs and services to residents within the DCFN territory. It is expected that the negotiations will take some five to seven years to complete. In 1996, the Company and the Nahanni successfully negotiated and executed the Prairie Creek Development Cooperation Agreement (the "Agreement"). The overall intent of the Agreement was to establish and maintain a positive and

cooperative working relationship between the Company and Nahanni in respect of the further development and operation of the mine”

(Canadian Zinc Scoping Study <http://www.canadianzinc.com/docs/ScopingStudy-SEDARversion.pdf>)

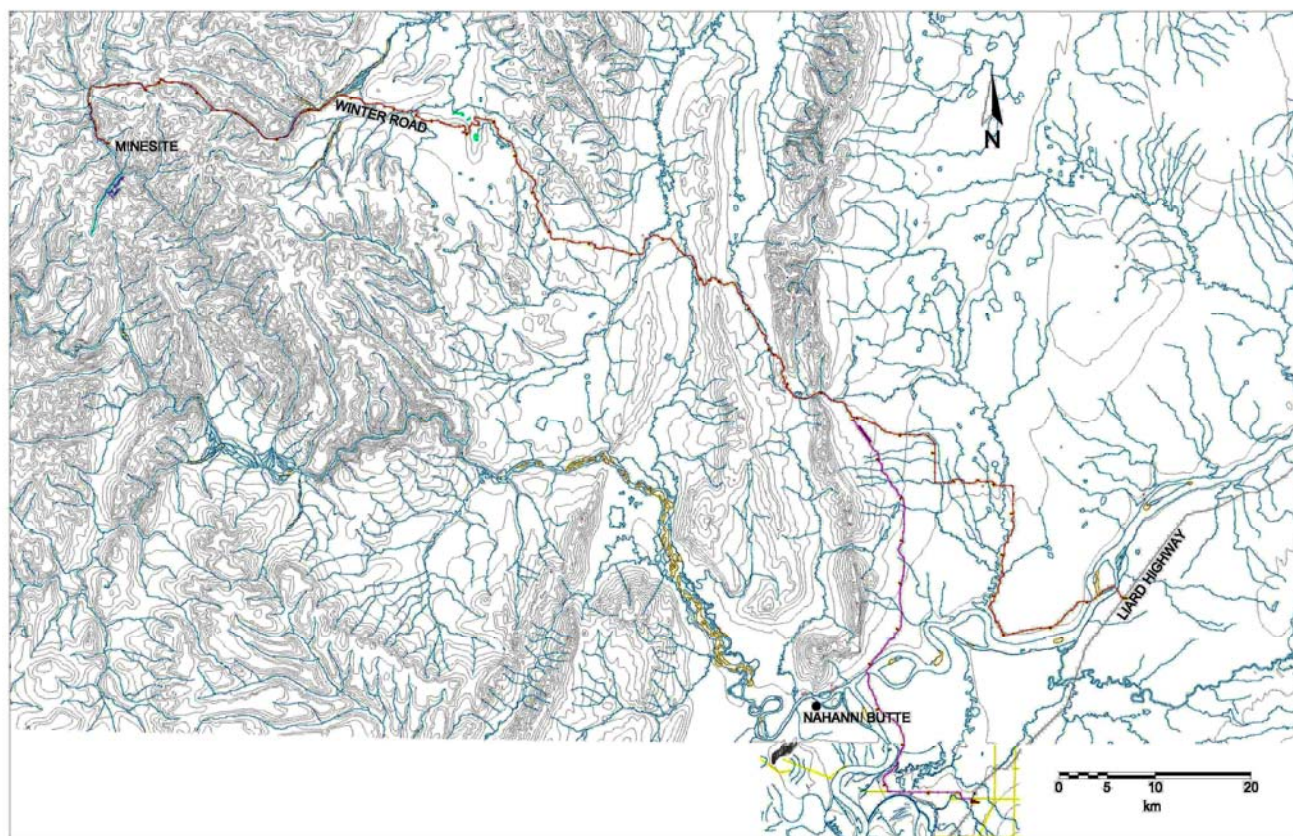
2 STUDY AREA AND METHODS

The 170 km winter access route starts at Blackstone Landing on the Liard River (Lat +6776598.029 Long +507918.0076) and extends north and west along the foothills and through mountain passes to Prairie Creek in the Headless Mountain Range.



The route initially traverses relatively flat terrain (aprox. 250m elevation) gradually rising until it crosses through Grainger Gap which bisects the Nahanni Mountain Range (approx. 600m elevation). The winter access route crosses Blue Fish and Fishtrap Creek valleys (aprox elevation 350 m) and then follows the ridge south of the Tetcela River over a pass (aprox 1000m elevation) into the upper Ram River (Sunset Creek) basin (approx 950m elevation). The winter route then rises through a pass to an elevation of approximately 1500m and down into upper Praire Creek and the minesite at approximately 950m elevation. At this latitude forest cover does not extend much above approximately 950m elevation.

The 55.1 km Alternate route connects the existing winter access at Grainger Gap with the Nahanni Butte winter road by skirting along the eastern and southern edge of the Nahanni Range. This is an alternate to the initial 55.5 km of the existing winter access.



2.1 METHODS

A late winter reconnaissance aerial survey is primarily designed to identify large ungulates and evidence of their use of the area through track counts. Some indications of use of the area by furbearers and birds often can be seen through track sightings and direct observations. Chillborne was commissioned to undertake the survey very late in March 2007 and had little opportunity to adjust the timing to optimize snow or sighting conditions.

The method was to fly along approximately $\frac{1}{4}$ to $\frac{1}{2}$ a kilometer to the side of the plotted access routes, with adjustments for visibility and flying conditions, at approximately 100m above ground. Three observers and the pilot all searched for visible animals or tracks and waypoints and records were made for each "occurrence". Each "occurrence" for animals was sighting of animal or bird, each "occurrence" for tracks was a track or a series of tracks that appeared to be associated with each other in a 100 to 200 meter area below our flight path. Each "occurrence" of tracks was rated as F for few, M for moderate or P for plentiful and also adjusted for whether the animals making the tracks normally were in groups or singles. On the return flight we were cautious not to record "occurrences" that were

recorded already on the other side of the access route; track counts therefore essentially recorded only one crossing of the winter access route. Helicopter used for this flight was a Bell Longranger.

The first portion of the flight was to the north east of the winter access route from Blackstone landing to the mine site. After a break at the mine site, the south west side of the winter access route was flown until the approximate location of the joining of the alternate route. The south west side of the alternate route was then flown until it joined the Nahanni Butte winter road then we reversed and flew the north east side back to the joining with the winter access route. We then followed the south west side of the winter access route back to the Liard River crossing at Lindberg Landing just west of Blackstone.

While we attempted to space our distance from the plotted access routes, flying conditions and circling to confirm sightings increased our flight distances and made our distance from the plotted access routes variable. We felt however that this method gave us a reasonable opportunity to observe animals in the immediate vicinity of the access route and to provide an “index” of use in the immediate vicinity of the access routes. Our observers had moderate to high experience at identifying the species making the tracks and the pilot was very helpful in locating tracks. The accuracy identification of species making tracks was assessed to be high for ungulates, moderate for carnivores and high for varying hare, given the field conditions. Ed Cholo, as an experienced traditional trapper, was a strong asset to the team for carnivore track identification.

Weather in the area, which is about halfway between Fort Simpson and Fort Liard, had remained cold throughout March and highs stayed well below zero Celsius until April 4 (Fort Simpson airport records). On April 4 the high reached about 2 ° C in Fort Simpson and -1 ° C in Fort Liard.

Temperatures rose to highs of 3 ° C on April 5 and 4 ° C on April 6. High for April 7, our flight day, was +10 ° C in the afternoon after freezing overnight temperatures. Flight times were 9AM to 4PM. Our stop for lunch confirmed a +10 ° C temperature at 1PM at Prairie Creek Mine. The day was partially overcast with bright light conditions for the entire flight with moderate winds.

Snowfall had been frequent during March with snowfalls recorded at Fort Simpson airport on March 3,5,6,7,8,9,10,11,15,16,17,18,19 and 20th. Snow depths at Lindberg Landing (Blackstone) were measured at 65 cm on April 7, 2007 prior to our flight. Although it had been 18 days since the last snowfall, windy conditions and snow drifting indicated that for the large part we were only able to observe tracks from approximately the previous three – four days. Tracks that appeared fresh in the morning could be seen to have already been partially obscured by the afternoon, with only moderate winds on the day of our flight.

3 RESULTS

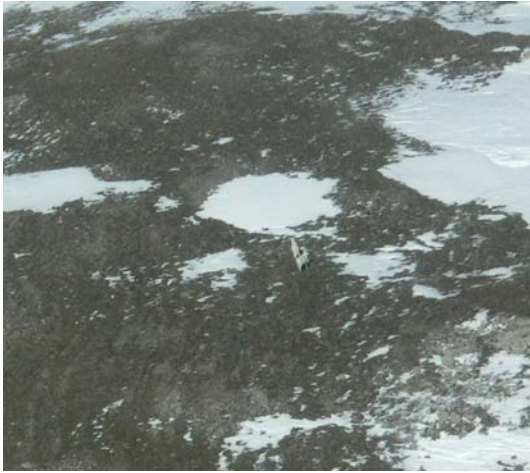
We identified 124 locations of animals or animal track “occurrences” along the 237 kilometers of winter access route (182km) and alternate route (55km). While observations of animals were modest, the clumping of tracks indicates general areas of use during late winter snow conditions. Our results are presented here in map form but electronic (shape files) are available on request.

3.1 Animals Seen

Animals seen included six moose, five caribou, two sheep and four ptarmigan. With warm temperatures and moderate winds both caribou and moose appeared to be using shaded forest and were

Wildlife Alternate -Prairie Creek Mine Winter Road and Alternate NWT

difficult to see with out intensive searching. High winds and receding snow pack obscured all tracks on sheep winter areas. In fact we were unable to find track evidence of the two sheep we did see, so we expect we had a poor accuracy for sheep observations.



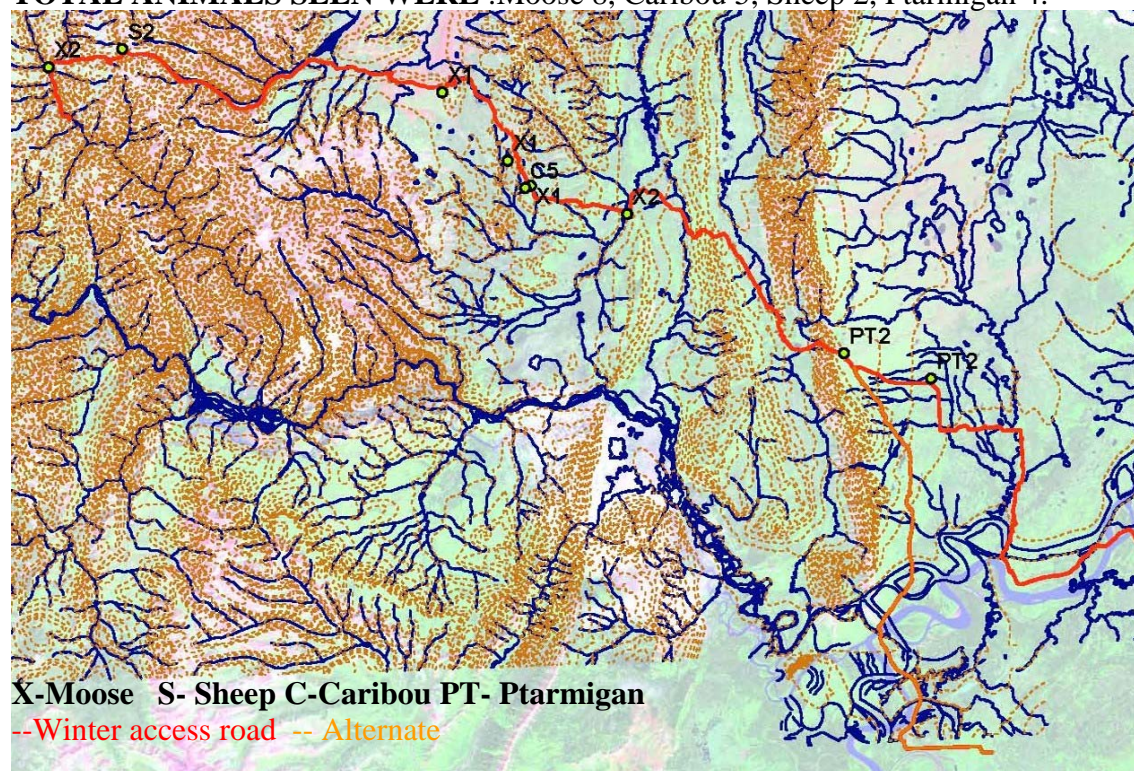
Moose were sticking to heavy cover and the numbers of animals we saw was very few compared to the track evidence.





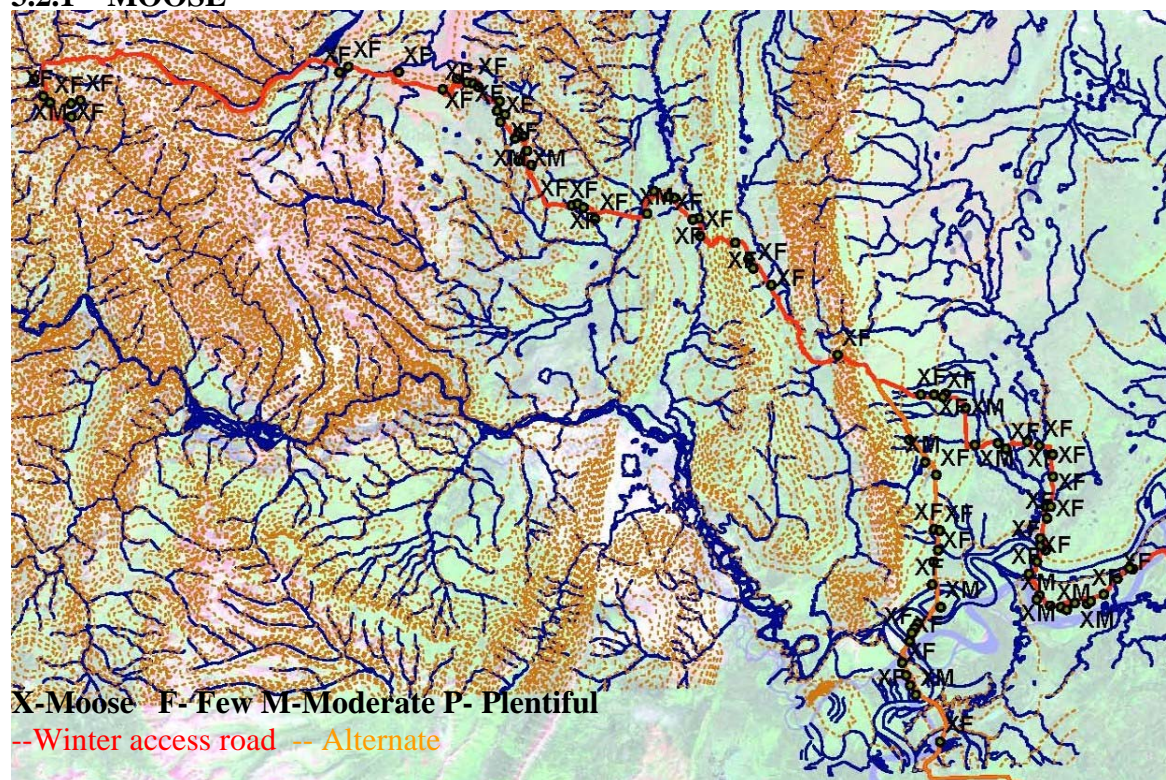
Wildlife Alternate -Prairie Creek Mine Winter Road and Alternate NWT

TOTAL ANIMALS SEEN WERE : Moose 8, Caribou 5, Sheep 2, Ptarmigan 4.



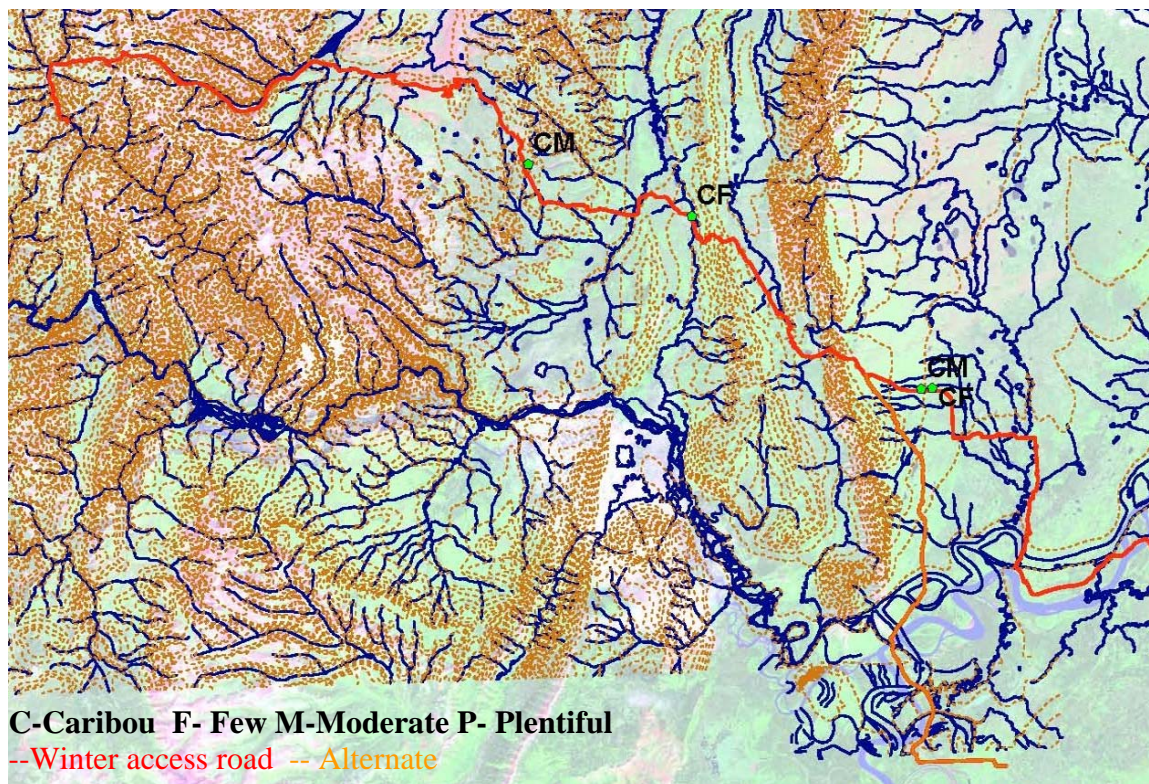
3.2 UNGULATE TRACKS

3.2.1 MOOSE

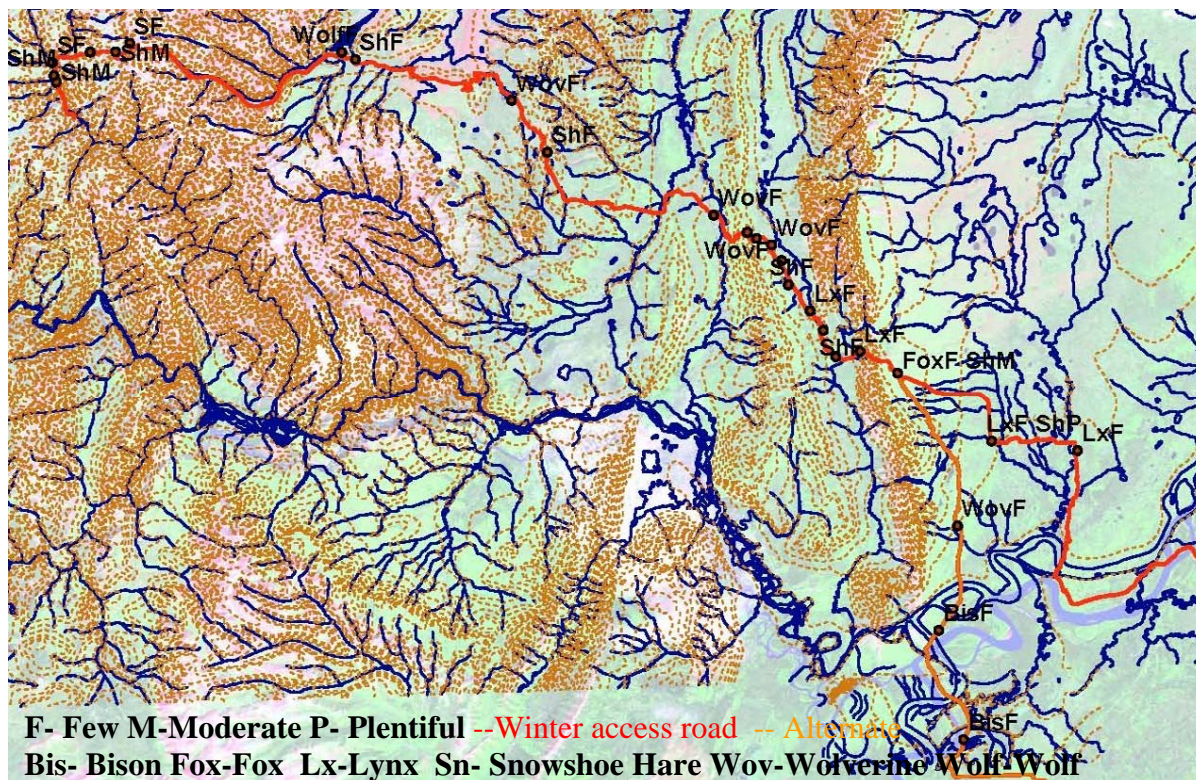




3.2.2 CARIBOU



3.2.3 OTHER TRACKS



4 DISCUSSION

This reconnaissance inventory occurred very late in the 2006-2007 winter. However this winter had above normal snow pack and snowmelt had only just begun the day before the survey. In my experience the track observations could be typical of a late winter survey. Due to the rapidly warming weather the actual observation of moose and caribou was inhibited by their clear tendency to seek out forest cover on a bright warm day. Actual observations of moose and caribou are thus conservative. This would also likely apply to bison.

The fairly long period since snowfall was offset by the windy conditions that had eliminated most old tracks in the light fluffy snow. The distribution and number of occurrences of tracks appeared to provide a reasonable distribution of animals at this time of year. As this survey was conducted without a habitat mapping base not much can be discussed about habitat utilization, although the tracks seemed to be clumped in some forest types and appeared to start to predictable to the observers.

The survey included a higher elevation loop in sheep country, but was hampered by quite high winds. The warming trend was also initiating avalanches and three were observed during our flight.

With the exception of the high mountain pass wildlife tracks were observed along the route and mitigation plans for managing impacts should be in place if the route is to be reutilized.

5 RECOMMENDATIONS

1. A basic habitat map would aid in the interpretation of the distribution of wildlife along the route. Of particular interest would be identifying preferred habitats used by caribou in the winter where you might expect crossings or high use.
2. Overall winter distribution would be documented with 2-3 surveys spread out over the winter.
3. We noted there were areas where sheep could have potentially significant crossing areas in the Grainger Gap and Funeral Creek areas. These potential crossings would require investigation of sheep use to design mitigation strategies.