

**Snowmobile-Caribou Surveys Within
The Quesnel Highlands, Cariboo Region**



Photo by Geoff Price

By

Geoff Price

**Environmental Stewardship Division
Ecosystems Section
Ministry of Water, Land and Air Protection
Cariboo Region**

December 8, 2003

Summary

Mountain Caribou have been identified as threatened by COSEWIC and as red-listed (endangered) in British Columbia and have been the centre of conservation concern for a number of years. There are concerns about the potential impact of backcountry activities on caribou winter range. Backcountry recreation activities, snowmobiling and heli-skiing in particular, are considered to be a major conservation concern due to the potential for displacement of caribou from their winter habitat.

To address this issue, a voluntary two year agreement was entered into with the local snowmobile clubs from Quesnel, 100 Mile House and Williams Lake, the Ministry of Sustainable Resource Management and the Ministry of Water, Land and Air Protection.

This report documents the survey results from Year 1 of a two year study from 21 fixed-wing flights undertaken from between December 20, 2002 and April 21, 2003. The survey results show that a total of 4 snowmobiles (5 snowmobiles were seen in Bill Miner Creek which is an area under review) were sighted in closure zones during this period with 112 snowmobiles seen in caution zones. Snowmobile tracks were also seen in closure zones but no snowmobiles were seen indicating that there was use but the number of machines was unknown.

Introduction

The Ministries of Water, Land and Air Protection (MWLAP) and Sustainable Resource Management (MSRM) and the Quesnel Highlands Management Society (QHMS) have entered into a two year “voluntary agreement” to address potential impacts to caribou and caribou habitat by snowmobiles in the mountain caribou range in the Cariboo Region. A monitoring plan was included in this “agreement” to collect baseline data on snowmobile use in the *Voluntary Closure Zones* and *Caution Zones* as identified and mapped by the MSRM. *Voluntary closure zones* are areas of critical caribou habitat. These areas were to receive no snowmobile activity. *Caution zones* are areas of sensitive caribou habitat that had not been closed to snowmobiling activity. However, in these areas, if caribou or caribou tracks were seen snowmobilers were to avoid direct and indirect disturbance to caribou.

Snowmobile surveys from a fixed-wing aircraft were conducted on a regular basis throughout the 2002-2003 winter season from December 2002 until the end of April 2003. As part of the agreement a representative of the QHMS was to be invited on six of the monitoring flights. A representative attended four flights by the end of the project.

The two year project was funded through the Habitat Conservation Trust Fund program.

Project Area

The monitoring project study area covers the Wells Gray North and the Barkerville eastern populations of Mountain Caribou from Spanish Creek in the south to Two Sisters Mountain in the north. The study area is exclusive of Wells Gray and Bowron Lakes parks and covers the eastern portions of the 100 Mile, Central Cariboo and Quesnel Forest Districts. The survey areas are consistent with areas identified by the Ministry of Water, Land and Air Protection as critical caribou winter habitat. The monitoring project study area was divided into four zones (see Figure 1): Zone A covered the area from Spanish Creek north to the East Arm of Quesnel Lake; Zone B covered the Junction area between the East Arm and North Arm of Quesnel Lake including Blue Lead Creek; Zone C covered the area from the North Arm of Quesnel Lake to the Cariboo River; Zone D covered the area from Cariboo Lake north to Two Sisters Mountain.

Management Agreement between the Province of BC
and the Quesnel Highlands Management Society
(a Society Representing Snowmobile Clubs in the Cariboo Region)
For Snowmobile Use in the Eastern Cariboo Region

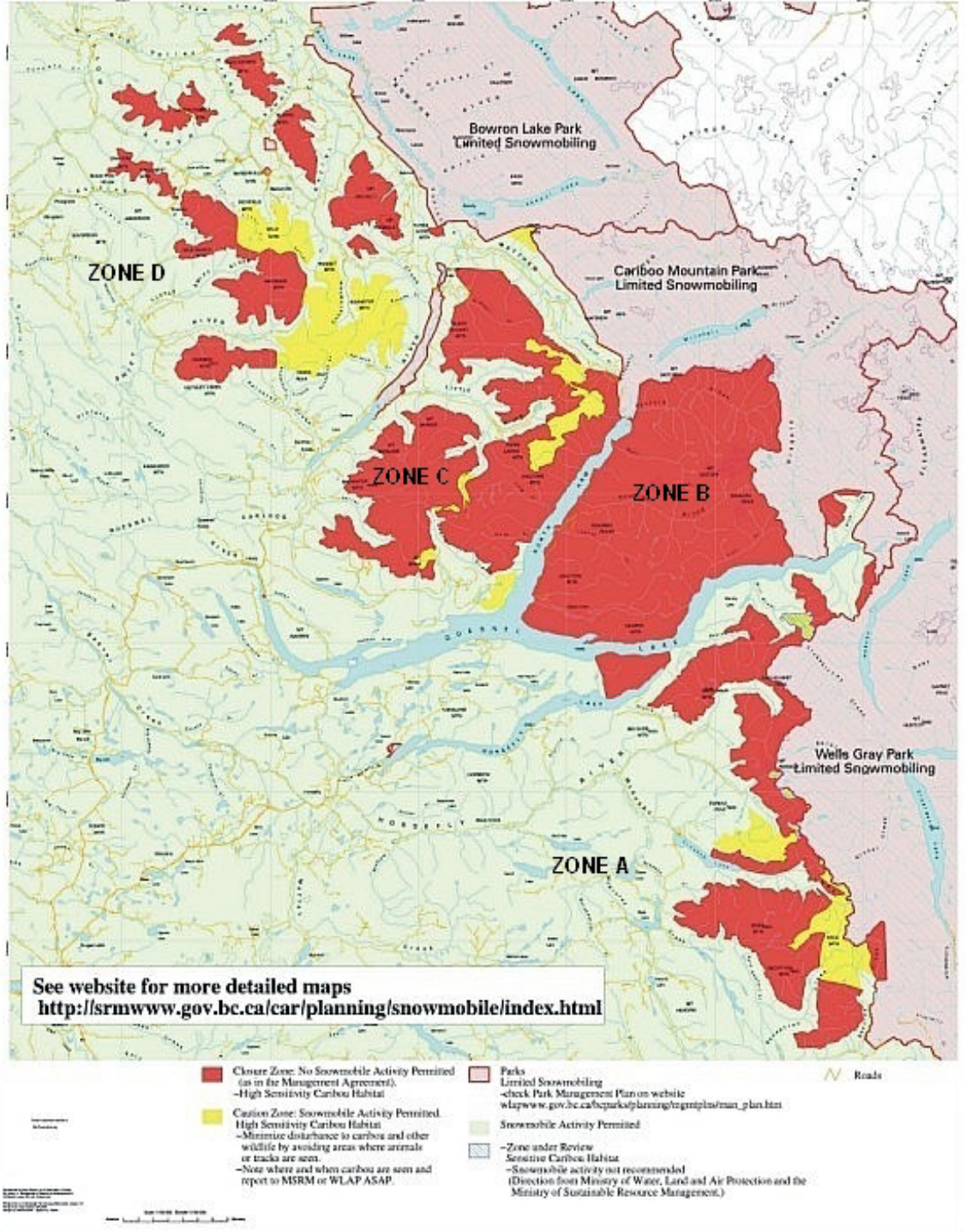


Figure 1: Map of the project area indicating the zonation of the project area.

Methodology

The monitoring project study area was divided into four zones: Zone A covered the area from Spanish Creek north to the East Arm of Quesnel Lake; Zone B covered the Junction area between the East Arm and North Arm of Quesnel Lake including Blue Lead Creek; Zone C covered the area from the North Arm of Quesnel Lake to the Cariboo River; Zone D covered the area from Cariboo Lake north to Two Sisters Mountain.

Initially the monitoring flights were done on weekdays. However, it was discovered that there were few snowmobiles present on weekdays. Therefore, the monitoring flights were shifted to weekends to take advantage of the peak snowmobile use periods. Usually two zones were flown per day for example, Zones A and B were flown on a Saturday and Zone C and D the following day, weather permitting. All flights originated from the Williams Lake Airport.

The flights were done using either a Cessna 182 or Cessna 206 fixed wing aircraft depending on availability. These aircraft came equipped with a Garmin 95 Global Positioning Satellite (GPS) unit with a fixed antenna. These units were used rather than a handheld unit as the fixed units are more accurate and consistent for this application. The data was recorded on a Snowmobile Monitoring Data Collection Form (attached).

In order to maintain consistency each zone was flown in the same direction each flight, weather permitting. For example, Zones A, C and D were flown in a counter clockwise direction while Zone B was flown in a clockwise direction starting at Blue Lead Creek. In order not to bias the results the complete zone was surveyed rather than just flying directly to the known areas of snowmobile use. This also afforded the opportunity to spot and record any caribou to supplement the telemetry relocation flights and to add to WLAP's caribou location database.

As snowmobiles or snowmobile tracks were sighted the GPS co-ordinates were recorded along with the geographic location, the number of snowmobiles, amount of usage and any relationship to caribou. One of the objectives was to identify **caribou and snowmobile use** either through visual sightings or the identification of tracks within the project area. The visual sightings of either caribou or snowmobiles were not crucial to the project other than to confirm numbers.

In instances where the snowmobile tracks had covered a large area, and no snowmobiles were evident, GPS co-ordinates were taken at the "corners" of the use area(s). In addition, any caribou sightings and/or tracks were also recorded identifying the GPS co-ordinates, the number of animals seen or the tracks or beds seen and the relationship to snowmobiles if any. These data points were then plotted on a map of the project area (see Figure 2). Ministry of Water, Land and Air Protection staff and contractors were recruited to collect data in the course of their projects i.e. caribou or wolf telemetry flights.

Results

A total of 9 snowmobiles were sighted in *voluntary closure zones* with 112 snowmobiles seen in *caution zones* over the course of 21 flights within the project area. These numbers may be conservative given the flights were conducted only on weekends and that weather conditions played a significant role in whether a zone could be surveyed. A total of 29 caribou were positively identified with a further 121 animals estimated, based on tracks or beds, to have been in the project areas. Detailed daily spreadsheets are attached.

TABLE 1: SUMMARY OF OBSERVED SNOWMOBILE AND CARIBOU ACTIVITY BY CLOSURE AND CAUTION ZONE FOR THE QUESNEL HIGHLANDS SURVEY AREA, 2002 – 2003

| ZONE* | CAUTION/ CLOSURE ZONE* | NO. OF SNOWMOBILES | SNOWMOBILE TRACKS Y/N | NO. OF CARIBOU | CARIBOU TRACKS Y/N |
|-------|------------------------------|------------------------------|--------------------------|-------------------|--------------------------|
| A | Closure | 9(includes Bill Miner Creek) | Y | Unknown | Y |
| | Caution | 71 | Y | Unknown | Y |
| B | Closure | No activity | N/A | 3 | Y |
| | Caution | No activity | N/A | N/A | N/A |
| C | Closure | Unknown | Y | 11 | Y |
| | Caution | 31 | Y | 4 | Y |
| D | Closure | Unknown | Y | Unknown | Y |
| | Caution | 10 | Y | Unknown | Y |

*Refer to the Methodology Section for an explanation of the zones.

TABLE 2: SUMMARY OF OBSERVED SNOWMOBILE AND CARIBOU ACTIVITY BY CLOSURE AND CAUTION ZONE AND MONTH FOR THE QUESNEL HIGHLANDS SURVEY AREA, 2002 – 2003

| | December | January | February | March | April | Totals |
|-------------------------------------|-------------|-------------|----------|-------------|-------------|--------|
| No. of Flights | 2 | 5 | 5 | 6 | 3 | 21 |
| Snowmobiles In Closure Zones | Tracks Only | 9 | 0 | Tracks Only | 0 | 9 |
| Snowmobiles In Caution Zones | Tracks Only | 4 | 34 | 34 | 40 | 112 |
| Caribou In Closure Zones | 7 | 4 | 3 | Tracks Only | Tracks Only | 14 |
| Caribou In Caution Zones | Tracks Only | Tracks Only | 4 | Tracks Only | Tracks Only | 4 |

2003 Snowmobile Monitoring

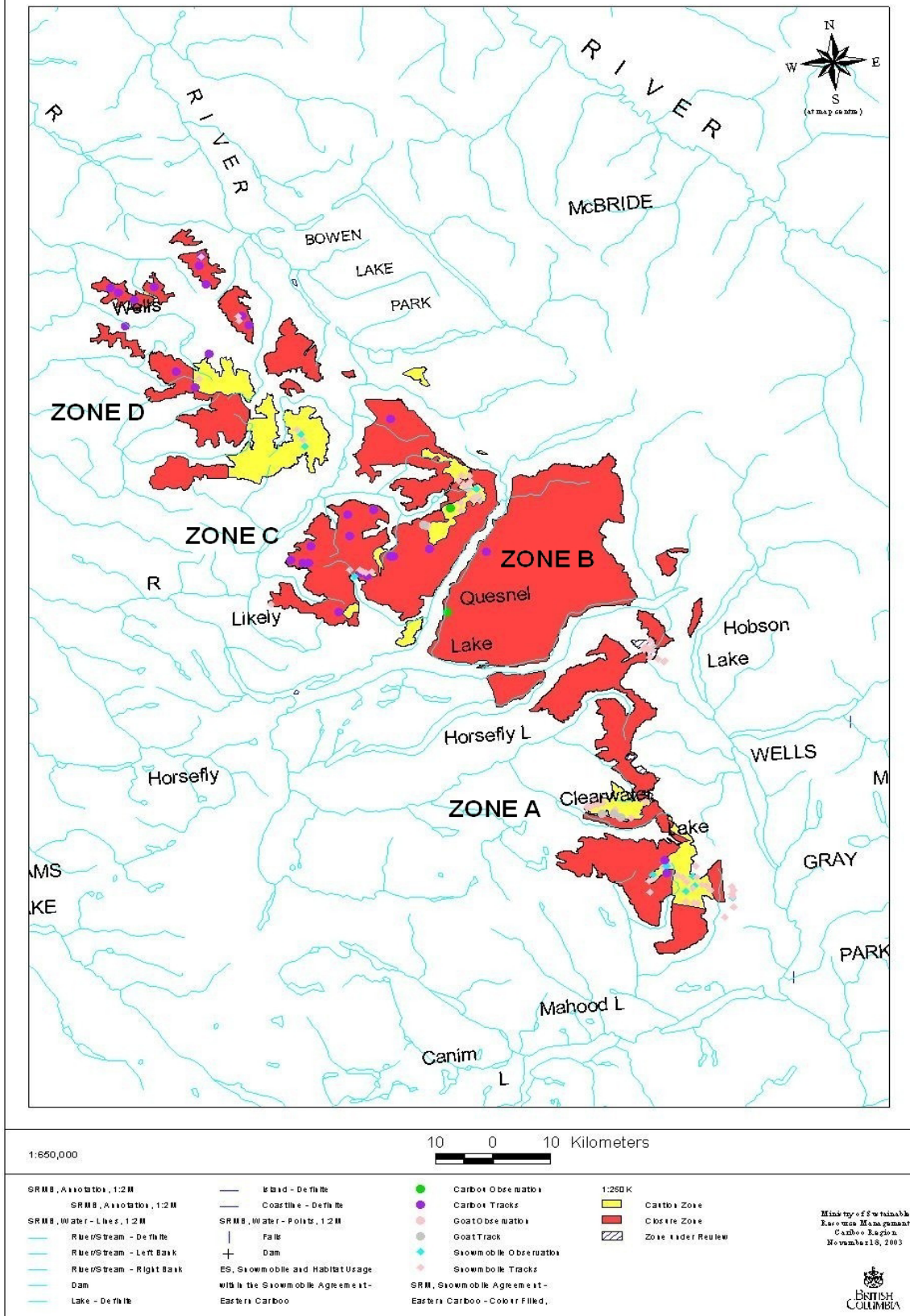


Figure 2: Map showing the data points collected

Discussion

Data collected from December 20, 2002 to April 21, 2003 indicated that, for the most part, the agreement was being adhered to and snowmobilers were respecting the *voluntary closure zones*. However, there were some exceptions. Snowmobile use was noted in the Deception Mountain, Sliding Mountain, the Two Sisters Mountain and the Bill Miner Creek areas. These areas have been identified as *voluntary closure zones* by agreement (except Bill Miner creek which is under review). In the Two Sisters Mountain area, caribou tracks were seen on top of snowmobile tracks with the caribou using the tracks to travel for a short distance. This occurrence was an anomaly and happened only once during the entire project. Neither caribou or snowmobiles (or tracks) were seen this area again for the rest of the project.



Figure 3: Photo taken of the Bill Miner Creek area taken 2003/02/24.

Of these four areas the only one that received consistent and heavy use throughout the winter was Bill Miner Creek (see Figures 3 and 4). No caribou or caribou tracks were noted in this area however. This area is popular with snowmobilers from Horsefly and Williams Lake.

The Groundhog Lake area, although in a *caution zone*, received high incidents of snowmobile use (see Figure 5). Caribou tracks were noted on one flight but no new signs

of caribou use were identified for the rest of the project but snowmobile use was consistent throughout the study.



Figure 4: Photo taken of the Bill Miner Creek area. This is an example of the extensive use of the area. Photo taken 2003/02/24

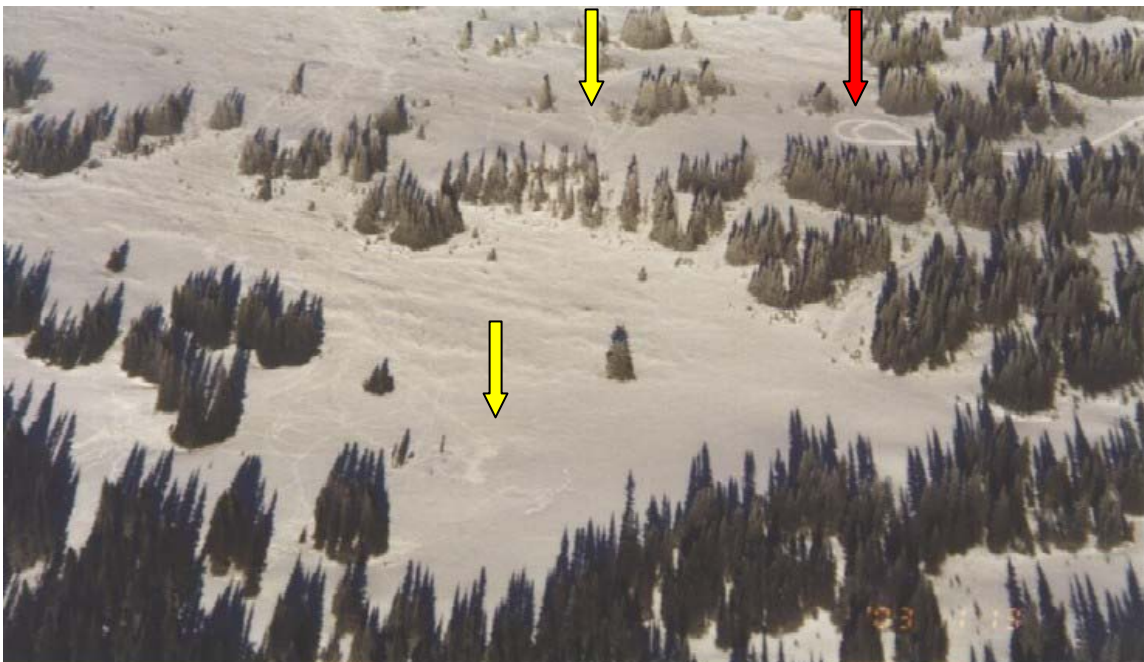


Figure 5: Photo taken in the Groundhog Lake (Caution Zone) area. The yellow arrows indicate caribou tracks and the red arrows indicate snowmobile tracks. No new caribou tracks were seen again for the balance of the project. However this area was used extensively by snowmobilers throughout the season. Photo was taken on 2003/01/13.

The other notable exception to the agreement was in the area north of Mica Mountain. Caribou tracks were noted in the Mica Mountain area for approximately two weeks (see Figures 6 and 7). Through visual observations it was determined that there were five caribou bulls that used this area for the two week time period. Over those two weeks snowmobiles were observed using the area extensively. This area is in a *caution zone* and should have had a temporary closure designation placed on it until the animals had left the area.



Figure 6: Photo taken in the Mica Mountain (Caution Zone) area. The red arrows indicate snowmobile tracks and the yellow arrows indicate caribou tracks. This photo was taken on 2003/04/06.



Figure 7: Photo taken in the Mica Mountain (Caution Zone) area. The yellow arrows indicate caribou beds and tracks. The red arrows indicate snowmobile tracks. These tracks were made by 5 bulls that stayed in the area for approximately 2 weeks and then moved. This area was used quite heavily by snowmobilers. This photo was taken 2003/04/12.

The area north (Figures 8 and 9) of the Flourmills volcanoes, in both a voluntary closure zone and within Wells Gray Park, was another area that was used extensively throughout the season.



Figure 8: Photo taken north of the Flourmills within the boundaries of Wells Gray Park.
Photo taken 2003/02/24



Figure 9: Photo taken north of the Flourmills within Wells Gray Park. Note the extensive use of the area.
Photo was taken on 2003/02/24.

A photo taken of the area north of Deception Mountain and south of Boss Mountain and west of Mica Mountain illustrates the amount of use this area receives (see Figures 10 and 11). This area is within a *caution zone* and is very popular with snowmobilers from 100 Mile House.



Figure 10: Photo taken north of Deception Mountain (Caution Zone) towards Boss Mountain indicating the amount of use in this area. Photo was taken on 2003/02/24.

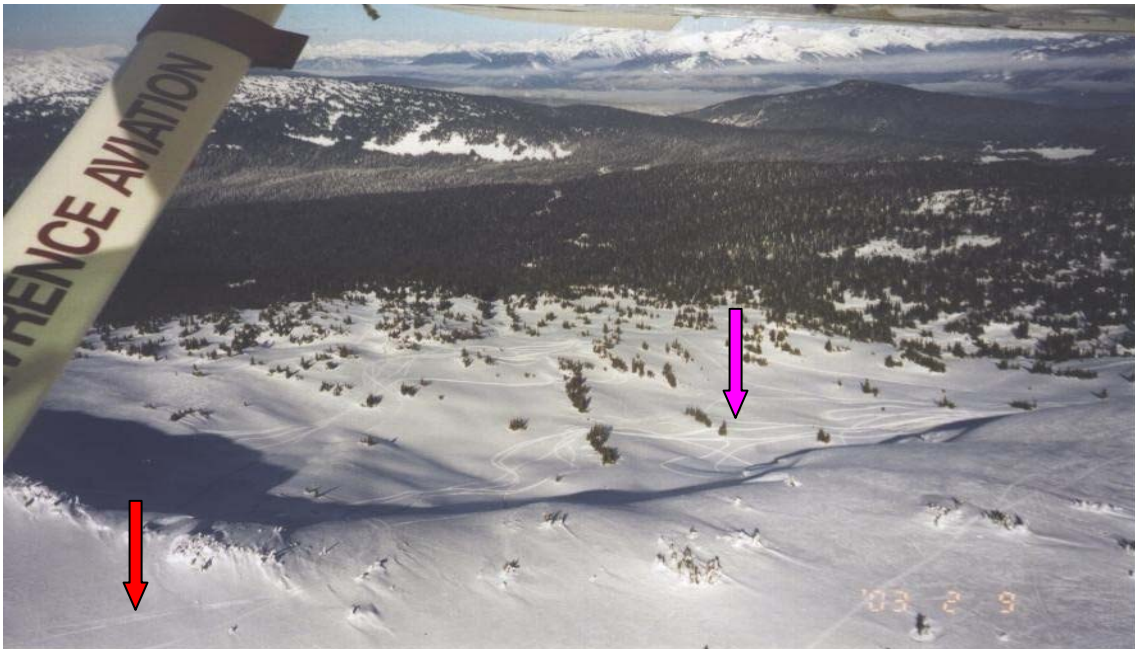


Figure 11: Photo of snowmobile use in the Mica Mountain area looking north towards McKusky Creek and Wells Gray Park. The red arrow indicates old tracks and the purple arrow more recent activity. Photo was taken on 2003/02/09.

The following photo shows 4 caribou on Cameron Ridge. These animals had apparently been in this area for few days as indicated by the tracks and beds. On the day the photo was taken snowmobiles were observed approximately 5 - 6 kilometres to the east. Two days later fresh snowmobile tracks were noted in the vicinity and the caribou were seen heading west towards Three Ladies Mountain. Caribou were not seen again in this area for the rest of the survey but continued snowmobile activity was evident.



Figure 12: Photo taken of 4 caribou on Cameron Ridge (Caution Zone). The yellow arrow indicates caribou tracks and beds. The red arrows indicate caribou. There were four animals seen. Photo was taken on 2003/02/22.

Project Costs

Aircraft rental for the project totalled 53.1 hours of flight time costing \$14,399.78. The flight times included the ferry time to and from the project area.

Conclusions

In summary, the data collected did not indicate that snowmobile activity was prevalent in the *voluntary closure zones* with a few exceptions in particular the Bill Miner Creek area (under review). The *caution zones* appear to be the areas of concern. There was

reluctance on the part of the snowmobilers to vacate these areas for a short period of time when caribou or caribou tracks were seen in particular the Mica Mountain area where 5 bull caribou were seen and the snowmobile activity continued. Since this the first year of a two year agreement this may change with better communication within the snowmobile community.

Funding is currently in place to continue this project for one more year in 2004 with funding potentially available in 2005. The continued monitoring of snowmobile activity will indicate if the agreement and associated education is working.