COURTESY TRANSLATION

Sainte-Foy, January 31st, 2006

Monsieur Pierre Corbeil
Ministre
600-0117 Cabinet du ministre des Ressources naturelles et de la Faune
5700, 4e avenue ouest
Bureau A-308
Charlesbourg (Québec) G1H 6R1

Subject: Findings of the pilot project on the Draft directives on the protection and development of wildlife habitats

Dear Minister Corbeil :

On March 29, 2005, I sent you an advice on behalf of the Board regarding the draft directives on the protection and development of wildlife habitats on the territory of the *Agreement concerning a new relationship between le gouvernement du Québec and the Crees of Québec.*

This proposal which aimed at "*introducing strategies into the forest management planning process allowing to take into account the protection and development of wildlife habitats*" was unanimously adopted by the Board members last March 17.

Developed in consultation with many stakeholders, the proposed directives that we submitted to you pursue three main objectives:

1. to maintain biodiversity and viable ecosystems on the territory (comprehensive approach);
2. to integrate Cree concerns and traditional knowledge on the protection and development of the habitat of wildlife species of special interest to the Crees (specific approach); and
3. to ensure the effective and meaningful participation of the Crees in the forestry planning process (participation and consultation process).

We also advised you in that same letter that we were planning to conduct a pilot project aimed at experimenting the draft directives with several stakeholders in order to identify the implementation constraints on a selected portion of the territory. Also, we had agreed that at the end of that year of experimentation, we would submit you a report on the project findings in order to assist in developing the forest management plans. The purpose of the present letter is therefore to report back to you, as agreed, on the results of the work we have carried out in the past six months.

The pilot project's three main conclusions, which have been approved by the Board members, are the following:

The tallyman's a priori participation in the forestry planning process, as well as the applicability and feasibility of the measures as proposed in the draft directives for the protection and development of wildlife habitats, revised and simplified as per the proposed adjustments explained in the appended document, are feasible and applicable.

Conducted upstream of the forestry planning process, an analysis of the sites of interest to the tallyman, combined with a wildlife profile based on the interpretation of the ecoforestry database, constitute a meaningful and simple base for the analysis of a territory in terms of wildlife objectives.

To make these strategies operational, a structured approach involving all concerned stakeholders and allowing to identify the processes to be preferred and the available tools, must be put in place. It is important to ensure a common understanding of the tools and processes for using these strategies particularly in the context of the development of the future General Forest Management Plans (GFMPs).

Last November 21, we sent you, on your request, an advice on the draft instructions to beneficiaries for the development of the GFMPs. As you know, the instructions are concerning, among other things, wildlife habitat protection and development strategies and mixed stand management on the territory of the Agreement, and include eleven forest protection and development objectives (FPDO). Many of these objectives and strategies can efficiently contribute to the protection and development of wildlife habitats.

Consequently, we consider it essential to develop synergies between several elements of the instructions, which will contribute to the protection of both forest ecosystems and the Cree traditional way of life, but also to sustainable forest management. In this regard, as demonstrated by the pilot project, the localisation of biological refuges (FPDO 4) is without a doubt a good example of the synergy that can be created between biodiversity and respect for the Cree traditional way of life.

To this end, it is very important for the different stakeholders who will have to take part in the development of the plans, to share a common understanding of the instructions and of the Agreement's forestry component and, above all, to be able to work closely together to achieve this objective.

Therefore we recommend:

To include in the guidelines being developed for FPDO 11, which is specific to the territory of the Agreement, the relevant recommendations of the pilot project regarding the availability of a guide for taking wildlife habitats into account in forest management.

To make available to forestry planners, a guide including the processes, tools and harmonisation measures to be used to ensure the protection and development of wildlife habitats and Cree participation, upstream of forestry planning.

Let us mention that no evaluation of the impact on annual allowable cut calculations has been done within the pilot project. The Department has however the tools and expertises required to conduct such an exercise.

For your information, please find enclosed the complete report on the experimentation of the draft directives, including the nine (9) recommendations of the working group mandated to bring the pilot project to fruition. This report, aimed at ensuring that forest management takes into account the protection of wildlife habitats, was ratified by the Board last January 26.

We have been informed that officials from your Department were working at developing the guidelines for the implementation of FPDO 11 and the strategies on wildlife habitats and mixed stands. We are hereby offering the Board Secretariat's support and collaboration to finalise the work.

To conclude, in the perspective that you are going ahead with the pilot project's recommendations and the advice we provided on the instructions to beneficiaries, the Board members deem imperative that the parties create a working committee and develop a work plan as soon as possible to ensure that wildlife protection and development are integrated into the development process of the next generation of GFMPs.

Rest assured, Minister Corbeil, that our Board and Secretariat will fully cooperate to this process.

Sincerely yours,

Jean-Pierre Gauthier
Chairman of the Board

Encl.

Conseil Cris-Québec sur la foresterie
Cree-Québec Forestry Board

Sainte-Foy, January 31st, 2006

Mr. Matthew Mukash, Grand Chief
Grand Council of the Crees (Eeyou Istchee)
2, Lakeshore Road
Nemaska,
James Bay (Québec) J0Y 3B0

Subject: Report to the Minister on findings from the pilot project on the draft directives for the protection and development of wildlife habitats

Grand Chief Mukash,

I am writing to inform you that the Board has written to the Minister of Ressources Naturelles et de la Faune to share the results of a pilot project on the draft directives on the protection and development of wildlife habitats developed by the Cree-Québec Forestry Board in accordance with article 59 of Schedule (C-4) of the *Agreement concerning a new relationship between le gouvernement du Québec and the Crees of Québec*.

The objective of the pilot project was to test the proposed directives with several stakeholders in order to identify the implementation constraints in a real life environment. The main conclusions of the pilot project confirm that both the process for the tallyman's early and meaningful participation in the forestry planning process and the proposed measures for the protection and development of wildlife habitats, with suggested adjustments, are feasible and applicable. In addition, to make these directives operational, it is recommended to put in place a structured approach involving all concerned stakeholders and allowing the identification of the preferred processes and the available tools. The conclusions of the report were adopted by Board members on January 26th 2006. Please find attached copy of the letter to the Minister and of the final report for your information.

In closing, Mr. Mukash, I want to take the opportunity to reiterate the Board members' commitment to make the adapted forestry regime provided for in the Agreement a reality. In this context, we see the elaboration of the upcoming general forest management plans an important step in doing so.

Sincerely,

Jean-Pierre Gauthier
Board Chairman

encl.

P.O. Box 2004
Waswanipi, Québec J0Y 3C0

2875, boulevard Laurier, Édifice Le Delta
11e étage, local 1180
Sainte-Foy (Québec) G1V 2M2

Tél./*Tel.*: (418) 528-0002
Téléc./*Fax*: (418) 528-0005

Courriel/*Email*: ccqf-cqfb@ccqf-cqfb.ca
www.ccqf-cqfb.ca

Draft directives on the protection and development of wildlife habitats

Report on the pilot project on traplines O-59 and W-24B

Submitted to the
Cree-Québec Forestry Board

by
the Coordination Committee

January 2006

REALIZED BY:

Project coordinator:	**Danielle St-Pierre, biologist**	**MRNF – Secteur Faune Québec, Nord-du-Québec**
Project manager:	**Éric Sourdif, forest engineer**	**Consultant**
Drafting and analysis:	**Danielle St-Pierre, biologist**	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Andrée-Anne Tremblay, wildlife tech.	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Marie Gosselin, analyst-advisor	**Cree-Québec Forestry Board**
	Éric Sourdif, forest engineer	**Consultant**
	Serge Bergeron, forest engineer	**MRNF – Secteur Forêt Québec – UG Quévillon**
Coordination Committee:	**Danielle St-Pierre, biologist**	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Marie Gosselin, analyst-advisor	**Cree-Québec Forestry Board**
	Steven Blacksmith, director	**Waswanipi Cree Model Forest**
	Allan Saganash jr.	**Joint WorkingGroup**
	Tommy Rabbitskin	**Joint Working Group**
	Paul Dixon	**Cree Trappers' Association (CTA)**
	Any Gagnon, forest engineer	**MRNF – Secteur Forêt Québec – U.G. Chibougamau**
	Serge Bergeron, forest engineer	**MRNF – Secteur Forêt Québec – UG Quévillon**
	Sylvain Robichaud, forest engineer	**Barrette-Chapais**
	François Lévesque, forest engineer	**Abitibi-Consolidated inc.**
	Daniel Corriveau, forest engineer	**Domtar**
Operation Team:	**Matthew Wapachee, tallyman**	**Oujé-Bougoumou**
	Glenn Wapachee, co-researcher	**Oujé-Bougoumou**
	Philip Wapachee, trapper	**Oujé-Bougoumou**
	Dennis Blacksmith, tallyman	**Waswanipi**
	Mary Blacksmith, trapper	**Waswanipi**
	Louis Blacksmith, tallyman	**Waswanipi**
	Clarence Blacksmith, trapper	**Waswanipi**
	Henry Georges Gull, co-researcher	**Waswanipi**
	Danielle St-Pierre, biologist	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Éric Sourdif, forest engineer	**Consultant**
	Andrée-Anne Tremblay, wildlife tech.	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Marie Gosselin, analyst-advisor	**Cree-Québec Forestry Board**
	Roch Allen, deputy to the director	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Serge Bergeron, forest engineer	**MRNF – Secteur Forêt Québec – UG Quévillon**
	Dominique Tremblay, forest engineer	**MRNF – Secteur Forêt Québec – UG Chibougamau**
Collaborator(s):	**Pierre Larue, forest engineer**	**MRNF – Secteur Forêt Québec – Dir. environ. forestier**
	Michel Crête, biologist	**MRNF – Secteur Faune Québec – Dir. développ. wildlife**
	Stéphane Déry, biologist	**MRNF – Secteur Forêt Québec – Dir. environ. forestier**
	Clifford Marshall, forest tech.	**MRNF – Secteur Forêt Québec – UG Chibougamau**
	Claude Poulin, forest tech,	**MRNF – Secteur Forêt Québec – Dir. environ. forestier**
	Martin Pelletier, forest engineer	**Waswanipi Cree Model Forest**
	Louis Bélanger, vice-president	**Waswanipi Cree Model Forest**
	Hugo Jacqmain, forest engineer	**Waswanipi Cree Model Forest**
	Marianne Cheveau, biologist	**Waswanipi Cree Model Forest**
	Katryn Lussier, anthropologist	**Waswanipi Cree Model Forest**
Cartography:	**Andrée-Anne Tremblay, wildlife techn.**	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	François Bujold, geomatician	**MRNF – Secteur Faune Québec, Nord-du-Québec**
Publishing, word processing and editing of the manuscript:	**Danielle St-Pierre, biologist**	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Roch Allen, deputy to the director	**MRNF – Secteur Faune Québec, Nord-du-Québec**
	Marie Gosselin, analyst-advisor	**Cree-Québec Forestry Board**
	Claudette Robin, secretary	**MRNF – Secteur Faune Québec, Nord-du-Québec**

INDEX

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

1.1. Origin of the pilot project

In compliance with article 59, with annex C-4 of chapter 3 of the *Agreement concerning a new relationship between le gouvernement du Québec et les Cris du Québec,* the Cree-Québec Forestry Board (CQFB) sent the minister of Ressources naturelles et de la faune (MRNF), on March 29, 2005, a draft directives on the protection and development of the wildlife habitats in the territory of the Agreement.[1].

The draft directives was developed in agreement with several stakeholders and sets forth the three main following objectives:

- Maintenance of biodiversity and viable ecosystems (global approach);
- Integration of Cree concerns and traditional knowledge (species approach) and
- Real and meaningful Cree participation in the forest planning process.

In order to reach said objectives, the directives propose

- drawing a portrait of the state of the forest and of its wildlife habitats for a given territory prior to the development of forest plans;
- using, as planning guide, protection and development measures of wildlife habitats of special interest to the Cree at various analysis and implementation scales;
- adopting a precautionary approach with regard to the woodland caribou;
- integrating the Cree into a participation and consultation process with regard to forest planning, a priori and throughout the preparation of forest management plans.

Forest management modalities set forth in the draft directives were identified following a review of the literature that takes into account the needs of species of special interest to the Cree. So certain statements meet Cree requirements based on their traditional knowledge. And this is why the draft project in itself has been a challenge research wise and with regard to the reconciliation of wildlife and social needs with traditional and scientific knowledge. The draft directives constitutes a harmonization guide between forest management and Cree needs and is in keeping with the steps aiming at increasing the taking into account of the Cree traditional way of life as well as their real participation in the management of forest management activities into the Quebec forest regime, as mentioned under the generality of Chapter 3 of the Agreement.

[1] Draft directives on the protection and development of wildlife habitats of the territory of the *Agreement concerning a new relationship between the Gouvernement du Québec and the Cree of Québec*, CQFB, March 2005, 32 p.

Considering the focus given to the proposed directives and seizing the opportunity given by the postponement of the coming into force of the new general forest management plans to the spring of 2008, the CQFB has set as one of its 2005-2006 priorities the setting up of a pilot project aiming at experimenting the elements of the proposed directives in order to submit a report of the outcome of the exercise to the minister.

This report spells out the objectives of the project, its approach and the outcome of the experiment of the directives and proposes recommendations aiming at ensuring increased protection and development of wildlife habitats in the territory of the Agreement within the framework of the development of the next general forest management plans (GFMP).

The draft directives proposes a global management approach for the maintenance of biodiversity and the management tools used within the framework of the pilot project were limited to the use of forest protection and development objectives (FPDOs) developed by the MRNF in addition to the measures under the Agreement. Let us not forget that on the provincial and regional scale, the Quebec government is proceeding to the setting up of a network of protected areas representative of Quebec's biodiversity so as to cover 8 % of the area of the territory. Thus, several organizations and stakeholders analyze the territory within the framework of the Quebec Strategy on Protected Areas. Moreover, strategies aiming at the maintenance of the woodland caribou in developed territory have been prepared and management approaches are under review. The draft directives also aim at protecting and developing wildlife habitats identified by the Cree while integrating their knowledge from the very beginning of the forest planning process. This way, the taking into account of wildlife species and of their habitats on a plus fine scale will also contribute to biodiversity maintenance. The large and smaller scale approaches are not only compatible with but are essential to the viability of species within their ecosystems.

1.2. Description of the pilot project and of the structure of its setting up

On April 1rst, 2005 the chairman of the CQFB gathered the representatives of the MRNF and of the Cree party in order to exchange on the various aspects of the project among which the definition of the specific objectives to be pursued and the setting up process of the pilot project.

Two specific objectives were then defined:

1. Experiment, on given traplines, the implementation of the strategies and modalities proposed in the draft directives on the protection and development of wildlife habitats and;
2. Spell out a real and meaningful Cree participation process that integrates itself into the planning process of forest management activities.

In order to ensure the setting up of the project, an advisory committee, in charge of the policy and monitoring of the project, assisted by a coordination committee, in charge of its implementation, were created. The steering committee was co-chaired by a representative of the ministère des Ressources naturelles et de la Faune – Secteur Forêt (MRNF) and a representative of the Cree Regional Authority (CRA) while the coordination committee was coordinated by a representative of MRNF-Secteur Faune Québec. On each of the two committees, representatives of Forêt Québec, Faune Québec, and the Cree Regional Authority, the Cree Trappers Association, the joint working groups (JWGs), of the forest industry and of the Waswanipi Model Forest contributed to the realization of the project. The Secretariat of the CQFB ensured, throughout the project, support towards its realization.

Considering the tight schedule within which the project had to be carried out, the CQFB hired a consultant forest engineer as project manager to work in close collaboration with a wildlife technician of the regional office of Faune Québec in Chibougamau.

A graph showing the setting up structure of the project and of its collaborators is set out in appendix 1.
.

2. METHODOLOGY

2.1. Selection of the pilot project experimentation territories

So as to identify the experimentation, different criteria were identified. From the beginning, it was deemed desirable that traplines belonging to different communities be identified. Thus the territories sought had to:

- Be located within the territory of application of Chapter 3 of the ANRQC;
- Be partly covered within a five year plan (FYMP) thus not closed to forest interventions;
- Ideally be located in a sector unaffected by the 2005 fires considering the workload already expected of the tallymen and the JWGs in addition to the degree of emergency associated to the special burnt wood monitoring plans;
- Allow the participation of tallymen and agreement holders who showed real interest for the pilot project. This criterion was identified as being the most important since the collaboration of these stakeholders was essential to the realization of the project within the proposed schedule.

The JWGs (Cree members and MRNF) were invited to suggest potential territories for the implementation of the pilot project. Thus, it was recommended to the Advisory Committee and accepted on August 30, 2005, that traplines O-59 and W-24B be chosen as sites for the experimentation of the pilot project.

2.2. Location of the experimentation territories

2.2.1. Trapline O-59

Trapline O-59 (figure 1) is under the responsibility of tallyman Mr. Matthew Wapachee of the Oujé-Bougoumou community. This trapline is located between latitudes 49° 31' 55'' and 49° 55 ' 54'' and longitudes -74° 26' 02'' and -73° 44' 43''. Its total area covers 994 km^2 of which 349 km^2 are within the territory of application of Chapter 3 of the ANRQC, 379 km^2 are located in the territory of the Baril-Mooses Agreement and the municipalized territory of Chibougamau counts 266 km^2 of the trapline. The main water expanses within the ANRQC are lakes Chibougamau, aux Dorés, Caché and Armitage. In all, 615 km^2 of this trapline were chosen for analysis within the framework of the pilot project, that is the sectors within the territory of application of Chapter 3 of the ANRQC along with the municipalized territory of Chibougamau.This choice is justified by the fact that a part of the 25% of wildlife interest identified by the tallyman is located in municipalized territory and by the need to deal with a certain number of the tallyman's wildlife areas to carry out the experiment.

2.2.2. Trapline W-24B

Trapline W-24B (figure 1) is under the responsibility of brothers Dennis and Louis Blacksmith of the Waswanipi community. It is located between latitudes 49° 09' 01'' and 49° 21' 08'' and longitudes -76° 13' 24'' and -76° 32' 57''. The total area of the trapline is 386 km^2 and is all located within the limits of application of Chapter 3 of the ANRQC. The main water expanses of this trapline are lakes Pusticamica, Lymburner, Ruette and Bone.

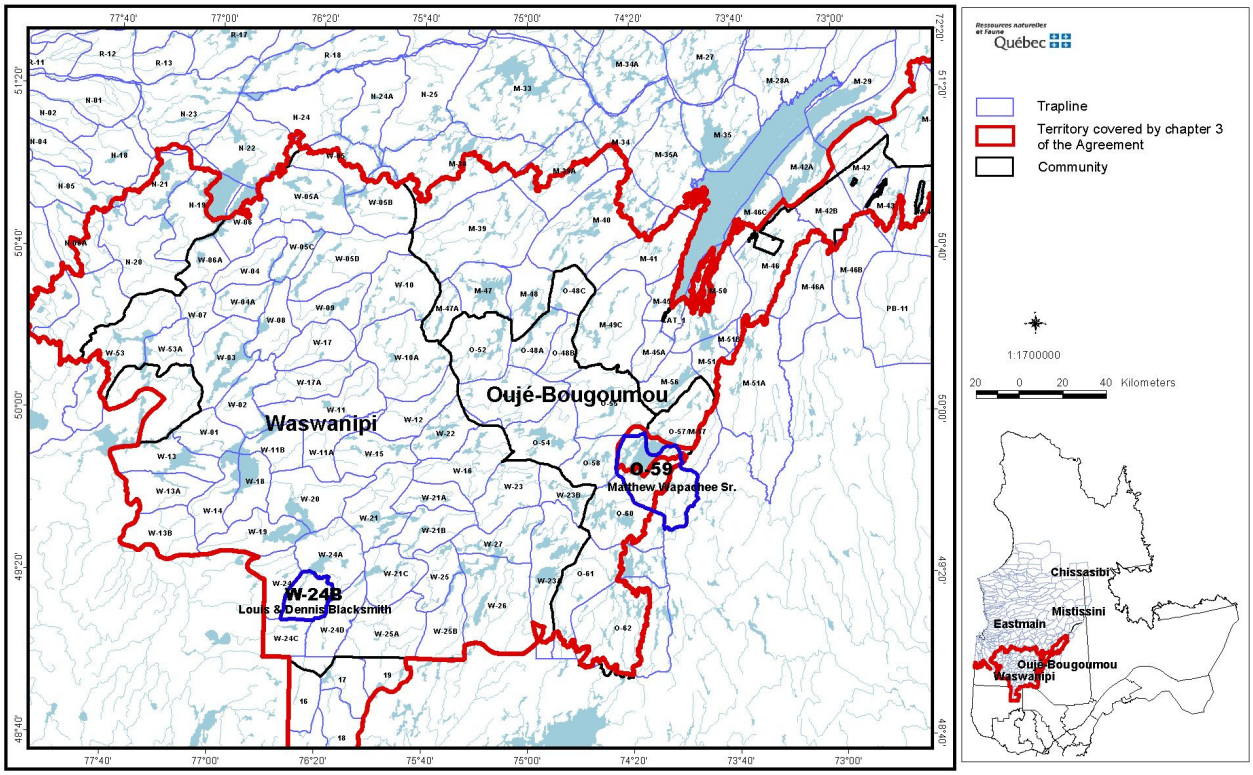


Figure 1. Location of traplines selected for the pilot project (O-59, W-24B)

2.3. The approach used within the framework of the pilot project

The approach used for the setting up of the pilot project comprises 3 steps (figure 2). The first one consists in identifying a priori the wildlife knowledge, both scientific and traditional. The second includes the integration of all this available knowledge, the optimal application of harmonized measures, and the consultation of the concerned stakeholders. Then finally, the third step aims at developing the forest plans of selected territories by taking into consideration all the available information including the biophysical knowledge and the specific wildlife habitats development and protection objectives.

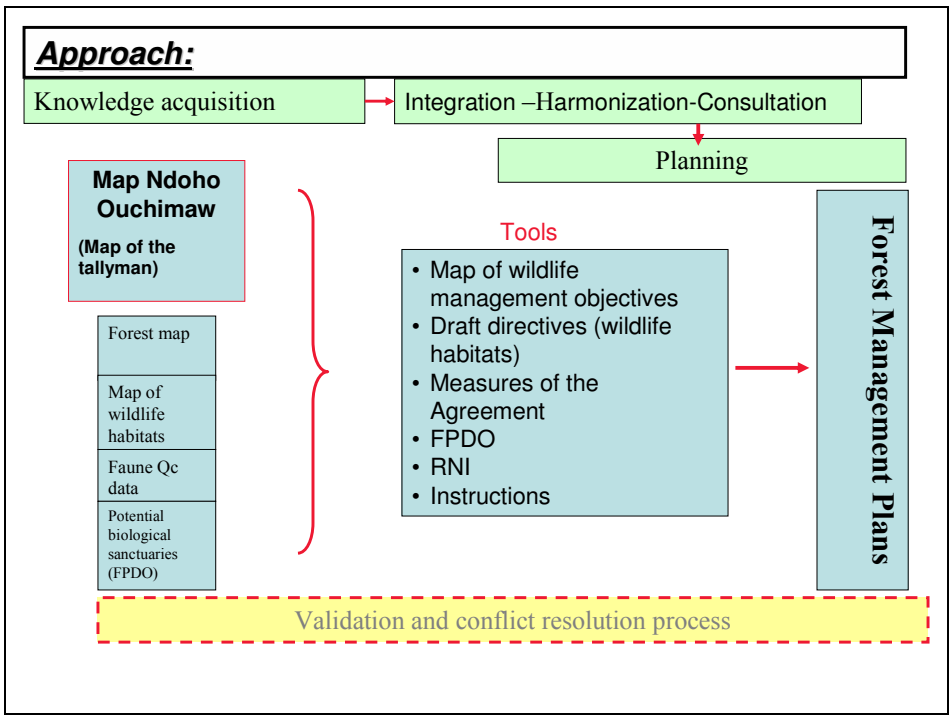


Figure 2. Approach to integrate the protection and development of wildlife habitats into the planning process of forest management plans.

The approach is carried out according to the analytical approach set out in annex 3 of the draft directives on the protection and development of wildlife habitats. Tools such as the tallyman's map, the forest map and the map of wildlife development objectives were inspired by the work of the Cree Waswanipi Model Forest (CWMF) team.

2.3.1. Elaboration of a questionnaire, interviews with the tallymen and mapping of the sites of wildlife interest

A questionnaire was developed in order to monitor the interviews with the tallymen (appendix 2). The aim of the questions prepared was to enable the tallymen and the members of their family to explain the use they make of the territory and indicate according to their knowledge the location of wildlife habitats of special interest. Wide-range and more precise questions were drafted so that, right off the bat, the tallyman feel comfortable expressing all his concerns regarding wildlife habitats and the importance he gives them. The questionnaire was not considered as a limited one thus allowing all sectors and concerns identified by the tallymen to be noted.

Prior to the interviews, a meeting was held between the interview team and the tallymen accompanied by members of their family in order to inform them about:

- The context of the pilot project in order to indicate clearly its origin, the mandate given by the CQFB and the experimentation framework within which it fits in;
- The confidentiality of shared information (wildlife sites and use of the territory);
- The use of these informations within the framework of the pilot project, which will be conveyed through a map of wildlife development objectives validated by the tallyman. Subsequently, the information will be shared with the industry forest planner for the realization of the theoretical forest management plans;
- The significance of the information provided by the tallyman and of the overall outcome.

The interview team was made up of a wildlife technician, a Cree co-researcher accompanied by the professional in charge of the project and off and on by the coordinator of the pilot project. Sometimes, JWG members joined the team. Originally, only tallymen were targeted as interview participants. However, at their request, other family members participated in the gathering of information.

The interview were carried out with the help of questionnaires and maps 1: 20 000 and 1: 50 000. The information provided by the tallymen was noted on forms as well as on maps prepared for this purpose. The interviews were carried out in English and the people in charge of the interviews had to validate their understanding with the co-researcher in order to ensure accurate transcription of the information provided by the tallymen. Maps were given to the tallymen to enable them to proceed to the identification of wildlife areas with their relatives. Thus, between each meeting with the interview team, they could take the time they needed to locate the wildlife sectors of interest.

The interviews also aimed at clarifying the tallymen's wildlife objectives justifying the choices of location of the sites of interest making up the 1% and the 25% as defined

in the Agreement. However, the choice of these identified sites as well as their location was not challenged within the framework of the experiment.

Let us mention that in order to realize the mandate of the pilot project on schedule the members of the interview team had to sometimes modify their work schedule, particularly as certain tallymen wished to hold the exchange meetings in the evening.

2.3.2. Knowledge of the territory

2.3.2.1. The tallymen's wildlife sites and their use of the territory

During the interviews, the tallymen drew the boundaries of the sites of interest on the maps, indicated the wildlife species targeted and the period they frequented the sector. The information obtained was digitized with the help of the software Arc View 3.3 then a tallyman's map (called « Ndoho Ouchimaw map »), validated by the tallymen in charge, was produced for each of the traplines. All this information is dealt with confidentially.

2.3.2.2. MRNF (Faune sector) wildlife data

Through its knowledge acquisition work and the wildlife information already available, the MRNF Faune Québec sector has produced a georeferenced database locating wildlife sites for the pilot territories. Thus, we can find there mainly spawning sites, moose wintering grounds, nesting grounds or over wintering grounds for waterfowl, threatened species habitats, etc. In order to take this information into account at the very beginning of the preparation of the forest management plans, the numerical layers of the known wildlife habitats in the traplines concerned were added to complement the information provided by the tallymen.

2.3.2.3. The forest and wildlife habitats

Drawing up a picture of the forest and potential wildlife habitats is essential in order that wildlife and forest managers achieve a good understanding of the state of the traplines. Various methods have been developed in order to allow the use of forest inventory data for potential wildlife habitat inventory purposes. Ecoforest maps produced by the Direction des inventaires forestiers of the MRNF inform us, among other things, on the types of forest stands and their average height.

In order to carry out the analysis of the territory, a methodology developed by Potvin and al. was used (table 1). In his study, Potvin and al. mention having chosen not to use models of' habitat quality index (HQI) preferring building on the knowledge acquired by authors during the last 15 years of research in boreal forest. The method chosen to draw up the state of the forest and wildlife habitats uses the ecoforest database (SIEF) data base in order to group together different forest stands according to their height. A habitat quality rating for four wildlife species: the moose, the hare, the marten and the spruce grouse is then attributed. Considering the fact that the tallymen did not consider, only the other three species were considered for analysis purposes.

Table 1. Grouping together of forest environments (stands and height) in relation with a quality habitat rating for the moose, the hare and the marten

Type of environment [a]	Habitat rating [b]		
	Moose	Hare	Marten
Productive forest area <1,5m (disturbance: Harvested, Burnt)	3	3	3
Productive forest area 1,5 and 4m (disturbance Harvested, Burnt)	2	2	3
Productive forest area 4 to 7m	1	1	2
F, M, R with FIR 7 to 12m	1	1	1
R without FIR 7 to 12m	2	2	1
F,M, R with FIR >12m	1	2	1
R without FIR >12m	2	2	1
Alders	2	1	3

[a] F= deciduous stand
M = mixed stand
R with FIR = softwood stand with >25% of fir
R without FIRB = softwood stand with <25% of fir

[b] 1 = GOOD Habitat
2 = AVERAGE Habitat
3 = POOR Habitat

Taken from Potvin and al.

Thus, thematics related to forest environment and to moose, hare and marten wildlife habitats, were produced, as proposed by the Potvin and al. classification.

The forest thematics allows the visualization of recently disturbed sectors, those undergoing regeneration as well as priority forest stands with regard to wood harvest. The moose, hare and marten themes allow the location of sites of interest offering good habitat potential for these species. These wildlife-forest thematics, analysed in parallel, are useful in the elaboration of wildlife management objectives maps and during forest planning for they enable the orientation of forest

management choices in taking the wildlife potential of the territory concerned into account.

2.3.2.4. Forest protection and development objectives (FPDOs)

The FPDO were developed by the MRNF following public consultations. Their aim is to foster a more polyvalent and integrated use of the forest environment in order to ensure forest sustainable management especially with regard to the preservation of biodiversity. The FPDOs will be gradually integrated into the forthcoming general forest management plans.

In the draft directives on the protection and development of wildlife habitats, an optimization approach regarding the FPDOs is proposed in order to ensure that forest management take the protection and development of wildlife habitats identified in the territory into account, approach in which the tallyman and forest planner should both work together in collaboration.

The FPDOs considered within the framework of the realization of the pilot project are the following: FPDO 4 dealing with mature and overmature forests that is biological sanctuaries (2%), old-growth patches (10%) and adapted practices (7%); FPDO 8 dealing with dead wood, that is riparian strips (20%) and clusters (5%); and FPDO 7 dealing with pre-commercial thinning (PCT) (max 66% or 90% of PCT).

In order to optimize FPDO 4 « biological sanctuaries », the Direction de l'environnement forestier of the MRNF proceeded to the analysis of the forest stands most likely to make up these sanctuaries in the traplines concerned. This work has enabled to choose mature stands (90 years old, 120 years old, old irregular stands, corresponding to patches in late successional spruce and fir, which especially exclude intolerant hardwood stands as well as grey pine stands. This "biological sanctuary" thematic was prepared in order to check if these sectors could also protect wildlife sites of priority interest presented by the tallyman.

On the other hand, exceptional forest ecosystems (EFE) were considered within the experiment. They represent areas that can be posted as potential biological sanctuaries; however, none of these sites was located in the traplines selected.

2.3.3. Summary of available information and analysis

Wildlife habitats known to the tallymen and Faune Québec data were mapped for the traplines concerned. Afterwards, with the help of the forest thematics, wildlife habitats thematics (from Potvin and al. classification) and FPDO thematics

(biological sanctuaries), these sites were analyzed one by one in view of checking the applicability of the draft directives measures and make a choice among the forest management strategies and measures that will enable to protect and develop wildlife habitats.

Essentially, the approach taken to protect wildlife habitats or of use identified by the tallyman was to use: 1- the measures of the Agreement, 2- the FPDOs (especially biological sanctuaries, PCT and dead wood), 3- the elements of the draft directives on the protection and the development of wildlife habitats in which measures provided for in the Agreement and references to the FPDOs are often found.

To illustrate this, the forest left standing by the mosaic cutting provided for in the Agreement offers the possibility of selecting residual stands according to the potential of quality habitat for wildlife. In addition, FPDO 4 deals with biological sanctuaries and these will not be included in forest management. It thus seemed possible, when the stands met the criteria of the FPDO, to harmonize their location to the places identified by the tallyman, especially when the latter wished to have complete protection for a wildlife site.

The tallymen's sensitive sectors were analyzed in order to select priority residual stands for wildlife. The habitat and measures related to the moose were analyzed simultaneously with those of the marten for the tallymen of both territories harvest these mammals at the same time during the winter period.

The quality of habitats for wildlife must be analyzed on the scale of its vital domain (Potvin and al.). In order to maintain at all time quality habitats in the sectors identified by the tallymen, good quality stands for the moose were considered on 2 scales: on the wildlife area identified by the tallyman and on a 25 km^2 area and a 10 km^2 area. Finally, for the hare, good quality habitats were analyzed on the scale of the wildlife area identified by the tallyman as well as on the scale of 1 km^2. The objective was to maintain habitats of potentially good quality within the areas of wildlife interest identified by the tallymen in order to offer environments able to support animal populations. When the habitat areas considered were weak, the best stands were identified as sensitive and forest interventions in these sectors were avoided. In the case were several species were identified for a same habitat by the tallyman, the species most sensitive to the modifications of the habitats should be priorized. These spatial analyses of habitats were solely realized in identified wildlife sites and not in the whole trapline.

The analyses of wildlife-forest knowledge available for each of the trapline as well as of the implementation of management strategies have led to the production of a wildlife management objectives maps.

2.3.4. Mapped wildlife management objectives

At the beginning of the pilot project, the work team was informed of the sensitivity related to the confidentiality of raw information provided by the tallymen. So since the tallyman were given free rein during the gathering of data, some of the data happened to be located outside the territory of application of Chapter 3 of the ANRQC and could not therefore be used within the framework of the current project. Moreover, information such as a water game-hunting site in the middle of a lake has no impact at all on wood harvest activities. Thus, in order to: 1) de respect data confidentiality, 2) integrate forest and wildlife knowledge available, 3) keep only the information essential to forest management, 4) and develop a stakeholder friendly work tool, the pilot project team produced a wildlife management objectives map, which mainly sets out::

- The 1%: sites of special interest for the Cree;
- The 25%, sites of wildlife interest for the Cree;
- A 75 ha: area identified by the tallyman and designated the firewood supply of the camps;
- Objective “Excluded from silvicultural activities” (ESA) reflects mainly the small game hunting sectors used by tallymen;
- Objective “Priority Protection Stand” (PPS) reflects stands of interest presenting good wildlife potential in sectors sensitive for the Cree;
- Objective “Potential Biological Sanctuaries” (PBS) sets out the important territories where the tallymen wished that sites be protected. The stands selected meet the criteria of biological sanctuaries;
- Objective “Land Use” (LU) refers mainly to portages, roads and paths used for hunting small game. The sites of temporary camps are also included in this protection objective;
- The “Riperian zones of interest » (RZI) reflect the sectors identified for species of semi-aquatic furbearing animals as well as spawning grounds.

2.3.5. The preparation of forest management plans

Harmonized forest plans were prepared on both traplines of the pilot project from the ecoforest data layer of the wildlife management objectives map and of the industry’s forest planning when available.

Analyses were made in order to identify stands of interest as much for wildlife as for the industry. Essentially, the residual forest preserved comes from priority stands retained on the wildlife management objectives map. The stands of priority protection for wildlife are made up, for the most part, of hardwood and mixed stands, but also of softwood (Potvin et al.) while the stands of interest for the industry are essentially made up of softwood forests of 7 metres and over.

Sectors were selected in the trapline to produce a harmonized forest management plan. In the course of the development of the harmonized management plans, good potential habitats were maintained in the wildlife areas and part of them were earmarked for harvest in order to ensure that after the second cutting a certain number of these good habitats remain in the sectors identified by the tallymen so as to avoid that all the good habitats be harvested.

2.4. Analysis of the measures of the draft directives on the protection and development of wildlife habitats in consultation with the forest industry

In addition to realizing a cartographical exercise for each of the wildlife sites in order to check if the management modalities presented in the draft directives were applicable, the pilot project team, including representatives of the CQFB and the MRNF (Forêt and Faune sectors) held workshops with Waswanipi Model Forest team. And the representatives of the forest industries concerned. The meetings aimed at checking:

- The applicability and feasibility of the strategies and measures of the draft directives on the protection and development of wildlife habitats, more particularly of its appendix 2;
- The possibility of simulating the proposed measures and their risk of impact on the allowable cut.

All the measures were analysed one by one in order to emphasize the difficulties encountered.

Please note, however, that the modalities of the draft project concerning the woodland caribou were not dealt with within the pilot project because this species is absent in the traplines under review and also because the problematics related to this animal is an important one on the provincial and regional scale. Indeed, a woodland caribou recovery plan is on the verge of being published and it will be necessary to pursue the information and consultation steps as well as the implementation of the actions included in the plan in collaboration with the environment managers and stakeholders.

3. RESULTS

3.1. The approach leading to harmonized forest management plans

During the step of knowledge acquisition needed to implement the pilot project, the interviews held among the tallymen mainly contributed to document, in a more detailed fashion, the wildlife habitats of interest for the tallyman and his family as well as their use of the territory. The maps of the tallymen's sites of interest (Ndoho Ouchimaw) are the outcome of this work. The other data on wildlife habitats available at Faune Québec were, like the information provided by the Cree, considered at the very beginning of the forest planning. Ecoforest data are updated and available at Forêt Québec and enable to draw up a picture of the state of the forest of the traplines. Potvin and al. methodology has enabled to establish a link between forest information and stand potentials as wildlife habitats for 3 species (moose, marten, hare) important for the Cree, thus enabling the taking into account of the needs of these species in the course of the development of forest management plans. The objective of protection and development of biological sanctuaries (FPDO 4) offers the opportunity to optimize and to apply the measure provided for the protection of climactic softwood forests to wildlife sites of importance for the tallymen.

In the second phase (Integration, Harmonization and Consultation) knowledge gathered on the territory and the harmonization measures available were integrated and the stakeholders concerned were consulted. Thus, a map of objectives was produced to integrate the knowledge and guide the forest manager. Also, the measures of the draft directives were analyzed one by one so as to highlight the practical difficulties and feasibility related obstacles. The work was realized in consultation with the forest stakeholders concerned by the traplines under review.

In the third phase, harmonized forest plans of certain sectors were realized by taking into account management knowledge and tools in order to protect and develop the wildlife habitats identified.

Another tool essential for the taking into account of wildlife habitats in forest planning refers to the instructions related to the elaboration of general forest management plans. This tool has been added to the process diagram (figure 2) due to the need to clearly indicate within the legal framework the place granted to wildlife considerations in the territory of the "Paix des Braves". Moreover, it is essential, throughout the exercise, to provide for a conflict resolution and information validation process. This aspect has not been experimented within the framework of

the pilot project but seems to be an element of the utmost importance of the process aiming at a meaningful harmonization.

The steps set out in the following sections inform us on the possibility of producing a realistic forest planning in collaboration with the trappers and the agreement holder by using the tools available in order to take the wildlife habitats previously identified into account.

3.1.1. Interviews with the tallymen

The interviews with the tallyman of the O-59 started on September 23, 2005 and ended on November 23, 2005. From October 11, the work team went on documenting the wildlife sectors of interest with the tallyman's son. In all, 41 work hours over a period of 10 weeks were required to gather the trappers' knowledge on the wildlife sites of the trapline, realize the cartography of the habitats identified and validate the final map with the trappers. Three meetings were held in the evening in order to adjust the schedule with that of the son of a trapper.

The interviews with the two tallymen of the W-24B were carried out between September 27, 2005 and November 23, 2005. A total of 12,5 hours over 9 weeks were required to gather wildlife information in the territory, realize the cartography of the habitats identified and validate the final map with the tallymen. The mother of the two tallymen of this territory greatly contributed in identifying the wildlife areas and in documenting the use of the territory. At the tallymen's request, another big user of the trapline in the south-eastern sector was consulted.

The trappers met collaborated a lot. They expressed their desire to be heard at the very beginning of and throughout the forest planning process. They understood the objectives of the pilot project and wanted to participate in its realization and implementation in the territory of Chapter 3.

During the experimentation period of the pilot project, the members of the JWGs concerned had little time to devote to the project considering their workload. They expressed their interest in being kept posted on the project and its continuation by pointing out that their involvement in the expansion of such a project should be realized by taking their actual availability into consideration.

The maps given to the trappers enable them to work on their own with their family and facilitated the gathering of information.. Examples of wildlife sectors identified by the tallymen are set out in appendix 3. They validated the final maps and said they were satisfied with regard to the meetings held and their participation while clearly indicating their level of comfort with the information they provided.

The information obtained from the trappers of traplines O-59 and W-24B are showed in table 2. It also shows the number of wildlife sites identified per species as

well as territories of particular use. The tallyman of the O-59 has a marked interest for beaver trapping, moose and small game hunting and those of the W-24B are especially interested in the moose, the marten and the beaver.
.

Table 2. Areas of interest identified by the trappers of traplines O-59 and W-24B

	Description of the site	Number of sites	
		0-59	W-24B
BEAR	Den	1	0
	Site of interest	1	2
MOOSE	Hunting sector	9	6
	Fall sector	0	1
	Spring-summer sector	0	3
	Movement corridor	0	1
MARTEN	Trapping sector	3	3
SMALL GAME	Hunting sector	9	1
BEAVER	Active lodge	74	35
	Inactive lodge	15	3
	Trapping sector	1	8
OTHER FURBEARERS: OTTER	Feeding area	1	2
	Trapping sector	1	0
WATER GAME	Hunting sector	12	4
RIPERIAN STRIPS	Exceptional riparian area	0	0
FISH	Spawning ground	15	6
	Fishing sector	15	1
USE OF THE TERRITORY	Permanent camp	4	3
	Temporary camp	13	9
	Portage	20	12
	Cemetery	1	0
	Historical site	11	13
	Exceptional forest	1	0
	Berry gathering	0	3

In trapline O-59, the wildlife information given by the tallyman correspond to 5936 hectares (ha), corresponding to 9,6 % of the whole trapline. Of these wildlife areas, 1730 ha correspond to aquatic environment areas and it includes 2714 ha, that is 46 % within the 1 % and the 25 %. The areas of interest identified also correspond to 3889 ha of productive forest or 11,1 % of the forest productive area (FPA) of the trapline.

Concerning trapline W-24B, wildlife information specified by the tallyman corresponds to 10123 ha, equivalent to 26,2 % of the trapline. In all, 342 ha of these areas correspond to areas in a water environment. Thus, 3691 ha, that is 46 % of wildlife areas are identified within the 1 % and 25 %. The sites of interest identified also correspond to 8292 ha of the productive forest area, that is 27,3 % of the FPA of the trapline.

We can see that certain sites such as bear dens, birth and heat sites as well as moose movement corridors are difficult to locate while other sectors such as those for moose hunting and beaver lodges are better known to the tallymen. Moreover, the exercise enabled the clarification of the trappers' wildlife objectives within the 1% and the 25% and also to point out the importance of wildlife sites of interest outside these territories. For each of the traplines, about half of the wildlife areas identified were located outside the territories corresponding to the 1% and 25%. As provided for in the Agreement, and in concert with the tallymen, the harmonization of the sectors of wildlife interest must be priories within the 25% identified by the tallymen; however, in the framework of the development of a forest planning, the knowledge of wildlife sites of special interest outside the 25% can enable an orientation of the sectors of intervention so as to minimize the impact of cuttings in sectors that also have a special interest. We want to point out that the aim of the exercise was not to question the1% and 25%. However, considering that it seems that the 25% have not all been identified according to a fair understanding of the wildlife objectives pursued for these territories, there is reason to raise the possibility of optimizing the wildlife value of these territories of interest.

3.1.2. Additional information from Faune Québec

Faune Québec has a certain amount of information regarding wildlife habitats (appendix 4). On trapline 059, 42 spawning grounds have been identified. Among them, five are associated with the yellow walleye (*Stizosteidon vitreum),* 2 are associated with the sea trout (*Salvelinus fontinalis),* 11 to the lake trout (*Salvelinus namaycush)* and for the other sites, and the species present have not been identified. In all, 6 spawning grounds superpose upon each other or are near those identified by the tallyman.

Where threatened species are concerned, two among them have been located in the 25 % identified by the tallyman: the southern bog lemming (*Synaptomys cooperi)* and the rock vole avian fauna (*Microtus chrotorrhinus)* (Source CDPNQ). Moreover, the rock vole was the subject of an inventory in 2001 and was located in this trapline.

Where wild birds are concerned, a heronry, 9 nesting areas as well as a concentration area of waterfowls are also present.

Where the moose is concerned, little information is available with regard to moose yards for when the 2003 aerial inventory was carried out; no parcel was flown over in this territory. Only one moose yard was inventoried in 1996 and it is located outside the limit of the territory of application of the Agreement.

In the W-24B trapline, 4 moose yards were inventoried in 2003 and another was inventoried in 1996. It is interesting to note that of the 5 moose yards identified by Faune Québec during the aerial inventories, all are located on the border or in the moose wildlife areas identified by the tallymen. We can add to the information available on this territory, 13 spawning grounds, of which 2 are used by the walleye, one by the lake sturgeon (*Acipenser fulvescens)* and 10 by unidentified species.

The data provided by Faune Québec are presented in addition to the information provided by the tallymen so as to be considered at the very beginning of the design of the forest management plans.

3.1.3. The forestry portrait of the traplines

- **O-59**

As previously mentioned, because part of the 25% of wildlife interest identified by the tallyman is located in municipalized territory, only 61 562 ha of this trapline, of which 32 % are covered by water, 9,2 % by wet barrens and 2 % by dry barrens, alders and others. was retained for analysis purposes within the framework of this project. From a global point of view, softwood stands with less than 25%of fir with a height above 7 metres (m) cover 17 978 ha corresponding to 29,1 % of this territory, Harwood softwood and mixed stands with more than 25 % of fir cover an area of 3 862 ha, that is 6,2 %. Regeneration sectors (4 to 7 m) account for 5,6 % (3 421 ha) and the areas recently disturbed (tree height below 4 m) account for 15,7 % of the territory, which corresponds to 9 650 ha.

From the strict point of view of the exploitation of crude wood material, within the 350 km^2 of Chapter 3 of the ANRQC, the PFA of this land covers 24 626 ha of which 60,1 % of the stands have a height of 7 m and more. The forest industry seeks these stands. Furthermore,15,3 % of this area is covered by trees with an average height between 4 to 7 m and on 24,6 % of this we find recent disturbances (height from 0 to 4m). The O-59 is still open to forest harvest because the level of disturbance has been of 24,2 % for the last 20 years. This trapline is a bit more disturbed than the W-24B. The level of annual allowable harvest in this trapline 6 % or the equivalent of 1 477,6 ha, of which 132,8 ha of crude wood material can be harvested annually in the 25 %, thus corresponding to 2 % of the productive area**.** An example of a map showing the forest thematic is set out in appendix 4a.

- **W-24B**

Trapline W-24B as a whole covers 38 631 ha. The water area covers 5,6 % of this territory, wet barrens represent 15,1 % and dry barrens, alders and others amount to 2,8 %. Globally, softwood stands with less than 25 % of fir measuring more than 7 metres cover 17 906 ha and cover 46,3 % of the territory. Harwood, mixed and softwood stands with over 25 % of fir represent 3 886 ha, or 10 % of the trapline. The sectors under regeneration (4 to 7 m) cover 5 % or 1 928 ha. Finally, the areas recently disturbed (less than 4m) total 5 846 ha corresponding to 15,1 % of the whole trapline.

Thus, on the forest exploitation level, the FPA covers 29 566 ha. Seventy percent of this area is made up of forest of 7 m and over, 7 % is made up of stands of average height (4 to 7 m) and 23 % are recent disturbed sectors (from 0 to 4 m, mainly due to cutting). All in all, the forest of this trapline has been relatively little disturbed and this territory is still open for the harvest of crude wood material. The level of disturbance (which includes fires and cuttings) is of 15 % for the last 20 years, which brings us to a level yearly allowable cut of 6%, which brings us to a level of annual allowable cut of 6 %, which amounts to 1 764 ha. Of these 1 764 ha, 147 ha could be harvested in the sites of wildlife interest (25 %), that is 2 % annually. An example of a map showing the forest thematic is set out in annex 4b.

3.1.4. An overall view of wildlife habitats

The cartography of potential wildlife habitats for the moose, the marten and the hare according to the Potvin and al. method is set out in appendices 6, 7 and 8. Good marten habitats are mainly softwood stands with or without fir and hardwood and mixed stands all over 7m high. Good moose habitats are hardwood, mixed and softwood with fir trees over 7m high and productive forest sectors that have a regeneration of 4 to 7m high. As for good hare habitats, they are those stands of hardwood, mixed and softwood with fir of 7 to 12m high and alders and productive forest areas with 4 to 7m regeneration. Softwood stands with a height over 7m are good marten habitats and are also sought for the harvest of crude wood material. During the years to come, the marten habitat, among others, is at risk of being the most impacted by the renewal or rejuvenation of the forest related to wood harvest.

Table 3 shows, for trapline O-59, the results of the process of the ecoforest data according to habitat quality rating. It sets out the areas of potential wildlife habitats for the moose, the marten and the hare. In a productive forest area 350 km^2, 218 km^2 to be good potential habitats for the marten 73 km^2 are especially interesting for the moose and 51 km^2 suitable for the hare. These areas cover respectively 63 %, 21 % and 15 % of the productive forest sites.

This table also shows for trapline W-24B habitat areas for the three species mentioned, rated according to their quality potential. In a forest productive area of 300 km^2, good potential moose habitats cover 57 km^2, those for the marten cover an area of 216 km^2 and 27 km^2 are also identified as being good quality hare habitats. The best potential habitats cover respectively 19 %, 72 % and 9 % of the productive forest area..

Table 3. Potential wildlife habitats for the moose, the marten and the hare in traplines O-59 and W-24B.

Species	Quality of the layers	Habitat area (km^2) O-59	% Productive forest area O-59	Habitat area (km^2) W-24B	% Productive forest area W-24B
	Good	73	21%	57	19%
Moose	Average	196	56%	195	65%
	Poor	82	23%	49	16%
	Good	218	63%	216	72%
Marten	Average	34	10%	18	6%
	Poor	98	28%	66	22%
	Good	51	15%	27	9%
Hare	Average	218	62%	225	75%
	Poor	82	23%	49	16%

Table 4 shows, for the wildlife areas identified by the tallymen, habitats areas for the moose, the marten and the hare, rated according to their quality potential. As for O-59, we can see 12 km^2 of good quality habitats out of a total of 32 km^2 of habitats, which means that 37 % of the productive forest area (PFA) is located within the areas identified by the trappers for the moose. For the marten, there are 25 km^2 (76 % PFA) of good habitats that cover the areas identified by the trappers and for the hare, 2 km^2 (48 % PFA) of good habitats are located in the identified wildlife areas. It is interesting to observe that the tallyman located very few wildlife areas in poor habitats. The results obtain from Potvin and al. methodology enabling the identification of good potential stands for the moose, the marten and the hare and the areas identified by the tallymen also demonstrate good complementarity among scientific and traditional knowledge.

As for trapline W24B, good quality moose habitats included in the areas identified by the trappers cover 22 % of the PFA. Good marten habitats cover 63 % of the PFA in the areas identified by the trappers. In this trapline, the areas identified for harvesting the hare are linear: this is why no area is available in this table for this activity in this table.

Table 4. Potential habitats for the moose, the marten and the hare in the wildlife areas identified by the tallymen of traplines O-59 et W-24B.

Species	Quality of layers	Habitat area (km^2) Wildlife habitats O-59	% Productive forest area Wildlife areas O-59	Habitat area (km^2) Wildlife areas W-24B	% Productive forest area Wildlife areas W-24B
	Good	12	37%	12	22%
Moose	Average	19	59%	33	59%
	Poor	1	4%	10	19%
	Total	32	100%	56	100%
	Good	25	76%	38	63%
Marten	Average	7	20%	8	13%
	Poor	1	4%	14	24%
	Total	33	100%	60	100%
	Good	2	48%	0	0
Hare	Average	3	52%	0	0
	Poor	0	0%	0	0
	Total	5	100%	0	0

3.1.5. The optimized FPDOs

The use of ecoforest maps has enabled the identification of forest stands that meet the criteria of biological sanctuaries, which are essentially mature spruce and fir stands (90 years old ad over) (example appendix 9). Moreover, other criteria, such as minimal area, must be met in order to pinpoint with precision the positioning of biological sanctuaries. Hardware stands could not be considered as biological sanctuaries for they are not considered, according to the guidelines established for the identification of biological sanctuaries, as climatic stands.

The exercise carried out enabled to observe that in trapline O-59, 186 km^2 of forest stands can be initially considered for the application of FPDO 4, biological sanctuary. The stands identified correspond to 53 % of the studied PFA of the trapline. Concerning trapline W-24B, mature spruce and fir stands cover 164 km^2, which represents 54 % of the PFA of this territory.

However, it is important to mention that these results were only used as general guide in the distribution of biological sanctuaries in the territories for the other criteria, such as minimal area, were not verified on the whole of the stands. Nevertheless, for some very important sectors for the tallyman, a potential biological sanctuary, in compliance with the minimal area of a single unit (100 ha), was then located on a wildlife objectives map.

This analysis demonstrates that on these traplines, a strong proportion of forest stands meets the basic criteria of FPDO 4 “biological sanctuary” and that it is possible, by involving the tallyman in the location of these areas, to create a synergy between the objectives to protect totally the sensitive sectors. Let us point out here that the forest company representatives mentioned they could consider such demands if the important sites are mapped and available. This exercise constitutes a model of possible optimization of existing management measures for the taking into account of wildlife habitats and example of need conciliation.

Moreover, the application exercise of the draft directives measures as well as the workshops enabled to confirm that FPDO 4, 7 and 8 could also be used as management tools especially in the wildlife areas identified by the tallymen. Please also note that it would have been interesting to be able to retain hardwood climactic stands to protect the priority habitats identified by the tallymen in full.

3.1.6. Map of wildlife management objectives: a common integration tool for the preparation of forest management plans

In order to integrate the tallyman’s knowledge on wildlife sites, Faune Québec’s data, the information regarding the forest stands industrialists seek, good potential habitats for three wildlife species and potential sectors of biological sanctuaries (use of FPDO 4), analyses were carried out to create maps of wildlife management objectives for each of the traplines.

These maps were prepared to be used as tools by forest planners, JWGs and trappers when developing management plans. Essentially, by integrating the available information (the trapper’s knowledge, forest and wildlife maps), the analysis team was looking to conserve stands to maintain connectivity between the wildlife areas identified by using the tools available (measures of the Agreement, FPDO, draft directives) to take into account the areas identified by the tallymen. Furthermore, with the help of the quality habitat map produced by the application of the grid of Potvin and al., the stands to be protected in priority were identified in the sectors sensitive for the moose, the marten and the hare. This selection beforehand enables agreement holders to quickly spot the stands to be protected in priority for the wildlife and to consider them as residual blocks when developing forest management plans. In appendix 10, two maps illustrate the wildlife management objectives.

On the Oujé-Bougoumou trapline, territories of special interest correspond to the 1 % and the 25 %, as specified in the Agreement, are integrated into the map of wildlife management objectives. As well, to meet the needs for firewood, 75 ha are earmarked for the tallyman and are integrated in the map of objectives. It also shows the forest stands suggested for exclusion from silvicultural activities (ESA),

that is 393 ha, which aim at preserving food and shelter for little wildlife, more specifically for the hare. They represent 0,6 % of the trapline area and 1,1 % of the PFA. Priority protection stands (PPP) considered good for wildlife such as the moose and the marten and that ensure a certain amount of connectivity between wildlife habitats cover 13 328 ha and amount to 21,7 % of the trapline or 37,9 % of the PFA. Among the stands that qualify as potential biological sanctuaries (PBS), 877 ha were located in order to protect a site important to the tallyman; it would appear to be a rare old forest. They represent 1,4 % of the trapline and about 2 % of the PFA. As for land use (LU) the area this objective represents is 83 ha, which corresponds to 0,1 % of the trapline area and 0,2 % of the productive area. This objective, even if not directly related to wildlife, was identified so that the industrialist be informed on the use of the sector before the planning and that the modalities of intervention in said sector may be discussed with the tallyman. Concerning the objective called riparian zone of interest (RZI), related, among other things, to the consideration of the beaver, the otter and the waterfowl, the stands identified as a whole correspond to 672 ha. They are equivalent to 1,2 % of the trapline and to 2 % of the productive forest.

Concerning the trapline of the Waswanipi community, the territories of special interest are equivalent to the 1 % and to the 25 % as specified in the Agreement and are also integrated into the map go wildlife management objectives. On this land, the family has identified no site for the supply of wood fire. The chosen stands that could be excluded from silvicultural activity (ESA) cover 251 ha and represent 0,6 % of the trapline area or 0,8 % of the productive forest area.. The priority protection stands (PPP) cover 7 071 ha and correspond to 18,3 % of the trapline or 22,7 % of the productive area. As for the stands meeting the criteria of potential biological sanctuaries (PBS), the exercise enabled to locate them in a site regarded as sacred by the family. This site is also within the 25 % of wildlife interest. These “biological sanctuary” stands cover a total area of 694 ha. They represent 1,8 % of the trapline and about 2 % of the productive forest area. Where land use (LU) is concerned, this objective covers 136 ha that correspond to 0,4 % of the trapline or 0,4 % of the productive area. Concerning the objective “riparian zone of interest” (RZI), the whole of the stands identified correspond to 2031 ha; they are equivalent to 5,3 % of the land or 3,5 % of the productive forest.

The tallymen were consulted and said they were comfortable with the objectives and sectors identified. As well, the industry considers it must necessarily know the tallymen’s objective to be able to consider them at the very beginning of the forest management planning process. The industry is interested by this product (the map of wildlife management objectives) because it sees this tool somewhat as an allocation map for the territory as a whole that sets out, in a more precise fashion, the objectives and reasons and to be taken into account. The members of the JWGs also expressed and interest towards this product that would help them carry out their mandate.

3.1.7. Harmonized and realistic forest management

The development of theoretical forest planning constitutes the last experimentation step of the draft directives proposed measures. Even if the objective of the pilot project was not to realize complete forest management plans for the pilot traplines, the development of theoretical forest planning of certain sectors of wildlife interest appeared to be essential. Thus for Waswanipi trapline W-24B, a forest planning was developed over the whole of the sectors of interest identified on the map of wildlife objectives, which was validated by the tallyman. Concerning the territory of Ouje-Bougoumou (O-59), only certain sectors of special interest required forest planning.

In order to respect the confidentiality of the information, only certain harmonized sectors will be presented in this report in order to demonstrate different approaches or tools used to take into account the wildlife objectives illustrated on the maps of wildlife objectives. Let us point out here that the participating tallymen authorized the pilot project team to present in this report part of the information their participation provided. It is however important to remember that all the detailed information the tallymen shared will have to be dealt with by the forest planners and anyone else who has access to it with professionalism and confidentiality, and that rules will have to be set for this purpose.

In order to present the information available to the planner in a concrete fashion and enable him to take into account wildlife objectives within the framework of the development of harmonized planning, as well as the approach selected, forest planning developed for certain sectors chosen in the pilot territories are described below.

On trapline W-24B, two planning sectors have been chosen to illustrate the experimentation of the draft directives measures and the use of available tools.

The first sector set out in appendices 3b and 4b was chosen for the wealth of wildlife information found there. Thus, 3 big wildlife areas of interest, which are included in the territories of wildlife interest (25 %) identified by the tallyman, enriched by Faune Québec's wildlife information for this sector, are presented. Exchanges with the family enabled to better understand that in this sector, the family practices, among other activities, moose hunting and marten harvesting. Forest planning should thus consider these knowledge and uses and be developed so as to harmonize optimally the wildlife and forest objectives pursued in said sector.

The industry had developed no forest planning for this region. The development of the forest planning of this sector was thus initiated by the analysis of maps of habitat quality and wildlife management objectives. Appendices 5b to 7b illustrate the forest and wildlife thematic produced for these sectors of specific interest. The map of wildlife management objectives is shown in appendix 10b.

The maintenance of quality wildlife habitats must be analysed according to different analysis scales based on the need of the species. An analysis zone (circle) of 25 km^2, corresponding to an analysis scale acceptable for the moose, was drawn around these sectors of interest in order to widen the analysis scale.

The analysis was conducted with the objective of fostering the maintenance of good habitats, in the sector of interest, ensuring spatial distribution of residual stands and a connectivity between these areas of interest while considering the stands on the basis of their harvest potential.

The choice of residual or cutting blocks was oriented by considering the quality of the wildlife habitats and the quality of the forest stands. Thus, as set out in appendix 12b, six hundred and twenty-six (626) hectares of forests to be harvested through mosaic cutting, as well as an adequate area of potential residual forests were planned.

The exercise enabled to demonstrate that for this territory, even if several elements had to be considered, the availability of wildlife consideration a priori of the development of forest planning and the existing tools enabled to carry out a realistic and applicable planning. The use of these knowledge and tools can only result in a better-integrated management.

In the second sector, presented in appendix 11c, the forest industry had developed a management plan in which 1 230 hectares of forest were to be harvested through mosaic cutting, leaving 1 650 hectares in residual forest. To harvest this volume, the company had planned building 27 kilometres of road.

An exercise aiming at adjusting the planning so as to take into account the wildlife objectives of the sector was initiated. The map of wildlife management objectives set out in appendix 10c constituted the basic tool used to adjust the planning. Thus, the plan was analysed on the scale of the identified sectors of wildlife interest, but also for a larger area acceptable for the concerned species. The objectives pursued were to ensure the maintenance of quality habitats in the sector and also establish connectivity and a spatial distribution of the residual forest. Several cutting or residual blocks remained unchanged but certain parts of the planning had to be adjusted in order to achieve the objectives pursued.

The harmonized management plan resulting from the integration of wildlife considerations and set out in appendix 12c is made up of 1 260 hectares of mosaic cutting and 2 340 hectares of potential residual forest. Twenty-one (21) kilometres of road were planned to carry out the harvest of the cutting blocks. Twenty-four percent (24%) of priority protection stands (PPP) identified on the map of objectives in this sector were planned in harvest in order to provide for the regeneration of part of these habitats and in order to avoid that these stands be harvested as a whole during the second cutting. Here again, the harmonized forest planning is theoretical and could have been supported in a more detailed fashion. However, within the

framework of the project and its time frame, it was agreed to confine ourselves to this level of experimentation. The exercise nevertheless demonstrates that there is leeway at the planning level and that it is possible to take wildlife objectives into account.

In trapline 0-59, a sector presented in appendix 9a was harmonized by protecting 347 hectares of forest of exceptional character. Use of the tool offered by the application of FPDO 4 on biological sanctuaries was privileged. Considering the interest expressed by the tallyman for this sector and the fact that an important part of the stands in the site meets the criteria of biological sanctuaries, the creation of a synergy between the tallyman's objectives and the creation of biological sanctuaries per trapline was chosen. The sector is thus proposed as biological sanctuary for this trapline and the final location of the biological sanctuary will have to meet the criteria established by the Minister, including the one related to minimal area.

In another sector of this territory, which is presented in appendix 11a, the industry had developed forest planning for the year in progress on part of the sector of wildlife of specific interest. The sector of interest identified on the map of wildlife management objectives only affected 6 % of the industry's cutting planning. Thus, in the east of the sector of interest, 247 hectares of mosaic cutting had been planned with 326 hectares of residual forest. According to the map of wildlife management objectives, the forest planning had to enable the maintenance, in this sector, of habitats of specific interest to the bear, the marten and the moose. Let us point out here that the sector identified by the tallyman corresponds entirely to an area of wildlife interest provided for in the Agreement (25 %). Following the analysis of the tallyman's wildlife objectives and the quality of the wildlife habitats of this sector, seen on the scale of the area of interest identified by the tallyman but also on the scale of the vital domain of the species concerned, the forest planning proposed initially was not modified (appendix 12a) because it was deemed that it did not compromise the wildlife objectives pursued in this sector.

As mentioned, the objective of the pilot project not being to produce complete planning, the exercise remains theoretical and incomplete. However, the forest planning developed in the sectors of wildlife interest and prepared with the help of forest data, maps of wildlife management objectives and sometimes forest company planning, are realistic. They take into account the requirements of the "Paix des Braves", the draft directives proposed measures, other forest standards, the industry' requirements regarding harvestable volume, forest road systems and operational constraints as well as identified wildlife areas.

The economic impact of the proposed harmonizations has not been assessed in the framework of the project. However, it seems important to mention that tools, such as the software *Wood procurement planning tool (WPPT),* are available and would enable the industry to optimize the harmonizations that can be found in the plans (Lowell et al. 2004).

The development of forest planning has enabled to demonstrate that, generally speaking, the strategies stemming from the draft directives aiming at protecting and developing wildlife habitats in relation with the tools available can be used and optimized to harmonize forest activities so as to consider the needs related to the maintenance of quality habitats for wildlife in the sectors identified by the tallymen. The preliminary analysis of the basic knowledge of the territory, as much wildlife related as land use related, enables to orient forest planning towards an increased harmonization uses of the environment.

3.2. Applicability, feasibility, and simulation possibility of the measures of the draft directives on the protection and development of wildlife

The detailed analysis regarding the applicability, feasibility and simulation possibility of the measures of the draft directives on the protection and development of wildlife habitats was carried out with the forest collaborators and is set out in annex 13. By applicability, we mean the possibility of integrating into a management plan the proposed management modality and by feasibility what is feasible, attainable, considering the technical possibilities among other things.

3.2.1. Modalities for the black bear

It is very rare that black bear dens as well as movement corridors can be located during forest outings. The information gathered on this species during the consultation with the tallymen pertains to only one den and a few hunting sectors. The analysis carried out shows that most of the proposed measures for the protection and development of the black bear's habitat are considered applicable to the extent that the comments presented in appendix 13 are examined. Mainly, it is desired that the measures be more monitored in order to limit the different interpretations. Thus, by referring to existing tools, it would be possible to use residual forest blocks and forest strips to protect bear dens and maintain movement canopy. Here, the notion of connectivity between the habitats is fostered over the notion of corridor.

It is mentioned in the modality (ouP3), that in the immediate sector of the bear den identified by the tallyman it would be important to avoid carrying out forest activities during the winter period.. This measure is considered applicable if the sector is identified at the start for summer intervention; however, if the cutting had to be carried out in the winter, the applicability would be more difficult. Thus, the reference to "immediate sector" is open to interpretation and this element could be clarified. The measure (ouM4) dealing with the preservation of fruit bearing trees during pre-

commercial thinning (PCT) would be presently inexpedient because assessment criteria of the activity upon completion are in contradiction with the measures of the Agreement. The modality (ouP5) aiming at excluding from scarification blueberry fields (feeding areas) seems debatable since this operation could foster blueberries plant growth. Finally, it seems that by default there is anyway maintenance of residual blocks in the vicinity of the blueberry fields (ouP6).

A certain number of bear protection and development modalities are deemed feasible, however some of them are difficult to realize. Indeed, the width of the movement corridor (ouP2) is open to interpretation and it is mentioned that reaching the objective aiming at visual obstruction would pertain more to the land and the stand. Once again here, it is desired that the notion of connectivity be adopted to maintain a canopy movement. It is mentioned that scarification (ouP5) is sometimes inevitable when required in preparing the soil in order to ensure it starts producing again. The forest industry representatives point out that the reduction in harvest design (ouM2) leads to an increase in costs as well as a decrease of available exploitable volumes. Mosaic pre-commercial thinning (ouM3) would be practicable in big sectors but could be operationally difficult in smaller ones. The collaborators wish that this measure be related to FPDO 7 to avoid negative economic impacts. Thus maintenance of fruit bearing trees in PCTs (ouM4) would be technically non practicable because leaving stems behind can lead to refusal of treatment. Greater flexibility in the standards regarding fruit bearing trees and bushes could facilitate their maintenance.

The draft directives protection and development measures specific to the black bear seem mostly to be impossible to simulate but could be considered in the annual forest management plan (AFMP) and/or the FYMP. The 100 metres radius wood edge around a den (ouP2) could be simulated if the number of sites were known and the duration of the protection indicated. The planning of small area cuttings (ouM2) could also be simulated if the dimension of the blocks is indicated. Reduction in harvest design leads to cost increase as well as a decrease of economically accessible volumes available that can lead to impacts on allowable cut. The modality (ouM4) dealing with the preservation of fruit bearing trees in PCTs could be simulated but would require precise instructions related to and integrated into the GFMPs by making the changes required in the proportions of species of the return curves in PCT.

3.2.2. Modalities for the moose

In the 2 traplines examined, 20 wildlife areas have been identified for the moose.. No calving site was identified; however a Cree family knew of 3 spring and summer sectors regularly patronized by cow mooses and their fawns. Thus, a movement corridor was located. The measures of the draft directives on wildlife habitats

dealing with the moose are all deemed applicable, but several elements were raised.

Concerning the location of residual forest blocks to protect the habitat of the moose in agreement with the tallyman (orP1), the principle seems to be applicable and the map of the portrait of wildlife habitats will enable to orient the location of the residual blocks. The feasibility of this measure obviously requires knowledge of the sectors to develop for the moose.

It is mentioned, concerning the 40 metres riparian strip without wood removal along the first 20 metres of the stream for the protection of riparian corridors for the moose (orP2), that compliance with the 20 metres without cutting causes no problem. The 40 metres would also be acceptable to the extent where the application is specific and that the widening of the strip is not systematic. It is essential that the notion of corridor be more closely monitored or preferably replace by referring to connectivity. On the feasibility level, this measure would need to be monitored more closely. Moreover, maintenance of the 40 metres strip could lead to operational difficulties regarding ulterior retrieval due, in part, to the risk of enclosing stands, which would have consequences on allowable cut.

As for priority preservation of mixed stands as residual forest (orP3), it seems that it is how things are currently done, but if allocation of hardwood stands increased, the context would change and residual blocks would be less constituted of mixed and hardwood stands. It is mentioned that this measure must absolutely be related with the mixed stand strategy being developed. The tools developed, such as the map of wildlife habitats enables to orient the location of residual blocks. It would be necessary to indicate when and how the residual stands of the mosaic cutting will be able to be harvested in second cutting. Systematic maintenance of mixed stands does not foster the regeneration of the hardwood species the moose nibbles. The feasibility of this modality will vary depending on poplar and birch allocations and on the accessibility of the territories with higher concentration of mixed stands that will also vary on the basis of the closing down or reopening of traplines.

When maintaining a forest border around a moose yard and not isolate them from the forest environment by wide cuttings (orP4) is mentioned, the stakeholders wish that it be clarified that the notion of moose yard corresponds strictly to the wintering area of the moose, that the border be considered with relation to the sector of intervention and that the principle of not cutting or disturbing the animals in the moose yard in winter prevail. Mosaic cutting (MCO) already takes into consideration connectivity. Thus, several moose yards have already been identified as sites of interest (1 %, 25 %) and cover big areas. The applicability of this measure appears debatable.

The planning of silvicultural activities such as pre-commercial thinning in collaboration with the tallyman (orP5) is a modality related to the Paix des Braves. However, industrialists deem that it may prove difficult to carry out this

harmonization measure without departing from the silvicultural strategy of the GFMP, of the obligations of the CAAF and of the standards and criteria for the evaluation of the treatment execution.

Ensuring the connectivity of the seasonal habitats of the moose (orP6) does not seem to be a problem according to the experimentation. The map of wildlife habitats can be used to orient stands of special interest.

It is suggested that modality orM1 be modified by “to favour variable retention cutting”. This measure would be practicable on the basis of the levels established in the management strategies and depending on the presence of stands that have the required structure. This could generate additional costs.

According to the experimentation of the pilot project, distribution of variable area cuttings on the territory as a whole (orM2) does not seem to cause application problems. Moreover, these measures would already be integrated. It is requested that “young forest” correspond to a “forest of 3 metres high”. The fact of leaving isolated patches is discussed on the feasibility level since it could generate loss of allowable cut. It is suggested that the notion of patches be replaced by residual area, which is more inclusive. The patches have nevertheless an ecological function in harvested areas

As for the movements of the moose (orM3), it is wished that we talk more about connectivity with the help of residual blocks instead of identifying corridors of set width. Setting up corridors would be potentially feasible but could create residual sectors enclosures.

Regarding the participation of the tallyman in the harmonisation of the schedule of activities (orM4), the potential impact of the application of this measure on the whole of the operations is questioned. It would already be difficult to organize the operation schedule with the subcontractors and the needs of the plants. An openness towards harmonization is expressed, but industrialists do not wish it become an obligation as such. In order to facilitate the harmonization of the schedule of activities, sensitive sites and seasons of use should be provided to contract holders at least 1 year in advance.

Finally, regarding the residual forest felt on 40 metres wide along certain road in order to reduce the vulnerability of the moose to hunting (orM6), it is not the applicability of the measure that is questioned as much as its relevance. On the level of operational feasibility, with regard to hauling and lopping areas, the 40 metre strip can create problems hauling wise and also create strips sensitive to windfall and cause loss of economically accessible volume.

Modalities orP1, orP2, orP3, orM2 and orM6 of the draft directives concerning the moose could be simulated and most of the measures would be applicable to the

AFMP and/or the FYMP. Comments concerning the possibility of simulation are the following:

- orP2 – FPDO 8 is applicable in the first 20 metres. Industrialist nevertheless pointed out that they presently carry out almost no harvest in forest strips... If some forest strips had to be protected in full, they could be divided into compartments and reduced by 100% in the GFMPs if they have been identified before the calculations.;

- orP3 – This measure was applied in part in the CPRS-CMO module of the 2007 GFMPs but could be farther optimized. This measure takes on a permanent nature;

- orP5 – This modality would be difficult to simulate if the tallyman's requests are not known beforehand.

- orM2 – Concerning the management strategy of the moose, departmental orientation OM-5 mentions that in principle it is the implementation of the management plans regarding the habitat of the caribou that is adopted for more northern forests (7.1) . However, there is a lot to dot with regard to the development of management strategies on the habitat of the woodland caribou in the "Paix des Braves" territory». Outside the 25 %, this measure could have an impact.

- orM6 – This modality could be integrated into the GFMPs by applying layer reduction if planning is carried out before calculation.

3.2.3. Modalities for the marten

Trappers of traplines O-59 and W-24B have identified in all 6 wildlife areas used to harvest the marten. The management strategy for this species is inspired by the Potvin recommendations (1998). They suggest distributing residual blocks according to a variety of age groups. They also suggest maintaining 50 % or more stands over 7 metres (> 30 years old) in sectors of planning areas of 10 km^2 and carrying out cuttings with retention of small merchantable stems (CRSMS) or cuttings with retention of high regeneration and soils (CRHRS) when stands can accommodate them, in order to maximize the forest internal area for the marten and reduce the perimeter of contact with little regenerated cuttings.

The implementation of this strategy does not appear to be a problem if existing tools are used. It is proposed that "superior to 30 years old" be stricken from the text of the modality. The thematics of wildlife habitats (Potvin and al.) enables to orient the location of stands constituting the best habitats. The CRSMS and CRHRS are feasible and generate higher costs, however, according to FPDO 4, companies will have to integrate adapted silvicultural practices into their forest planning. The

creation of a synergy between the application of FPDO 4 and the management of habitats of interest is practicable. It would be possible to apply this measure to the AFMP, but a certain level of CRSMS and of CRHRS can also be integrated into the GFMP

3.2.4. Modalities for small game

The modalities for small game set out in the draft directives on wildlife habitats are considered applicable, feasible and possible to simulate and the following comments were made:

Modality pgP1 aims at monitoring pre-commercial thinning in the sectors of interest for small game. It is mentioned that is possible that the treated sector does not come back to 6 500 stems/ha. This measure is considered practicable but does not fit in the current standards of pre-commercial thinning operations. It would be applicable to the AFMP and/or the FYMP but should be indicated clearly in the instructions. Moreover, this measure could be integrated into the GFMPs by making the changes required in the species proportions of return curves in PCT if the PCT has an impact on the composition of the species in the layers and on the number of stems.

Small area cutting around trapping camps (pgM1) would not cause any application problem if it is clearly indicated that this modality applies only to permanent camps. However, the people commenting wish that these sectors be located in the 1 % provided for in the Agreement. Carrying out small cuttings could generate additional operational costs, This measure could be applied to the AFMP and/or to the FYMP.

Even if this measure is already provided for in the Agreement, as previously mentioned, due to the assessment criteria of thinning activities, it would be hardly feasible. Moreover, mosaic pre-commercial thinning (pgM2) could increase operation costs. The measure would be applicable to the AFMP and/or the FYMP but the relative instructions for PCT should be revised. It could also be integrated into the GFMPs by bringing changes to the proportions of species of the return curves in PCT if there is an impact on layers species composition.

It is possible to carry out cuttings (CRHRS and cluster) (pgM3) to maintain the canopy in the sectors identified for the hare were stands are allowed. This can increase operation costs. This measure can be integrated into the GFMPs by determining a level of CRHRS if the stands can deal with it. There would be no impact at the level simulated by the MRNF.

3.2.5. Modalities for the beaver

The beaver is a species valued by the trappers met. Indeed, 136 active and inactive lodges in addition to a harvest sector were located on the maps of the traplines. Five modalities out of 6 are deemed applicable, their feasibility is questioned and most of them can be simulated. Here are the comments that were made on the draft directives guide.

It would be possible to place residual blocks of mosaic cuttings to foster the maintenance of hardwood stands in the habitat of the beaver (caP1), It is suggested that the information on ecological types be used in order to foster hardwood on the most interesting sites. The measure could be simulated and would be applicable to the AFMP and/or the FYMP. Please note that during the experimentation, it was the beaver lodges that were located while this measure refers to the upstream and downstream of a dam.

Modality caP2 aims at protecting a 20 metre strip on each side of the stream occupied by an active colony. It implies that the environment is inhabitated by the beaver and that the habitat is interesting. This modality is applicable but it is specified that according to the environment, softwood harvest could foster the growth of hardwood species. The modality could be simulated and applied to the AFMP and/or the FYMP.

Measure caP3 aims at maintaining a 40 metre riparian strip bordering lakes of less than 5 ha and streams less than 5 metres wide by allowing the harvest of a proportion of stems. Applicability is questioned, someone mentions that this aspect will have to be documented when several sectors will be concerned and that the application sectors will have to be well identified so as to foster hardwood where pertinent. This element would go against certain strategies that aim at planting fir trees in this type of stratum and this could lead to a reduction of the productive softwood forest area. The possibility of windfall is brought up as well as the restoration of limited production in the partially harvested strip. This measure could generate higher operation costs. It could be integrated into the GFMPs as layer reduction or division into compartments.

Foster the establishment of hardwood shade intolerant species in a radius of less than 60 m of the stream for the beaver (caM1) would be applicable. Ecological types should be considered and there would be risks of causing the development of a deciduous stand. This measure is applicable to the AFMP and/or the FYMP. However, if this measure was of a permanent nature, it would maybe be possible to consider integrating it to the GFMPs by modifying the harvest hypotheses in the riparian forest strips.

In low gradient sectors, it is proposed that partial cut of small strips be carried out up to the stream approaches (caM2). It is pointed out that this modality would be applicable but that it goes against the RNI and the directive of the GFMPs. Some

people wish that this measure be the subject of an experiment but it should comply with section 25.3 of the Forest Act. The application would be at the AFMP and/or the FYMP. However, if this measure is systematic, the possibility of integrating it into the GFMPs could be considered by modifying the harvest hypotheses or by dividing into compartments the zones affected.

In the sectors of interest for the beaver, the guide mentions that the development of the road access network will have to be done in collaboration with the tallyman (caM3). The measure would be applicable and its feasibility debatable since the road network is an important economic consideration. Without requiring compulsory consensus, harmonization requests for roads should be submitted a few years in advance in order to analyse the feasibility while limiting economic and forest impacts. This measure can be applied to the AFMP and/or the FYMP.

3.2.6. Modalities for waterflow

The three measures used to guide the protection and development of the habitat for the waterfowl are considered applicable and feasible with the help of residual blocks stemming from MOC. Measure saP1 could not be simulated but could be applicable to the AFMP and/or the FYMP. The saP2 could be simulated and considered either at the AFMP and/or the FYMP.. Then the saP3, which is based on the modalities of visual monitoring is already integrated into the 2007 GFMPs. A readjustment of the reduction hypotheses will have to be done according to the new identified zones.

3.2.7. Modalities for the riparian strip

During the consultations with the tallymen, no request was made concerning riparian strips. The first two measures provided for do not seem to cause problems on the applicability and feasibility levels and can be simulated. The 3rd guide seems debatable and the comments made are the following:

During the consultations with the tallymen, no request was made concerning riparian strips. The first two measures provided for do not seem to cause problems on the applicability and feasibility levels and can be simulated. The 3rd guide seems debatable and the comments made are the following:

- The measure concerning the 200 metres riparian mosaic modulated on one side or on both sides of the stream in the sensitive sectors identified by the tallymen (br1) are based on the modalities of visual monitoring that are already integrated into the 2007 GFMPs. To simulate this modality, a readjustment of reduction hypotheses will have to be done according to the new identified zones.

- In high gradient sectors (br2), it is proposed that the riparian strip on the edge of the lakes or permanent streams be widened to 40 metres and partial cutting only allowed within the first 10 metres. Its applicability mainly depends on the topography. The realization of this measure can bring about operational constraints limiting the level of intervention but usually, they are sectors where companies do not operate. Thus, technically, this treatment will be hardly carried out. This modality would be applicable to the AFMP and/or the FYMP, but the strips to be protected could be divided into compartments and the harvest hypotheses modified in the identified sectors.

- Measure br3 suggest aiming at minimizing windfall risks especially in sectors vulnerable to western winds. It is mentioned that dominant winds do not always come from the west and that operationally it would be hard to do. This measure would be applicable to the AFMP, but hard to integrate into the GFMPs with the priority harvest of vulnerable sectors for it is too specific and punctual.

3.2.8. Modalities for the fish

In all, the tallymen have identified twenty-one spawning grounds. Measure po1 suggests that no forest intervention be carried out in the riparian strips where a spawning ground has been identified. Moreover, a 40 metre-wide protection strip would be maintained along the spawning ground on each side of the stream on a distance of 40 metres, upstream and downstream of the spawning ground. It mentions that this objective can be reached through the use of residual forest. This measure could be integrated into the GFMPs by division into compartments of the targeted sectors or by the addition of a reduction to the stratum. The impact on allowable cut would be related to the number of sites identified.

Guide po2 proposes widening up to 50 metres the riparian strip when the slope bordering a spawning site is more than 30 %. It proposes to bring back the riparian strip to 40 metres as in the previous measure in order to harmonize the guides. This measure would be applicable to the AFMP and/or the FYMP. However, the borders to be protected could also be divided into compartments and the harvest hypotheses modified in the identified sectors. The impact on allowable cut would also be related to the number of sites identified.

In order to protect the spawning grounds, measure po3 recommends to forbid stream crossing over a distance of 100 metres upstream and 40 metres downstream of a spawning site. The stakeholders were open to this measure. Suggestion is made to change "interdiction" to “unless authorized by the proper authority” because sometimes, due to land conditions, crossing in the vicinity of spawning grounds may be difficult to avoid and this may generate additional costs.

This measure would be applicable to the AFMP and/or the FYMP and it is partly provided for in the RNI.

3.2.9. Modalities dealing with other strategies and recommendations

It is recommended, during forest interventions, when stand conditions are favourable, to prefer the CRHRS and the CRSMS over the CPRS (asr1). It is pointed out that this measure is indicated in the Paix des Braves. Someone also mentions that there is no advantage for the company to intervene in this way because this type of cutting causes loss of volume and incurs penalties. In addition, it requires more complex management and causes operation costs to increase. It is however possible to integrate into the GFMP a level of CRSMS and of CPHRS and of CRHRS if the structure of the stands can accommodate it.

Modality asr2 suggests maintaining and distributing retention clusters made up of hardwood and softwood species during cutting in mixed stands. Someone brings up that this measure could bring about the development of a deciduous stand in certain territories and that variable retention cutting could replace cluster cutting. This measure would be applicable to the AFMP and/or the FYMP. It would be important here to establish a link with the future strategy on mixed stands. Furthermore, this modality can be in contradiction with current calculation hypotheses.

Measure asr3 recommends that the location of sectors of silvicultural activities be carried out in close collaboration with the trapper in priority in the sectors of wildlife interest (25 %). Considering the agreement holders' duties regarding silvicultural activities to be carried out, this measure is not considered applicable unless the notion of «concertation» be replaced by that of «discussion». The measure could not be simulated and applied to the AFMP and/or the FYMP.

In the sectors of wildlife interest, it is requested that access road building be done, in priority, outside the residual blocks (asr4). The stakeholders do not see the relevance of this modality for the industry already does this. Finally, the measure could not be simulated or applied to the AFMP and/or the FYMP.
Using sound practices during the building of forest roads (asr5) would be applicable and feasible. Guides (RNI, FPDO and the guide on sound forest road system practices) are already available. This measure cannot be simulated but is applicable to the AFMP and/or to the FYMP.

The harmonization (asr6) of the land use schedule by the agreement holder and the tallyman would be sometimes difficult to carry out for the operations are already submitted to numerous economic and operational constraints. Industrialists do not wish it to become an obligation. Harmonization requests must be received long before the annual planning in order to be able to analyze et find solutions limiting

the impacts. This measure cannot be simulated but is applicable to the AFMP and/or to the FYMP.

3.2.10. General comments

Generally, forest stakeholders expressed the need to identify beacons in the use of the measures presented in the draft directives on the protection and development of wildlife habitats. They expressed interest in a guide that would give information of wildlife needs. They wish that the directives emphasize the objectives of protection or development to be pursued by using the tools that are available before presenting new measures that could be considered like a new RNI. Indeed, we must constantly be reminded that the protection of habitats of special interest does not mean that the territory of forest interventions must be protected in full, for no notion of full protection is associated to the application of the measures of the draft directives. The latter are presented to guide the protection or development of sites of special interest identified by the tallyman. Forest planners would like to know what are the tools available to help reach the protection or development objectives pursued. Let us note here that this exercise was carried out during the realization of the pilot project and appears in the column “existing tools” in the table of appendix 13. The table shows that several modalities of the draft directives are associated to a pre-existing legal framework. The summary of the territory related knowledge with the help of the tools developed (map of the tallyman, Faune Québec data, the potentials of wildlife habitats and harvestable forest stands) and existing tools (RNI, FPDO, Agreement, Draft directives on wildlife habitats) enable to carry out an integration and optimization analysis of wildlife management objectives during forest planning.
.

3.2.11. Impacts of the modalities

At first glance, several measures have a potential impact, without being necessarily significant, on allowable cut. However, each of the territorial reference units (TRU) and forest management units (FMA) being separate, the assessment of the impact of the application of these measures on allowable cut cannot be done by and large. Indeed, the number of sites of special interest identified by the tallyman, the range of these sites, the forestry portrait of the trapline concerned and the location of these sectors of interest, within the 25 % or outside the 25 % are as many factors that have a direct influence on the impact of the application of a given measure.

Generally speaking, the application of the measures within the 25 % could have a minimum of impact considering the return of the forest structure required to intervene within the 25 % versus the one outside the 25%. However, outside the 25 %, the impact could be stronger.

On the other hand, in a perspective of forest harvest with 2 cuttings as provided for in the Agreement outside the 25 %, it seems to be difficult to ensure the connectivity of the habitats at the 2nd cutting. Thus, we must mention that the management, the operation and the follow up of the measures can generate a potential increase in operation costs for the industry.

We observe that basic knowledge is essential to the analysis aiming at the application of the strategies and measures of the draft directives on the protection and development of wildlife habitats. Especially in a scenario of harmonized forest management plan, since they enable the identification of the wood harvest sectors and the analysis of wildlife habitats sensitive to interventions.

Let us remember that the application of the measures fits in within the framework of the Agreement and other existing requirements without the notion of additional full protection of the sited identified. The approach aims the optimization of existing tools in relation with the sites of special interest to ensure the maintenance of quality habitats, on different scales. We must remember that the living ecosystem is dynamic, that the habitat will change over time and that consequently animals can normally travel towards habitats that suit them as long as the rhythm of the intervention or the modification allow them to do so and that they have access to new habitats.

4. DISCUSSION

4.1. A priori and real participation on the part of the tallyman in forest planning

The approach used within the framework of the pilot project enables real and meaningful participation of the tallyman and his family, a priori and throughout the forest plan process. The process proposed an experimented is based on a proven diagnostic approach.

Information meetings with the trappers are essential. They enabled the participants to understand the pilot project and the objectives targeted. They also fostered exchanges between individuals to establish a relationship based on trust. The conditions of success in this regard are respect between the individuals, active listening on everyone's part and seeking shared understanding. Joint adhesion to the project and the time schedule as well as the people's availability are important factors that contributed to the smooth running of the interviews and to the gathering of information.

One of the difficulties we had to deal with stemmed from the trappers' desire to see their wildlife sectors better protected. To avoid creating expectations with regard to full protection of the sites, it is important to mention to the trappers that forest activities, as provided for in the Agreement, are carried out in the identified wildlife areas.

The collaboration of a co-researcher proved essential to the realization of the project. His present facilitated a great deal the exchanges between the tallyman and the interviewer, especially when translation into Cree was needed in order to ensure good communication between the parties. Moreover, the co-researcher acted as local coordinator, helped plan and organize the meetings with the tallyman and the members of his family. On the other hand, the tallymen's availability is variable, it was thus easier to hold the meetings when those in charge of the interviews travelled to the Aboriginal community or to the tallyman's home. After the exercise, the interview team observed that better monitoring could have significantly reduce the time required for the interviews and the gathering of information. Indeed, the tallymen can do a good part of the work if they are properly monitored, if they understand the kind of information sought and if they are given readable and meaningful work maps.

The interview team heard touching testimonies from the 2 participating families regarding their desire to be more involved and especially listened to by the agreement holders and the joint working groups within the framework of the consultations on forest plans. The trappers expressed their desire to see that the

pilot project completed and leads to positive outcomes results successful. They confirmed that they were comfortable with the approach used during the gathering of data and appreciated participating actively from the very beginning of the forest planning. They also said they were satisfied of the work accomplished, the information delivered and the way it was treated. Among other things, they noted that in several locations the stands considered good for the moose corresponded to forests they wanted to preserve in their territory. It was interesting to observe that, in certain respects, traditional knowledge and scientific knowledge complement each other.

The industry's involvement in the carrying out of this pilot project was indispensable. Their representatives appreciated and noted the pertinence of having, prior to forest planning, a portrait of the state of the forest and of potential wildlife habitats as well as knowledge of the trappers' sensitive sites to ensure harmonization optimization and successful forest planning.

The tools used and developed are useful and can be used as guides because agreement holders need such information prior to the forest planning process in order to harmonize interventions with Cree concerns. The industry wishes to be well-informed regarding existing measures that can meet wildlife needs so as to avoid complicating the forest planner's work. The tools enable to develop in a marked way a common vision of the territory.

The results of the pilot project lead us to believe that an exercise structured in this way would enable to initiate a meaningful participation of the tallymen in the upcoming GFMPs. To extend the pilot project to the whole territory of application of Chapter 3, the JWGs could be called upon at different levels according to their real availability. The Cree Trappers' Association is a key player among the trappers; their local participation in such a project can only be beneficial. As well, it would be essential that local authorities be well informed and support the implementation approach in order to document the territory. Considering the particularities of each community, we can foresee the need for a separate implementation approach of knowledge acquisition project for each community concerned.

Nevertheless, in order to carry on the pilot project, it appears essential to set up a qualified team to coordinate the exercise and the interviews, carry out basic analyses and produce user friendly maps of wildlife management objectives for trappers, JWGs and forest industrialists. The Faune Québec team could once more play the role of coordinator at this level. The expansion of the pilot project to the whole of the territory should start on the traplines that will be affected by the upcoming GFMPs.

For this purpose, a preliminary assessment of the traplines that will be affected by the upcoming GFMPs indicates that out of the 121 trapline divisions, 18 of them will be closed for the period of the 2008-2013 five-year plan, 9 will be affected by the

Assinica cree heritage Park project, 82 traplines will be open to forest interventions, and 12 are still waiting to be declared open or closed to this day.

So they can take trappers' wildlife information into account at the very beginning of the forest planning exercise, the information must be available to the industries as soon as possible. Trapline priorities for the expansion of the pilot project could be established, among other things according to the intensity of the forest interventions to be planned and the Trappers' desire to participate. The implementation of the continuity of the documentation of the territory project should be seen by the concerned parties on a fast track basis. Let use note that to support the expansion of such a program funding programs such as the Forest environment resource development program, phase 1 (PMVRMF) and the Cree traditional activities enhancement program should be looked into.

An approach such as the one carried out in the framework of the pilot project enables to take into account wildlife-forest knowledge and provides a basis prior to forest planning to realize harmonized managements. However, such taking into account does not excludes, as provided for in the Agreement, the need to ensure the tallyman's participation throughout the planning process and to hold consultations with the tallyman in order to adjust annual and five-year planning. The continuity of the pilot project is essential to initiate, on the whole territory of the Agreement, meaningful participation of the Cree a priori of the forest planning process..

4.2. The measures of the draft project on the protection and development of wildlife habitats within the framework of forest planning.

The measures of the draft directives present means, on a wide and small scale, to protect and develop wildlife habitats of specific interest identified by the tallymen. These measures aim at the maintenance and improvement of the habitats of wildlife species important for the Cree. We must remember that time and territory scale for a trapper and a forest planner are two very different things. Forest intervention will have an immediate impact on habitats because wildlife species that inhabited them will have to find food and shelter elsewhere. These disturbed territories generally become once more good for the species consumed by the Cree after about 25 to 30 years, period that corresponds more or less to the third of the life of a man. For the forest planner who plans his interventions for over 25 years, the area affected can be minimal and the regeneration period very short compared to a trapper who suffers a « long term loss » of a harvest sector. For this reason, protection in time of good wildlife habitats is essential if we wish to maintain the practice of wildlife consumptive activities in the territory Forest management must thus take sensitive habitats into account not only during the first cutting but also assess the potential characteristics of the environment when it will be time for the second cutting.

The pilot project enabled to carry out an implementation exercise of the strategies and measures enabling to consider, in a management context, the wildlife sites identified by the tallyman. The project showed that an elementary analysis of the information provided by the trappers associated to ecoforest data and wildlife habitats, offers the possibility of identifying wildlife objectives in a territory so as to foster habitat protection and development at the very beginning of forest planning. This demonstration comes from the fact that the draft directives presented extensively the tools (measures of the Agreement, FPDOs, RNI) already available that could be used by the forest planner who wishes to take Cree wildlife sites into account during forest planning. Moreover, the pilot project demonstrated that it is completely realistic to produce forest management plans that take wildlife habitats into account and thus sensitive sites identified by the tallymen, as long as this type of information is available beforehand.

The wording of certain measures of annex 2 of the draft directives is drafted in a more formal way while other enunciations are more general and make room for interpretation. A review of these enunciations is required so that the measures be translated into guideline or that their implementation be more monitored.

The stakeholders wish to see the measures presented in a simpler form that could resemble a guide informing them on wildlife needs on different spatial scales while emphasizing on the protection and development objectives to be pursued while indicating the tools available to reach them and how to use them.

The global approach and the protection and development measures set out in the draft directives are based on a review of the literature and demands of the Cree (based on their knowledge) that, in the spring of 2005, appeared to be the most appropriate to take into account scientific and traditional knowledge. Since then, research has been underway, among others, at the WCMF and new approaches and knowledge have been developed. It will be pertinent that the global approach and the measures presented as directives be progressive in order to realize the best management according to updated knowledge.

The industry says it is ready to carry out good wildlife management activities and wishes to open up to other silvicultural practices. Particular provisions related to the 25 % of the productive forest area of each of the traplines aim at maintaining particular forest characteristics to foster wildlife. Thus, a request aims the optimization a priori of the location of the areas corresponding to the 1 % and 25 % so as to minimize the potential impact on allowable cut and thus potential negative economic impacts. Incidentally, the industry would have liked that an exhaustive analysis of the impacts on allowable cut but realized in the course of the project.

The ecoforest database is an important source of information that must be farther used where wildlife habitats are concerned. The instructions that will be sent to the agreement holder at the beginning of the year 2006 should highly incite the industry

to use this database to ensure better consideration of wildlife habitats and to link with the Potvin and al. methodology that was developed for this purpose.

Forest management enabling the maintenance of woodland caribou in the territory of the “Paix des Braves” were not analyzed within the framework of the pilot project for the problematics did not affect the experimentation traplines but also because the topic requires to pursue the actions initiated among the stakeholders at all levels. It will be important to carry on looking for solutions to the problem for it will be encountered and raised when the traplines situated more to the north will be reviewed in the framework of the continuity of the pilot project.

We must absolutely deal with mixed stands so as to 1) ensure that management strategies will enable to guarantee the maintenance of quality wildlife habitats; 2) ensure that these layers related to priority softwood production be maintained in sufficient quantity according to an adequate spatial distribution; 3) verify how much these stands could be considered biological sanctuaries material.

.

5. CONCLUSION

The tallyman's participation a priori and throughout the forest planning process is one of the cornerstones of the protection and development of wildlife sites of particular interest to the Cree. Currently, the consultation processes used by the JWGs minimize contacts between the tallyman and the forest planner. A structured exercise held among the tallymen concerned by the forthcoming GFMPs enabled the initiation of a real and meaningful participation of the tallymen in the development of forest plans.

The pilot project enabled to demonstrate that a simple analysis of the information on wildlife sites of special interest to the tallyman combined to the wildlife portrait of a territory born from the interpretation of the ecoforest database constitute a meaningful basis for the analysis of a territory for the purpose of wildlife objectives. Moreover, used at the very beginning of the forest planning process, this information can constitute a simple and meaningful way of fostering the protection and development of wildlife habitats.

An exercise such as the pilot project carried out prior to the development of forest planning provides interesting and important tools to the tallyman, the forest planner who has to take the tallyman's wildlife interests into account when developing forest planning, as well as to the members of the JWGs who must ensure the taking into account of Cree concerns.

Through the Agreement, the tallymen were called upon to identify 25 % of the productive forest area offering a special wildlife interest in their opinion and the application of particular modalities in these sectors will result in less intensive interventions. Considering a certain number of interventions with regard to the way these areas were identified, the possibility of optimization of these sectors can be raised.

The measures proposed in appendix 2 of the draft directives on the protection and development of wildlife habitats were, at first glance, perceived as measures that could be normative. Nevertheless, at the very beginning of the draft directives, the principle according to which the proposed measures had to be defined as management guidelines was clearly indicated. According to the form and present wording of certain of the measures, this principle has been forgotten and this raises misgivings. It would be pertinent to set out these strategies in a simpler form within a guide and focus on the biological knowledge regarding habitat-related needs of wildlife species.

The agreement holder must use the tools (FPDOs, measures of the Agreement, RNI) at his disposal to develop forest planning within a framework of sustainable development. From the wildlife angle, the pilot project enabled to demonstrate that if

the agreement holder disposes of specific information regarding the location of sites or stands of special interest with regard to wildlife and that the objectives to be pursued are defined, he can, with the help of the tools at his disposal, direct the planning in order to ensure the taking into account of wildlife habitats. It is thus pertinent, in a global and dynamic management approach on the scale of the territory, to proceed to the integration of wildlife habitats.

6. RECOMMENDATIONS

1. Set up, in each community, a structured approach like the one of the pilot project, enabling the active and meaningful participation of the tallymen interested in taking part in the development of the upcoming GFMPs; the approach should be initiated by an exercise aiming at indicating clearly the use and sites of special interest to the tallymen concerned.

2. Put at the forest planners' disposal, as soon as the spring of 2006, a guide presenting the tools, the proposed harmonization tools and processes to ensure the protection and development of wildlife habitats and Cree participation at the very beginning of the forest planning process;
    - A simple guide setting out:
        - The guideline of a real and meaningful Cree participation process;
        - The description of the main characteristics of a quality habitat for species of special wildlife interest to the Cree;
        - The strategies and modalities for the protection and development of wildlife habitats based on the draft directives and the pilot project results;
        - The realization method of the portrait of the forest and its wildlife habitats;
        - The tools available (i.e.:FPDO)
        - The guidelines regarding information validation if need be and conflict management.
3. That the identification process of the biological sanctuaries related to FPDO 4 currently in progress be reviewed so as to ensure a real synergy between the biological objectives and the objectives pertaining to the traditional way of life and to the special wildlife interests of the tallymen.

4. That the instructions that will be sent to the agreement holders include a directive to use the ecoforest database to integrate wildlife habitats into the management of the territory by using the Potvin and al. methodology.

5. That the development of mixed stands on the territory be analyzed so as to ensure the maintenance of quality wildlife habitats in each of the traplines. The management strategy of mixed layers, which is based on priority softwood production, be reviewed in order to the maintenance of hardwood stands in sufficient quantity and according to an appropriate distribution.

6. Following the tallymen's knowledge improvement exercise, assess the possibility of reviewing the location of the 1% and 25 % in order to ensure an

optimization of the harmonization of the Cree wildlife concerns with the forest management.

7. That a working group be given the mandate to analyze the problematics for the management of the territory in relation to the maintenance of the woodland caribou so as to come up with the best intervention modalities and techniques.

8. In order to foster shared understanding and to exchange on the know-how, it would be appropriate to provide training sessions and to hold meetings adapted for the tallymen, the JWGs, and the stakeholders to present:

    i. the principles and objectives pursued by the Agreement,
    ii. the approach to set up to foster the tallymen's real participation and
    iii. the tools available to take into account the protection and development if wildlife habitats.

9. Ensure the integration of Faune Québec to the activities of the JWGs so that they can support the designated members of the JWGs in the fulfillment of their mandate.

7. LIST OF REFERENCES

Arc View 3.3, ESRI Canada. http://www.esri.com/index.html

Centre de données sur le patrimoine naturel du Québec (CDPNQ). http://www.cdpnq.gouv.qc.ca

Draft directives on the protection and development of wildlife habitats of the territory of the *Agreement Regarding a New Relationship between the Gouvernement du Québec and the Cree of Québec*, CQFB, March 2005, 32 p.

Lowell, K.E., B. Thierry et L. Lebel. 2004. Wood Procurement Planning Tool (WPPT) : An improved prototype of a socially responsible spatial wood harvesting planning tool.

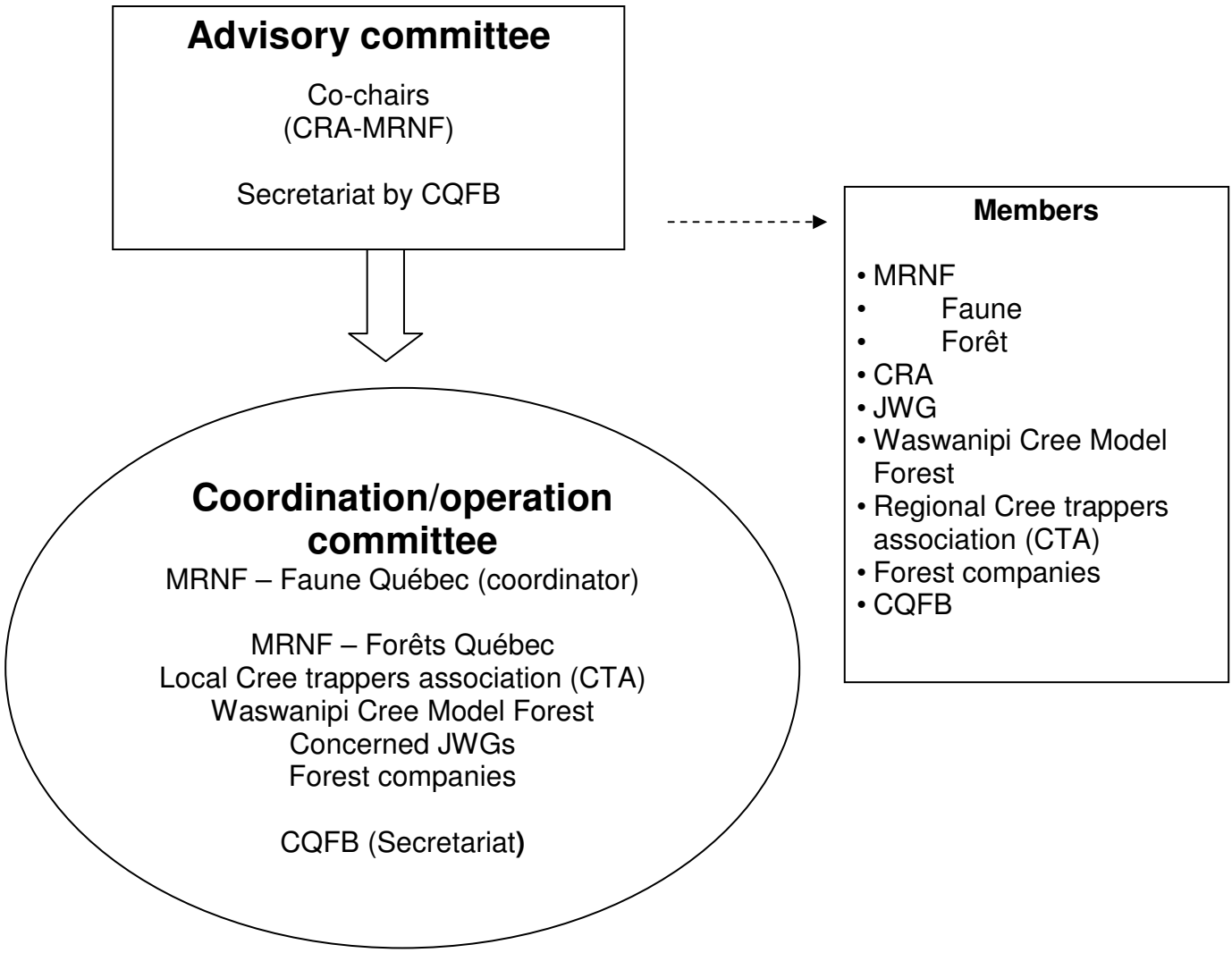
Potvin, F. 1998. La martre d'Amérique (Martes americana) et la coupe à blanc en forêt boréale : Une approche télémétrique et géomatique. Thèse de doctorat, Département des sciences du bois et de la forêt, Faculté de Foresterie et de Géomatique, Université Laval. 245 p.

Potvin, F., N. Bertrand et R. Walsh. L'habitat de la faune terrestre en forêt boréale : Notions générales et variations observées sur une période de 25 ans dans un secteur de coupe forestière intensive situé près de Matagami. Ministère des ressources naturelles et de la faune. 35 p. (in preparation).

Système d'information écoforestière (SIEF). 2004. Version 1.1 (version initiale -15 juin 2001, version courante 31 mai 2004). Gouvernement du Québec. Ministère des Ressources naturelles de la Faune et des Parcs.

APPENDICES

APPENDIX 1 : IMPLEMENTATION STRUCTURE OF THE PILOT PROJECT



APPENDIX 2 : INTERVIEW QUESTIONNAIRE

PILOT PROJECT ON WILDLIFE HABITATS

INTERVIEW FORM

Name of tallyman: Trapline number:

Community:

Names of interviewers:

Map used: 1:20 000

CONFIDENTIAL MAP

(Note: The tallyman must clearly understand the questions and feel free to ask for explanations if necessary. The tallyman can answer the question and express whatever views he feels are important. The interviewer will ask the question and then write down the tallyman's answer. The interviewer and co-researcher must ensure that the tallyman's answers and concerns are understood and transcribed correctly. To that end, it is recommended that they review the gathered information together.)

GENERAL INFORMATION

1. How have you and your family used the trapline through the generations? When did you become a tallyman? What does it mean for you to be a tallyman?

2. How many family members and friends use your trapline for traditional activities throughout the year? Name the activities.

TRAPLINE USE

3. On the map, show the location of permanent and temporary family camps used for seasonal activities during the year. Describe the activities each camp is used for, indicating the season.

4. How have you gotten to your trapline over the years? On the map, show the main trails and travel routes used on your trapline, including canoeable streams and the location of major portages.

5. As a tallyman, what activities have you practised on your trapline over the years? Describe the activities for each season and where they are practised, both in the past and now.

6. On the map, show the location of any Native heritage sites, old campgrounds, ancient burial sites or other important sites. Do you have any comments?

7. Why is your trapline so important to you and your family? Do you have any major concerns?

8. Are there other trappers who use your trapline who could share knowledge to round out the information you provide?

<u>BIG GAME</u>

9.

a) On the map, outline as accurately as possible any areas used by moose for shelter and calving (moose yards). Indicate when moose use these areas.

b) On the map, show any trails or corridors regularly used by moose. Indicate when moose use them.

Comments?

10. On the map, mark any sites you know of that are regularly used by bears (feeding site, den).

Comments?

11. On the map, show any areas that are used by caribou (wintering areas, calving grounds, travel corridors). Indicate when caribou use these areas.
12. Have you ever seen woodland caribou on your trapline?

13. On the map, show areas that could be used by big game for shelter or feeding (good potential habitat). Indicate the species that could use them.

14. Is there any other information regarding moose, bear or caribou on your hunting ground that you think is worth noting (use the map if necessary)?

    Comments?

HABITAT OF FUR-BEARING ANIMALS

15. On the map, show the location of known active beaver lodges on your hunting ground.

16. On the map, mark sections of streams that could be used as a feeding area for beaver (willow, poplar, alder).

17. On the map, show the location of any old or abandoned beaver lodges or places you think would provide potential habitat for beaver.

    Comments?

18. On the map, show any sites that are important for or regularly used by marten.

19. Do you know if there are any old stands that are important for marten?

    Comments?

20. On the map, mark any sites that are regularly used by otters.

    Comments?

21. On the map, show areas that could be used by fur-bearing animals for shelter or feeding (good potential habitat). Indicate the species that could use them.

22. Is there any other information regarding fur-bearing animals or trapping activities that you think is worth noting?

    Comments?

SMALL GAME/BERRY PICKING

23. On the map, outline any areas that you consider to be important for:

    a) snaring rabbits;
    b) hunting small game (indicate the species)
    c) berry picking (indicate the berries).

    Indicate when each activity is practised.

    Comments?

WATERFOWL

24. On the map, mark the location of any important sites used for hunting and indicate when hunting takes place. Mark all access trails or roads to those sites.

    Comments?

25. On the map, mark any important nesting sites on your hunting ground for ducks, geese or other species. Indicate which species are present and when.

    Comments?

26. Is there any other information regarding waterfowl or other birds on your hunting ground that you think is worth noting (use the map if necessary)?

    Comments?

FISH

27. On the map, mark all known spawning sites, indicating the species (whitefish, brook trout, lake trout, walleye, pike, sturgeon, etc.).

    Also mark any important fishing sites for these species.

    Comments?

RIPARIAN ZONE

28. Do you know of any particular sites of interest beside water or any exceptional riparian (buffer) zones that should be protected? If so, explain why they should be protected? Show these sites on the map.

    Comments?

GENERAL COMMENTS ON THE QUESTIONNAIRE

29. We would like to record any general comments you have regarding the questions you have been asked or any other information you think should be recorded.

RECOMMENDED LEGEND FOR MAPPING LAND USE AND WILDLIFE HABITAT

LAND USE SECTION

Trails: _ _ _ _ _

Portages: - - P - -
Navigable streams: ~~~~

Permanent camps: CP
Temporary camps: CT
Native heritage sites: Hs

Moose: M
Black bear: BB
Woodland caribou: WC

Beaver lodges (active): Ba
Beaver lodges (inactive): Bi
Otter: Ot
Marten: Mt

Small game: SG Write the species name beside the letters

Berry picking: X

Nesting sites: ND (ducks), NG (geese), NO (other). Write the species name beside the letters.
Hunting sites for waterfowl: HD, HG or HO. Write the species name beside the letters.

FISH

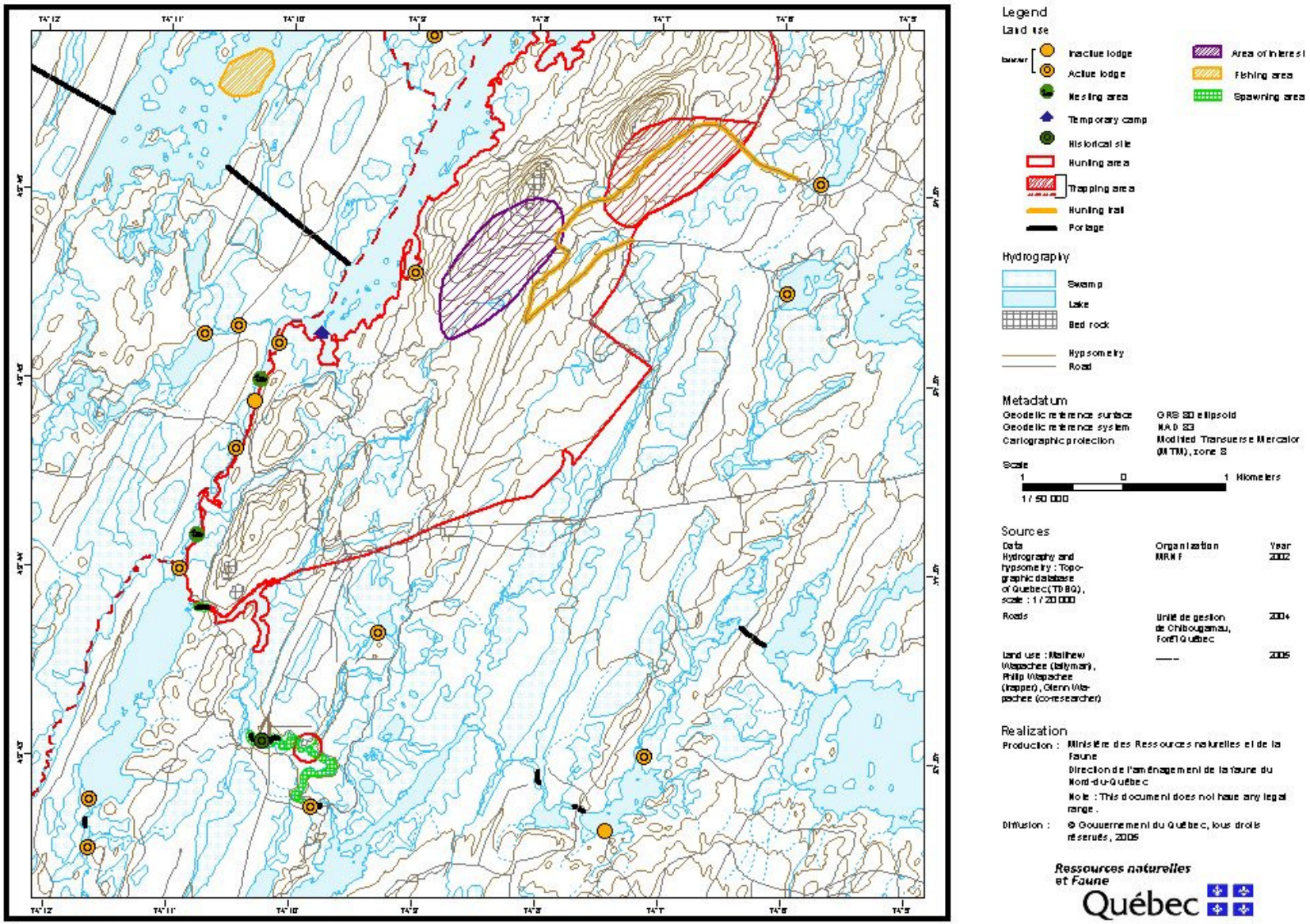
Spawning sites

whitefish		FWH	walleye	FWA
brook trout	FBT	pike	FP	
lake trout	FLT	sturgeon	FS	

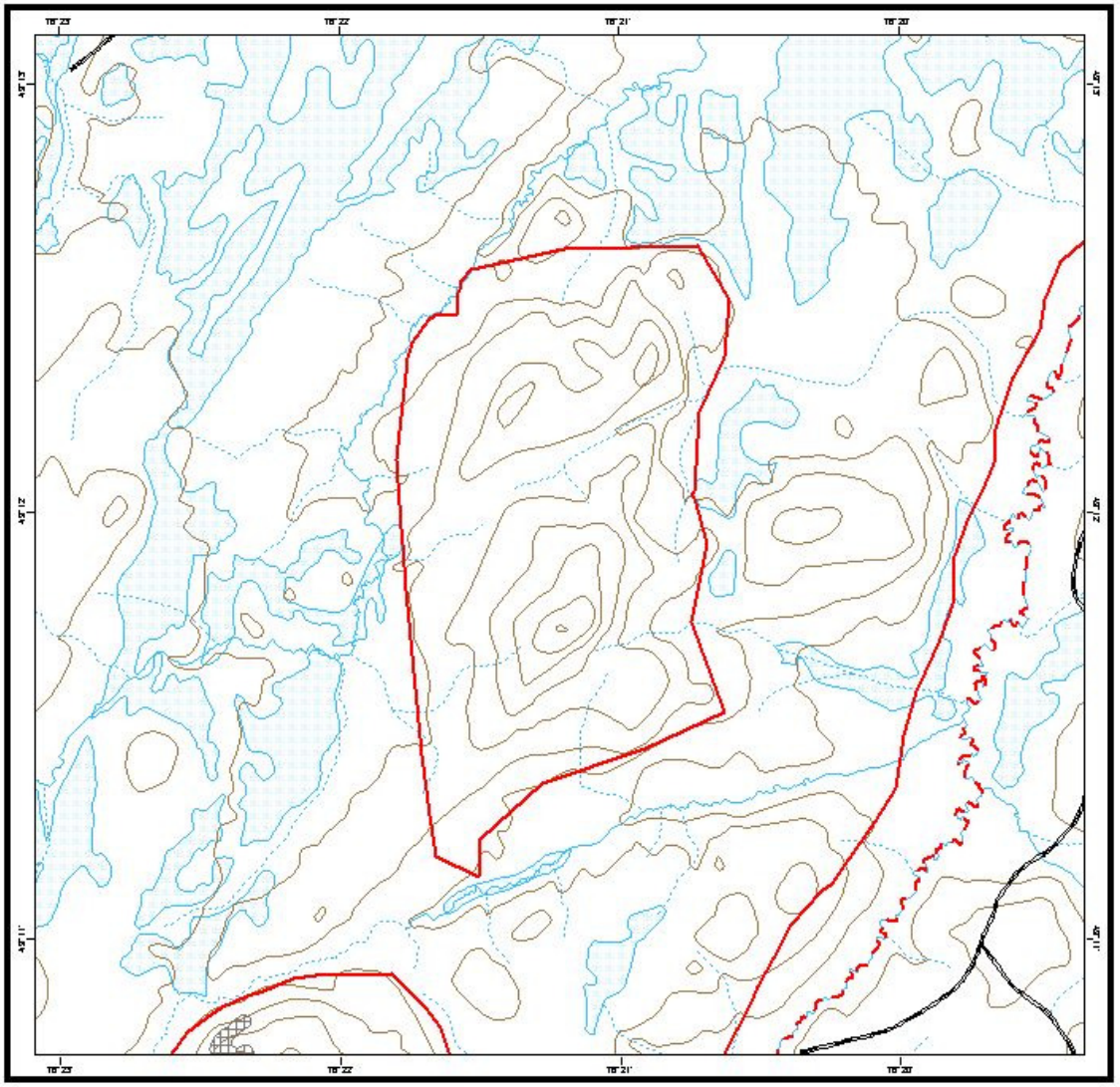
Preferred fishing sites: FF

Riparian zone: RZ

Appendix 3A : Tallyman map (Ndoho ouchimaw map)



Appendix 3B : Tallyman map (Ndoho ouchimaw map)



Legend

Land use

Hunting area

Trapping area

Hydrography

Swamp

Lake

Bed rock

Hypsometry

Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

500 0 500 Meters

1 / 26 000

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Land use : Dennis and Louis Blacksmith (tallymans), Henry-George Gull (co-researcher)	---	2005

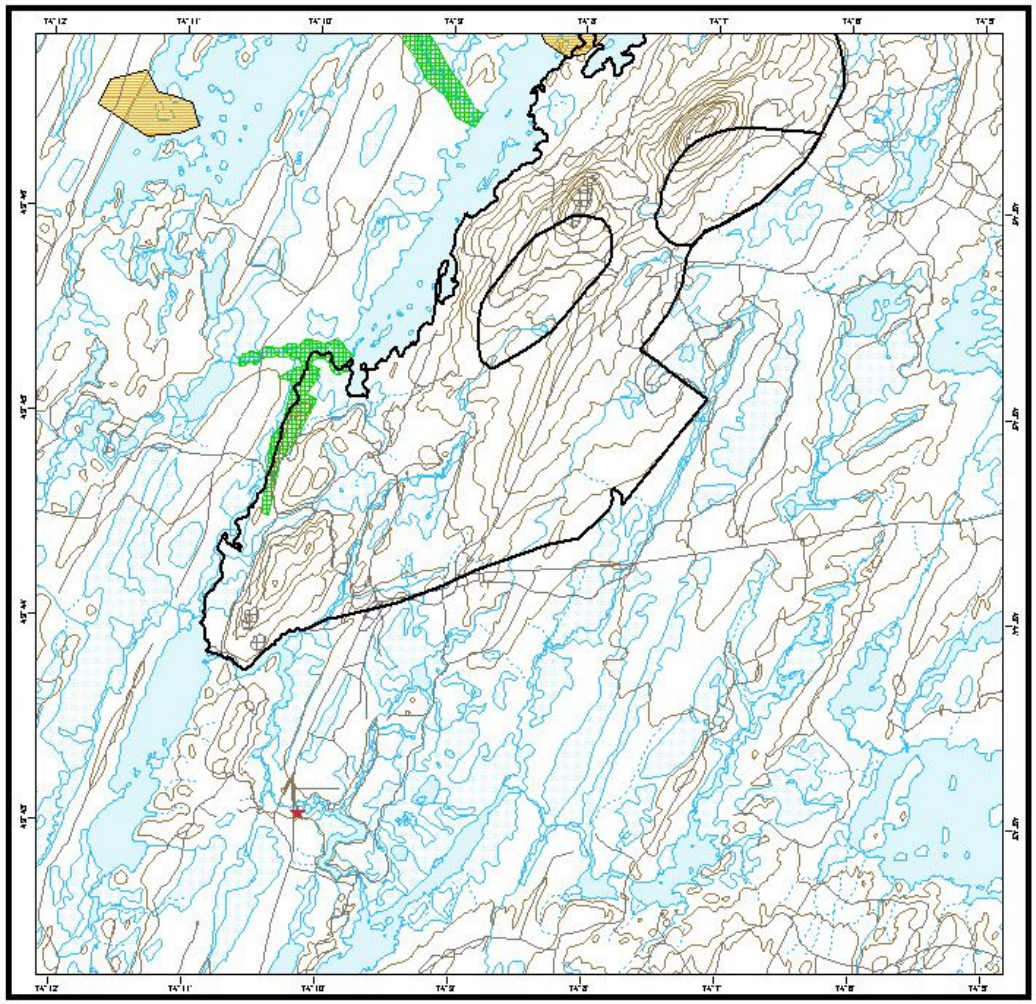
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune
Québec

Appendix 4A : Faune Québec data map



Legend

Faune Québec data

- Nesting area (aquatic bird)
- Spawning ground
- Threatened species

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

Data	Organization	Year
Hydrography and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Faune Québec data	Direction de l'aménagement de la faune du Nord-du-Québec	2003 and 2005

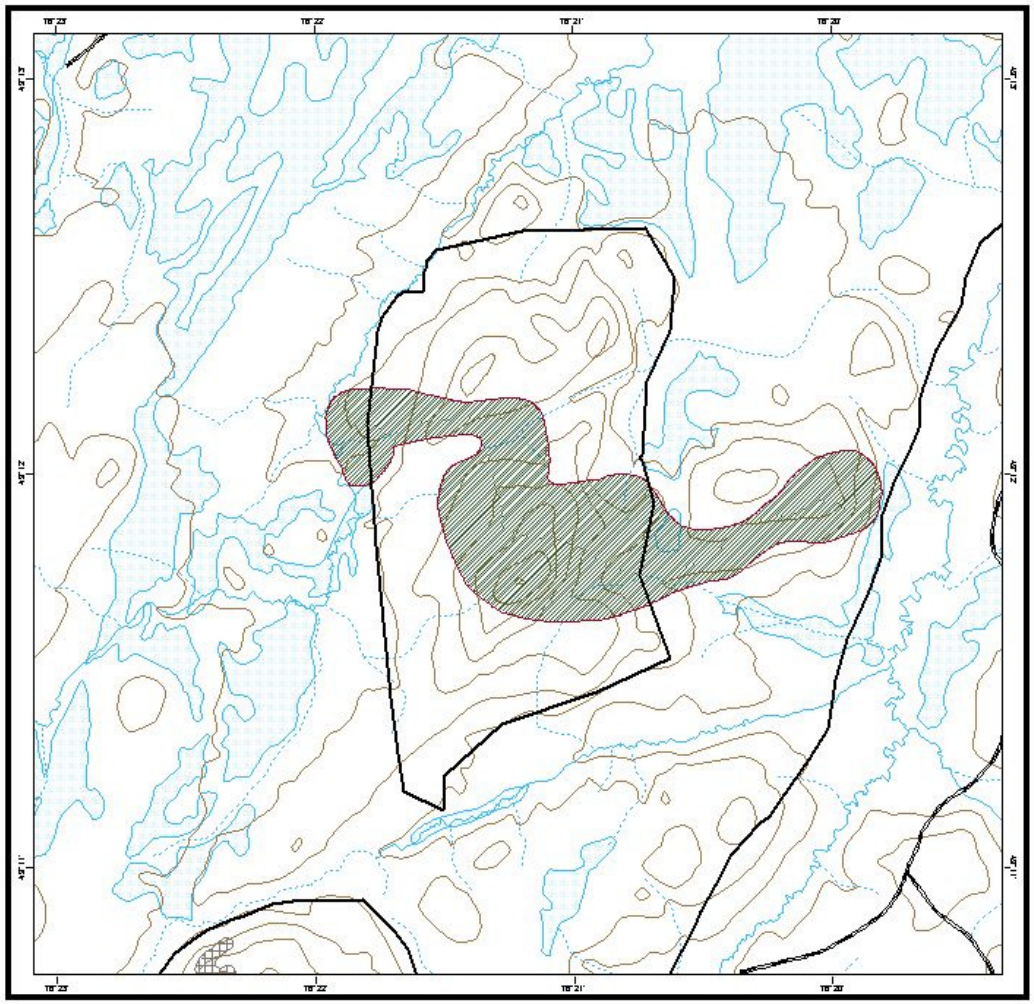
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Ressources naturelles et Faune Québec

Appendix 4B : Faune Québec data map



Legend

Faune Québec data

Moose yard (moose, 2003)

Land use

Hunting and trapping areas (limit)

Hydrography

Swamp

Lake

Bed rock

Hypsometry

Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

500 0 500 Meters

1 / 26 000

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Faune Québec data	Direction de l'aménagement de la faune du Nord-du-Québec	2003

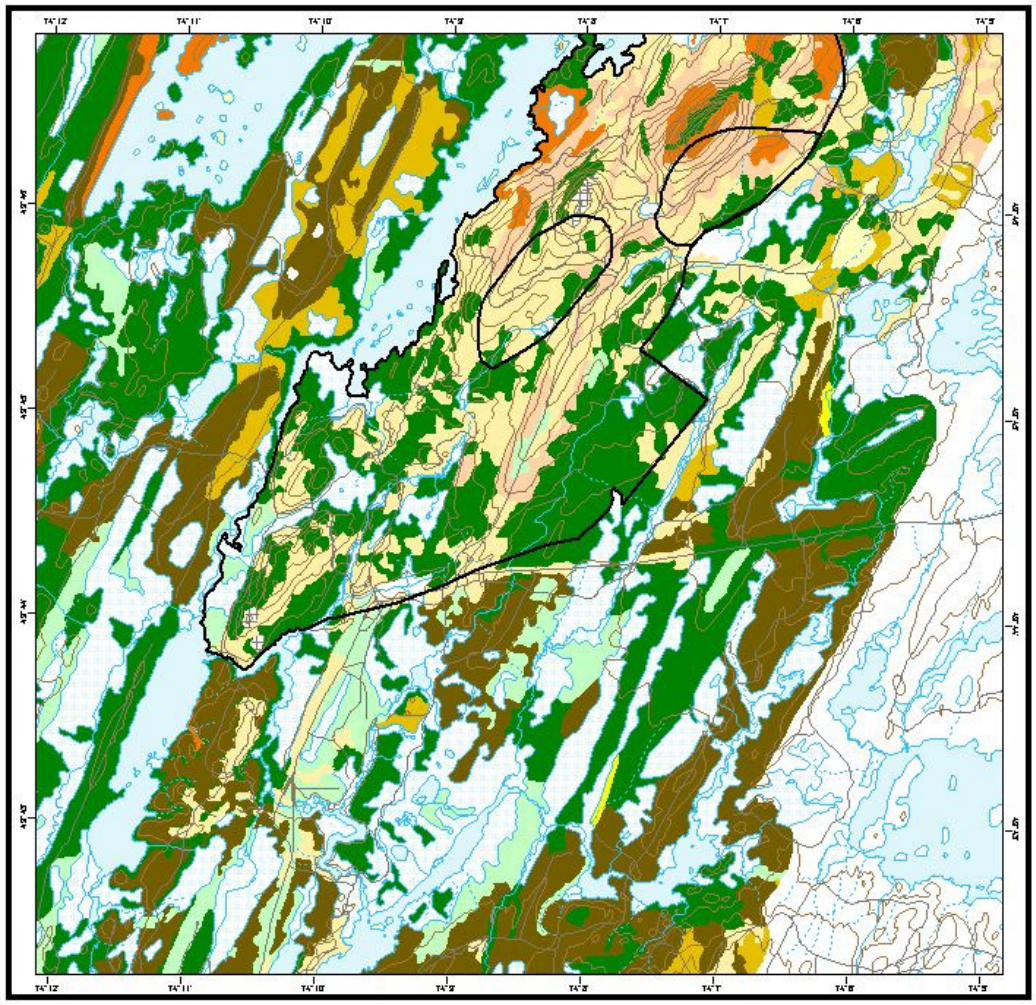
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune Québec

Appendix 5A : State of the forest map



Legend

Forest state

- Others
- Alder
- Productive forest < 1,5 m
- Productive forest 1,5 to 4 m
- Productive forest 4 to 7 m
- R without FIR 7 to 12 m
- R without FIR > 12 m
- F,M,R with FIR 7 to 12 m
- F,M,R with FIR > 12 m

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock
- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

Data	Organization	Year
Hydrography et hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Forest state : François Potvin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

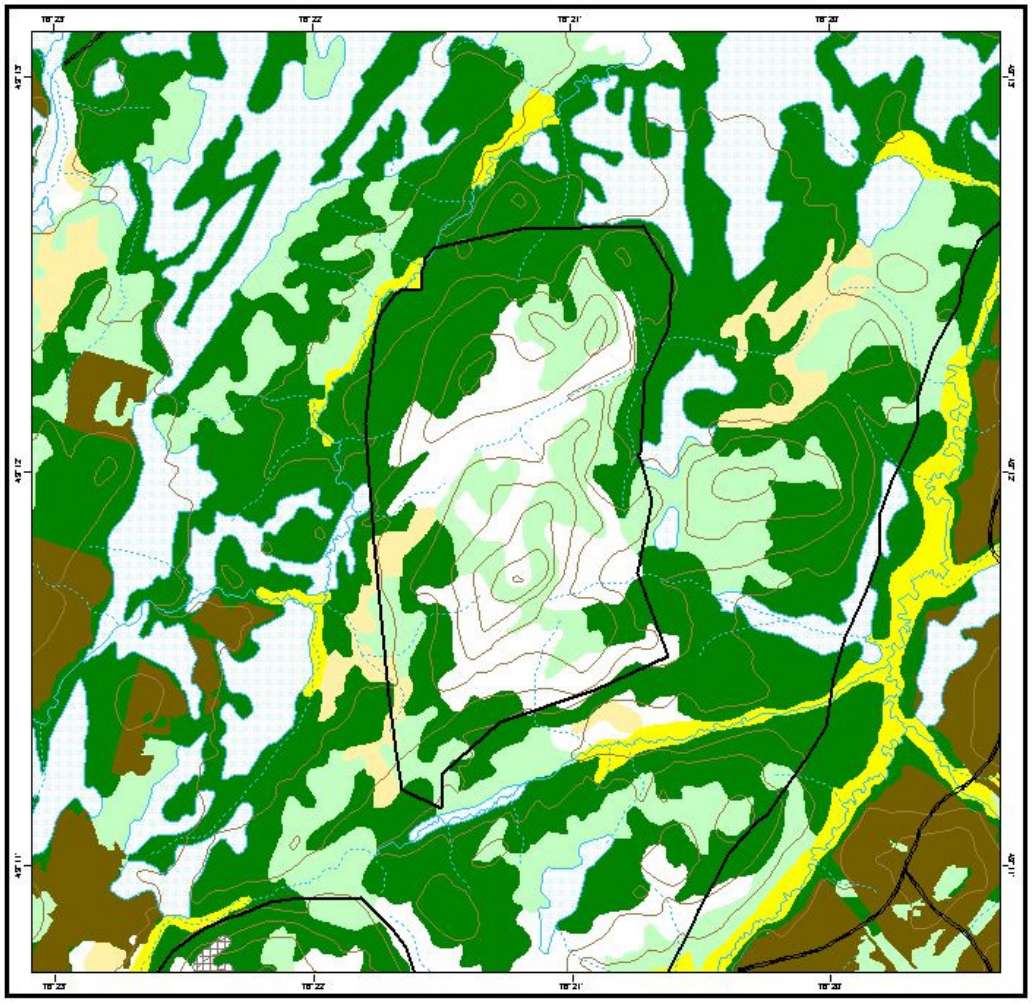
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 5B : State of the forest map



Legend

Forest state

- Alder
- Productive forest < 1,5 m
- Productive forest 1,5 to 4 m
- Productive forest 4 to 7 m
- R without FIR 7 to 12 m
- R without FIR > 12 m
- F,M,R with FIR 7 to 12 m
- F,M,R with FIR > 12 m

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock
- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

500 0 500 Meters

1 / 26 000

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Forest state : François Potvin (ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

Realization

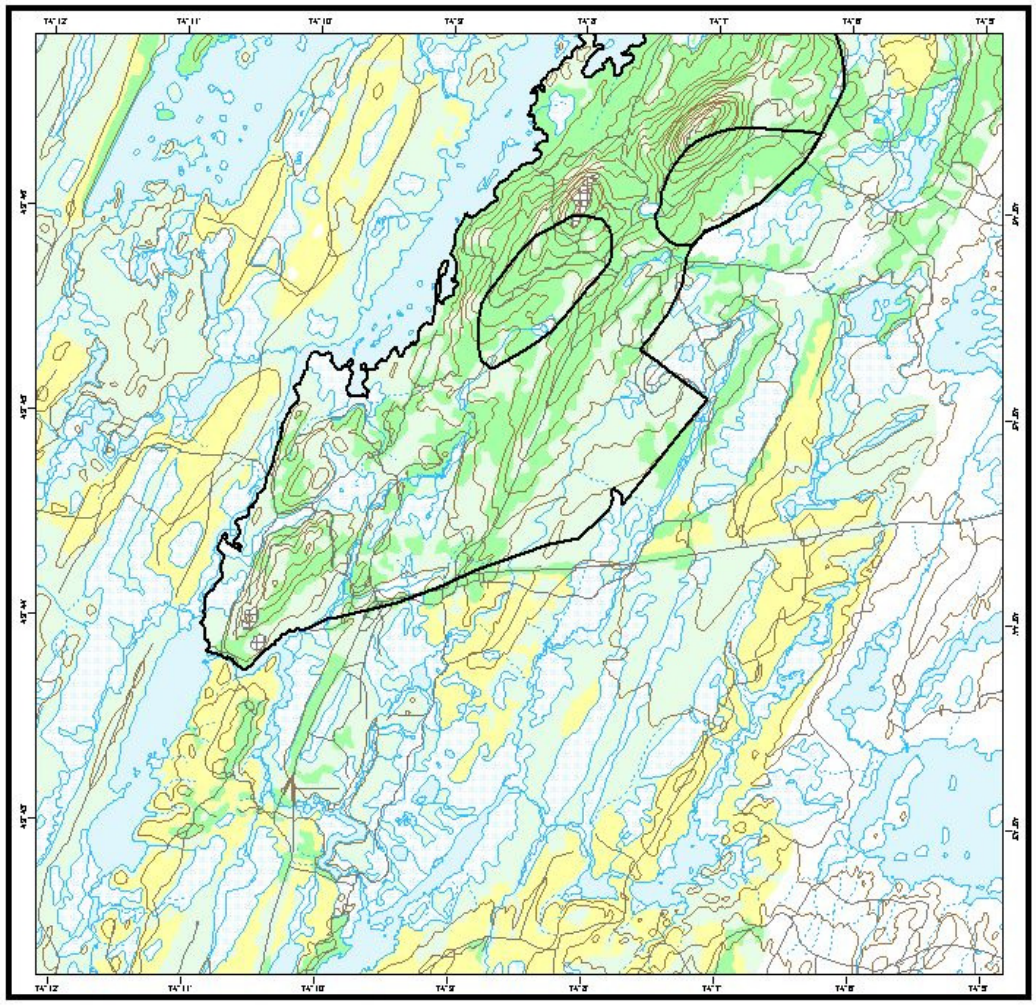
Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune Québec

Appendix 6A : Map of potential moose habitats



Legend

Wildlife habitat portrait for moose

- Good
- Average
- Poor

Land use

- Hunting and trapping areas (ilm1)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

Data	Organization	Year
Hydrography and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Potential wildlife habitat : François Potvin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

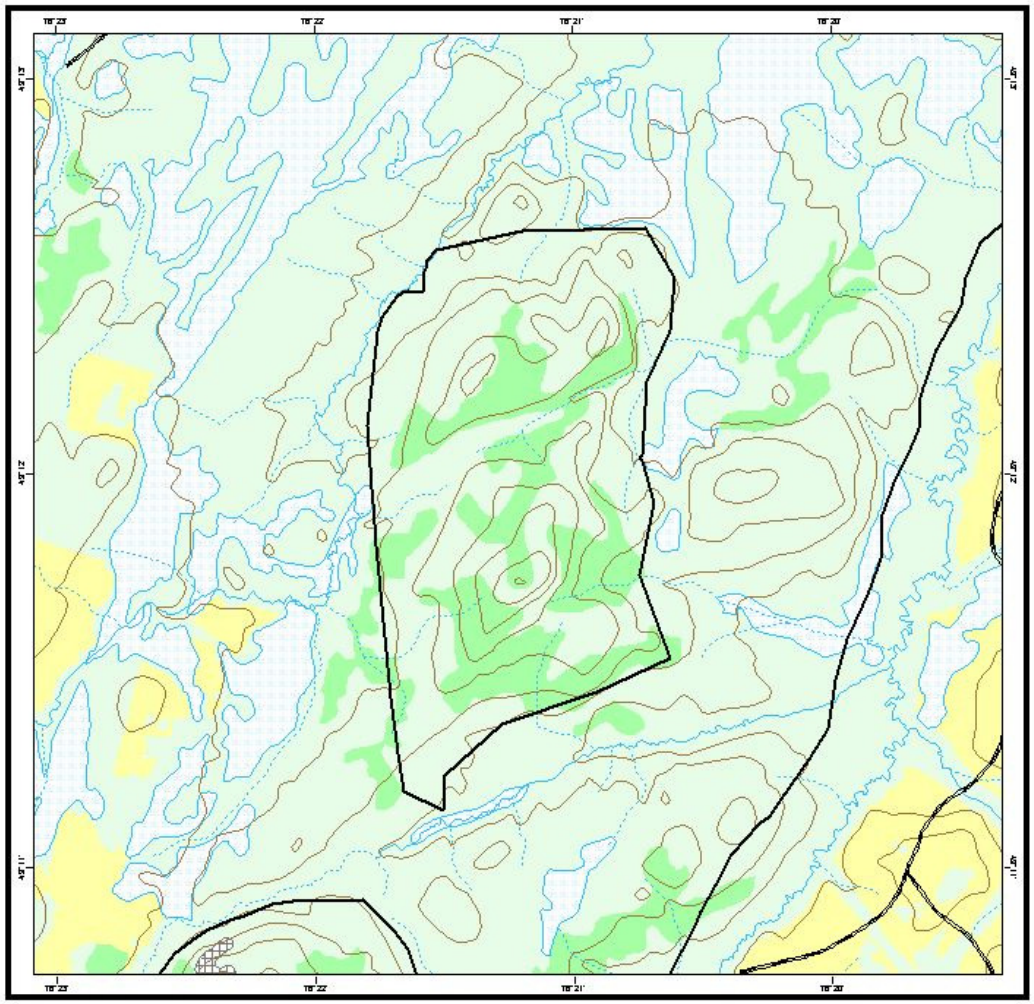
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune
Québec

Appendix 6B : Map of potential moose habitats



Legend

Wildlife habitat portrait for moose

- Good
- Average
- Poor

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

500 0 500 Meters

1 / 26 000

Sources

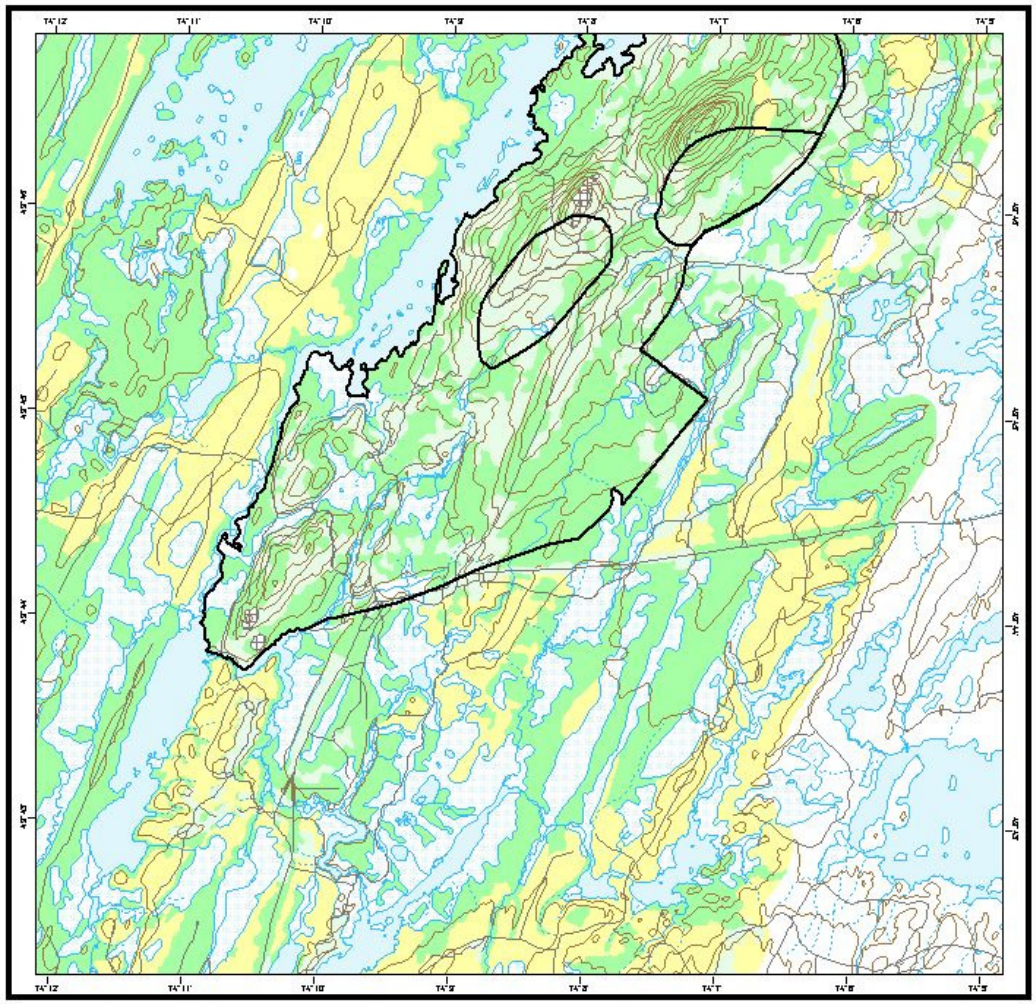
Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Potential wildlife habitat : François Poulin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune Québec

Appendix 7A : Map of potential marten habitats



Legend

Wildlife habitat portrait for marten

- Good
- Average
- Poor

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

Data	Organization	Year
Hydrography and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Potential wildlife habitat : François Potvin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

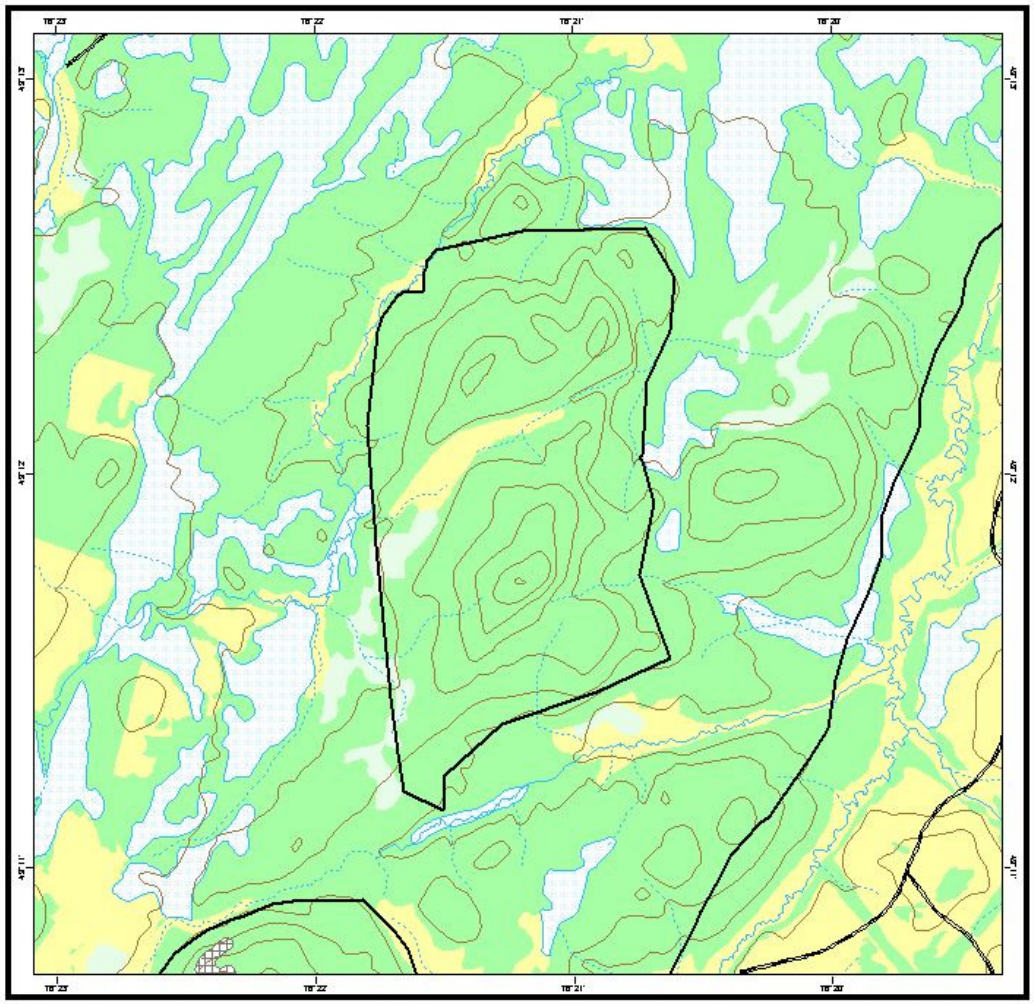
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 7B : Map of potential marten habitats



Legend

Wildlife habitat portrait for martes

- Good
- Average
- Poor

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

500 0 500 Meters

1 / 25 000

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Potential wildlife habitat : François Potvin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

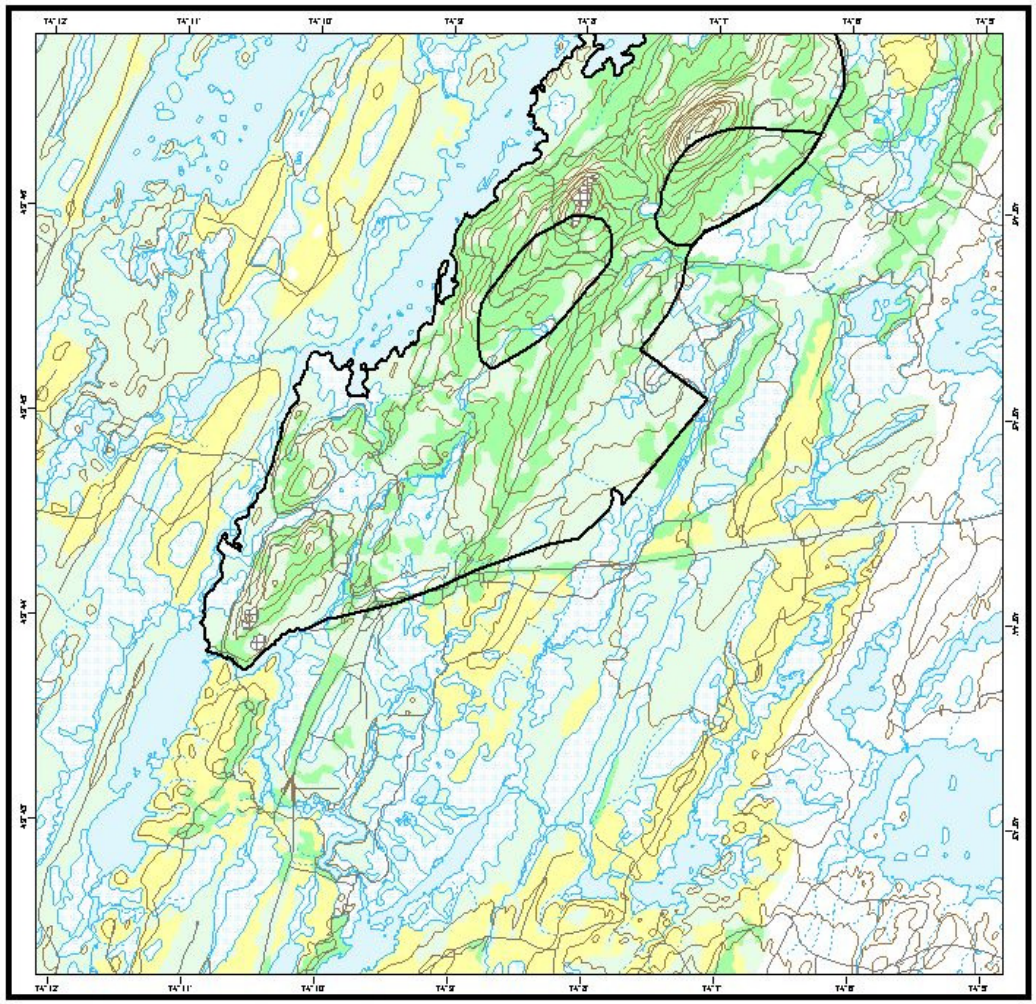
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Ressources naturelles et Faune Québec

Appendix 8A : Map of potential hare habitats



Legend

Wildlife habitat portrait for hare

- Good
- Average
- Poor

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

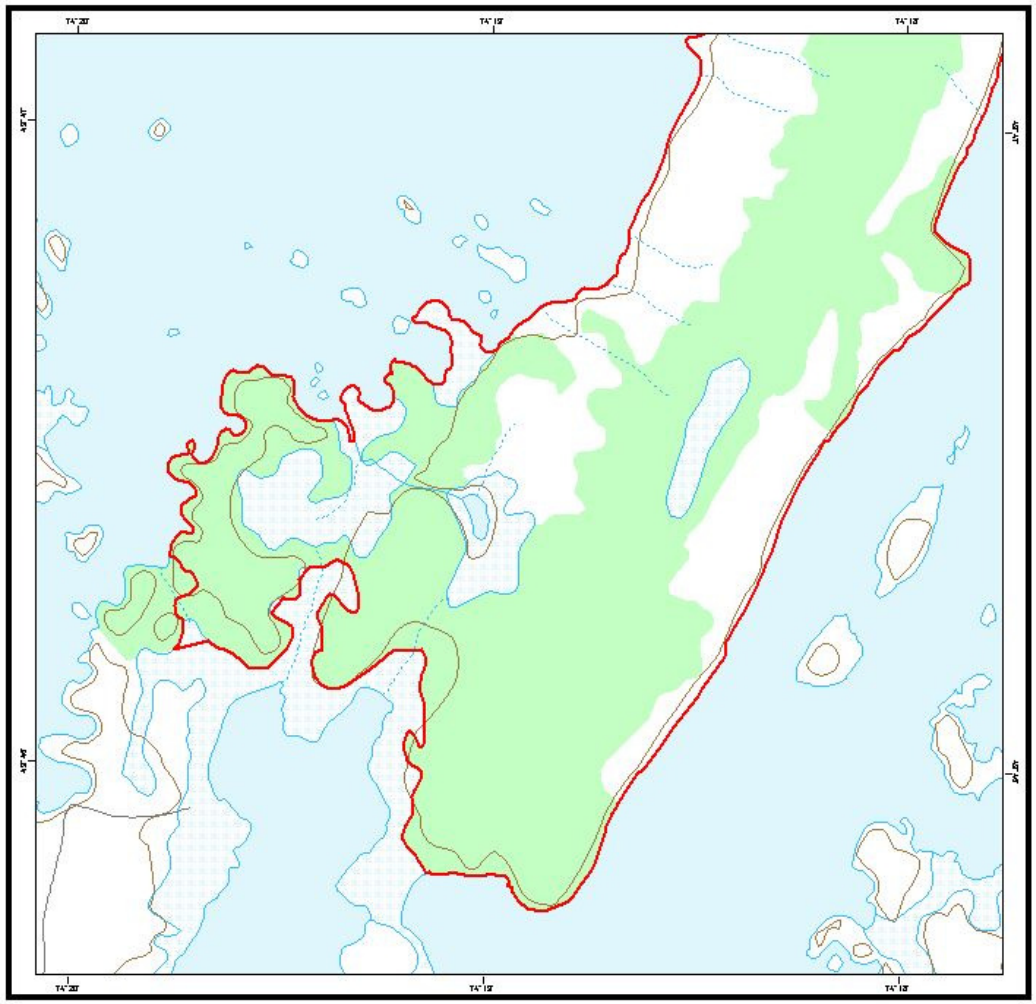
Data	Organization	Year
Hydrography and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Potential wildlife habitat : François Potvin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 9A : Map of potential biological sanctuaries (FPDO4)



Legend

Development potential objectif of biological sanctuaries

Land use

Area of specific interest

Hydrography

Swamp

Lake

Bed rock

Hypsometry

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

400 0 400 Meters

1 / 16 000

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Development potential objectif of biological refuges : François Potvin (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

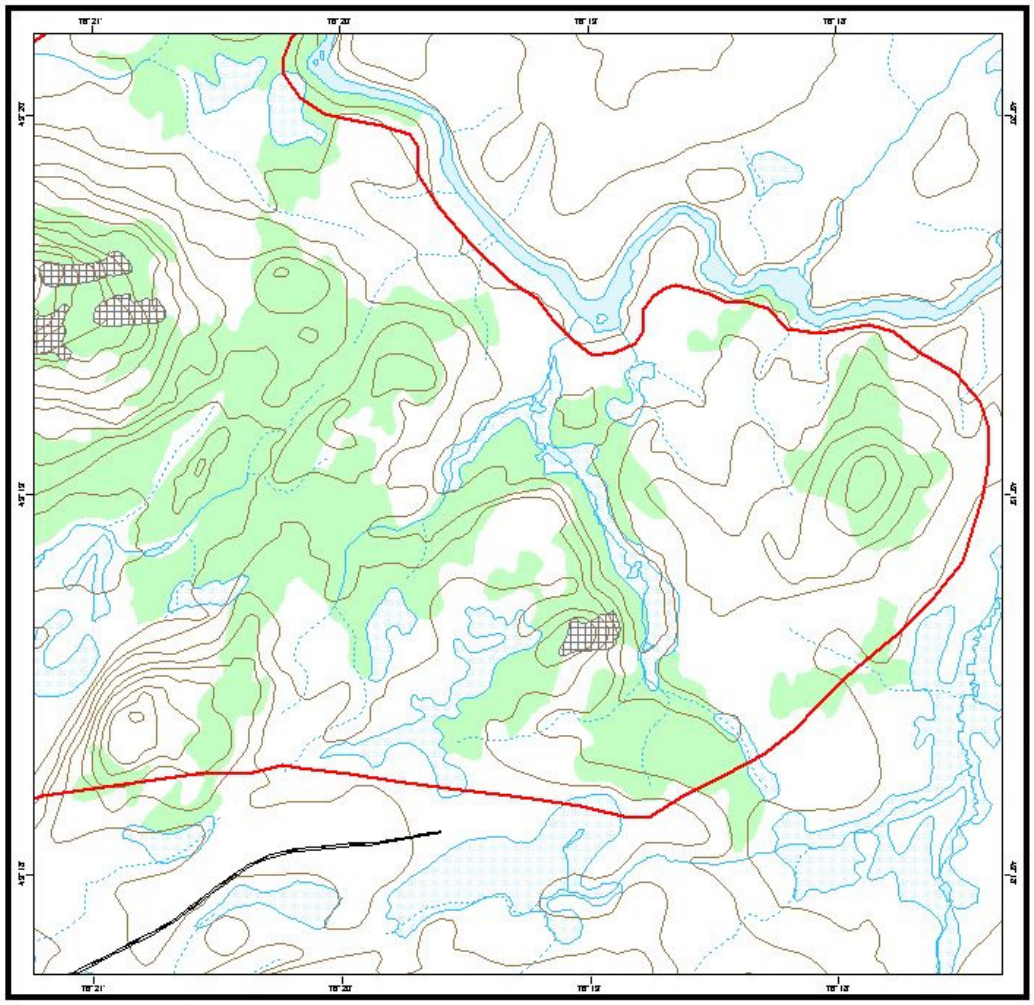
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 9B : Map of potential biological sanctuaries (FPDO4)



Legend

Development potential objectif of biological sanctuaries

Land use

Area of specific interest

Hydrography

Swamp

Lake

Bed rock

Hypsometry

Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

500 0 500 Meters

1 / 27 000

Sources

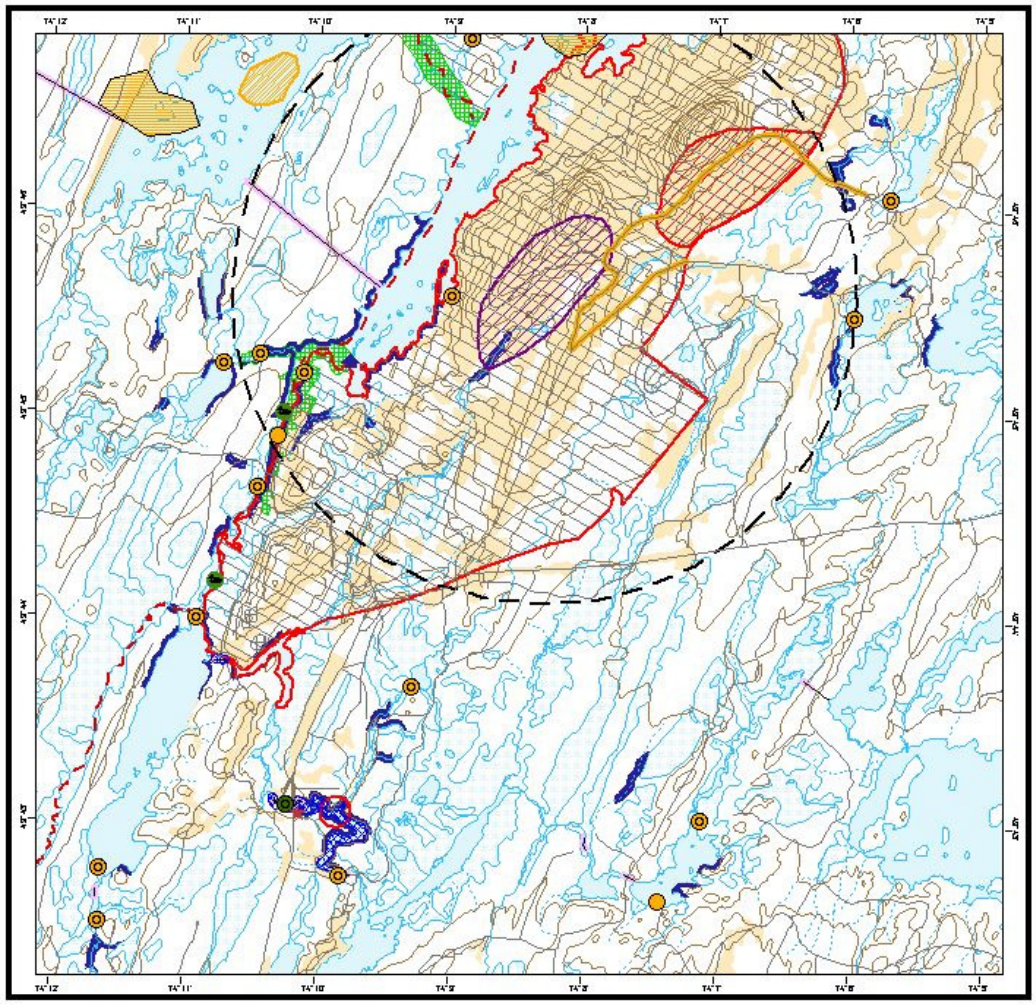
Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Development potential objectif of biological refuges : François Polain (Ing. f., biologiste, Ph. D.)	Direction de la recherche sur la faune, Faune Québec	2004

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 10A : Map of wildlife management objectives



Legend

Wildlife management objectives

- PPS (Priority protection stand)
- LU (Land use)
- RZI (Riparian zone of interest)

Faune Québec data

- Nesting area (aquatic bird)
- Spawning ground
- Wildlife interest territory (25%)
- Zone of analysis (limit)
- Threatened species

Land use

- Inactive lodge
- Active lodge
- Nesting area
- Temporary camp
- Historical site
- Hunting area
- Trapping area
- Road
- Area of interest
- Fishing area
- Spawning area
- Hunting trail
- Portage

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

Data	Organization	Year
Hydrography and hypsometry, Topographic database of Québec (BDTQ), scale 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Faune Québec data and wildlife environmental planning objects	Direction de l'aménagement de la faune du Nord-du-Québec	2003 and 2005
Land use : Mathew-Wapachee (Ishkimo), Philip Wapachee (Kappa), Glenn Wapachee (co-researcher)	—	2005

Realization

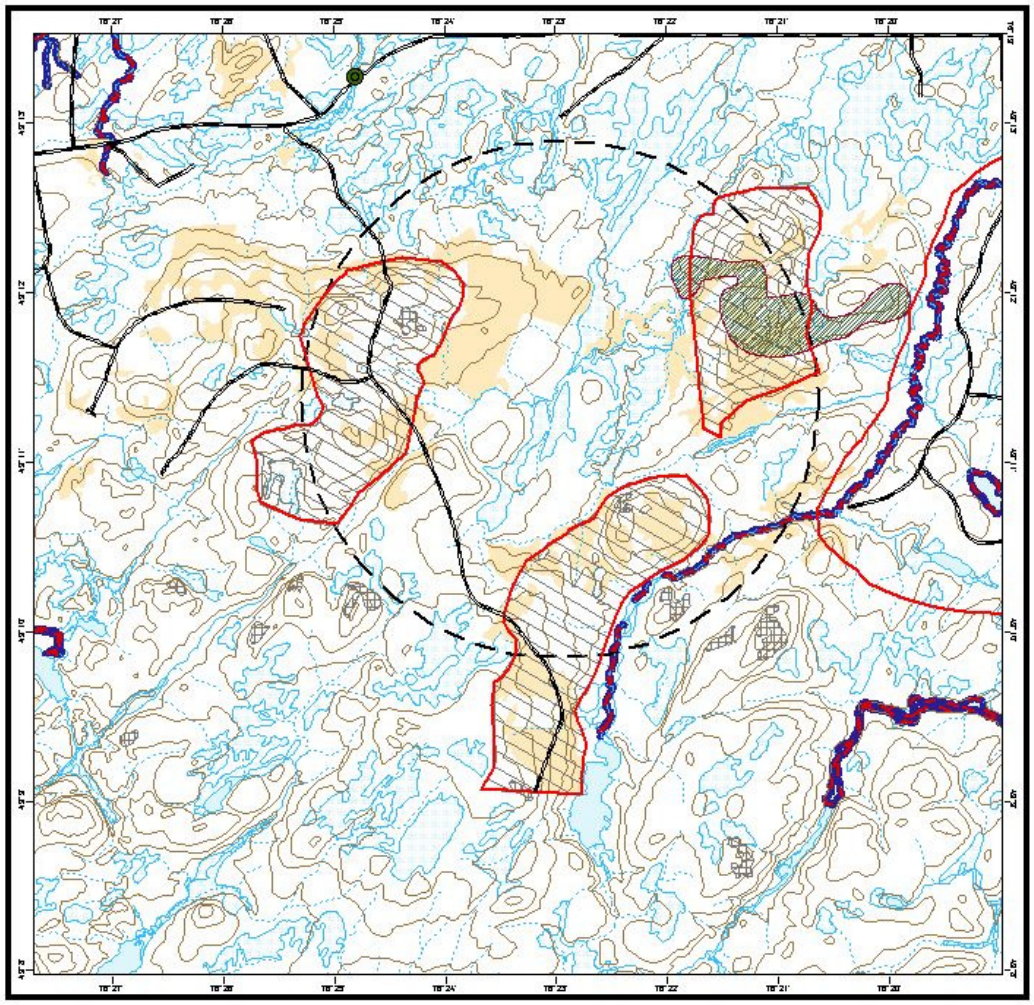
Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune

Québec

Appendix 10B : Map of wildlife management objectives



Legend

Wildlife management objectives

- PPS (Priority protection stand)
- RZI (Riparian zone of interest)
- LU (Land use)

Faune Québec data

- Rauage (moose, 2003)
- Wildlife interest territory (25%)
- Zone of analysis (limit)

Land use

- Historical site
- Trapping area
- Hunting area

Hydrography

- Swamp
- Lake
- Bed rock
- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

1 0 1 Kilometers

1 / 60 500

Sources

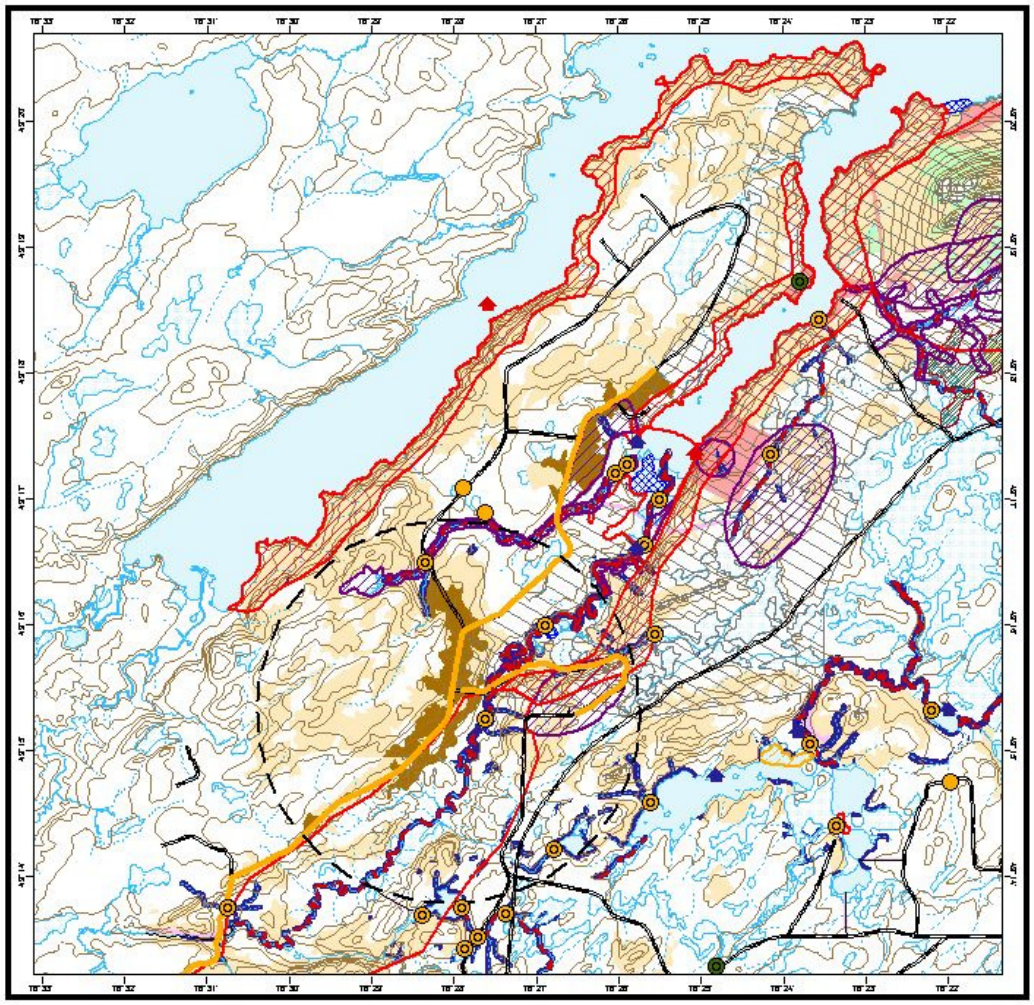
Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Faune Québec data and wildlife environmental planning objects	Direction de l'aménagement de la faune du Nord-du-Québec	2003 and 2005
Land use : Dennis and Louis Blacksmith (Ballymans), Henry-George Gull (co-researcher)	——	2005

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 10C : Map of wildlife management objectives



Legend

Wildlife management objectives

- PPS (Priority protection stand)
- RZI (Riparian zone of interest)
- LU (Land use)
- PBR (Potential biological sanctuaries)
- ESA (Excluded from silvicultural activities)
- 1%

Faune Québec data

- Moose yard (moose, 2003)
- Wildlife interest territory (25%)
- Zone of analysis (limit)

Land use

- beaver
  - Inactive lodge
  - Active lodge
- Historical site
- Permanent camp
- Temporary camp
- Hunting area
- Trapping area
- Area of interest
- Fishing area
- Spawning area
- Hunting trail
- Portage

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

2 1 0 1 2 Kilometers

1 / 81 500

Sources

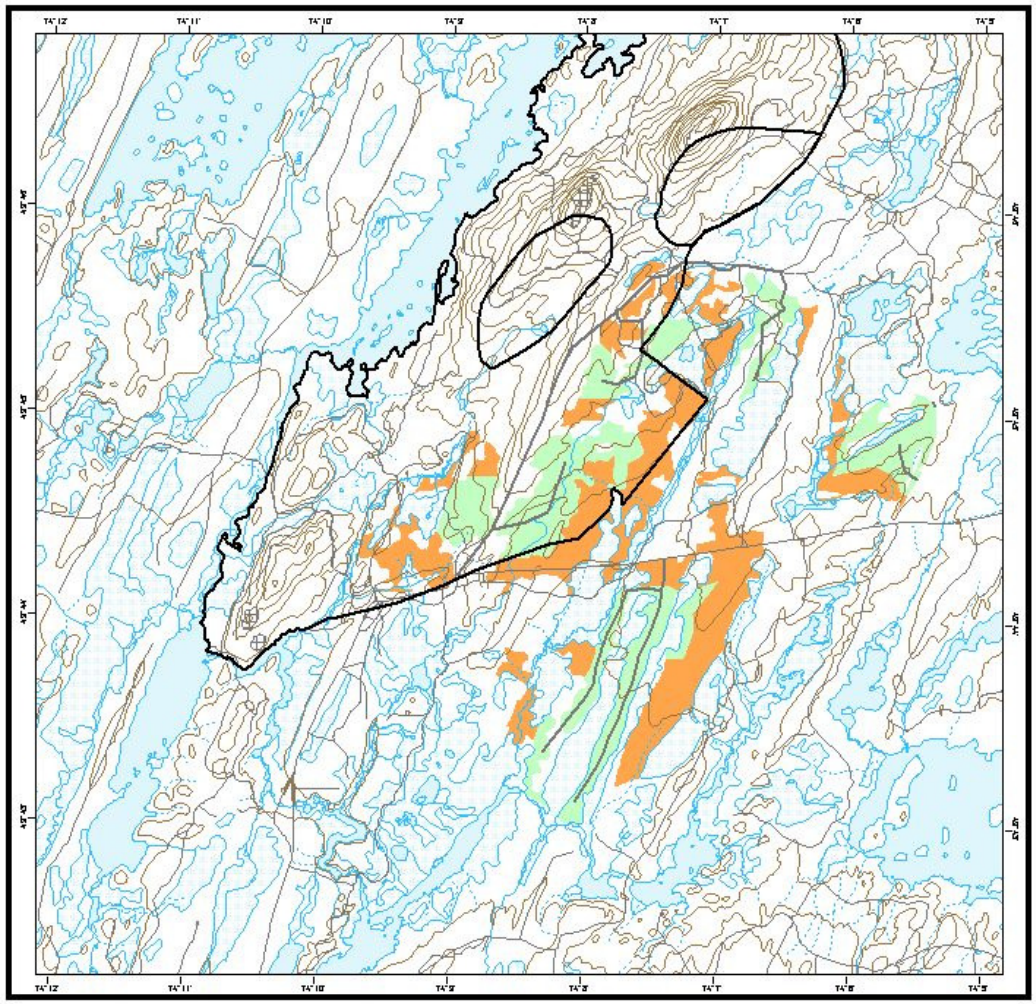
Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Faune Québec data and wildlife environmental planning objectifs	Direction de l'aménagement de la faune du Nord-du-Québec	2003 and 2005
Land use : Dennis and Louis Black-Smith (tallymans), Henry-George Gull (co-researcher)	——	2005

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 11A : Map of a forest management plan developed by a forest company



Legend

Annual forest management plan

- Cutting block
- Residual forest
- Forest road

Land use

- Hunting and trapping areas (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, Forêt Québec	2004
Annual forest industrial operations plan	Abitibi Consolidated	2005

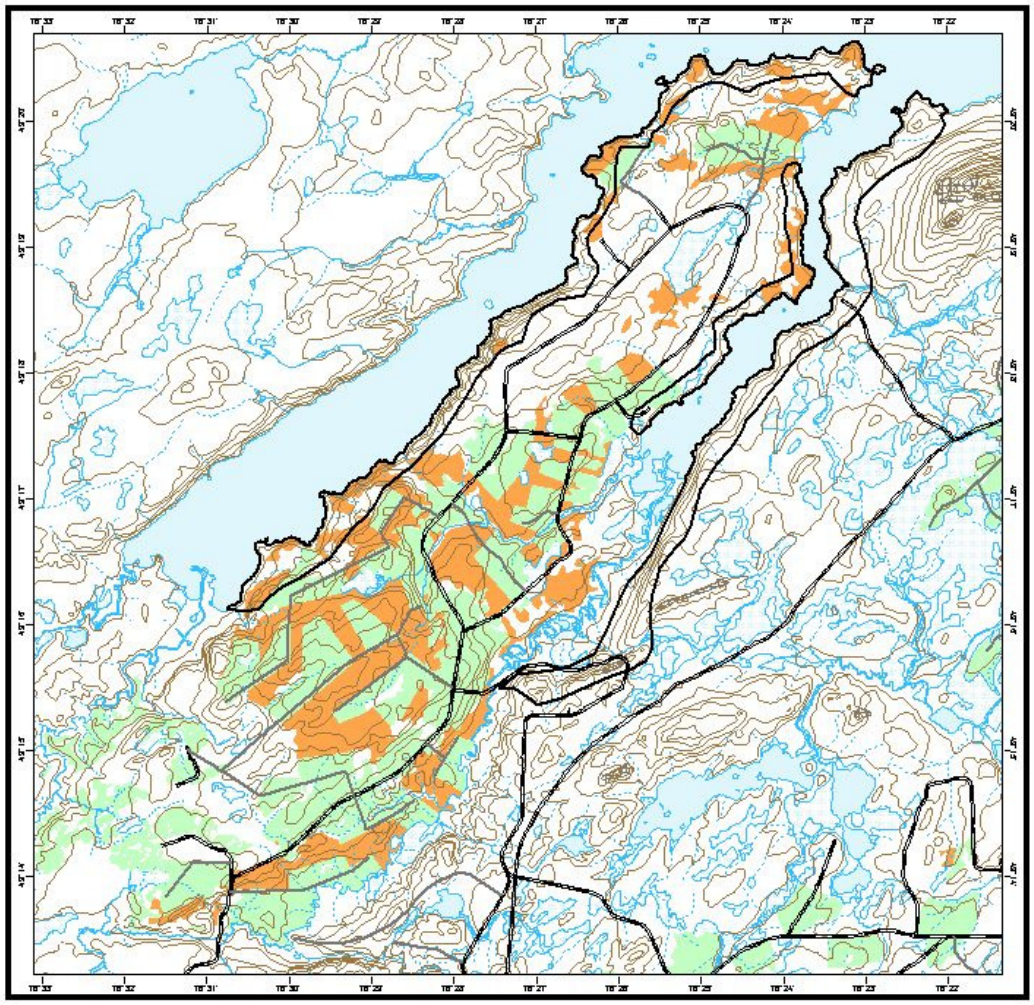
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune Québec

Appendix 11C : Map of a forest management plan developed by a forest company



Legend

Annual forest management plan

- Cutting block
- Residual forest
- Forest road

Land use

- Trapping area (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

1 0 1 2 Kilometers

1 / 81 500

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Annual forest industrial operations plan	Domtar	2005

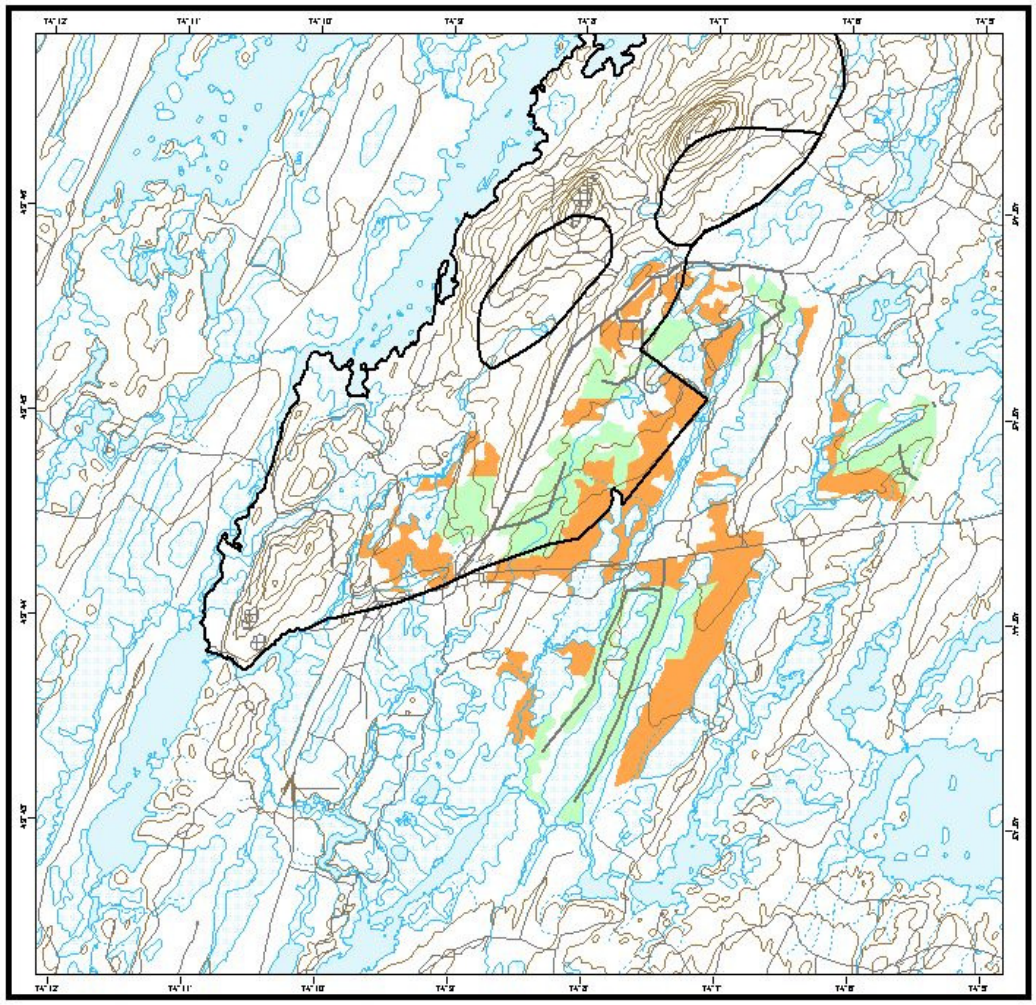
Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec

Note : This document does not have any legal range.

Ressources naturelles et Faune Québec

Appendix 12A : Map of a harmonized forest management plan



Legend

Harmonized development plan examples

- Residual forest
- Cutting block
- Forest road

Land use

- Hunting and trapping areas (ZEC)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 8

Scale

1 0 1 Kilometers

1 / 50 000

Sources

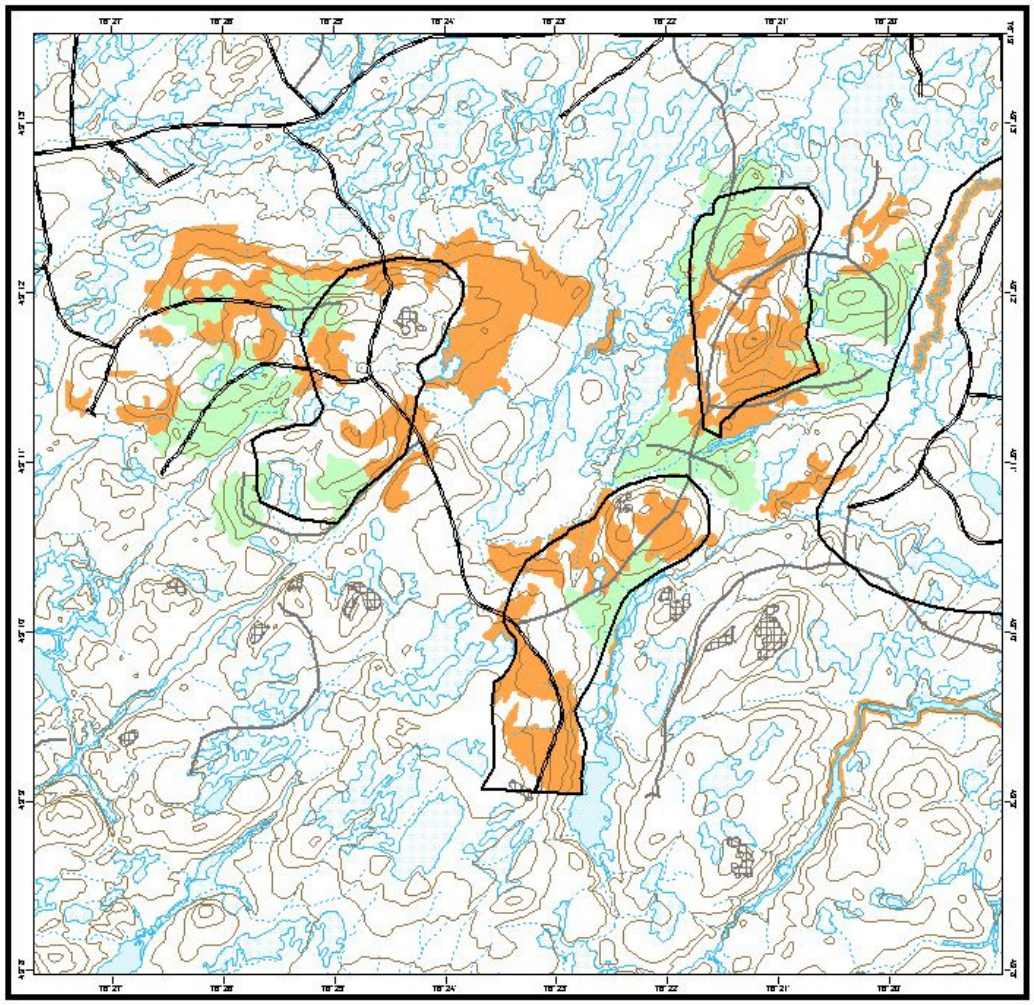
Data	Organization	Year
Hydrography and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Roads	Unité de gestion de Chibougamau, FORESTIQ Québec	2004
Harmonized development plan examples	Direction de l'aménagement de la faune du Nord-du-Québec	2005

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 12B : Map of a harmonized forest management plan



Legend

Harmonized development plan examples
- Residual forest
- Cutting block
- Forest road

Land use
- Hunting area (limit)

Hydrography
- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

1 0 1 Kilometers

1 / 60 500

Sources

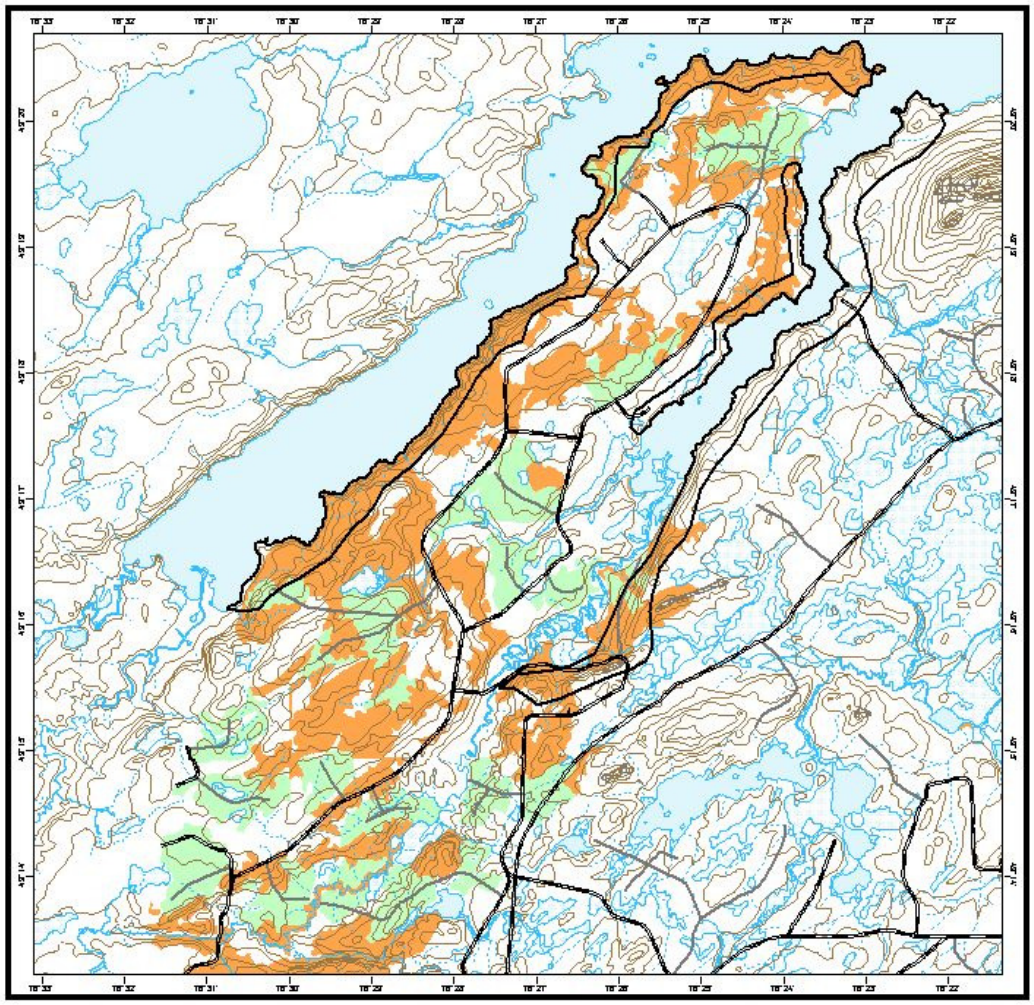
Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Québec (TDBQ), scale : 1 / 20 000	MRNF	2002
Harmonized development plan examples	Direction de l'aménagement de la faune du Nord-du-Québec	2005

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Ressources naturelles et Faune
Québec

Appendix 12C : Map of a harmonized forest management plan



Legend

Harmonized development plan examples

- Residual forest
- Cutting block
- Forest road

Land use

- Hunting area (limit)

Hydrography

- Swamp
- Lake
- Bed rock

- Hypsometry
- Road

Metadatum

Geodetic reference surface	GRS 80 ellipsoid
Geodetic reference system	NAD 83
Cartographic projection	Modified Transverse Mercator (MTM), zone 9

Scale

1 0 1 2 Kilometers

1 / 81 500

Sources

Data	Organization	Year
Hydrography, roads and hypsometry : Topographic database of Quebec (TDBQ), scale : 1 / 20 000	MRNF	2002
Harmonized development plan examples	Direction de l'aménagement de la faune du Nord-du-Québec	2005

Realization

Production : Ministère des Ressources naturelles et de la Faune
Direction de l'aménagement de la faune du Nord-du-Québec
Note : This document does not have any legal range.

Diffusion : © Gouvernement du Québec, tous droits réservés, 2005

Ressources naturelles et Faune
Québec

APPENDIX 13

GENERAL INTERPRETATION OF THE APPLICABILITY, FAISABILITY AND POSSIBILITY TO SIMULATE THE MEASURES PROPOSED AT THE APPENDIX 2 OF THE DRAFT DIRECTIVES FOR THE PROTECTION AND DEVELOPMENT OF WILDLIFE HABITATS

BASED ON THE PILOT PROJECT COLLABORATORS' EXPERIENCE AND/OR ON THE APPLICATION OF SPECIFIC MEASURES WITHIN THE FOREST MANAGEMENT PLANS ELABORATION PROCESS.

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*[†]		yes	no	D		yes	no	D		
Bear		For habitat development:														
	ouP1	When the tallyman identifies an occupied bear den, it should be protected by localising a residual block at the place he designates.	Art. 3.10.4 and 3.11.1, c) d) and Appendix C Part II (C-2) of the ANRQC.	✓			Integrate the den in a residual block or cut separator.	✓			This depends on the number of dens. It is very difficult to locate occupied bear dens. The number must be low.		✓		Measure applicable to AFMP and/or QFMP No impact - target the residual blocks in the annual plan and/or the 5-year plan.	
	ouP2	When a den could not be protected by a residual cutting block and is located in a wood cutting area, a 100-meter wooded strip radius must be kept intact around the den. No forestry activities should be authorised in the said strip for the whole term of the general forest management plan. A travel corridor with sufficient lateral visual obstruction between the protected area and the forest environment should be provided and maintained.	RNI 1 RNI 48 (60 metres and allowed harvest outside the winter season) 3.10.4 iii ANRQC	✓			It depends on the number of dens in the sector. To be specified that its for the QFMP period and not the general. For travel corridors, check if the sites are identified by the tallyman. The notion of connectivity between the habitats is to be favoured over the notion of corridors.		✓		For travel corridors, the minimum reasonable width is subject to interpretation, the visual obstruction depends on the area and the stands present. Integrate into the residual blocs or cut separators.	✓				
	ouP3	When a bear den is identified by the tallyman, forest activities in the immediate area of the den should be avoided during the winter season.	RNI 48 (harmonization more than RNI 48)	✓			The sector will initially be identified as a summer sector, but if logging is done in winter, the RNI will be applied. Application if possible for the winter sectors but this will be more difficult. The "immediate sector" reference can be interpreted.	✓					✓		Measure applicable to AFMP or QFMP.	

[†] * = Debatable

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
	ouP4	When new dens are brought to the attention of the timber permit holder, necessary measures should be taken in order to ensure the protection and the connection with the habitat matrix of the site localised by the tallyman.	RNI 1	✓			Shouldn't be a problem, but always respect the physical environment; however, the notion of connectivity could be difficult to ensure during the operation.	✓					✓		Measure applicable to AFMP and/or QFMP	
	ouP5	Following identification by the tallyman, the sectors located around large areas regenerated with blueberry (old cuts or burnt areas) and occupying sectors within the first 100 to 200 meters from the closest forest cover shall be exempt from scarification.				✓				✓	Relevance of the questioned measure, more than feasibility. Ground preparation is sometimes inevitable to ensure the successful output by ensuring adequate microsites and controlling certain competing sites.		✓		Measure applicable to AFMP and/or QFMP. Could have an impact considering the loss of non-scarified area which could still be replanted; we lack information on the territory that this can represent.	
	ouP6	The maintenance of residual blocks near blueberry fields can also be assessed locally.	Art. 3.10.4, 3.11.1, c) d) and Appendix C Part II (C-2) of the ANRQC.	✓			Point-by-point application. It appears by default that there is a residual near the blueberry fields.	✓			OK		✓		Measure applicable to AFMP and/or QFMP. Suggests a protection of blueberry fields which could be produced in certain cases following the harvesting of adjacent highlands in order to favor forest regrowth for unproductive forestry areas.	
		For habitat development:														
Bear	ouM1	Cuts with retention of clusters in the bear habitat sectors identified by the tallyman should be given priority.	FPDO 4 and Agreement Part III (C-3)	✓			It is in line with the FPDO. It is proposed that the words "carry out as a priority" be replaced by "favour cutting" and replace "cluster" by "variable retention harvest".	✓					✓		Measure applicable to AFMP and/or QFMP	
	ouM2	The planning of cuts over small surface areas and/or irregular strips is to be preferred.	Art. 3.10.4 a) and Appendix C Part II (C-2) of the ANRQC	✓			No problem.	✓			The reduction of harvest sites bring an increase in costs along with a reduction of available harvestable volumes which could lead to impacts on the annual allowable cuts.			✓	Measure applicable to AFMP and/or QFMP. Could have an impact considering the loss of non-scarified area which could still be replanted; lacking information on the territory that this can represent. The block dimension is in close relation with the allowable cut in regards to the exploitable volumes becoming unavailable in the residual forests for a given period. (3m or 7 m)	
	ouM3	In a bear's feeding grounds, the specific needs shall be assessed, in consultation with the tallyman, in the following manner: The pre-commercial block thinning method (4 to 5 years apart) should be preferred.	Part III (C-3) A) of the ANRQC and FPDO 7	✓			Depending on the sectors, this objective is probably created by the current way of doing business. It should be specified if the mosaic aspect is for a sector currently eligible for precommercial thinning.	✓			The mosaic can be applicable but over larger sectors. In smaller sites, this could be difficult to apply operationally. Should be attached to the FPDO. Depending on the structure of the sector involved, this could have an economic impact.		✓		Measure applicable to AFMP and/or QFMP	

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
	ouM4	**Special attention will be given to the conservation of different habitats. Preserve a certain number of small fruit trees such as sorb and cherry trees; Preserve hardwood trees in open spaces where there are no coniferous trees;**	**Part III (C-3) A) of the ANRQC**		✓	•	**Certain precommercial evaluation criteria are contradictory to the concerned measures of the Agreement. During precommercial thinning, the maintenance of fruit trees or hardwoods is slight or not applied.**		✓		**Not obvious from technical point of view because leaving these stems could lead to a refusal of processing. Increased flexibility for standards relating to fruit trees and shrubs could facilitate their maintenance.**	✓			**Measure applicable to AFMP and/or QFMP. Must be specified in the relative instructions. However, this measure could be integrated into the GFMP by making changes in the species proportions of the PCT return curves.**	
Moose		For habitat protection of particular sensibility:														
	orP1	**In close collaboration with the tallyman, localise the residual forest blocks in order to protect yards, calving sites as well as corridors identified by the tallyman.**	**Art. 3.10.4, 3.11.1, c) d) and Appendix 3 Part II (C-2/C-3) of the ANRQC**	✓			**Principle applicable at first glance. The map of the wildlife habitat profiles allows for the orientation of the localisation of residual blocks.**	✓			**Request a knowledge of sectors.**	✓			**Measure applicable to AFMP and/or QFMP.**	-
	orP2	**In the moose's riparian travel corridors, where residual blocks cannot be localised, the riparian strip width must be extended to 40 meters and no timber harvesting can be done within the first 20 meters from the watercourse or lake.**	**RNI 2 (20 metres provided) FPDO 8**	✓			**The respect of the 20 metres without logging causes no problems. Expansion for the protection of the corridor should not be systematic, the 40 metres is acceptable as long as it is on a specific application. How can the application be monitored further at the corridor level? Talk more about connectivity.**			✓	**Requires monitoring of the application of this measure. The maintenance of a band of 40 metres could probably lead to operational difficulty for later salvage or a loss of allowable cut. There is a risk of enclosing stands.**	✓			**Measure applicable to AFMP and/or QFMP. Would have an impact on additional 20 metres. If the edges must be protected as well, they could be compartmentated and reduced to 100% in the GFMP if they were identified before the calculations.**	**FPDO 8 applicable in the first 20 metres , but there is practically no harvest in the woodland border.**
Moose	orP3	**As mentioned in the Agreement, residual stands to be preserved must be located in priority in mixed forests.**	**Appendix C Part II (C-3) of the ANRQC**	✓			**Is mainly done that way but if the allocations of hardwood stands increase, the context will change and the residual blocks will probably consist less of mixed and hardwood stands. The developing mixed stand strategy must be attached. The profile map of wildlife habitats allows for the orientation of the localisation of residual blocks.**			✓	**The feasibility will vary according to the allocations of poplar and birch and of the accessibility of territories with a higher amount of mixed stands which also varies, for example according to the closing and opening of traplines.**	✓			**This measure was partly applied in module CPRS-CMO of the 2007 GFMP but it could be further optimized. This measure reveals a permanent character. It is necessary to specify when the residual stands can be harvested. The systematic maintenance of mixed stands does not favour an optimization of the regeneration of pioneer hardwood species favouring the production of grazing for moose.**	
	orP4	**A forested strip should be maintained around moose yards. Also, yards must not be isolated from the forest environment by wide cutting areas.**	**3.10.4 iii ANRQC**	✓			**It is essential to specify that the notion of a moose yard identified here corresponds with the moose wintering area. However, the maintenance of the forest edge must be**			✓			✓		**Measure applicable to AFMP and/or QFMP**	**The mosaic harvest already monitors connectivity. Several moose yards are already identified as sites of interest (1%) and cover a large surface. The protection of a buffer zone around these moose yards**

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
							seen according to the dimension of the sector, however the notion of non intervention in these sectors in winter must prevail.									would lead to an impact on the allowable cut.
	orP5	In sectors identified as moose habitats, silvicultural treatments such as pre-commercial thinning and stand release must be planned with the tallyman.	3.1 c) of the ANRQC and FPDO 7	✓			In line with the "Paix des Braves"			✓	Probable incompatibility between the GFMP silvicultural strategy, the CAAF obligations and numerous norms and standards.		✓		Measure applicable to AFMP and/or QFMP. Difficult if we don't already know the tallyman's requests.	
	orP6	Ensure connection between recognised seasonal habitats.	3.10.4 iii ANRQC	✓			Shouldn't be a problem according to experience. The map of the wildlife habitat profiles allows for the orientation of the localisation of stands of particular interest.	✓					✓	·	Measure applicable to AFMP and/or QFMP	
		For habitat development :														
	orM1	Priority shall be given to cluster retention cutting in identified moose habitat sectors.	FPDO 4	✓			Shouldn't be a problem according to experience. It is proposed that the words "carry out as a priority" be replaced by "favour cutting" and that "cluster" be replaced by "variable retention harvest".	✓			In relation with the levels established in the strategy and the presence of stands having the structure. Higher costs.		✓		Measure applicable to AFMP and/or QFMP	
Moose	orM2	In sectors developed for moose (planning sectors with maximum surface areas of 25 km2), spread the variable-size cuts over the fieldscape, in order to ensure that at the most half of the surface of management units is covered with young forests. Residual blocks will be harvested once regeneration in the cutting areas have reached 2,5 to 3 meters, while leaving two to three islets (3-10 ha) of mature forest (softwood basal area >13 m2/ha) every 10 km2 as cover in late winter.	Appendix C Part II (c-2) B) of the ANRQC.	✓			Shouldn't be a problem according to experience; already integrated into current measures.			✓	But loss of allowable cut by leaving isolated islands.	✓			As for the moose management strategy, OM 5 mentions that in principle it is the application of moose habitat management plans that are retained (7.1) for more northern forests (where a conciliation problem exists between moose and caribou). Outside 25%, this measure has potential impact.	Essential to specify that young forest means 3m high. The importance of the objective is to ensure that a forest cover remains (7m) by 10 km2 (including woodland border and other). It is proposed to modify the wording by "by leaving nonetheless two to three islands (3-10ha) of residual forest (including separators) (softwood basal area >13 m2/ha) by 10 km2, in order to provide cover at the end of winter.
	orM3	When possible, maintain a travel corridor of a minimum width of 100 meters between the yard sector and the stands bordering watercourses or lakes. The residual blocks could be used for this purpose.	Art. 3.10.4 and 3.11.1, c) d) and Appendix C Part II (C-2), 3.10.4 iii, 3.12.2 and 3.12.3 of the ANRQC	✓			Put emphasis on the notion of connectivity. The map of the wildlife habitat profiles allows for the orientation of the localisation of residual blocks.	✓			Probably feasible; the possibility of creating enclosures of sectors by the creation of the corridor must be closely examined..		✓		Measure applicable to AFMP and/or QFMP	
		Other measures:														

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
	orM4	**The moose's life cycle makes it prefer habitats with distinct characteristics, according to the seasons. The schedule of forest operations must be coordinated with the tallyman's knowledge regarding the habitats occupied by moose through the seasons, so that forest or silvicultural activities will not disturb the animal when it is in a yard or on a calving site.**	**Art. 3.10.4 and 3.11.1, c) d), Appendix 3 Part II (C-2), 3.10.4 iii, 3.12.2, 3.12.3, 3.1 a) of the ARNQC, FPDO 8 and 9.**	✓			**No problem.**			✓	**For the participation of the tallyman in the harmonization of the activity schedule, the potential impact of the application of this measure is questioned. It is already difficult to establish the schedule of operations with the sub-contractors and the factory needs. An opening towards harmonization is expressed, but not as an obligation.**		✓		**Measure applicable to AFMP and/or QFMP**	
	orM5	**The tallyman will participate in identifying sensitive sectors and harmonising the forest activity schedule. From mid-May to mid-June, no forest activity should be carried out within a distance of 400 meters from a calving site identified by the tallyman. Also, when moose are gathered in a yard, forest activity should be minimized in the neighbour area.**	**Refers to Bill C-61. An Act respecting the conservation and development of wildlife Art. 28**	✓			**Shouldn't be a problem.**			✓	**For the participation of the tallyman in the harmonization of the activity schedule, the potential impact of the application of this measure is questioned. It is already difficult to establish the schedule of operations with the subcontractors and the factory needs. An opening towards harmonization is expressed but not as an obligation.**		✓		**Measure applicable to AFMP and/or QFMP**	
	orM6	**Roadside protection strips: In order to decrease vulnerability of moose to hunting from the roadside, the localisation of residual blocks or the maintenance of a 40-meters wide residual strip along certain roads could be planned along with the tallyman.**				✓	**Measure questioned on its actual relevance.**			✓	**Operationally, regarding the forwarding and limbing areas, the 40-metres strip could create problems for forwarding, but also for the creation of strips conducive to windfall and the loss of productive areas, of exploitable volumes available at harvest**	✓			**This measure could be integrated into the GFMP by applying a reduction to the stratum if the planning is done before the calculations.**	
Marten		For habitat protection and development at the local level:														

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
	mPM1	**Wherever the stands structure in a given sector allows it, follow François Potvin 's propositions to divide residual blocks based on an age-class range. To maintain marten populations locally in sectors to be developed for this species (planning sectors: area of 10 km2), keep 50% or more of the stands that are over 7 m. (>30 years old). Cutting method should be CPMS (cutting with protection of small merchantable stems) or CPHRS (cutting with protection of high regeneration and soils) if the stands allow, in order to maximize the inner forest surface area and decrease the contact perimeter with lowly regenerated cuts.**	**Appendix C Part II (c-2) B) of the ANRQC and FPDO 4,8,9,11**	✓			**Shouldn't be a problem by applying already existing tools. The map of the wildlife habitat profiles allows for the orientation of the localisation of stands representing the best habitats.**	✓			**In relation with the levels of retention harvest established in the strategy. Higher costs.**	✓			**Measure applicable only to the AFMP. However it is possible to integrate a level of CPPTM and CPHRS into the GFMP. There is potential impact if the habitat is located outside if the 25%.**	**It is proposed to remove the term "greater than 30 years of age" in the description of the measure.**
Small game		For habitat protection														
	pgP1	**In bond with the application of the development objective aiming at framing the practice of precommercial thinning (FDOP7), in sectors of wildlife interest, residual non-treated sectors should be localised in agreement with the tallyman. A particular attention should be given to densely spruce-regenerated sectors with some hardwood. An habitat should have a minimum height of 4 meters and be of density over 6,500 stems per hectare. The treatment for these untreated blocks at the time of the first intervention should not be applied before favourable conditions have been restored in the treated sectors (minimum 4 meters high with a density over 6,500 stems per hectare).**	**Part III (C-3) A) of the ANRQC and FPDO 7**	✓			**Shouldn't be a problem, however, it is possible that the treated sector does not return to 6500 stems/ha.**	✓				✓			**Measure applicable to AFMP and/or QFMP. Must be specified in the related instructions. However, this measure could be integrated into the GFMP by making changes in the species proportions in the PCT return curves if it has an impact on the composition in the species levels and the stem numbers.**	
		For habitat development:														
	pgM1	**In cutting sectors near trapping camps, within a one (1) kilometer radius, cutting areas less than twenty-five (25) hectares should be favoured.**	**Part III (C-2)**	✓			**No problem, however, specify the notion of a permanent camp and localize them in the 1%, if necessary.**	✓			**Impact on the allowable cut if not considered in the 1%. Operational cost.**	✓			**Measure applicable to AFMP and/or QFMP.**	
Small game	pgM2	**During pre-commercial thinning treatments, apply a checkerboard pattern treatment. The maintenance of berry-producing plant species should be promoted during treatment.**	**Part III (C-3) A) of the ANRQC and FPDO 7**	✓			**No problem**	✓			**Impact on work costs.**	✓			**Measure applicable to AFMP and/or QFMP. Must be specified in the relative instructions. However, this measure could be integrated in the GFMP by making changes in the species proportions of PCT return curves if it has an impact on the composition of stratum species.**	**The relative instructions are in contradiction with this measure.**

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
	pgM3	**Cutting with protection of high regeneration and soils and cluster retention should be promoted.**	**Art. 3.11.1 f and Part III (C-3) B) of the ANRQC FPDO 4**	✓			**No problem**	✓			**Where the stands are suitable and in relation with the strategy. Impact on operational costs.**	✓			**This measure could be integrated into the GFMP by the determination of a level of CPHRS if the stand structure is suitable. No impact at the level simulated by the MRNF**	
Beaver		For habitat protection:														
		In sectors where there is an active beaver colony identified by the tallyman:														-
	caP1	**Over a distance of 800 meters upstream from a dam and 300 meters downstream from the dam favore the maintenance of deciduous and mixed stands located at less than 60 meters from water.**	**Appendix C Part II (C-2), Appendix C Part III (C-3) C), art. 3.10.4, art. 3.11.1, c) d), art. 3.12.2, art. 3.12.3 of the ANRQC, FPDO 8, 9, 11.**	✓			**Place the residual blocks where there are hardwood stands. Through good planning of mosaic cuts. The information relating to the ecological types should be used in order to favour hardwood in the most interesting sites.**			✓	**Depending on the number of sites, the allowable cut could be affected.**	✓			**Measure applicable to AFMP and/or QFMP**	**During the experiment, only the beaver lodges were localised on the tallyman's map. The present measure refers to upstream and downstream of a dam.**
	caP2	**In bond with the application of the development objective concerning conservation of dead wood in managed forests (FPDO8), leave a 20-meters strip undisturbed along both sides of the stream occupied by the colony.**	**Appendix C Part II (C-2), Appendix C Part III (C-3) C), art. 3.10.4, art. 3.11.1, c) d), art. 3.12.2, art. 3.12.3 of the ANRQC, FPDO 8, 9, 11.**	✓			**Applicable, however, depending on the environment, the harvesting of softwood could allow for the favouring of hardwood.**	✓					✓		**Measure applicable to AFMP and/or QFMP. The impact on the allowable cut will probably be negligible.**	
	caP3	**Along lakes of less than 5 ha. and watercourse of less than 5 meters wide, leave a 40-meters riparian strip on both sides of the stream, and allow the harvesting of 75% of the stems within the 20 meters located along the cutting area while preserving the leafy species.**	**Art. 2 RNI, FPDO 8**			✓	**The impact will be documented when several sectors will be concerned. Clearly identify the application sectors in order to favour hardwood where it is relevant to do so.**			✓	**Potential windfall and limited recompletion in the strip harvested to 75%. Higher operational cost.**	✓			**This measure could be integrated into the GFMP in the form of reductions of the stratum or by compartmentation. Depending on the scope of the measure, the second strip of 20 metres to 75% could have an impact on the allowable cut.**	**Goes against certain strategies aiming to introduce softwood species to this type of stratum, and this causes a loss of productive softwood forest areas.**
		For habitat development:														
		In sectors where there is or not an active beaver colony and which site is localised by the tallyman:														-
	caM1	**Encourage the establishment of shade intolerant leafy species within a radius of 60 meters or less from the stream. The modulation of the riparian residual mosaic and/or partial cutting could be considered in agreement with the tallyman.**	**Art. 3.10.4, art. 3.11.1, c) d) f), Appendix C Part II(C-2) and Part III (C-3) B) of the ANRQC**	✓			**Depends on the environment. Ecological types must be considered.**			✓	**Will cause leafing on these sites.**	✓			**Measure applicable to AFMP and/or QFMP. However, if this measure is of a permanent character, it could be considered to integrate it into the GFMP by modifying the harvest hypotheses in the LBR.**	

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
Beaver	caM2	**In low-slope sectors, partial cutting of small strips right up to the edge of the stream may be a management approach to promote the establishment of hardwood regeneration. However, no mechanised equipment shall be authorised in these strips, unless special authorisation is obtained from concerned authorities.**	**Art. 3.11.1 f) and Appendix C Part III (C-3) B) of the ANRQC**	✓			**Applicable but the measure goes against the RNI and the GFMP directive. Could favour the arrival of hardwood.**			✓	**Should be experimented.**	✓			**Measure applicable to AFMP and/or QFMP.However, if this measure is systematic, it could be considered to integrate it into the GFMP by modifying the harvest hypotheses or by compartmentating the affected zones.**	**It is a very interesting measure for beaver but must be monitored, Art 25.3 of the Forest Act should facilitate its application.**
	caM3	**In these sectors of interest, the development of the access road network shall be done in close cooperation with the tallyman.**	**Art. 3.13 of the ANRQC**	✓			**No problem.**			✓	**The road network is a major constraint having important economic repercussions. This could be harmonized in certain cases, but cannot be an obligation. The harmonization requests of the development of the road network should be done a few years before the development in order to be able to analyze the feasibility while limiting the economic and forestry impacts.**		✓		**Measure applicable to AFMP and/or QFMP.**	
Waterfowl		For habitat protection :														
		In sectors identified by the tallyman as being territories or water bodies used as waterfowl feeding grounds or staging areas:														
	saP1	**Give preference to localising residual blocks so as to optimise the wooded strip of the identified sector's section—and this, by considering the source of the dominant winds.**	**Art. 3.10.4 and 3.11.1, c) d), art. 3.12.2, art. 3.12.3, Appendix C Part II (C-2) of the ANRQC, FPDO 8, 9 and 11.**	✓			**To be validated during the application on certain sectors; shouldn't be a problem.**	✓					✓		**Measure applicable to AFMP and/or QFMP.**	
	saP2	**In bond with the application of the development objective concernng conservation of dead wood in managed forests (FPDO8), leave all localised 20-meters strips undisturbed, on both sides of the sector or along the identified section of the lake.**	**FPDO 8**	✓			**To be validated during the application on certain sectors; shouldn't be a problem.**	✓				✓			**Measure applicable au AFMP and/or QFMP. However, these edges to be integrally protected could be compartmentated and reduced to 100% in the GFMP if they were identified before the calculations.**	
	saP3	**In sensitive sectors identified for wildlife, and only after consultation with the tallyman, the beneficiary and MRNF (Wildlife and Forest branches), the riparian mosaic of over 200 meters could be modulated on one side or both sides of the stream, based on the objective for maintaining the Visual Quality of Forest fieldscapes (FPDO 9).**	**Art. 3.12 of the ANRQC**	✓			**To be validated during the application on certain sectors; shouldn't be a problem.**	✓				✓			**This measure applies to the procedures of the visual monitoring which is already integrated into the 2007 GFMP. A readjustment of the reduction hypotheses must be done according to the new zones identified.**	**The section on the modulation of the mosaic is acceptable but the introduction of the notion of landscape which integrates the visual monitoring is more meaningful. There is no impact if we do a 2-pass mosaic but the reference to the FPDO landscape refers to a 3-pass.**

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
Riparian zone	br1	In sensitive sectors identified for terrestrial and aquatic wildlife, and only after consultation between the tallymen, the beneficiary and MRNF (Wildlife and Forest branches), the riparian mosaic of 200 meters could be modulated on one side or both sides of the stream based on the objective for maintaining the Visual Quality of Forest fieldscapes (FPDO 9).	Art. 3.12 of the ANRQC	✓				✓				✓			This measure applies to the procedures of the visual monitoring which is already integrated into the 2007 GFMP. A readjustment of the reduction hypotheses must be done according to the new zones identified. Possibility of impact for lakes larger than 5 km?	
	br2	In sectors located on slopes exceeding 30%, the riparian strip along lakes or permanent watercourses shall be extended to 40 meters wide, and partial cutting shall be allowed only within the first 10 meters of the strip.	Art. 4 RNI	✓			Will depend on the topography. The impact could be important in hilly sectors, however, operational constraints could limit the level of intervention. These are sectors where companies do not usually operate.	✓			Operational constraints but feasible.	✓			Measure applicable to AFMP and/or QFMP. However, the edges to be protected could be compartmentated and modify the harvest hypotheses in the identified sectors. Impact can be simulated but technically this will probably be infrequently used as a treatment.	
	br3	A particular attention aiming at minimizing the risk of windfall should be given to the sectors most vulnerable to the winds of West.				✓	The dominant winds are not always westerly.			✓	Operationally difficult.		✓		Measure applicable au AFMP. Difficult to integrate into the GFMP with the harvest priority of the vulnerable sectors since this measure is too specific and too infrequent.	
Fish	po1	In sectors where a spawning ground is identified, no forest operation can be carried out in the riparian strips. A 40-meters wide protection strip must be maintained along the spawning area on both sides of the shore as well as on a distance of 40 meters, upstream and downstream from the spawning ground.	RNI provides 20 metres.	✓			Use of residual forest to meet this objective.					✓			This measure could be integrated into the GFMP by compartmentation of the targeted sectors or by the addition of a reduction to the stratum. Impact if there is expansion of the strip. Importance linked to the number of sites	The RNI provides a riparian strip of 60 metres near a salmon river. See also FPDO 3
	po2	When the slope of the riparian strip bordering a spawning site exceeds 30%, the riparian strip shall be extended to a width of 50 meters.	RNI provides 20 metres.				Bring the riparian strip 40 metres as with the preceding measure in order to harmonize.					✓			Measure applicable to AFMP and/or QFMP. However, the edges to be protected could be compartmentated and modify the harvest hypotheses in the identified sectors. Impact if there is expansion of the strip. Importance linked to the number of sites.	There must be an effort to standardize the widths (40m-50m) linked to the steep slope sectors
	po3	During the construction of a temporary or permanent access road, it is forbidden to cross a watercourse within a distance of 100 meters upstream and 40 meters downstream from a spawning area.	RNI 39 (provides 50 metres)	✓			Open to such a measure linked to best practices. "Interdiction" should be modulated and refer to "unless authorized by the concerned authorities."						✓		This measure is applicable to the AFMP and/or the QFMP and certain modalities are provided in the RNI.	
	Other strategies and recommendations															

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
Interventions	asr1	When the stands lend themselves to it, favored the "Coupe of protection of la haute regeneration and des sols (CPHRS)" and the "Coupe avec protection des petites tiges marchandes (CPPTM") preferably to the "Coupe avec protection of la regeneration and des sols (CPRS)"	Agreement, FPDO 4	✓			Paix des Braves, the stands should be applicable.			✓	There is no present advantage for the company to do this since it is considered as a loss of volume and penalties are imposed. Also causes a greater complexity of management along with an increase in operational costs.	✓			However, it is possible to integrate the GFMP at the level of CPPTM and CPHRS if the stand structure is suitable.	
Interventions	asr2	When cutting in mixed stands, give priority to the maintenance and distribution of retention clusters made up of hardwood and softwood.	Agreement, FPDO 4	✓			Leafing of certain territories.				Favours variable retention harvest.		✓		Measure applicable to AFMP and/or QFMP.	An important link to make with the mixed stand strategy. Can be in contradiction with the current calculation hypotheses.
Silvicultural works	asr3	Localisation of sectors for silvicultural work such as scarification, tree planting, plantation release and pre-commercial thinning must be done in close cooperation with the trapper, and it should be done systematically in sectors of wildlife interest (25%).	Agreement	✓						✓	Considers the ant obligations of industries regarding silvicultural works to be carried out, this measure is considered inapplicable. Replace "carry out in close collaboration" with "discuss".		✓		Measure applicable to AFMP and/or QFMP.	
Aquatic habitat and road network development	asr4	In sectors of wildlife interest, access road construction (temporary and permanent) must be located outside the residual blocks as a priority.	Joint action with the trappers provided in the Agreement	✓			Does not see the pertinence of this measure since the industry already does this.						✓		Measure applicable to AFMP and/or QFMP.	
Aquatic habitat and road network development	asr5	To optimise water quality and aquatic habitat conservation, apply and adapt to the Agreement's territory the guide on sound forest road practices developed by the Gaspesie-Iles of la Madeleine regional directorate of MRN, by emphasising the placement (according to trade practice) of structures such as culverts. Sound practices during winter road construction must also be adapted and applied. Using techniques that minimise disturbance of the stream bed (half-pipe culverts, temporary bridge) is to be preferred.	Document non applicable by law, but developped and modified by Forêt Qc.	✓			RNI, FPDO and guide to best practices in forest road management.	✓					✓		Measure applicable to AFMP and/or QFMP.	
harmonization of activity schedule	asr6	In sectors of wildlife interest (25%), the beneficiary's work schedule must be harmonised with the annual land use cycle of the tallyman and his knowledge of the habitats to be protected.	Agreement, harmonization, FPDO 10	✓			Sometimes difficult to harmonize the forestry operations schedule with the activities of Cree trappers.	✓			The operational schedule can have important economic repercussions and is already submitted to a series of forestry, economic and operational constraints. This could be harmonized in certain cases, but cannot be an obligation. The harmonization requests must be made before the annual planning in order to be able to analyze and seek feasibility while limiting the economic and forestry		✓		Measure applicable to AFMP and/or QFMP.	-

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
											impacts.					
The problem of the protection of this species and its habitat is very large and requires actions at many levels. Considering the implementation context of the pilot project, the draft directives measures on woodland caribou have not been tested within the present project.																
Caribou	car1	**Identify on forest planning maps the sectors of interest (protected and replacement areas of 100 km2 to 250 km2) for the woodland caribou as designated by Faune Quebec.**	**Complies with Ministerial Direction 2003-16B of the MRNF**									✓			**The special caribou management plans provide for this procedure.**	
Caribou	car2	**When forest management as planned in the current five-year plans affect the sectors of interest, discussions must be initiated between MRNF (Forest branch, Forêt Quebec and Faune Quebec), industry representatives and the Crees in order to minimise the negative impacts of the operations on woodland caribou habitat (for example, pay special attention to ground lichens, use the CPHRS and CPMS methods if the stands allow, minimise the construction of permanent roads, proceed to cutting as quickly as possible, etc.**										✓			**Measure applicable to AFMP and/or QFMP. However, it is possible to integrate the GFMP at the level of CPPTM and CPHRS if the stand structure is suitable.**	
	car3	**Proceed the same way for the sectors of interest affected by the operations planned in the next GFMP when infrastructures are already in place.**										✓			**Measure applicable to AFMP and/or QFMP. However, it is possible to integrate the GFMP at the level of CPPTM and CPHRS if the stand structure is suitable.**	
	car4	**When no forest management has been planned in the sectors of interest in the next GFMP or when there are no existing infrastructures, initiate discussions between MRNF (Forest branch, Forêt Québec and Faune Québec), industry representatives and the Crees to avoid as much as possible carrying out timber harvesting activities in the proposed protected areas.**											✓		**Measure only applicable to the AFMP.**	

Species	Proposed measure	Draft directives measure	Existing tools	Applicability			Comments	Feasibility			Comments	Can Be Simulated			Comments	General Notes
				yes	no	D*†		yes	no	D		yes	no	D		
	car5	**The forest management plans for caribou habitat, to be completed by October 14, 2005, submitted and approved by Quebec and Cree authorities, could be integrated in the mapping of the next five-year program.**											✓		**Measure applicable to the QFMP and AFMP. However, the new management plans will not be integrated into the 2007 GFMP.**	

APPENDIX 14 : ACRONYMS

"Centre de données sur le patrimoine naturel du Québec" (CDPNQ)
"Règlement sur les normes d'intervention" (RNI)
Agreement concerning a new relationship between le gouvernement du Québec et les Cris du Québec (ANRQC)
Annual forest management plans (AFMP);
Cree Regional Authority (CRA)
Cree trappers Association (CTA)
Cree-Québec Forestry Board (CQFB)
Cutting with protection of regeneration and soils (CPRS)
Cutting with retention of high regeneration and soils (CRHRS)
Cutting with retention of small merchantable stems (CRNIS)
Ecoforest information system (SIEF)
Exceptional forest ecosystems (EFE)
Exclusion from silvicultural activities (ESA)
Five year management plan (FYMP)
Forest environment resource development program (PMVRMF)
Forest management units (FMA)
Forest productive area (FPA)
Forest protection and development objectives (FPDO)
General forest management plan (GFMP)
Habitat quality index (HQI)
Joint working groups (JWG)
Land use (LU)
Ministère des Ressources naturelles et de la Faune du Québec (MRNF)
Mosaic cutting with protection of regeneration and soils (CMO)
potential biological sanctuaries (PBS)
Precommercial thinning (PCT)
Priority protection stands (PPP)
Riparian zone of interest (RZI)
Territorial reference units (TRU)
Timber supply and forest management agreement (TSFMA)
Waswanipi Cree Model Forest (WCMF)
Wood procurement planning tool (WPPT)