

May 16th, 2012

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Object: Spring Monitoring of Caribou in the Vicinity of the DSO3 Sector

April 2012

N/D: PR185-11-12

V/D: 2100-00-0346

Mr. Didillon,

We are pleased to submit the report on the work conducted by our firm on the above mentioned project.

We hope that everything will meet your expectations and we remain available for any additional information.

1 CONTEXT

Tata Steel Minerals Canada Ltd. is the proponent of the Direct-Shipping Ore Project ("DSOP"), two components of which, known respectively as the Elross Lake Area Iron Ore Mine ("ELAiom") and the Joan Lake Direct Shipping Ore Project ("JLDSOP"), are located in the Province of Newfoundland and Labrador.

The ELAIOM was released from further environmental assessment by the Government of Newfoundland and Labrador ("GNL") on January 5, 2011, while the JLDSOP was released on March 16, 2011.

In both cases, a condition of the release was that TSMC must continue the spring surveys carried out in 2009, 2010 and 2011 (D'Astous and Trimper 2009, 2010a, 2010b; Groupe Hémisphères (July 2011) to ascertain the presence of sedentary and migratory caribou in the vicinity of the proposed mines.

The area of the Ungava Peninsula, near the ELAIOM and the JLDSOP, includes the ranges of both migratory and sedentary caribou. The George River Caribou Herd (GRCH), a migratory ecotype, was estimated at 385 000 individuals in 2001 (based on a post-calving estimate) (Couturier *et al.* 2004), but was estimated at only 74 000 in 2010 (Department of Environment and Conservation, April 2012). Population projections based on adult mortality of collared animals, as well as age and sex ratios collected during Fall classification surveys, indicate the population may be as low as 30,000 caribou by Fall 2012. (Department of Environment and Conservation, April 2012). When the herd migrates through the Schefferville area, hunting provides large quantities of country food for local residents. However satellite telemetry done by MRNF in 2009, 2010 and 2011 and observations by local residents (R. McKenzie, pers. comm.) confirmed that George River caribou did not migrate in big numbers through this area during the fall and winter of 2008-2009, 2009-2010 and 2010-2011. However, they did during the winter of 2011-2012.

Sedentary caribou formerly occurred in the vicinity of Schefferville. The McPhadyen Caribou Herd (MCH) was identified in the area in the mid-1980s (Phillips 1982, Saint-Martin 1987, Bergerud *et al.* 2008). As sedentary caribou are classified as endangered in Canada and in Labrador (COSEWIC 2001; Newfoundland and Labrador *Endangered Species Act, 2001*), the GNL is concerned that those caribou may occur in the vicinity of the ELAIOM. During the surveys carried out in 2009, 2010 and 2011, no sedentary caribou have been observed in the study area.

The present report describes the monitoring conducted by TSMC in April, 2012.

1.1 Objectives

The main objective of the monitoring was to determine whether sedentary or migratory caribou were present in the spring time within a specified radius of the TSMC DSO project sites immediately prior to the calving season. In the absence of GNL representatives, no capturing or collaring was planned during this survey.

2 METHODOLOGY

2.1 Field Preparation

In 2009, a survey area, delineated as a radius of 50 km centred on the ELAIOM, was established (D'Astous and Trimper 2009). The study area approved by GNL in 2010 and 2011 (K. Miller, Ecosystem Management Ecologist, Government of Newfoundland and Labrador, pers. comm.) consisted of a radius of 20 km centred on the ELAIOM. This same 20 km radius was used in this survey.

As was the case in 2009, 2010 and 2011, before the start of the survey the leaders of the First Nations concerned, namely Innu Nation, Innu Takuaikan Uashat mak Mani-Utenam (ITUM), Naskapi Nation of Kawawachikamach (NNK) and Nation Innu Matimekush-Lac John (NIMLJ), were contacted to explaining the objectives of the monitoring. This contact was important for information purposes, but also to direct the survey aircraft away from spring hunting parties. Upon arrival in Schefferville, the Study Team received confirmation that goose hunting would not begin until the following Monday. Because of this timing and the shorter radius of interest in 2012, the entire study area could be surveyed. A map showing the flight lines can be consulted in Appendix I.

The aerial monitoring was conducted by three Naskapis trained by Natalie D'Astous for areal faunal surveys. For further details concerning the training of the Naskapis, see the related report in Appendix II. The monitoring was done with an Otter hydroplane at an altitude of approximately 600" to 800" (AGL) and at an average speed of 160-200 km/hr, depending on conditions and/or habitat. Flight lines were spaced at every 4 km with transects oriented in a NW/SE direction consistent with the topography (Appendix I). All observations, tracks, land use and other relevant information were recorded by the navigator. Further details about the geospatial tools used are presented in the report in Appendix II. If caribou were to be encountered, the information would have been transferred immediately to local faunal MRNF agents for further inquiry. In the absence of GNL representative, no capturing or collaring was done during the monitoring. The monitoring took place on Wednesday, from 13h15 to 16h30 on the 18th of April 2012.

2.2 Project team

Willie Johnny Swappie, Darren Einish, Steve Einish and Thora Martina Herrmann constituted the monitoring team. The report in Appendix II presents the team members in details.

3 RESULTS

3.1 Caribou

No caribou or confirmed tracks of caribou were observed.

3.2 Other Wildlife

Two unidentified animal tracks were observed during the monitoring. The identification could not be done because of the high at which was made de survey. Those tracks were not caribou tracks.

4 DISCUSSION

In 2009, only three sightings of caribou (*Rangifer tarandus caribou*) totalling seven individuals were confirmed over a much larger area than flown in 2010, 2011 and 2012 (i.e., approximately 50 km radius versus 20 km). No sightings were made in 2010, 2011 or 2012.

The 2009 body measurements indicated that the two caribou measured in the study area probably belonged to the migratory ecotype (D'Astous and Trimper 2009). Moreover, the only caribou captured in 2009 had joined the GRCH (D'Astous and Trimper 2010a). Based on the absence of caribou observations in 2012 and based on the 2009 (D'Astous and Trimper 2009), 2010 (D'Astous and Trimper 2010b) and 2011 (Groupe Hémisphères, July 2011) results accumulated to date, there has been no evidence that the study area is used by sedentary caribou during the pre-calving period in recent years.

5 CONCLUSION

The caribou observed in the 2009 were most probably all migratory caribou. The 2010, 2011 and 2012 surveys were completed under good tracking conditions, but no caribou were observed. The results from those three surveys indicate that it is unlikely that sedentary caribou are currently present in the study area during the pre-calving period. However migratory caribou have been observed in the vicinity of Schefferville in November and December 2011 according to aboriginal hunt (George Guanish Pers. communication).

6 SCOPE AND LIMITATIONS OF THE STUDY

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8 REFERENCES

8.1 Personal communications

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R. McKenzie Resident hunter, Matimekosh-Lac John, QC
K. Miller Ecosystem Management Ecologist, Government of Newfoundland and Labrador

8.2 Bibliography

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Annexe I

Map of the flight lines

Observations of wildlife and signs
Observations de la faune et des traces

Caribou survey 2011/inventaire du caribou 2011

LEGEND/LÉGENDE

Survey/inventaire

Flight line/ ligne de vol

Basemap/fond de carte

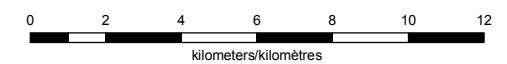
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- Road/route
- Border/frontière
- Watercourse/
cours d'eau
- Study area boundary/
limite de l'aire d'étude
- Waterbody/
plan d'eau
- Existing mined-out pit/
fosse existante épuisée
- Existing waste dump/
halde de stériles existante
- Contour interval/
courbe de niveau

*Hydronyms are oriented along the direction of water flow
*Les hydronymes sont orientés selon le sens d'écoulement de l'eau

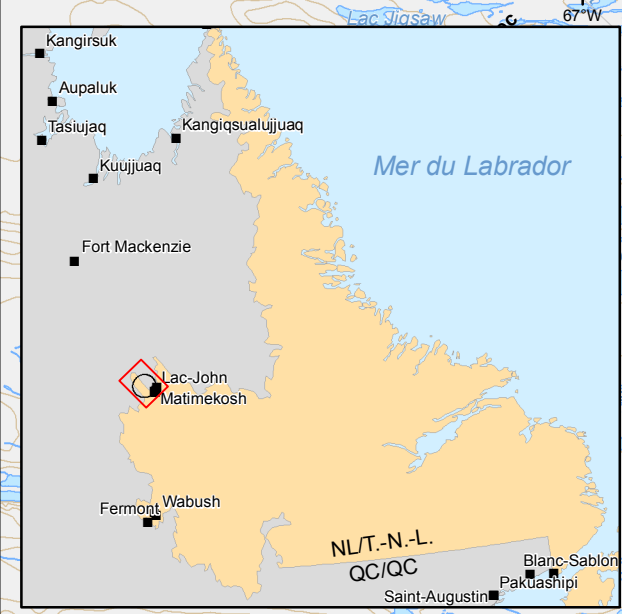
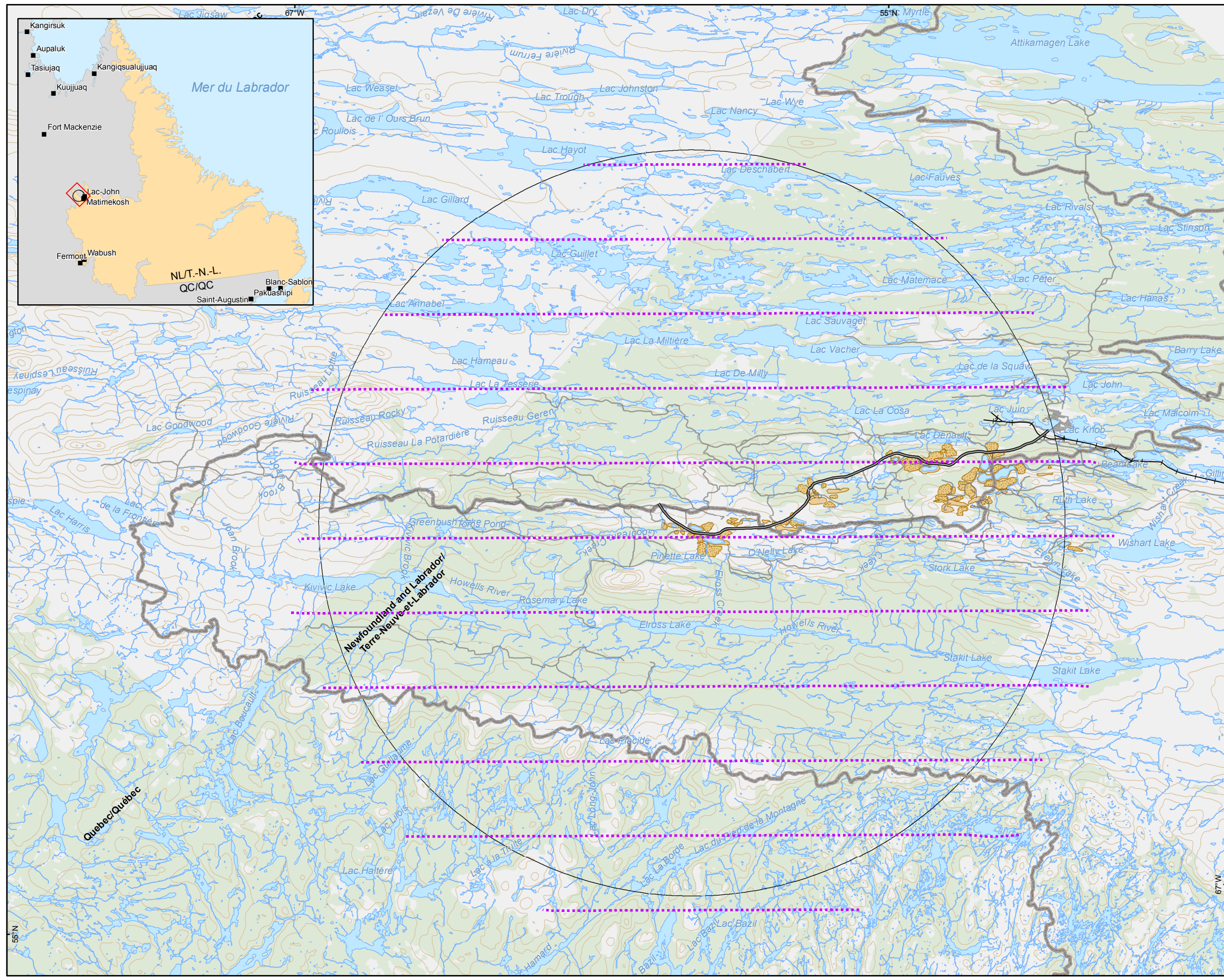
SOURCES:
Government of Canada, NTDB, 1:50,000, 1979
Government of NL and government of Quebec,
Boundary used for claims

Gouvernement du Canada, BNDT, 1/50 000, 1979
Gouvernement de T-N-L et gouvernement du Québec,
frontière utilisée pour les titres miniers

FILE VERSION, DATE, AUTHOR: GH-0337-00, 2012-05-12, J.T.
FICHIER, VERSION, DATE, AUTEUR:



SCALE/ÉCHELLE: 1:200 000 UTM 19N NAD 83



Annexe II

Thora Martina Herrmann's report

Naskapi Caribou and
Climate Change Project

Training of Naskapi Environmental Monitors, and Caribou Survey in Schefferville/Kawawachikamach



Activities Report

April 2012

1. Objectives

1. A group of Naskapi youth qualified for future monitoring of caribou.
2. A geographic information database tool developed (GIS based) that will assist the Naskapis in monitoring in the future.
3. Conduct caribou survey with Naskapi Youth in Schefferville.

2. Participants

The following Youth Assistants from the Naskapi Nation of Kawawachikamach (NNK) received training and carried out the caribou survey:

- Willie Johnny Swappie
- Darren Einish
- Steve Einish

Trainers and coordinators:

- Georges Guanish, NNK: local coordinator of the project and training activities, supervisor of Naskapi Youth Assistants
- Richard Sandy, NML: trainer in the use of GPS, in the conduct of the survey, and caribou survey supervisor
- Natalie D'Astous, wildlife biologist: scientific advisor, responsible/coordinator of caribou survey, trainer in caribou monitoring methodology and caribou survey techniques
- Thora Herrmann, Université de Montréal: geographer, trainer in the use of CyberTracker and in the design of CyberTracker interface for community-based caribou survey
- Guillaume Larocque, Quebec Centre of Biodiversity Science (QCBS) : GIS technicien

3. Development of a geospatial data tool for caribou survey using CyberTracker

A combination of rugged GPS-equipped electronic devices with CyberTracker software (CyberTracker Software Ltd, <http://www.cybertracker.org>) designed to simplify field data collection, enabling rapid and accurate recording of observations was used to identify and include geographic location information on caribou or caribou tracks sighted during the survey. CyberTracker is a GPS with a customizable touch screen interface.

CyberTracker allows customizing an interface to the needs of the caribou monitoring and the future Naskapi users. Selecting particular icons will lead to additional screens with new icons to collect more information. These series of screens will eventually lead back to the original once all the data requirements are fulfilled and a GPS point will be recorded. It allows collecting systematic, geo-referenced data that can be downloaded to a central database and represented in map formats and environmental reports.

A Trimble Nomads was provided by the Quebec Centre of Biodiversity Science (QCBS) and loaded with CyberTracker software.



CyberTracker

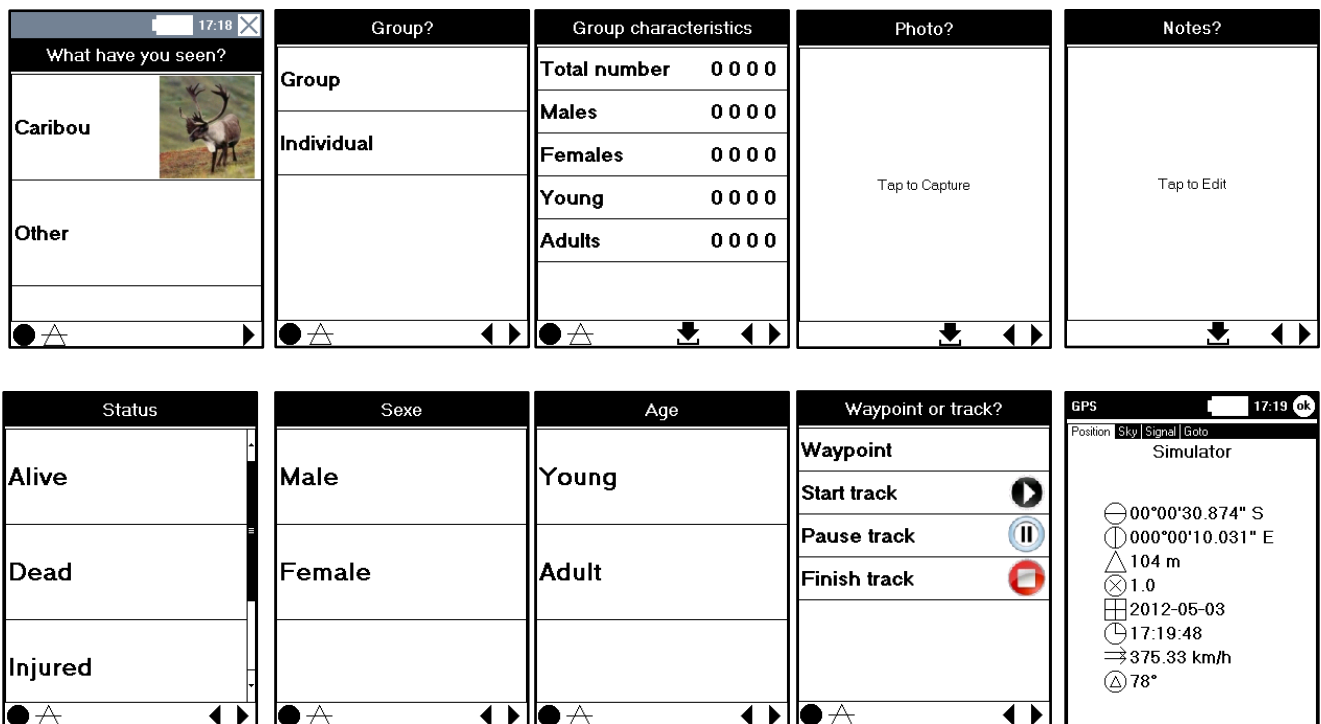
Training and design of the CyberTracker interface for the caribou survey

An introduction to CyberTracker and its data functions has been given to Willie Johnny Swappie, Darren Einish, Steve Einish by Thora Herrmann. She presented examples of the use of CyberTracker in community-based environmental monitoring by other First Nations in Canada (Inuit, Anicinapek, Cree, Gwich'in) and elsewhere (San Bushman, Aboriginals in Australia).

Willie Johnny Swappie, Darren Einish, Steve Einish identified then the parameters for the CyberTracker interface to be used for caribou survey in Kawawachikamach:

- Number of caribous sighted
- Groups or individuals sighted
- Age of caribou sighted
- Sex of caribou sighted
- Caribou health status
- Caribou tracks
- Photographs
- Additional notes on caribou sighted and/or habitat

Based on these parameters, the interface was designed by the Naskapi Assistants, and installed on the CyberTracker in collaboration with Guillaume Larocque (QCBS). The CyberTracker was tested in the field by the youth Assistants several times prior to the survey.



Screenshots of the icon-based touch screen CyberTracker interface for community-based caribou survey and monitoring by NNK.

Training in the use of GPS for the caribou survey

In addition to CyberTracker, a GPS has been used during the caribou survey for field data collection of sighted caribous. Richard Sandy, Naskapi employee at NML provided the GPS training to Willie Johnny Swappie, Darren Einish, and Steve Einish at the NML geology laboratory.



Richard Sandy trains Willie Johnny Swappie, Darren Einish, and Steve Einish in the use of GPS in preparation for the survey.

Calendar of activities - geospatial data tool development for caribou survey

29 February 2012	Kawawachikamach	Identification of parameters and design of the CyberTracker caribou interface
30 February 2012	Kawawachikamach	Field training on the use of CyberTracker
March 2012	QCBS Montreal	Installation of the caribou interface on the CyberTracker
17 April 2012	Kawawachikamach	Testing of the CyberTracker with the caribou interface in the field
17 April 2012	Schefferville	Training in use of GPS and GPS testing
18 April 2012	Kawawachikamach	Carrying out caribou survey using CyberTracker and GPS

4. Training in caribou survey methodology and techniques

Prior to the survey, Natalie D’Astous provided training in caribou survey methodology and survey techniques to the Naskapi youth Assistants. She explained the differences in between doing census for migratory and sedentary caribou. In this case, the main objectives were not to count individuals but to verify the presence of caribou in the vicinity of the area covered by DSO project (including a radius of 20 km).



Willie Johnny Swappie, Darren Einish, Steve Einish together with Richard Sandy (NML) are studying the flight route of the airplane prior to the survey.

Calendar of training session - caribou monitoring methodology and survey techniques

11 April 2012	Kawawachikamach	Explanation of the objective of the survey and the methodology
17 April 2012	Schefferville, NML	Explanation of survey technique

5. Caribou Survey

Le Groupe Hémisphère and TaTa Steel (New Millennium Iron Corp. "NML") agreed to undertake the caribou survey with the Naskapi assistants. This survey is part of the caribou monitoring program required by Newfoundland and Labrador government in relation of the development of DSO (mine project). The survey was carried out on April 18, 2012 (with an airplane) from 1.30 pm- 4.30 pm. The detailed report of the caribou survey is included in appendix 1.



Willie Johnny Swappie, Richard Sandy, Darren Einish, Steve Einish in front of the airplane before the start of the caribou survey, and in the airplane during the survey.

6. Appendix 1 – Caribou survey report

Detailed report prepared by Le Groupe Hémisphère on the caribou survey carried out on April 18, 2012.