

Forest Resource Protection
and Development Objectives

General Forest Management Plans
2007-2012

Implementation document



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**Ministère des Ressources naturelles,
de la Faune et des Parcs**

Québec, 2005

INTERNET

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www.mrnfp.gouv.qc.ca/forets/consultation/consultation-Objectives.jsp

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A Word from the Minister

A Word from the Minister



The amendments made to the *Forest Act* in 2001 were designed to consolidate past gains in the area of sustainable forest management. They are also a part of Québec's policy to foster multiple forest use and integrated resource management.

One of the outcomes of the amendments is that, in the future, every forest management unit will be assigned a certain number of forest resource protection and development objectives to be attained through the application of forest management activities. This new approach will enable Québec to move towards a more results-oriented form of management, offer greater operational flexibility and ensure that regional and local features are taken into account in the forest management process.

This document sets out the protection and development objectives that will apply to the general forest management plans for the period 2007-2012. They were established following public consultations, and reflect the remarkable progress made by Québec towards the goal of sustainable forest management. They should enable Québec to fulfill its commitments, especially in the field of biodiversity preservation, and will be a considerable asset in maintaining access to national and international markets for Québec's forest products.

Pierre Corbeil
Minister for Forests, Wildlife and Parks

Notice

Government decisions following the report of the Commission for the study of public forest management, submitted in December 2004 to the Minister of Natural Resources, Wildlife and Parks and the Minister for Forest, Wildlife and Parks, may require adjustments to the implementation document for the forest resource protection and development objectives. For example, the 2007-2012 validity period of general forest management plans may be modified.

Table of Contents

Foreword.....	III
Notice	IV
List of tables and figures	VI
Protection and development objectives retained for the 2007-2012 general forest management plans	3
Conservation of soil and water resources.....	6
Objective 1 Reducing Rutting	7
Objective 2 Minimizing Losses of Productive Forest Area.....	10
Objective 3 Protecting Aquatic Habitats by Avoiding Sediment Inputs	12
Preservation of biological diversity	18
Objective 4 Permanently Maintaining a Quantity of Mature and Overmature Forests Based on Regional Ecology	20
Objective 5 Developing and Applying Spatial Distribution Patterns for Logging, Based on Regional Ecology and Socially Acceptable.....	27
Objective 6 Protecting the Habitats of Threatened or Vulnerable Forest Species	30
Objective 7 Structuring the Practice of Pre-commercial Thinning.....	35
Objective 8 Preserving Dead Wood in Managed Forests.....	37
Maintaining the multiple socio-economic benefits society derives from the forests.....	39
Objective 9 Maintaining the Visual Quality of Forest Landscapes	40
The giving of proper consideration, in selecting forms of development, to the values and needs expressed by the populations concerned.....	42
Objective 10 Fostering Harmonization of Forest Uses Through Written Agreements to be Included in the General Forest Management Plan.....	43
Objective 11 Maintaining or Improving the Habitats of Wildlife Species of Importance to the Crees and Fostering Harmonization of Different Forest Uses in Order to Create Environmental Conditions Conducive to Traditional Cree Activities	45

List of Tables

Table 1	List of Atlantic salmon rivers for which the deforested area (logging equivalent area) must be 50% or less	15
Table 2	Targets by bioclimatic sub-domain.....	21
Table 3	Forest species currently covered by objective 6 (by administrative region - January 2004).....	33

List of Figures

Figure 1	Forest management unit subdivisions (as at June 13, 2003)	5
Figure 2	Watersheds of Atlantic salmon rivers for which the deforested area (logging equivalent area) must be 50% or less.....	16
Figure 3	Watersheds and sub-watersheds of landlocked salmon rivers for which the deforested area (logging equivalent area) must be 50% or less.....	17
Figure 4	Proposed scenarios for the implementation of extended rotation patches in the 2007-2012 GFMPs in every FMU (boundaries as at June 13, 2003).....	25
Figure 5	Bioclimatic sub-domain divisions	26
Figure 6	Maintaining large tracts of mature forests: A major issue in the boreal forest.....	29
Figure 7	Area covered by the Agreement Concerning a New Relationship Between the Gouvernement du Québec and the Crees of Québec	47

Foreword

In the fall of 2003, the Ministère des Ressources naturelles, de la Faune et des Parcs* (MRNFP) submitted a series of proposed forest resource protection and development objectives (PDOs) for consultation prior to their inclusion in the general forest management plans (GFMPs). As a result of the comments made by more than 40 organizations in the academic, environmental, forestry, wildlife, recreation and tourism sectors, as well as by regional development boards, Aboriginal communities and the general public, it has since been able to adjust and improve the proposed objectives and implementation mechanisms. After considering the various proposals made, it has also decided to add four new objectives to its list.

A total of eleven PDOs have therefore been retained for the 2007-2012 GFMPs. Those associated with the environment relate to:

The conservation of soil and water resources;

- Reducing rutting,
- Minimizing losses of productive forest areas,
- Protecting aquatic habitats,

The preservation of biological diversity;

- Maintaining mature and overmature forests,
- Spatial distribution of logging areas,
- Protecting the habitats of threatened and vulnerable forest species,
- Structuring pre-commercial thinning operations,
- Preserving dead wood.

The objectives associated with social and economic requirements are designed to meet the expectations of other forest users and to respect the rights of the Cree people and their use of the forest. The objectives in this category relate to:

- Maintaining the visual quality of forest landscapes,
- Harmonizing different forest uses,
- Maintaining conditions conducive to forest use by the Crees.

Each objective will give rise to certain specific actions in the five-year programs and annual

forest management plans, in order to achieve the targets set by the forest management strategies in the forthcoming GFMPs. For details of how to build PDOs into their plans, forest management agreement and contract holders should refer to the document entitled *Instructions for Preparing General Forest Management Plans*.

Indicators will be devised in order to measure the forest management and environmental performance of agreement and contract holders during the 2007-2012 planning exercise. This performance will be an important factor when reviewing allocated timber volumes upon renewal or extension of their agreements or contracts.

The Implementation Document presents the eleven protection and development objectives (PDOs), along with targets for the period 2007-2012. Targets are still being set for some of the PDOs, and in these cases the document presents the target setting mechanism and the date on which the targets will be available. It also sets out the actions that will be taken (knowledge acquisition, committees, etc.) to address some of the issues raised during the public consultations.

FOR FURTHER INFORMATION

MINISTÈRE DES RESSOURCES NATURELLES, DE LA FAUNE ET DES PARCS, 2004. *Rapport des consultations publiques sur les objectifs de protection et de mise en valeur des ressources du milieu forestier*, Gouvernement du Québec (In French only).

Instructions for Preparing General Forest Management Plans.

* The Société de la Faune et des Parcs du Québec (FAPAQ) became part of the Ministère des Ressources naturelles, de la Faune et des Parcs on June 30, 2004, and is now known as Faune Québec.

Protection and Development Objectives Retained for the 2007-2012 General Forest Management Plans

Pursuant to section 35.6 of the Forest Act (R.S.Q., chapter F-4.1), the Minister of Natural Resources, Wildlife and Parks will assign eleven forest protection and development objectives (PDOs) for inclusion in the 2007-2012 general forest management plans (GFMPs). These objectives are intended to help achieve sustainable forest management (SFM). With regard to the environment, the objectives relate to:

The conservation of soil and water resources (criterion 3, sustainable forest management):

- PDO 1: Reducing rutting,
- PDO 2: Minimizing losses of productive forest area,
- PDO 3: Protecting aquatic habitats by avoiding sediment inputs,

The preservation of biological diversity (criterion 1, sustainable forest management):

- PDO 4: Permanently maintaining a quantity of mature and overmature forests established based on to regional ecology,
- PDO 5: Developing and applying spatial distribution patterns for logging, based on regional ecology and socially acceptable,
- PDO 6: Protecting the habitats of threatened or vulnerable forest species,
- PDO 7: Structuring the practice of pre-commercial thinning,
- PDO 8: Preserving dead wood in managed forests.

With regard to social and economic requirements, the objectives relate to:

Maintaining the multiple socio-economic benefits society derives from the forests (criterion 5, sustainable forest management):

- PDO 9: Maintaining the visual quality of forest landscapes,

The giving of proper consideration, in selecting forms of development, to the values and needs expressed by the populations concerned (criterion 6, sustainable forest management):

- PDO 10: Fostering harmonization of forest uses through written agreements to be included in the general forest management plan,

- PDO 11: Maintaining or improving the habitats of wildlife species of importance to the Crees and fostering harmonization of different forest uses in order to create environmental conditions conducive to traditional Cree activities.

These objectives constitute new contractual and legal requirements, and are in addition to the current regulations. Among other things, they will help ensure that specific local and regional features are taken into account in the forest management process.

Targets are established for each forest management unit (FMU) (see Figure 1) and are valid for a period of five years, i.e. the term of the GFMP. All the objectives except for that concerning the spatial distribution of logging areas (PDO 5) apply to all FMUs, including those in the territory covered by the Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec (Agreement). Objective 11 applies only to the territory covered by the Agreement.

The Forest Act provides that the PDOs will also apply to areas covered by forest management contracts. However, certain PDOs will have to be adjusted to take into account the features of some of these territories (small size, fragmentation, etc.). This subject is currently under consideration, since certain regions will renew the contracts in their areas before 2007.

Protection and development objectives: A new forest management tool

The GFMP preparation process is based on the development objectives for the area in question. The plan must address all the objectives assigned to a given area; in other words, when a PDO is assigned to a FMU, the management plan must include actions designed to ensure that it is achieved.

Inclusion of the PDOs will make sure the forest planning process addresses concerns about various forest-related values that fall within the field of application of the GFMP.

The PDO approach, which has been designed to complement the *Regulation respecting standards of forest management for forests in the domain of the State* (RSFM), offers a number of advantages, including the following:

- The PDOs will ensure that practices are adjusted to regional and local conditions.
- The forestry companies will have more flexibility to propose methods that will allow them to achieve the objectives with due consideration for ecological conditions and the local operational context. This will stimulate initiative and innovation, and will help speed up the development of forestry practices.
- This greater flexibility will also help optimize forest protection and development efforts, and in many cases will reduce the related costs.
- By addressing these issues at the beginning of the plan preparation process, it will also be easier to select actions that contribute to the achievement of several objectives at once. Special attention should be given to this aspect of planning.

Although the PDOs are not part of the RSFM, the Department has nevertheless devised a number of coercive mechanisms to ensure that they are achieved within a reasonable period.

- Presentation of a plan of action for attainment of the objectives will be a contractual requirement for timber supply and forest management agreement (TSFMA) holders. When approving the GFMP, the MRNFP will assess the value of the plan of action and may refuse a plan it judges unsatisfactory. It may also impose certain actions it feels are necessary to achieve the desired results.
- Once the GFMP has been approved, all subsequent annual plans must provide for effective application of the actions proposed. If the actions are not carried out, the MRNFP may use its power to order their implementation.
- Lastly, the performance of agreement and contract holders will be judged at the end of the first five-year period. The allocations of forestry companies that have not achieved the anticipated results may be frozen or reduced, or the company may be required to

implement a remedial plan pursuant to section 77 of the Forest Act.

The area's principal stakeholders will be entitled to examine both the management plan and its implementation, including elements such as the choice of objectives, the preparation of a plan of action and the results obtained. This right is facilitated by three provisions of the *Forest Act*:

- First, the national and regional consultations on the PDOs;
- Second, the public participation process stipulated in section 54 of the Act;
- And lastly, the public information and consultation procedure for forest management plans mentioned in sections 58.1 to 58.3 of the Act.

The process will help create a climate of trust at a time when the forestry industry is looking increasingly towards environmental certification for its practices.

Easier procedure for departures from standards (section 25.3 of the *Forest Act*)

Many stakeholders are concerned about the current mechanism to permit departures from RSFM standards. Some have asked for a more formal public consultation process, while others are worried about the cumbersome nature of the procedures involved. These concerns related principally to PDO 5 on the spatial distribution of logging areas and PDO 7 on landscapes. The MRNFP will consider the possibility of easing the application procedure (section 25.3) while ensuring that other FMU stakeholders are consulted.

FOR FURTHER INFORMATION

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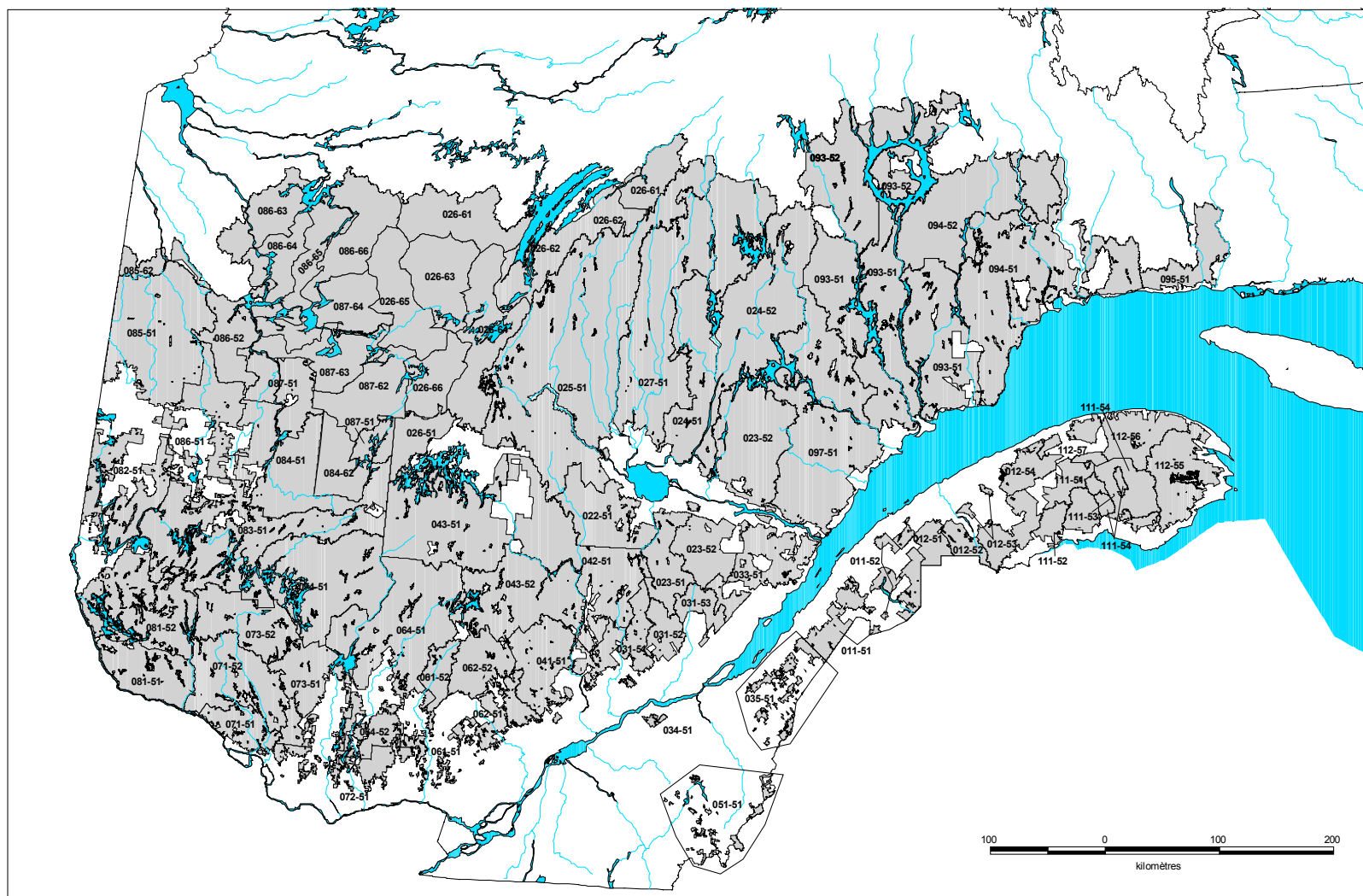


Figure 1 Forest management unit subdivisions (as at June 13, 2003)

Forest management units: Public forest land subdivisions serving as the basis for forest management planning activities, allowable annual cut calculations, the setting of forest protection and development objectives and the granting of logging rights.

Conservation of Soil and Water Resources

Forest management activities can alter the physical, chemical and biological properties of soils. Together, these properties determine the quality, productivity and capacity of soil resources to fulfill their ecological functions (water cycles, nutritional elements, gas, etc.). While the chemical and biological properties are important, the physical properties are vital, since their conservation forms the basis for preserving all the others.

Road construction, the use of heavy machinery in logging areas and transportation of logging waste are all likely to cause disturbances. Some of these activities have a low or acceptable impact compared to the associated risks. Others, however, may have more serious consequences for the productive capacity of soils, or may alter other ecosystem elements, such as aquatic habitats.

Of the environmental criteria for sustainable forest management, the conservation of soil and water resources is undoubtedly the one for which the Ministère des Ressources naturelles, de la Faune et des Parcs (MRNFP) has introduced the most measures in recent years. A large part of the *Regulation respecting standards of forest management for forests in the domain of the State (RSFM)* is already devoted to this aspect. The Regulation's provisions address issues including the protection of aquatic environments when building forest roads, and the spacing of hauling trails to reduce compaction.

The MRNFP has carefully monitored three types of physical soil disturbances as part of the *Forest Protection Strategy*. They are **rutting**, **loss of productive land** and **erosion**.

To counter these problems, the MRNFP has introduced a management-by-objectives approach that allows forestry companies to select appropriate forest management methods, provided they attain the objectives set by it. The MRNFP has also developed indicators for these three types of physical soil disturbances, which it will use to measure the attainment of the related objectives.

To continue to apply its management-by-objectives approach, the MRNFP will include these three elements in the forthcoming GFMPs as soil and water resource protection objectives. The holders of logging rights for the period 2007-2012 will therefore have a contractual obligation to achieve results.

Forest roads

During the public consultations, several people expressed concerns and raised questions about forest roads. The points mentioned fall under four headings:

- Planning the road network;
- Training the personnel responsible for building and maintaining roads;
- Responsibility for roads;
- Closing roads.

The types of concerns expressed exceed the framework of the PDOs. However, given the recurrent nature of certain comments, the MRNFP will appoint a task force in the coming months to examine various issues related to forest roads and propose potential solutions.

The MRNFP will then make the necessary recommendations, based on the current legal context.

Objective 1

Reducing Rutting

THE PROBLEM SITUATION

On some types of soil and in certain operating conditions, the pressure imposed by forest machinery can exceed the load-bearing capacity of the soil¹, which is deformed or displaced as a result, forming a rut². Ruts vary in depth, and often become permanent features. Rutting, or the formation of ruts, generally occurs on finely textured wetlands or organic soils that are less resistant to heavy machinery. Soils of this type are present over large tracts of the productive forest area in certain regions of Québec.

Although very little research has been done on the impacts of rutting on tree growth, current knowledge does suggest certain negative consequences that justify a prudent approach (Grigal, 2000). On hauling trails, rutting is indicative of severe compaction. It is often

accompanied by standing water, a reduction in the volume of soil available for trees, and changes in root development. All these factors are likely to have a negative impact on tree growth in the medium term. In addition, rutting may occasionally cause significant damage to the roots of residual trees (Dickerson, 1973).

Ruts can often disturb runoff patterns over the entire felling area, leading to waterlogging (Jutras, currently under preparation). On sloping ground, the risk of erosion can increase significantly if runoff water is channelled into the ruts, with potentially harmful consequences for fish habitats. In some case, rutting also has a negative impact on visual landscape quality (Brais, 1994).



Direction de l'environnement forestier

Ruts formed during logging operations

1. Load-bearing capacity: The soil's capacity to bear weight.

2. Rut: A track more than 4 metres long and more than 20 cm deep left by heavy machinery.

Regionalization

The problem of rutting is widespread in certain regions of Québec and in certain operating conditions. For example, it is much harder to avoid rutting in regions predominated by wetlands, such as Northeastern Québec.

THE DEPARTMENT'S APPROACH

In the last few years, the MRNFP has developed an indicator to measure rutting in all regeneration cutting sites³ in Québec. It uses the results of this process to review the state of the situation, and has established a continuous performance improvement process for forestry companies to reduce rutting in logging areas.

This particular indicator is not measured for **partial cutting** treatments such as selection felling, first because very little rutting has been detected on these sites in the past, and second because the measurement method itself is unsuitable. The Department will document this aspect in the coming years and will take the necessary steps where applicable.

The indicator is measured by classifying all logging sites⁴ in a given area into one of the following three categories:

- Logging sites exhibiting “severe disturbance”, where ruts have formed on more than 20% of the total length of felling and hauling trails;
- Logging sites exhibiting “little or no disturbance”, where ruts have formed on less than 20% of the total length of felling and hauling trails;
- Logging sites exhibiting “moderate disturbance”, where rutting is significant but cannot be classified statistically into one of the other two categories,

Regeneration cutting areas are first examined by means of aerial photographs. The results of this process are verified by field sampling. A “grade card” is then produced for each management unit, and the data can be compiled to different scales. Since 1999, the MRNFP has drawn up periodic profiles (one harvesting year in every two) of the rutting situation in every region of Québec.

IMPLEMENTING THE OBJECTIVE

Between now and October 2005, based on previous results for this indicator, the MRNFP will set continuous improvement objectives for each management unit, with due consideration for local conditions. The ultimate objective is to ensure that at least 90% of all logging sites in a given year are classified in the “little or no disturbance” category, and that none is classified in the “severe disturbance” category.

The implementation conditions, including a target setting mechanism, will be available in April 2005. The mechanism will be used to set targets for the 2007-2012 GFMPs. First, the MRNFP will establish targets by level of difficulty due to biophysical characteristics. Local MRNFP representatives will then set targets for each FMU, based on discussions with agreement and contract holders to take into account the biophysical and operational characteristics of the units.

In addition, companies will be required to include a plan of action in their GFMPs that will enable them to attain the target set for the five-year period. The results of this process will be submitted to all participants in the GFMP preparation process (section 54 of the *Forest Act*). The general public will also have an opportunity to express their views of the improvement targets after submission of the plans, during the public information and consultation period (sections 58.1 to 58.3 of the *Forest Act*).

3. Regeneration cutting: Removal of trees in order to trigger regeneration or promote existing regrowth. Cutting with protection of regeneration and soils (CPRS), progressive seed cutting (PSC), seed cutting and strip cutting are all forms of regeneration cutting.

4. Logging site: A single-block cutting area located between cutting separators.

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Objective 2

Minimizing Losses of Productive Forest Area

THE PROBLEM SITUATION

Some areas may become unsuitable for tree growth after certain forestry work. This is referred to as loss of productive area. Road construction is one possible cause of these losses. Most of the land occupied by forest roads (other than winter roads) was once productive forest land. Access to a given area is clearly an essential investment in the forest management process, but it is possible to reduce losses of productive area through better road network planning.

Similarly, soil disturbance caused by the combined effects of road construction work, timber piling and intensive use of heavy machinery can also result in significant losses of productive land in roadside areas. In even-aged managed forests, this type of loss is caused by severe physical disturbance⁵, primarily exposure of bedrock or layers of infertile soil, the formation of mud and ponds and the accumulation of logging waste. In uneven-aged managed forests, the deforested strips⁶ along roads constitutes a loss of productive area.

THE DEPARTMENT'S APPROACH

The MRNFP has developed an indicator to minimize losses of productive forest area. The area occupied by forest roads and roadside disturbances is measured as a ratio of the area harvested annually.

The loss of productive forest area due to road construction is estimated in the summer following the year in which the forest is logged. The estimate includes only those sections of road located within the logging area and used for logging in that particular year. Roads built to provide access to forest areas, along with sections of road located between logging areas, are therefore excluded.



Hamel L'Écuyer, MRNFP

Accumulated logging waste



Direction de l'environnement forestier

Formation of mud and ponds



Hamel L'Écuyer, MRNFP

Exposed layers of infertile soil

5. A physical disturbance is classified as severe when it clearly compromises the production of commercial timber for the next harvest over an area of at least 5 m².

6. This strip is considered unproductive because it will be reused for the next harvest (an interval of around 25 years between harvests), meaning that any timber growing there will not have time to achieve maturity.



Bare rock

These exclusions are justified by the fact that the sections of road in question, especially those built to provide access to forest areas, vary by territory and by year. By limiting the estimate to roads located inside the logging area, it is possible to maintain a basis for comparison over the years, allowing logging performance to be assessed over time. Roads excluded from an estimate in a given year will be taken into consideration in a subsequent year, when the adjacent forest is logged.

In 2002, the MRNFP introduced a monitoring program applicable to all logging operations.

Regionalization

The density of the road network and, to a lesser extent, the level of roadside disturbance, is determined to a large extent by the physical features of the region (average slope, type and thickness of surface deposit). It is therefore not possible to set a single standard threshold for the province as a whole.

IMPLEMENTING THE OBJECTIVE

Between now and October 2005, based on previous results for this indicator, the MRNFP will set continuous improvement objectives for each management unit.

It will begin by establishing targets by level of difficulty due to biophysical characteristics. Local MRNFP representatives will then set targets for each FMU, based on discussions with agreement and contract holders to take into account the biophysical and operational characteristics of the units. This process will be

used to set targets for the 2007-2012 GFMPs. The implementation conditions, including the target setting mechanism, will be available in April 2005.

In addition, companies will be required to include a plan of action in their GFMPs to attain the target set for the five-year period.

The results of this process will be submitted to participants in the GFMP preparation process (section 54 of the *Forest Act*). The general public will also have an opportunity to express their views of improvement targets after submission of the plans, during the public information and consultation period (sections 58.1 to 58.3 of the *Forest Act*).

FOR FURTHER INFORMATION

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Objective 3

Protecting Aquatic Habitats by Avoiding Sediment Inputs

THE PROBLEM SITUATION

- **Sediment generated by the road network**

Forest management activities that involve the removal of soil and a reduction of the ground's water infiltration capacity have the effect of increasing natural erosion rates in the forest. Roads and physical disturbances are largely acknowledged to be the principal cause of erosion in the managed forests. When erosion causes sediment inputs in watercourses, aquatic habitats are likely to deteriorate. Generally speaking, fine sediment inputs in watercourses reduce the diversity and abundance of aquatic species. Among other things, sediment deposits can seal off spawning grounds and reduce the invertebrate populations on which the fish feed. They can also cut off access to watercourses by

reducing their depth. Sediment inputs can therefore be extremely detrimental to fish reproduction and survival rates, especially for species such as the brook trout and Atlantic salmon, which play a major socio-economic role.

To avoid sediment inputs from logging operations, the MRNFP requires companies to leave riparian buffer strips, and prohibits the use of heavy machinery in the vicinity of all forest watercourses. Buffer strips are effective in maintaining the stability of watercourse banks and filtering particles from logging areas, although not from roads. Road construction standards aimed at minimizing the risk of erosion and protecting investments do exist, but problems may nevertheless occur.



Forêt Québec, Direction régionale Gaspésie – Îles de-la-Madeleine

Erosion of ditches along a forest road

An erosion indicator⁷ is therefore proposed as a complement to the present regulations. It will be used to identify cases of erosion along stretches of road used recently for forest management purposes.

Erosion will be monitored along the portion of road located within the area harvested in the year preceding the monitoring operation, regardless of the year in which the road was built. The roads monitored for this indicator will be the same as those surveyed for the loss of productive land indicator (PDO 2). Both monitoring can therefore be carried out at the same time.

Monitoring in the summer following the harvesting year provides a more accurate picture of the situation, since heavy fall precipitation and the spring thaw, or a combination of the two, will have had time to trigger erosion in areas at risk.

The profile obtained from the monitoring operation will serve as input for a management mechanism used to identify the forestry practices to be remedied in order to reduce instances of erosion.

• Increases in peak flows due to logging

The forests play a major role in the water cycle, and logging can increase soil water content, the quantity of snow on the ground and the spring thaw rate, which in turn increase the peak flow⁸ of watercourses. The road network may also be a contributing factor.

Peak flow increases caused by logging are a cause of concern, principally because of the potential risk of watercourse erosion and sediment inputs, and the subsequent damage to aquatic habitats. Although these concerns are justified, specialists believe peak flow increase has very little impact, generally speaking, on fish habitats in Québec.

However, to avoid the possibility of exceptions to this general rule, the MRNFP proposes that special attention be paid to peak flow increases in all the drainage watersheds of rivers used by Atlantic salmon and in some used by landlocked salmon in the Saguenay–Lac-Saint-Jean region. It is extremely important to protect these rivers from the potential adverse effects of logging operations because the situation of these socially and economically important species is now considered to be vulnerable.

IMPLEMENTING THE OBJECTIVE

Erosion

To reduce its impacts on aquatic habitats, erosion must be limited to exceptional circumstances only, i.e. those outside the control of forest managers. The road-related erosion indicator will therefore be used as a complement to the current regulations (RSFM).

The MRNFP will be able to diagnose the situation by analyzing previous indicator monitoring results. Among other things, it will identify the forestry practices causing the problems detected during the monitoring operation. Local MRNFP representatives will then set improvement targets for each FMU, to come into force in October 2005. The targets will involve the reduction or elimination of forestry practices with negative impacts. In addition, the forestry companies will be required to include a plan of action in their 2007-2012 GFMPs to remedy their practices and ensure that any local problems identified during the monitoring process will not recur.

The plan of action must also include measures to remedy erosion triggered by logging operations. Remedial work will include blocking of active erosion (stabilization of eroded surfaces) and changes to the underlying causes.

The implementation conditions, including details of the target setting mechanism, will be available in April 2005.

The results of this process will be submitted to

7. Erosion is defined as any displacement of soil due to the erosive action of water, resulting in recurrent sediment inputs, however small, in the drainage system or significant damage to road infrastructures, preventing access to the area.

8. Peak flow: Maximum flow of a watercourse following storms, extended rainfall or the spring thaw.

participants in the GFMP preparation process (section 54 of the *Forest Act*). The general public will also have an opportunity to express their views of the improvement targets after submission of the plans, during the public information and consultation period (sections 58.1 to 58.3 of the *Forest Act*).

Watersheds and peak flows

- In view of the vulnerable status and socio-economic importance of the Atlantic salmon and certain landlocked salmon species, the MRNFP proposes to include special measures in the 2007-2012 GFMPs. These measures will require companies to maintain deforested areas⁹ (due to logging, fire, infestations and windfall) at or below 50% of the watersheds¹⁰ of all Atlantic salmon rivers (Figure 6 and Table 1) and certain tributaries¹¹ covering an area of 100 km² or more. The same will apply to the watersheds of landlocked salmon rivers in Saguenay–Lac-Saint-Jean (Figure 7):
- Ashuapmushuan and its tributaries Aux Saumons, Pémonca and Du Cran;
- Mistassini tributaries Ouasiemsca, Micosas, Aux Rats and Mistassibi;
- Péribonca and its tributary Manouane;
- Petite Péribonca.

This will ensure that the risk of aquatic habitat disturbance due to peak flow increases caused by logging always remains at a very low level.

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L'ÉCUYER, H. and R. LANGEVIN. *Suivi environnemental des cas d'érosion sur le réseau routier annuel au Québec*, Gouvernement du Québec, Ministère des Ressources naturelles, de la Faune et des Parcs (currently under preparation).

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9. Deforested area of a drainage basin: Logging equivalent area or the total cumulative area harvested and damaged by fire, insect infestations and windfall over time, expressed as a surface freshly deforested during the last year by cutting with protection of regeneration and soils (CPRS) and calculated using the MRNFP's method (Langevin, R. and A. P. Plamondon, 2004).

10. Watershed: An area of land contributing to watercourse flow.

11. The Atlantic salmon rivers and tributaries covered by this measure are those that are protected, in whole or in part, by a 60-metre wooded strip pursuant to the Forest Act. A full list of these rivers and tributaries can be obtained by consulting the MRNFP's index of salmon rivers and land use maps.

Table 1 List¹² of Atlantic salmon rivers for which the deforested area (logging equivalent area) must be 50% or less

Region 01 – Bas-Saint-Laurent	Cap-Chat			Region 11 – Gaspésie–Îles-de-la-Madeleine	Bonaventure
	Casapédia				Cap-Chat
	du Sud-Ouest				Casapédia
	Matane				Dartmouth
	Matapédia				de Mont-Louis
	Mitis				du Grand Pabos
	Nouvelle				du Grand Pabos Ouest
	Ouelle				du Petit Pabos
	Petite rivière Casapédia				Grande Rivière
	Rimouski				l'Anse à la Barbe
	Ristigouche				Madeleine
Region 02 – Saguenay– Lac-Saint-Jean	Sainte-Anne			Region 12 – Chaudière-Appalaches	Malbaie
	à Mars				Marsoui
	des Escoumins				Matapédia
	Malbaie				Nouvelle
	Petit Saguenay				Petite rivière Casapédia
	Sainte-Marguerite				Petite rivière Port-Daniel
Region 03 – Capitale-Nationale	Saint-Jean				Port-Daniel
	à Mars				Port-Daniel du Milieu
	du Gouffre				Ristigouche
	Jacques-Cartier				Sainte-Anne
	Malbaie				Saint-Jean
	Petit Saguenay				York
Region 09 – Côte-Nord	Saint-Jean				
	à la Loutre	de la Trinité	Moisie		
	à la Patate	des Escoumins	Nabisipi		
	à l'Huile	du Calumet	Natashquan		
	Aguanish	du Pavillon	Pentecôte		
	au Bouleau	du Renard	Petite rivière de la Chaloupe		
	aux Anglais	Ferrée	Petite rivière de la Loutre		
	aux Becs-Scie	Franquelin	Petite rivière de la Trinité		
	aux Cailloux	Galiote	Petite rivière Watshishou		
	aux Plats	Godbout	Piashti		
	aux Rochers	Jupitagon	Pigou		
	aux Saumons	Jupiter	Sainte-Marguerite		
	Bell	Laval	Sainte-Marie		
	Betsiamites ¹³	Maccan	Saint-Jean		
	Box	MacDonald	Sheldrake		
	Chicotte	Martin	Vauréal		
	Dauphiné	Matamec	Watshishou		
	de la Chaloupe	Mistassini			

12. This list comprises Atlantic salmon rivers from the MRNFP's index plus other local rivers identified from regional land use maps.

13. Because of the hydroelectric dam affecting the flow of the main Betsiamites watercourse, the drainage basin is not subject to the deforested area limitation measure. The measure applies only the basins of its tributaries downstream of the dam, namely the Boucher and Laliberté.

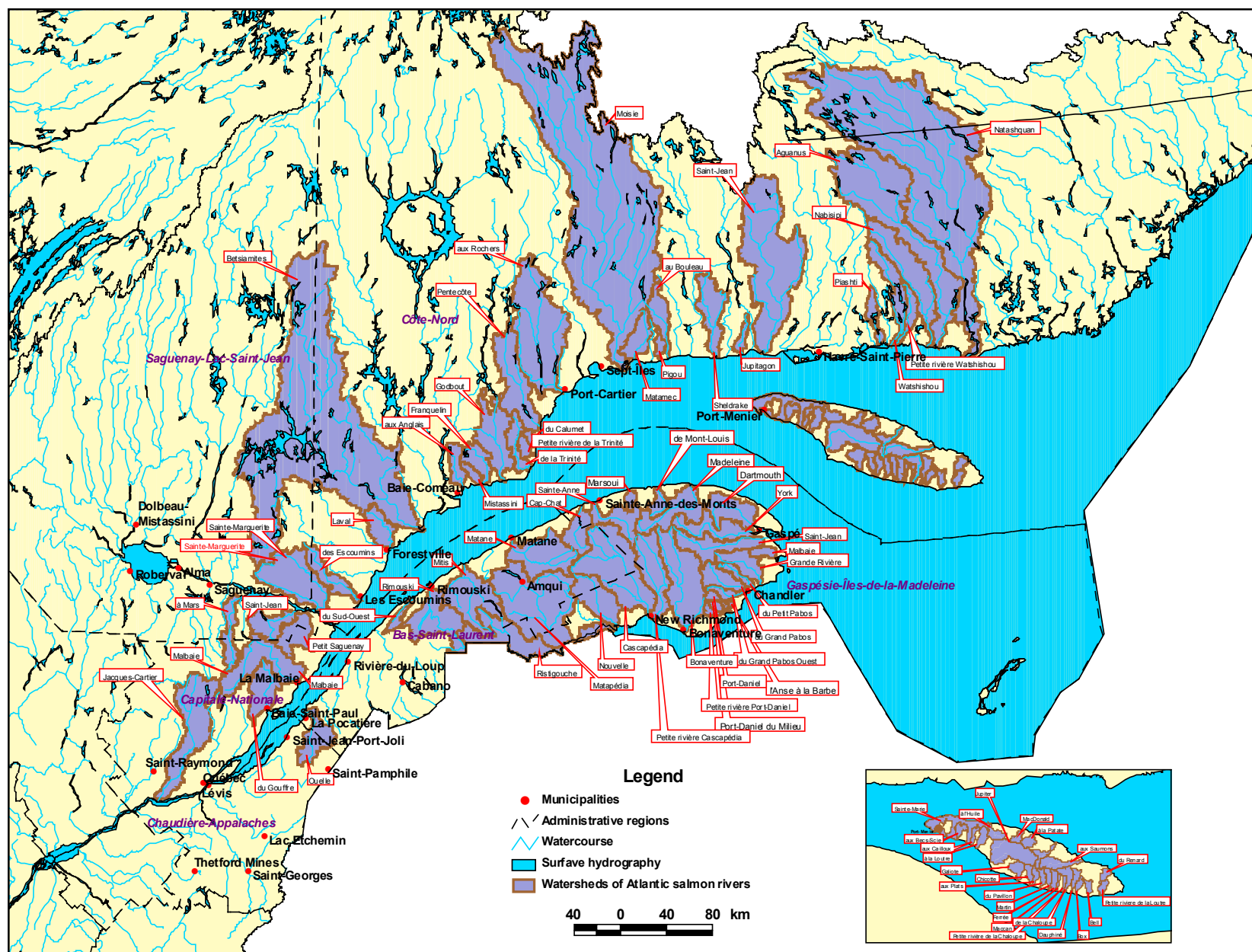


Figure 2 Watersheds of Atlantic salmon rivers for which the deforested area (logging equivalent area) must be 50% or less

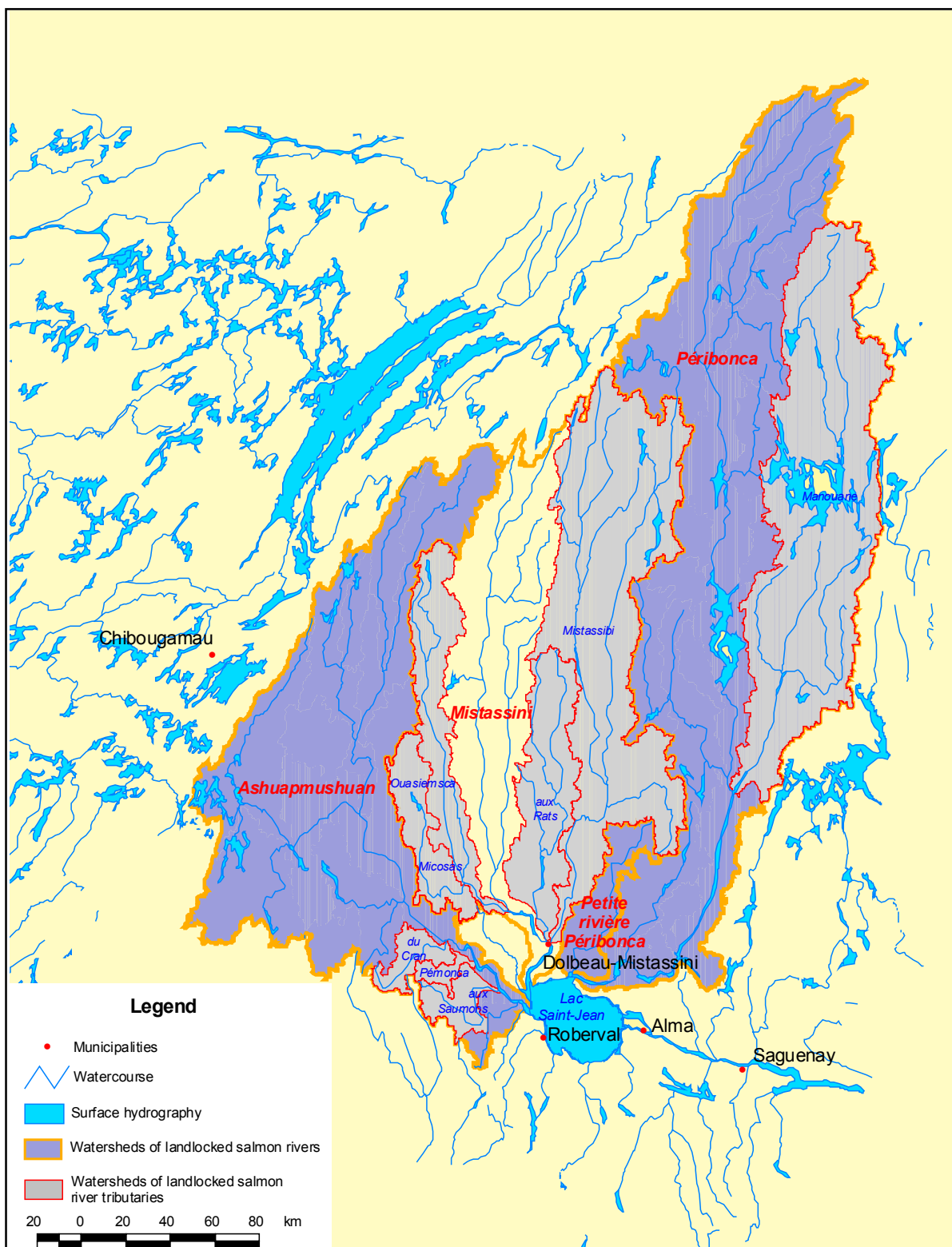


Figure 3 Watersheds and sub-watersheds of landlocked salmon rivers for which the deforested area (logging equivalent area) must be 50% or less

Preservation of Biological Diversity

Preservation of biological diversity is a major aspect of sustainable forest management. Forestry authorities throughout the world are currently faced with the need to devise management strategies that will ensure the protection of biodiversity. These strategies are usually implemented alongside a network of protected areas. Québec is no exception to this rule. A network of protected areas is currently being put into place throughout Québec, and the forthcoming general forest management plans (GFMPs) will address the principal issues of biodiversity in the areas under management.

Preservation of biological diversity during forest operations involves:

ensuring the survival of all species and the continuity of natural processes in order to maintain functional ecosystems that will continue to provide a range of goods and services for the well-being of present and future generations.

This approach clearly shows that the question of preserving biodiversity involves a lot more than simply protecting threatened species and targeting “star” species such as the moose or salmon. On the contrary, it means targeting all species, from micro-organisms to large mammals, insects, fungus, moss and so on. It is vital that all the elements of an ecosystem – even those whose existence is as yet unknown – should be maintained, since they can play a key role in preserving the ecosystem’s productivity and viability, and may well be of use to the human population at some time in the future.

To preserve biodiversity, researchers in Québec and elsewhere have proposed that the forests be managed in such a way as to maintain or restore forest ecosystems after logging. Over time, this has come to mean using nature as a basis for forestry operations. This approach, now applied in a number of countries, initially emerged from the observation that the landscapes generated by forestry operations will not necessarily be the same as those generated by natural phenomena such as fires and insect infestations. Many specialists believe it is important to achieve a more natural type of post-logging landscape, so that forest species will continue to find the conditions to which they

have become accustomed, and in which they can live and reproduce.

Management strategies should therefore aim to reproduce a landscape that is as close as possible to the natural forest landscape, in order to preserve features that form part of the habitats of resident species. However, natural landscapes change constantly. They are the products of the combined long-term impacts of climate change and natural phenomena such as fires, insect infestations, windstorms (windfall) and ice storms.

The species currently living in our forests have adapted to these constant changes in their environment. Knowing this, we can consider the possibility of altering natural forest ecosystems, for example by harvesting timber, but only if the resulting forest remains within the historical limits of landscape variations caused by natural phenomena.

The principal differences most likely to expose resident species to unknown environmental conditions can be identified by comparing managed forest areas with natural areas. The MRNFP has performed such a comparison, and has consulted a number of experts to draw up a preliminary list of approximately ten biodiversity-related issues¹⁴. Five of these issues will be translated into objectives for the 2007-2012 GFMPs. They are:

- **The maintenance of mature and overmature forests;**
- **Spatial distribution of logging areas;**
- **Protection of the habitats of threatened or vulnerable forest species;**
- **Maintenance of dense sapling stands during pre-commercial thinning;**
- **The preservation of dead wood in managed forests.**

Although they were not selected as PDOs, the MRNFP acknowledges the importance of two additional biodiversity-related issues, namely those that concern **maintaining plant composition** and **natural structure** of stands. A ministerial guideline to this effect has been issued, and forestry companies must include actions in their 2007-2012 GFMP forest management strategies for at least 10% of the area treated annually in each similarly-managed

14. Issue: A real or anticipated problem on which a consensus has been reached.

forest layer group (calculation group) where problems of this type have been detected. The MRNFP has also included provisions in the last version of its Forest Management Manual (<http://www.mrnfp.gouv.qc.ca/publications/forets/amenagement/manuel.pdf>) to facilitate the testing of silvicultural treatments to address these issues.

In the coming years, the MRNFP will continue to accumulate knowledge of the various biodiversity-related issues, including the multiple roles of **riparian environments and wetlands** and consideration of biodiversity in **special salvage plans following natural disturbances**. It will then take any steps that may be required.

Objective 4

Permanently Maintaining a Quantity of Mature and Overmature Forests Based on Regional Ecology

THE PROBLEM SITUATION

The scarcity of mature¹⁵ and overmature¹⁶ forests in areas under management is a major concern for the preservation of biodiversity, at both the national and international levels. These forests are becoming scarcer despite the fact that they constitute special ecosystems due to the presence of inherent ecological features developed over time, such as large snags, large woody residues, trees of value to wildlife and living vegetation layers.

Recent research in Gaspésie, the Laurentides Wildlife Reserve and the Côte-Nord region, in virgin old-growth fir and spruce forests and in mature post-logging forests, has highlighted the importance of mature and overmature forests in Québec (Desponts *et al.*, 2004; Desponts *et al.*, 2002; Bouliane, 2002). The studies showed that some bird species (e.g. the brown creeper), insect species, fungus, orchids and lichens actually prefer older forests. They also confirmed that old-growth virgin forests have certain features not usually found in mature post-logging forests, including their structure, the presence of dead wood and their associated micro-climate (Desponts *et al.*, 2004; Desponts *et al.*, 2002).

Researchers have profiled virgin forest landscapes in many regions of Québec, making it possible to assess their historical importance. Estimates suggest that mature and overmature forests once accounted for more than 50% of the total forest area before it was altered by human intervention (Table 2). These findings are based on the natural disturbance system (fires, insect infestations and trees uprooted by wind) in the areas studied.

THE DEPARTMENT'S APPROACH

The MRNFP's approach is designed to ensure the sustainability of these ecosystems in



Jean-François Bergeron, MRNFP

Mountain fir forest in the Chic-Chocs

managed landscapes, and is based on the available historical profiles. The objective is to preserve a certain quantity of mature and overmature ecosystems so that they can continue to play their vital ecological role even though they are less abundant than in the past.

The MRNFP's approach is to permanently preserve one-third of the known historical quantity of mature and overmature forests in every area under management (Table 2). Scientific findings have shown that this threshold does in fact represent a severe alteration (Leblanc, 1998; Levesque, 1997), and as a precaution it should be considered a minimum level beyond which biodiversity would be at risk (Woodley and Forbes, 1997). According to similar experiences in New Brunswick and British Columbia, however, the one-third ratio appears to be sufficient both to sustain

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15. Mature forests: Forest stands whose age lies between the age at which logging normally takes place (absolute felling age) and the onset of dominant tree mortality (senescence).
16. Overmature forests: Forest stands whose age lies between the onset of tree mortality (senescence) and the establishment of a new stand.

biodiversity and to maintain socio-economic repercussions at an acceptable level.

The approach has allowed the MRNFP to establish targets for the preservation of mature and overmature forests in different areas, using bioclimatic sub-domains as the ecological basis (Table 2 and Figure 5).

Table 2 Targets by bioclimatic sub-domain

Bioclimatic Sub-domains	Historical percentage (%)	Target ^a (%)	Distribution (%)		
			Refuge s	Patches	Adapted practices
Eastern mossy spruce	70 ¹	23	2	10	11
Western mossy spruce (100 years and over)	57 ²	19	2	10	7
Eastern fir-white birch (50 years and over)	60 ³	20	2	10	8
Western fir-white birch (100 years and over)	57 ²	19	2	10	7
Eastern fir-yellow birch (50 years and over)	60 ⁴	20	2	10	8
Western fir-yellow birch (70 years and over)	53 ⁵	18	2	10	6
Maple-yellow birch	52 ⁶	17	2	10	5
Maple-linden	70 ⁷	23	2	10	11

a. Target: one-third of the historical percentage

1: Boucher *et al.* 2002; 2: Gauthier *et al.* 2001; 3: Leblanc 1998; 3-4: Levesque 1997; 5: Darveau *et al.* 2002; 6: Barrette and Bélanger 2002; 7: Doyon and Sougavinski 2002.

The MRNFP intends to maintain this percentage of mature and overmature forests through three types of measures, namely biological refuges, extended rotation patches and adapted silvicultural approaches.

- The purpose of the **biological refuges** is to permit **integral preservation of tracts of old-growth forests over a certain percentage of the productive forest area in each management unit (FMU)**. A biological refuge is a small protected area that will count towards the 8% protection goal for Québec as a whole, as stipulated in the *Strategy for Protected Areas*. In addition, given that the refuges are scattered throughout Québec and cover a broad range of ecosystems, they will play an important role in the protection of biodiversity. Among other things, they will help ensure an adequate spatial distribution of old-growth forests and a certain level of connectedness between the larger protected areas. They may also be helpful to forestry companies seeking environmental certification.

- The purpose of the **extended rotation patches** is to allow **certain stands to age beyond the normal felling age in a given region**. For example, the normal felling age for certain fir stands in the Lower St. Lawrence region would rise from 60 years to 80-85 years. This is to ensure that at least some stands remain in existence for long enough to develop the characteristics of mature and overmature forests. Once this stage has been attained, and following a period of ageing, the stands will be harvested and replaced by other stands, so that a sufficient quantity of mature and overmature forests is always maintained in the area.

- **Adapted silvicultural practices** allow **some trees to be harvested while maintaining certain characteristics of mature and overmature forests**, and also ensure that **forests reach the mature and overmature stage more quickly**. They are, however, a compromise solution, since they preserve only the essential characteristics of old-growth forests (see box).

Adapted silvicultural practices should ensure the preservation of features that:

- Serve as sanctuaries for certain species, allowing them to continue to exist after logging and to re-colonize the site more quickly;
- Maintain structural complexity in the new stand;
- Are conducive to the dissemination and migration of species in managed landscapes.

Essential Features of Mature and Overmature Forests

Snags: Dead standing trees with a DBH of more than 10 cm.

Trees with wildlife value: Living or partly dead trees with a DBH of more than 10 cm exhibiting features (cavities, well-developed canopy, above-cover height, etc.) of use to different organisms.

Coarse woody debris: Fallen dead trees with a DBH of more than 10 cm.

Stand structure: The arrangement of the above three elements, together with the layering of living vegetation (trees and bushes of different heights), within the stand.

Some of the silvicultural treatments currently in use are designed to maintain a certain percentage of forest cover (shrub and tree layers). By adding prescriptions concerning the preservation of large snags, trees of value to wildlife and coarse woody debris, it would be possible to ensure that post-logging stands contained features that would enable them to play the ecological role of mature and overmature stands. In concrete terms, this means ensuring that a minimum density of post-logging canopy (around 40%) is left in certain predetermined areas, along with a sufficient number of the features described in the box.

Depending on the characteristics of the stand, a number of silvicultural treatments could be used in their improved versions, including cutting with protection of small merchantable trees (CPSMT), shelterwood cutting and selection cutting. New treatments could also be tested by means of a memorandum of understanding, as mentioned in the Forest Management Manual.

IMPLEMENTING THE OBJECTIVE

Based on the logging history and natural age structure of the forest, maintaining a one-third ratio of mature and overmature forests in certain regions would result in a significant short-term reduction of the allowable annual cut. Accordingly, for socio-economic reasons and to keep this impact at an acceptable level for the five-year period in question, the objective will be implemented gradually.

Measures will be adopted as soon as the 2007-2012 GFMPs come into force, to ensure that the objective of maintaining a one-third ratio of mature and overmature forests is incorporated into forest management strategies as quickly as possible

For the 2007-2012 GFMPs, the following measures will be implemented:

- **Biological refuges** will be created over 2% of the productive forest area in each forest management unit (FMU), to ensure proper spatial distribution of the refuges and a certain level of connectedness between the large protected areas;
- Based on the MRNFP's current profile of mature and overmature forests in each FMU, application of different scenarios for **extended**

rotation patches, based on acceptable impact levels (see Figure 4). A first step towards the target of 10% of old-growth patches will be taken by creating:

- **3% extended rotation of patches** in 27 FMUs (37%);
- **5% extended rotation of patches** in 17 FMUs (23%);
- **8% extended rotation of patches** in 6 FMUs (8%);
- **10% extended rotation of patches** in 24 FMUs (32%);

- Attainment of at least one-third of the target for **adapted silvicultural practices** (Table 2). This will enable the stakeholders to familiarize themselves with the practices and incorporate new practices designated by the MRNFP as old-growth maintenance treatments.

Existing participatory mechanisms (section 54 of the *Forest Act*) will be used to involve stakeholders in the process of incorporating biological refuges, extended rotation patches and adapted silvicultural practices into the 2007-2012 GFMPs.

For the 2012-2017 and subsequent GFMPs, a decision will be made concerning attainment of the targets over time. This decision will be influenced by the economic, social and environmental context, and will take into account new knowledge in the field of biodiversity preservation, the rate of implementation of protected areas and the regional, national and international socio-economic context.

GENERAL APPROACH

Between now and 2009, the MRNFP will review the existence of old-growth forests in Québec, including those located in protected areas. The review will be carried out using an appropriate ecological division, and will allow for an overall approach to the preservation of biodiversity. As a result, the MRNFP will be able to estimate the extent of mature and overmature forests in areas exempt from forest management and the result will count towards achievement of the target set for each FMU in the area in question.

Lastly, the **MRNFP will consider the possibility of including all stand types when incorporating extended rotation patches into**

the 2012-2027 GFMPs. This measure, applicable to all accessible productive forest land, will ensure that these patches will be taken fully into account when calculating the one-third historical ratio for mature and overmature forests.

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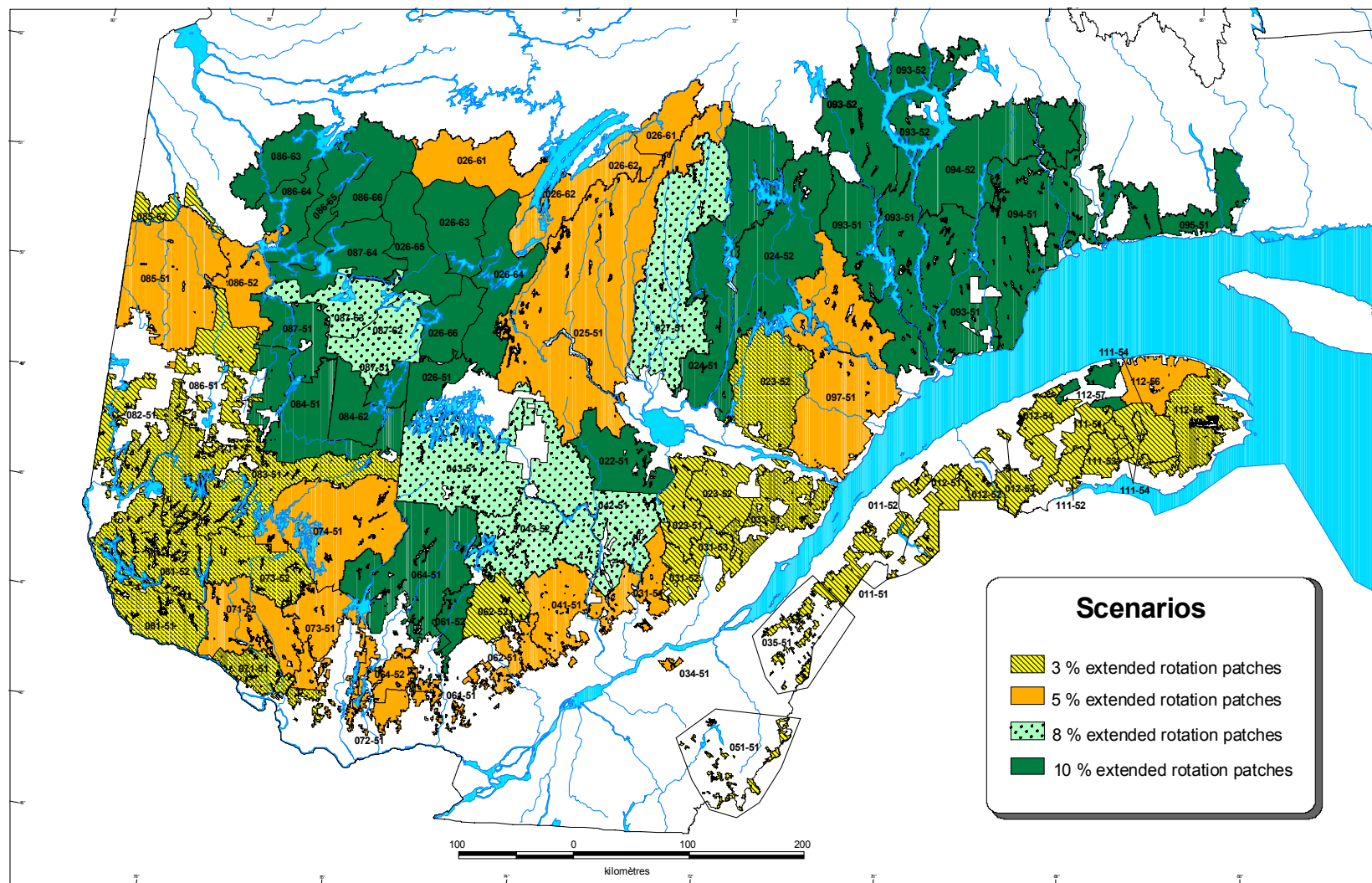


Figure 4 Proposed scenarios for the implementation of extended rotation patches in the 2007-2012 GFMPs in every FMU (boundaries as at June 13, 2003)

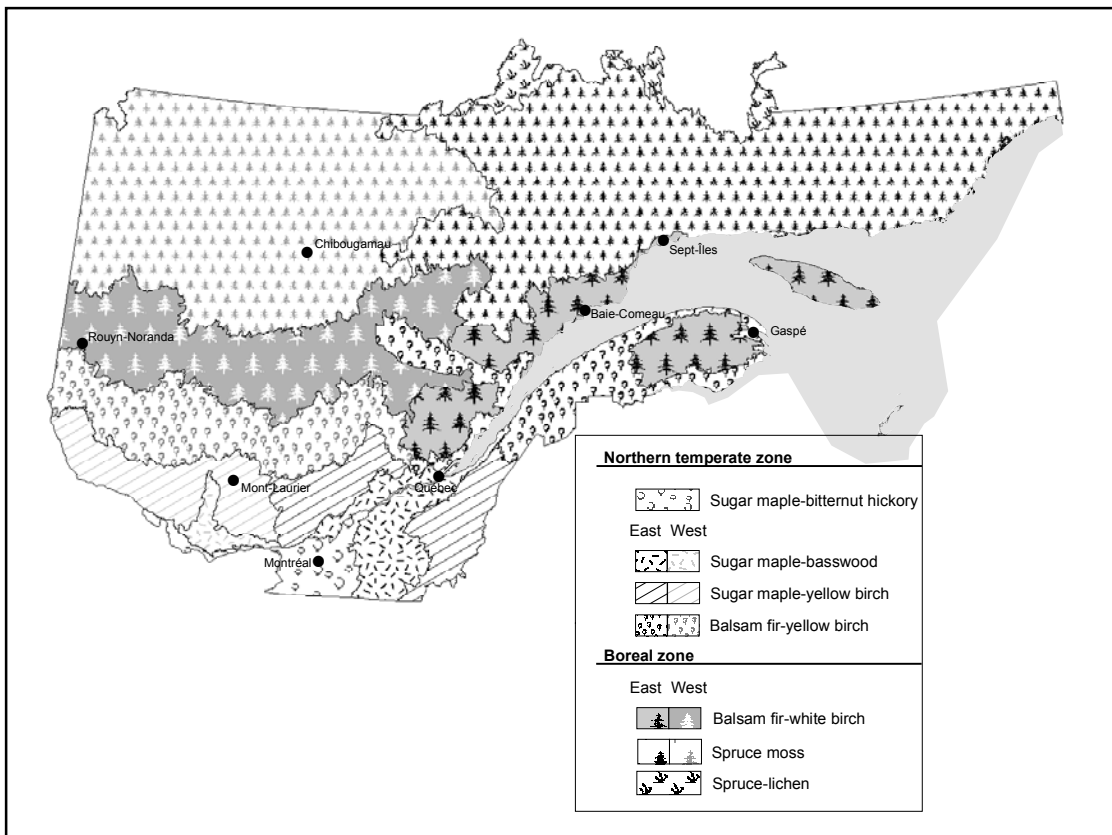


Figure 5 Bioclimatic sub-domain divisions

Objective 5

Developing and Applying Spatial Distribution Patterns for Logging Based on Regional Ecology and Socially Acceptable

THE PROBLEM SITUATION

Spatial distribution of logging sites has long been a major issue for forest managers. In Québec, it has always been governed by regulation (*Regulation respecting standards of forest management for forests in the domain of the State, or RSFM*). In the last fifteen years, the provisions concerning spatial distribution have changed considerably. For example, the size of single block cutting areas has been reduced, and the concepts of dispersal of these areas and maintenance of residual forests were introduced into the RSFM in 1996, in response to concerns expressed by the general public and wildlife managers. The MRNFP also added the concept of “block cutting”¹⁷ to the Regulation in 2003.

So far, these changes have been guided principally by concerns relating to social acceptability and the need to maintain habitats for certain desirable wildlife species, including game. Although concerns such as these will continue to be considered, the issue of biodiversity has now forced the MRNFP to address the question of spatial distribution from a more general standpoint.

Spatial distribution and biodiversity

When planning forestry operations, decisions are made about the size, shape and spatial distribution of logging areas, and by extension the amount of residual forest. These decisions shape not only the post-logging landscape, but also the structure of the forest for the life of the stands.

In terms of biodiversity, the new spatial layout of ecosystems resulting from these choices has an impact on the habitats of all wildlife species in the area. For example:

- The size of the logging area has a direct impact on the size of wildlife habitats. Some species need large stands, while others prefer a more fragmented environment with food and

shelter available in close proximity.

- Irregularly shaped stands can create a very specific type of environment (boundary environment) suited to the needs of certain species.
- Spatial distribution of stands can affect the ability of certain species to migrate across an area.

What are the principal concerns?

Over the centuries, Québec’s wildlife has been subjected to the impacts of natural disturbances including fires, insect infestations and windfall (trees overturned by the wind). Given that they have survived these “major upsets”, it is reasonable to conclude that they have adjusted to certain types of environmental change.

The principal concern here is that landscapes resulting from current logging patterns are not always as natural and diversified as they could be. If the logging pattern is adequate, the residual forest should be similar to a forest unaffected by natural disturbances. Natural landscapes are governed by ecological rules that differ from region to region, and by the random behaviour of natural disturbances. These two factors have produced a highly diverse forest environment that must now be protected.

In addressing this major issue of biodiversity, we must also consider the fact that the distribution of logging areas shapes the environment in which other forest users practise their activities (hunting, fishing, vacationing and ecotourism). Thus, logging patterns should be designed not only to preserve biodiversity, but also to offer an environment suited to these activities.

Social acceptability of logging patterns will therefore be a major objective, and will necessarily depend on the quantity of forest remaining after logging, and how the residual forest is distributed spatially.

17. Block cutting: Cutting with protection of regeneration and soils carried out in a given area so as to preserve a portion of the residual forest having the characteristics stipulated by regulation (RSFM).

IMPLEMENTING THE OBJECTIVE

The mossy spruce domain

The mossy spruce forest has always been dominated by mature stands and punctuated by clumps of young stands generated by recent fires. However, as logging activities move progressively northwards, they are tending to produce forests dominated by young regenerating stands.

When forestry companies plan logging operations in the northern spruce forests, they look specifically for concentrations of mature forest, so as to limit the cost of road construction and daily travel from the lumber camps. The result of this approach is a concentration of newly logged areas and the temporary extinction of large tracts of mature forest. Preserving these tracts is the principal goal of spatial distribution.

The following measures will therefore apply to the mossy spruce forest:

- At least one closed forest tract¹⁸ of not less than 100 km² should be preserved in every forest management unit (FMU) in the territory covered by the 2007-2012 planning process;
- These closed forest tracts should be situated between areas harvested in the preceding five-year period and those to be harvested in the following five-year period;
- Outside these tracts, harvesting will be carried out in accordance with current regulations (RSFM) in the area covered by the planning process.

This measure is temporary. It is designed to ensure that certain blocks are protected until more global management scenarios can be devised to respond to the problem. A number of steps are still required before the new scenarios can be devised. For example, the ecological consequences of extinguishing large tracts of forest must be documented, new silvicultural treatments must be examined as they are developed, the Québec Strategy on Protected Areas must be implemented, and the caribou protection plans currently under preparation must be implemented. With this temporary measure, the MRNFP hopes to avoid a situation where the boundaries of remaining

forest tracts are pushed further northwards.

The tracts of forest set aside under this measure would not be conserved as such. The optimal number of tracts to be preserved, along with the types of activities permitted, will be established when the global scenarios are prepared.

In addition, following local analysis, the objective could be adjusted in certain FMUs to take into account the current state of fragmentation or the number of logging sites (areas associated with the same lumber camp). Thus, in areas where the actual fragmentation of the forest would make it difficult to preserve single blocks of 100 km², the MRNFP could authorize two separate blocks of 50 km² each. The presence of protected areas near sites logged during the last five-year period will also be considered.

In the mossy spruce domain, the MRNFP encourages the development and implementation of spatial distribution patterns other than those set out in the current version of the RSFM. Since the aim of this is to avoid the temporary extinction of mature forest blocks, all proposed alternative strategies will be assessed using a mechanism created by the MRNFP pursuant to section 25.3 of the *Forest Act*. **The areas covered by alternative logging patterns duly accepted by the Minister will not be subject to the 100 km² block requirement, since they will necessarily involve the preservation of blocks in one form or another.** Any alternative strategies proposed should be designed to avoid artificial fragmentation of the mossy spruce forest (Figure 6). Between now and June 2005, the MRNFP will publish the guidelines that will be used to examine proposed alternatives to block cutting.

This objective does not apply to the territory covered by the Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec, or in FMUs covered by special woodland caribou management plans, which already provide for the maintenance of rotating 100 km² to 250 km² protection blocks.

To facilitate the application of this PDO, the MRNFP will consider the possibility of easing the application procedure for departures from

18. Closed forest: Corresponds to the definition of residual forest currently proposed for block cutting in the RSFM. The principal parameters of a closed forest are: 7 m or more in height, canopy density of 40% or more, and no commercial logging in the last ten years.

current standards (section 25.3) while ensuring that other forest users in the FMU are consulted.

Hardwood, mixed and fir domains

In the hardwood, mixed and fir forest domains (see Figure 5 in PDO 4), the RSFM addresses several spatial distribution issues from the standpoint of ecology and social acceptability. However, the MRNFP notes that in certain circumstances, other options may be appropriate in these regions. Therefore, in accordance with section 25.3 of the *Forest Act*, methods other than block cutting may be accepted in these domains. For the 2007-2012 GFMPs, such alternative methods will be exceptions rather than the rule.

In the coming years, the MRNFP will document different aspects concerning the implementation of an ecosystemic approach in the fir forest. Among other things, it will consider the possibility of undertaking a **pilot project in the Laurentides Wildlife Reserve**. The necessary measures will be included where appropriate in future GFMPs, based among other things on the results of studies and trials.

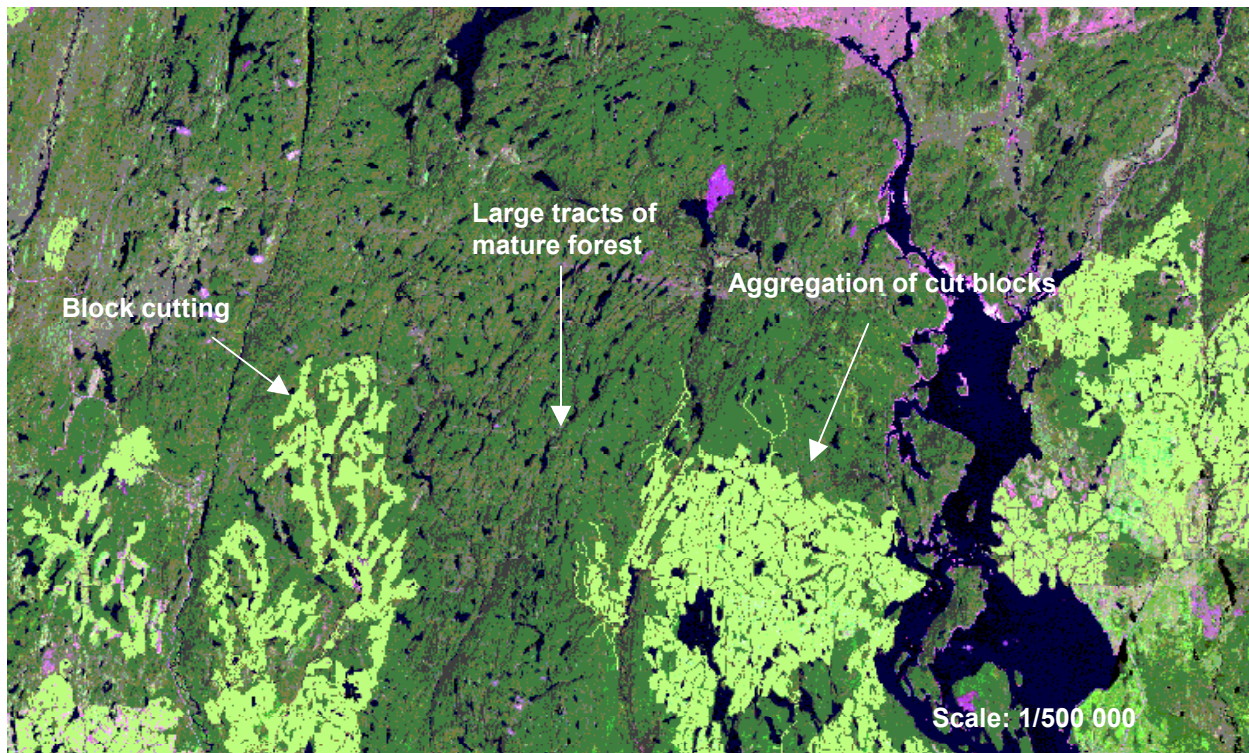


Figure 6 Maintaining large tracts of mature forests: A major issue in the boreal forest

Objective 6

Protecting the Habitats of Threatened¹⁹ or Vulnerable^{20 21} Forest Species

THE PROBLEM SITUATION

Québec is currently home to 2,665 known vascular plant species and 648 vertebrate animal species. Approximately 2,500 of these species are found specifically in the forests.

Approximately 15% of these species – 290 plant species and nearly 50 animal species – are currently in difficulty. In all, 26 have been designated as threatened or vulnerable under the *Act respecting threatened or vulnerable species* (R.S.Q., chapter E-12.01), including the dwarf ginseng (*Panax quinquefolius*), small white leek (*Allium tricoccum*), wolverine (*Gulo gulo*) and Western chorus frog (*Pseudacris triseriata*). These, and all the others, appear on a list of species that are threatened or vulnerable, or likely to be designated as such.

The vulnerable status of these species is often caused by alteration, degradation or loss of habitat. It is therefore important to ensure that forestry practices do not exacerbate the situation for plants and animals in difficulty. Most of the problems in this respect appear to be concentrated in southern Québec, where the forests have been substantially altered by farming and urban development. Here, deforestation has irreversibly changed the original forest ecosystems, with the result that plant and animal populations have tended to become scarcer and more isolated.

In the boreal forest, the situation appears to be less problematical. Even here, however, there are some concerns about the medium term impacts of certain management practices and strategies on forest ecosystems and resident plant and animal species.

Legal protection for these species and their habitats is provided mainly by the *Act respecting threatened or vulnerable species*. So far, however, the habitats of only fifteen plant species and one animal species have been identified and protected under the Act. An administrative agreement was signed in 1996 by

the Ministère des Ressources naturelles (MRN), the Ministère de l'Environnement (MENV) and the Société de la Faune et des Parcs du Québec (FAPAQ) to foster the protection of threatened and vulnerable forest species and their habitats.

EXISTING MEASURES

The administrative agreement procedure

An administrative agreement procedure already exists for forests in the domain of the State. It enables the holders of logging rights to be informed, at the appropriate time, of the presence of threatened or vulnerable species in the forests for which they are responsible, and of any appropriate protective measures (e.g. logging prohibited in certain areas, logging permitted on certain conditions or at specific times of the year). The holders can then incorporate this information into their forest plans. The proposed measures must be implemented when forestry operations take place in sectors where the species in question are present. The measures are not mandatory, however, and the voluntary cooperation of agreement holders is vital.

For a species and its habitat to be protected, its precise location must be known and specific protective measures must be available. So far, four animal species and nearly 50 plant species meet these requirements.

Special management plans

A special management plan has been in force for several years for the woodland caribou populations in Abitibi and the Côte-Nord, and plans are currently under preparation for the Saguenay–Lac-Saint-Jean, Capitale-Nationale (Charlevoix caribou), Côte-Nord and Northern Québec regions (excluding the territory covered by the Québec-Cree Agreement). As to the Gaspésie caribou population, it has been officially designated as vulnerable; both the animal and its habitat are now protected by the *Act respecting threatened or vulnerable species*.

19. Threatened species: A species facing extinction.

20. Vulnerable species: A species whose survival is at risk, although not to such an extent that it faces extinction.

21. The term *threatened or vulnerable species* includes species likely to be designated as threatened or vulnerable.

Special management plans include the temporary maintenance of large forest blocks, the permanent maintenance of migration corridors and the application of special silvicultural practices designed among other things to allow for the harvesting of a certain volume of timber while preserving a forest canopy in the short and medium term for the needs of the caribou.

IMPLEMENTING THE OBJECTIVE

The MRNFP, in retaining habitat protection as an objective in the forthcoming GFMPs, hopes to ensure that forest management activities will not exacerbate the situation for threatened and vulnerable species. It will also obtain increased legal power to enforce the application of protective measures, and where applicable to punish agreement holders who do not comply.

- For plant and wildlife species requiring small-scale protective measures (turtles, salamanders, small mammals, raptor nests, etc.), agreement holders must apply habitat protection measures for the species appearing on the annual authenticated lists for each region and shown on regional allocation maps. Application of these measures will have little or no impact on five-year planning.
- For species with large home ranges, such as the woodland caribou, the habitats of populations whose existence is known when the GFMPs are prepared must be protected by means of a special management plan reviewed once every five years.

Table 3 presents a list of species, by administrative region, for which authenticated locations are known and habitat protection measures currently exist. These two conditions must be met for PDO 6 to apply. The table will be updated annually, as new information becomes available.

For the 2007-2012 GFMPs, the woodland caribou is the only species for which special management plans are currently under preparation. The plans are the subject of discussions between the MRNFP, including Faune Québec, and the forestry companies working in the FMUs concerned. The MRNFP has issued a ministerial guideline to help the companies incorporate the plans into their GFMPs.



Mark Mills, Parcs Canada

Wood turtle



Norman Dignard, MRNFP

Fairy slipper



Frédéric Courso

Narrow-leaved spring beauty



Woodland caribou

FOR FURTHER INFORMATION

MINISTÈRE DES RESSOURCES
NATURELLES, DE LA FAUNE ET DES PARCS,
Ressources et industries forestières, Chapter 4,
<http://www.mrnfp.gouv.qc.ca/forets/connaissances/connaissances-statistiques-complete.jsp>

Table 3 Forest species currently covered by objective 6 (By administrative region - January 2004)

Fauna	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Golden eagle	✓		✓				✓		✓		✓						
<i>Aquila chrysaetos</i>																	
Peregrine falcon				✓			✓			✓							
<i>Falco peregrinus</i>																	
Bald eagle	✓	✓	✓	✓			✓	✓	✓	✓	✓				✓	✓	
<i>Haliaeetus leucocephalus</i>																	
Wood turtle		✓		✓			✓	✓							✓	✓	
<i>Glyptemys insculpta</i>																	
Woodland caribou	✓	✓	✓					✓	✓	✓	✓						
<i>Rangifer tarandus</i>																	
Flora																	
Aleutian maidenhair-fern											✓						
<i>Adiantum aleuticum</i>																	
Small white leek							✓										
<i>Allium tricoccum</i>																	
Round-leaved orchis											✓						
<i>Amerorchis rotundifolia</i>																	
Boivin's rock-cress											✓						
<i>Arabis boivinii</i>																	
Holboell's rock-cress							✓										
<i>Arabis holboellii</i> var. <i>secunda</i>																	
Red bearberry									✓								
<i>Arctous rubra</i>																	
Swamp-pink							✓										
<i>Arethusa bulbosa</i>																	
Lance-leaf arnica	✓										✓						
<i>Arnica lanceolata</i>																	
Northern arnica	✓								✓		✓						
<i>Arnica lonchophylla</i> subsp. <i>lonchophylla</i>																	
Walking-fern spleenwort																✓	
<i>Asplenium rhizophyllum</i>																	
American milk-vetch											✓						
<i>Astragalus americanus</i>																	
Fairy slipper	✓						✓				✓					✓	
<i>Calypso bulbosa</i> var. <i>americana</i>																	
Purple reedgrass											✓						
<i>Calamagrostis purpurascens</i>																	
Hitchcock's sedge																✓	
<i>Carex hitchcockiana</i>																	
Host sedge									✓								
<i>Carex hostiana</i>																	
Broad-leaved sedge							✓										
<i>Carex platyphylla</i>																	
New Jersey tea							✓										
<i>Ceanothus americanus</i>																	
Prairie redroot							✓										
<i>Ceanothus herbaceus</i>																	
Squaw-root							✓									✓	
<i>Conopholis americana</i>																	
Striped coralroot							✓										
<i>Corallorhiza striata</i> var. <i>striata</i>																	
Showy lady's-slipper	✓						✓				✓					✓	
<i>Cypripedium reginae</i>																	

Table 3 Forest species currently covered by objective 6 (By administrative region - January 2004)

Flora		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Slenderleaf sundew <i>Drosera linearis</i>										✓								
Male fern <i>Dryopteris filix-mas</i>												✓						
American silverberry <i>Elaeagnus commutata</i>								✓										
Woodland sunflower <i>Helianthus divaricatus</i>								✓										
Robinson's hawkweed <i>Hieracium robinsonii</i>																	✓	
Sand-heather <i>Hudsonia tomentosa</i>			✓					✓		✓								
Greene's rush <i>Juncus greenei</i>								✓										
Eastern red cedar <i>Juniperus virginiana</i> var. <i>virginiana</i>								✓										
Arctic bladderpod <i>Lesquerella arctica</i>										✓								
Whorled loosestrife <i>Lysimachia quadrifolia</i>								✓										
Large-leaved sandwort <i>Moehringia macrophylla</i>												✓						
Soft-leaf muhly <i>Muhlenbergia richardsonis</i>										✓								
American ginseng <i>Panax quinquefolius</i>																	✓	
Coast jointweed <i>Polygonella articulata</i>			✓															
Douglas knotweed <i>Polygonum douglasii</i> var. <i>douglasii</i>								✓										
Northern holly-fern <i>Polystichum lonchitis</i>										✓		✓						
Fragrant sumac <i>Rhus aromatica</i> var. <i>aromatica</i>								✓										
Capillary beakrush <i>Rhynchospora capillacea</i>										✓								
Brownish beakrush <i>Rhynchospora capitellata</i>								✓										
Northern dewberry <i>Rubus flagellaris</i>								✓									✓	
Weak-stalk clubrush <i>Schoenoplectus purshianus</i>								✓										
Prairie goldenrod <i>Solidago ptarmicoides</i>								✓										
Anticosti aster <i>Symphotrichum anticostense</i>										✓								
Northeastern bladderwort <i>Utricularia resupinata</i>								✓										
Marsh valerian <i>Valeriana uliginosa</i>		✓										✓						
Regions:	01 Bas-Saint-Laurent 02 Saguenay–Lac-Saint-Jean 03 Capitale-Nationale		04 Mauricie 05 Estrie 06 Montréal		07 Outaouais 08 Abitibi-Témiscamingue 09 Côte-Nord			10 Nord-du-Québec 11 Gaspésie-Îles-de-la-Madeleine 12 Chaudière-Appalaches				13 Laval 14 Lanaudière 15 Laurentides				16 Montérégie 17 Centre-du-Québec		

Objective 7

Structuring the Practice of Pre-commercial Thinning

THE PROBLEM SITUATION

Pre-commercial thinning is the most commonly used silvicultural practice in Québec, with nearly 85,000 hectares treated in 2001-2002. In some regions and common areas, almost all the admissible area is thinned.

Pre-commercial thinning is performed at the sapling stage²². However, the sapling stage is important to many key ecosystem species, so there is considerable concern about the future impact of the treatment on wildlife and biodiversity in general. It is also a stage at which wildlife communities are extremely diverse and species are abundant.

Research in certain regions of Québec (Gaspésie, Bas-Saint-Laurent, Saguenay–Lac-Saint-Jean, Capitale-Nationale, Abitibi) has shown the negative short-term impact of pre-commercial thinning on a number of animal species (the snowshoe hare, spruce grouse, ruffed grouse, forest birds), and further research into its medium and longer-term effects is currently underway. Some of the principal biodiversity-related impacts of pre-commercial thinning include:

- Increased scarcity of dense young sapling stands;
- Depletion of the shelter canopy;
- Reduction of lateral visual obstructions;
- Significant short-term decline in the volume of food available;
- Loss of heterogeneity over large areas;
- Desertion of post-treatment forests by numerous animal species.

Additional guidelines are therefore required to ensure that the next GFMPs address these various issues arising from the widespread, large-scale application of pre-commercial thinning. The guidelines are designed to:

- Preserve a certain number of dense sapling stands;
- Ensure a better spread of treated areas;
- Maintain certain habitat features in commercially thinned sectors.

IMPLEMENTING THE OBJECTIVE

The areas in which pre-commercial thinning is now being carried out are those that were logged around twelve years ago, when spatial distribution measures such as block cutting were not in force. The challenge facing forest managers in the next ten to fifteen years is therefore to reduce the size of thinned areas and distribute them spatially so as to preserve biodiversity in areas under management. Beyond this timeframe, the MRNFP believes the new measures will automatically result in better spatial distribution of logging areas, and it anticipates less need for pre-commercial thinning in the coming years.

The measures applicable to the 2007-2012 GFMPs are as follows:

- a) Where timber production is the sole objective (in pure fir forests, for example), no more than 66% of the stand areas in which pre-commercial thinning is permitted in a given FMU should actually be treated. If this goal has not been met by 2007, the size of treated areas will be reduced gradually. Targets for the forthcoming GFMPs will be established by October 2005 and will be based on the specific context of each region.
- b) Where other objectives also exist (e.g. countering hardwood conversion, enhancing resistance to spruce budworm), the use of pre-commercial thinning in areas over and above the 66% must be justified. In no case may more than 90% of the admissible stand areas be treated in a given FMU. The target for the forthcoming GFMPs will be established by October 2005, based on the management strategy retained for each FMU.
- c) To preserve local biodiversity and maintain connections between habitats composed of young dense stands, 10% of the area²³ of single blocks²⁴ of more than 40 hectares subjected to pre-commercial thinning must be left untouched. At the same time, to

22. Sapling stage: Development stage in an even-aged stand composed of trees over 1.3 metres in height with a DBH of less than 9 cm.

maintain adequate conditions for certain animal species, the untreated areas must also meet certain standards, including sapling density per hectare, the type of residual cover and the minimum size of single-block areas.

- d) Certain shrubs and bushes that do not obstruct released trees should be preserved as food or shelter for animal species and as a contribution to plant diversity in thinned stands. Details of the types of plants to be preserved are set out in the *Instructions for the application of the Regulation respecting the value of silvicultural treatments admitted as payment of dues*.

Lastly, the MRNFP believes regional agreements concerning the conditions for pre-commercial thinning should be encouraged, especially in areas used by wildlife.

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Frédéric Bujold

Before thinning



Frédéric Bujold

After thinning

23. The 10% of stand area will count towards the untreated FMU area (between 10% and 33%).

24. Blocks will be considered separate if they are at least 200 m apart.

Objective 8

Preserving Dead Wood in Managed Forests



THE PROBLEM SITUATION

Dead wood, in the form of snags or debris, is found in every forest, and many plant and animal species depend on it.

Generally speaking, forest management substantially reduces the volume of dead wood in a forest. Research in the Gaspésie region of Québec has shown that virgin old-growth fir forests contain between 40 m³ and 63 m³ of woody debris per hectare, compared with 14 m³ per hectare in mature 50-year-old post-logging fir stands (Desponts *et al.*, 2004). In addition, the dead wood found in managed forests differs from that found in natural forests in terms of both size and species composition. In some European countries where forests are managed intensively, most threatened species are closely associated to the presence of dead wood. For example, 75% of threatened forest insects in Finland are dependent on dead wood (Komonen, 2003). Dead wood also enhances soil fertility and plays a role in the carbon cycle.

Very little information is available on the dead wood in Québec's forests, but the situation is certainly less critical here than in Scandinavia, for example. Nevertheless, the MRNFP has decided to take a prudent approach by adopting immediately applicable measures for the preservation of dead wood in Québec's managed forests.

IMPLEMENTING THE OBJECTIVE

The MRNFP has established a series of measures to ensure the continuing presence of dead wood throughout the public forests under management. These measures will apply to the forthcoming GFMPs.

The following measures will be implemented in the 2007-2012 GFMPs:

- All types of forestry work will be permanently prohibited in 20% of the total area of riparian strips, to allow for the development of very old trees of different species, which will eventually become large snags and debris.
- Clusters of trees measuring some hundred square metres each must be left intact on certain sites subjected to cutting with protection of regeneration and soils (CPRS), to provide a constant supply of dead wood throughout the stand rotation period. This measure will apply to at least 5% of CPRS areas beginning in 2007.
- During logging operations, all snags and non-commercial living trees must be left standing, provided they do not compromise management objectives or worker safety.
- In selection cutting areas, large dying trees (vigour class IV (M)) with a basal area of at least 1 m²/ha must be left untouched.

Between now and December 2005, the MRNFP will select the indicator(s) that will be used to monitor changes in the volume of dead wood in managed forests.

Special salvage plans

Following a forest fire, or more rarely an insect infestation or windstorm, a large volume of dead wood suddenly becomes available in the stands concerned. The forestry companies try to recover these dead or dying trees and send them to the mills while they still have some monetary value. The Minister prepares special salvage plans for such circumstances. These

plans are not included in the GFMPs due to the unpredictability of such events.

Dead wood is a habitat of choice, and sometimes an essential one, for certain animal species (e.g. the black-backed woodpecker) and epiphyte plants. When salvage operations are carried out following a natural disturbance, it is therefore important to leave a certain quantity of wood on site, to maintain these dependent species.

In the coming months, the MRNFP will set up an expert committee to prepare guidelines for special salvage plans, in order to ensure that enough dead wood is left on site, and is distributed sufficiently well, to maintain biodiversity. These guidelines will be included in the salvage plan handbook produced by the MRNFP.

Soil fertility

The branches of harvested trees can help maintain the fertility of certain fragile forest soils if they are left on site after logging. However, when the whole tree harvesting technique is used, lopping normally takes place at the roadside rather than in the forest. Although this practice has declined in popularity over the years, it still accounted for nearly 60% of the volumes harvested in 2002-2003 in forests in the domain of the State.

The MRNFP will set up an expert pedological committee to prepare a list of forest soils in Québec that are sensitive to loss of fertility due to the removal of branches and crowns. The committee will be asked to complete its work by April 2005.

Based on the committee's report, the MRNFP will establish an implementation schedule and other conditions (list of the most sensitive forest soils, etc.) for measures aimed at reducing the volume of branches removed from logging sites, with due consideration for the technical constraints and economic requirements of each FMU. This decision will apply to the next GFMPs from April 2007 onwards.

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Maintaining the Multiple Socio-economic Benefits Society Derives from the Forests

Sustainable forest management should permit several different socio-economic activities to be carried out at the same time in the same area. **visual quality of forest landscapes** is therefore a key consideration.

The beauty of Québec's landscapes is an important element of the forest experience. As the number of recreational opportunities in the forest increases, users are more likely to express their concerns about visual landscape quality. It is therefore important to ensure that the visual impacts of forestry operations remain at a level that is acceptable to all concerned.

As early as 1988, the Québec government acknowledged the importance of landscapes by including provisions concerning recreational use in its *Regulation respecting standards of forest management for forests in the domain of the State* (RSFM). In 1998, the MRNFP, in one of its publications, recommended the use of a visual landscape inventory in cases where the RSFM was insufficient.

A further step will be taken in the next general forest management plans (GFMPs), as the MRNFP seeks to mitigate the visual impacts of forestry operations by assigning an objective concerning the maintenance of visual landscape quality in every forest management unit (FMU).



Pascal Clément, MRNFP



Josée Pâquet

Objective 9

Maintaining the Visual Quality of Forest Landscapes

THE PROBLEM SITUATION

Visual landscape quality²⁵ is one of the key concerns expressed by the general public and forest users. Logging can have a negative effect on landscape quality, causing conflicts between users.

The impacts of forest management activities include the following:

- Degradation of the visual quality of certain landscapes in the short or medium term;
- Economic consequences for the leisure and tourism industry.

The *Regulation respecting standards of forest management for forests in the domain of the State* (RSFM) contains a number of provisions to protect landscapes. However, they do not always result in landscapes that are acceptable to the general public and other forest users, because they cannot possibly cover every situation in which special protection is required. It is difficult, in a general regulation of this nature, to provide for all circumstances.

The MRNFP believes the maintenance of visual landscape quality must be a protection objective in the forthcoming GFMPs, in order to prevent disputes related to forest management activities. The approach it has selected is for all forest users in sectors identified as visually sensitive²⁶ to agree upon strategies for the visual integration of proposed logging sites and patterns.

It is important to remember that landscape concerns will arise only in certain portions of forest management units (FMUs). The impacts of forestry operations can also be mitigated by applying a different form of logging distribution in visually sensitive areas, and by adjusting silvicultural practices accordingly.

IMPLEMENTING THE OBJECTIVE

Logging and recreational activities can be compatible. However, a visual landscape inventory would certainly help improve the landscape protection concept proposed in the RSFM. The method described in the document entitled *Stratégie d'aménagement pour l'intégration visuelle des coupes dans les paysages* is based on a landscape zoning principle that allows for operations to be adjusted according to landscape sensitivity.

The following measures will apply to the 2007-2012 GFMPs:

- When the GFMP is prepared, agreement holders must work with other forest users²⁷ to identify sectors of major interest in the forest management unit.
- The agreement holders and forest users must then classify these sectors using the method proposed by the MRNFP. This method is intended to facilitate analysis and consensus, but should be adjusted to the regional context.
- Other sectors of major interest may also be identified from prior GFMPs or five-year plans, during the public information and consultation period prior to approval of the GFMP, and during the GFMP validity period after its approval.
- The strategies chosen by agreement holders and forest users to ensure that logging operations are visually integrated into landscapes should be set out in a written document and included in the GFMP. In other words, agreement holders and forest users must describe the strategies they have chosen to achieve this objective in their GFMPs.
- When the five-year program is prepared, landscapes visible from the sectors of interest should be mapped, and agreement holders should work with other forest users to identify harmonization measures based on sensitivity level. The measures are then included in the five-year plan.

25. Here, landscape is considered from the standpoint of visual aesthetics.

26. The sectors identified as visually sensitive include landscapes around sectors of interest, e.g. a vacation zone, a lake or part of a lake, or an outfitter's reception building.

The MRNFP notes that some of the other protection and development objectives (PDOs) will also help maintain the visual quality of forest landscapes – for example, those relating to the maintenance of mature and overmature forests, the spatial distribution of logging operations and the reduction of physical soil disturbances. It therefore encourages forestry companies, in their management plans, to select actions that will enable them to achieve several objectives at once, thus reducing the potential socio-economic impacts.

The MRNFP will publish information and awareness documents for forestry companies and other forest users before the next GFMP production period, to help them incorporate the landscape objective into their management plans. Among other things, the documents will address the dynamic aspect of the forest and the development over time of measures to improve the visual landscape.

FOR FURTHER INFORMATION

PÂQUET, J. and L. BÉLANGER, 1998. *Stratégie d'aménagement pour l'intégration visuelle des coupes dans le paysage*, Charlesbourg, produced by C.A.P. Naturels as part of the Forest Resource Development Program offered by the Ministère des Ressources naturelles, 40 p.

PÂQUET, J., 2003. *Outil d'aide à la décision pour classer les secteurs d'intérêt majeurs et définir les stratégies d'aménagement pour l'intégration visuelle des coupes dans les paysages*, Gouvernement du Québec, Ministère des Ressources naturelles, de la Faune et des Parcs, 15 p.

The Giving of Proper Consideration, in Selecting Forms of Development, to the Values and Needs Expressed by the Populations Concerned

Sustainable forest management extends beyond environmental and economic considerations to embrace people, social values and the quality of life of individuals and communities. The way society organizes its relationship with forest resources, in the interests of present and future generations, is also taken into account.



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Considering the values and needs expressed by the populations concerned when making development choices is the sixth criterion for sustainable forest management and was one of the guiding principles underlying the MRNFP's review of the forest system. One of the concrete outcomes of the review was the adoption, in February 2003, of the Consultation Policy on Québec's Forest Management and Development Orientations.

During public consultations on the protection development objectives (PDOs), several people asked for more tangible measures to harmonize different forest uses, especially for stakeholders not specifically identified as participants in the GFMP preparation process. There were also requests for reassurance that measures would be introduced to promote greater transparency in discussions between forest stakeholders, improve cooperation and ensure compliance with agreements.

The Cree Nation, which was one of the Aboriginal communities to submit an opinion, proposed a certain number of PDOs specifically for the territory covered by the Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec.

The MRNFP has proposed two new objectives for the 2007-2012 general forest management plans, in response to the principal concerns expressed in the fall 2003 consultations. The first is concerned with the **harmonization of forest uses through written agreements forming part of the general forest management plan**, along with implementation and enforcement mechanisms. The second objective, applicable solely to the territory covered by the Québec-Cree Agreement, relates to the **maintenance of conditions conducive to traditional Cree uses**, among other things by improving the habitats of wildlife species of importance to the Crees.

Objective 10

Fostering Harmonization of Forest Uses Through Written Agreements to be Included in the General Forest Management Plan

CONTEXT

Forestry operations can have a significant impact on the activities of other forest users. To remedy this situation, a participatory process has been introduced to involve forest users in the preparation of general forest management plans. This new process represents a significant step towards reconciliation of the various activities taking place in the forests. As stipulated in section 54²⁷ of the *Forest Act*, users can influence forest management at the general planning stage by expressing their concerns about the forest. They can also agree on ways of harmonizing different forest uses, for example by protecting specific sectors, deciding on the location of forest roads or establishing a forestry schedule that takes other activities into account. Agreement holders can then produce plans that reconcile the interests of the various stakeholders.

During the public consultations, some participants felt it would be appropriate for the harmonization measures agreed upon by the various parties to be formalized as written agreements and included in the GFMPs. They underscored the importance of complying with these agreements, and suggested that the forestry companies performance in this respect should be assessed.

IMPLEMENTING THE OBJECTIVE

The following measures will apply in the 2007-2012 GFMPs to encourage multiple use of the forest and mitigate any problems for other users caused by forestry activities:

- When the GFMP is prepared, agreement holders and other forest users²⁷ must, where necessary, enter into written forest management agreements, which will become part of the plan. Such agreements may relate, for example, to specific problems, cartographic locations, harmonization measures²⁸ or the schedule of work, and must be signed by the parties concerned;
- Other agreements may also be identified during the public information and consultation period prior to approval of the GFMP, and during the GFMP validity period after its approval;
- Agreement holders and other forest users are jointly responsible for establishing and enforcing both the agreements and the harmonization measures. They are also responsible for checking regularly to ensure that the agreed-upon harmonization measures are actually implemented during forestry work;
- The MRNFP will ensure that the agreements are upheld, based on the information it is given, and to consider the results both in terms of annual management activities and when assessing the environmental and forest management performance of agreement holders. Between now and December 2005, it will identify the indicators it intends to use to assess compliance with the agreements.

In addition to the existing participatory mechanisms, the participants and stakeholders may also use other methods such as discussion

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27. Under section 54 of the *Forest Act*, agreement and contract holders must issue invitations to take part in the preparation of the general plan to the regional county municipalities and, where applicable, the urban community whose territory contains any part of the management unit concerned, the Native communities concerned, any person or body that, in accordance with the *Act* respecting the conservation and development of wildlife, manages a controlled harvesting zone or Zec, organizes activities or provides services in a wildlife sanctuary or holds an outfitter's licence, the holders of sugar bush management permits in areas intended for forest production, and any person leasing land within such an area for agricultural purposes. Holders may also invite any other person or body to take part in the plan preparation process.
28. The harmonization measures must provide protection that is equal or superior to that obtained by applying another PDO or another standard from the *Regulation respecting standards of forest management for forests in the domain of the State* (RSFM).

forums, integrated resource management committees and issues tables to share their concerns, address the issues, improve the transparency of the process, identify solutions and offer everyone concerned an equal chance to participate.

FOR FURTHER INFORMATION

FILIATRAULT, P., G. ROY and J.-P. TREMBLAY, 2001. *L'aménagement intégré des ressources, ça se prépare!* Québec, Fédération québécoise de la faune, 37 p. and appendices.

GUILLEMETTE, F., undated. *Notions d'aménagement forestier pour la gestion intégrée des ressources en pourvoirie dans le contexte du nouveau régime forestier.* Québec, Fédération des pourvoyeurs du Québec, Fondation de la Faune du Québec et Pourvoirie Québec, 20 p.

STEIN, A. and J. ROY, 1997. *Planifier la gestion intégrée des ressources du milieu forestier. Une démarche.* Gouvernement du Québec, Ministère des Ressources naturelles and Ministère de l'Environnement et de la Faune, 102 p.

Objective 11

Maintaining or Improving the Habitats of Wildlife Species of Importance to the Crees and Fostering Harmonization of Different Forest Uses in Order to Create Environmental Conditions Conducive to Traditional Cree Activities

CONTEXT

In accordance with the provisions of Schedule C to the Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec (the Agreement), the Minister of Natural Resources, Wildlife and Parks has received proposals from the joint working groups concerning forest resource protection and development objectives for the area covered by the Agreement. The Cree-Québec Forestry Board has also submitted the same proposals.

As a more general response to the goals of the Agreement, the joint working groups and the Cree-Québec Forestry Board have proposed objectives relating to the creation of economic development opportunities and environmental conditions conducive to Cree use of the area, sustained yield % the habitats of species of importance to the Cree Nation, and more extensive participation by the Crees in the forest management process.

The Agreement

The Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec (Chapter 3) states that Québec forestry regime must be applied in a way that allows for:

- Adaptations to better take into account the Cree traditional way of life;
- Greater integration of concerns relating to sustainable development;
- Cree participation, in the form of consultation, in the various forest activities operations planning and management processes.

The Agreement sets out the required adaptations to the forest regime and describes the implementation mechanisms (the Cree-Québec Forestry Board and joint working groups).

The forest management measures and conditions arising from these adaptations include notably:

- Identifying sites of special interest and conserving forested areas of wildlife interest to the Cree;
- Maintaining forest cover in the whole of each trapline and protecting forests adjacent to watercourses and lakes;
- Developing a road access network through the concerted action between the agreement holders and tallymen;
- Using mosaic cutting as a means to better disperse cuts;
- Preparing a Cree section in the general forest management plan.

Implementing the Objective

In setting a particular objective for the area covered by the Agreement (Figure 7), the MRNFP emphasizes the fact that the measures required to attain the objective must be built into the forest management strategies applicable to the management units concerned.

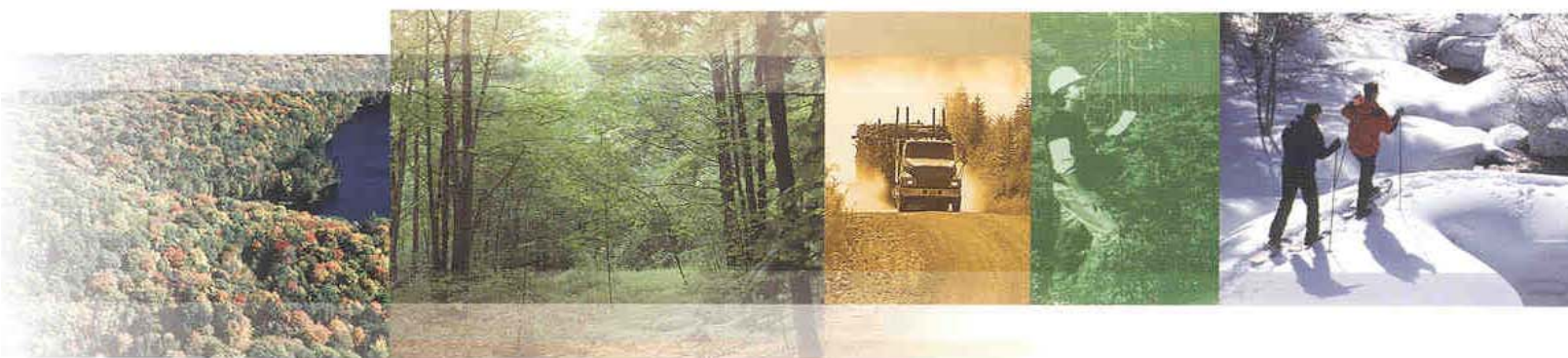
Agreement and contract holders will be responsible for devising ways of achieving this. Between now and October 2005, they, along with the joint working groups and the MRNFP, will be required to establish parameters for assessing both the achievement of the objective and its impacts on traditional Cree lifestyles.

FOR FURTHER INFORMATION

The text of the Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec may be consulted online at:

<http://www.mce.gouv.qc.ca/d/html/d2057014.html>

Figure 7 Area covered by the Agreement Concerning A New Relationship Between the Gouvernement du Québec and the Crees of Québec



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