

Proposed Forest Resources
Protection and Development Objectives
for the 2005-2010
General Forest Management Plans

CONSULTATION DOCUMENT

Fall 2003

INTERNET

The consultation document and the technical documents listed under the “For Further Information” heading are available on the website of the Ministère des Ressources naturelles, de la Faune et des Parcs at the following address:
www.mrnfp.gouv.qc.ca/forets/consultation/consultation-objectifs.jsp

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Table of Contents

Foreword	1
Proposed Protection and Development Objectives for the 2005-2010 General Forest Management Plans	3
Conservation of Soil and Water Resources.....	4
Objective 1 Reducing Rutting	5
Objective 2 Minimizing Losses of Productive Forest area	9
Objective 3 Protecting Aquatic Habitats by Avoiding Sediment Inputs	13
Preservation of Biological Diversity	17
Objective 4 Permanently Maintaining A Quantity of Mature and Overmature Forests, Based on Regional Ecology	18
Objective 5 Developing and Applying Spatial Distribution Patterns for Logging Based on Regional Ecology and Socially Acceptable	23
Objective 6 Protecting the Habitats of Threatened or Vulnerable Forest Species ..	26
Maintaining the Multiple Socio-economic Benefits Society Derives from the Forests ...	29
Objective 7 Maintaining the Visual Quality of Forest Landscapes	30
It's Your Turn.....	32
Appendix 1 Consideration of Environmental and Social Values in the Management of Québec's Forests: A Constantly Evolving Process.....	33
Appendix 2 Bioclimatic Subdomain Divisions.....	37
Appendix 3 Response Grid	38

List of Tables

Table 1	Targets by Bioclimatic Sub-domain	19
Table 2	Species Currently Covered by Objective 6 (By Administrative Region - January 2003)	28

List of Figures

Figure 1	Forest Management Unit Subdivisions (as at June 13, 2003)
Figure 2	Example of a “Rutting Grade Card” for a Management Unit
Figure 3	Rutting Profile (1997-1998) Obtained from MRNFP Monitoring Data (By Common Area)
Figure 4	Sample “Grade Card” for Productive area Losses
Figure 5	Percentage of Area Lost at Regional Level (2001-2002)
Figure 6	Atlantic Salmon River watersheds
Figure 7	Proposed Scenarios for the Implementation of extended rotation patches in the 2005-2010 GFMPs in Every FMU (Boundaries of June 13, 2003)
Figure 8a	Satellite Image Showing Small Logging Areas
Figure 8b	Satellite Image of a Fire in the Spruce Forest

Foreword

The *Forest Act* (section 35.6) now allows the Minister of Natural Resources, Wildlife and Parks (MRNFP)¹ to set forest resource protection and development objectives for each forest management unit (FMU). These new objectives will have a significant impact on forest management, and the Act therefore requires that they be submitted for public consultation. The purpose of the consultation is to assess the relevance of the objectives and to add new objectives tailored, for example, to specific regional features or the opinions of Native communities.

To comply with the orientations of Quebec's Forest System², the objectives must, among other things, be conducive to compliance with the six criteria for sustainable forest development contained in the preamble to the *Forest Act* since 1996. Four of these criteria involve environmental considerations, namely:

- The preservation of biological diversity;
- The maintenance and improvement of the condition and productivity of forest ecosystems;
- The conservation of soil and water resources;
- The maintenance of the function of forest ecosystems as a component of global ecological cycles.

The other two criteria are concerned with the social and economic aspects of sustainable forest development, namely:

- The maintenance of the multiple socio-economic benefits society derives from forests;
- The giving of proper consideration, in selecting forms of development, to the values and needs expressed by the populations concerned.

Most timber producing states use these or other similar criteria to judge the quality of their forest management activities.

The purpose of these public consultations is to obtain the opinion of the general public concerning certain forest resource protection and development objectives that the Minister of Natural Resources, Wildlife and Parks has identified as being important. Following the consultations, specific activities must be included in the strategies proposed by the new general forest management plans (GFMPs), to address the objectives retained.

As forest resource users, developers and managers, you are invited to express your concerns and expectations with regard to the objectives assigned to each forest management unit (see Figure 1) in the coming months. Your suggestions and comments will be vital in ensuring that the forests of Quebec are managed in a way that protects the interests of present and future generations alike.

1. All references to the Ministère des Ressources naturelles, de la Faune et des Parcs should be construed, where the context permits, as references to the Ministère des Ressources naturelles as it existed prior to April 29, 2003.

2. Please see Appendix I for further details.



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.

Proposed Protection and Development Objectives for the 2005-2010 General Forest Management Plans

A participatory management approach was used to establish the forest protection and development objectives. In 2001 and 2002, focus groups were organized in every administrative region, composed of representatives from the Ministère des Ressources naturelles, the Société de la Faune et des Parcs du Québec and the Ministère de l'Environnement, along with researchers from various research institutes and, in some cases, forestry companies. The focus group meetings led to the production of a list of sustainable forest management concerns and regional problems.

Seven objectives were retained for the 2005-2010 GFMPs, based on the comments made at the meetings and the feasibility of incorporating the proposed objectives into the plans from 2005 onwards. The objectives were selected according to existing protection measures and development programs, current knowledge and the level of urgency in certain domains.

With regard to the environment, the proposed objectives relate to:

- The conservation of soil and water resources;
 - Rutting,
 - Loss of productive forest areas,
 - Protection of aquatic habitats;
- The preservation of biodiversity;
 - Maintenance of mature and overmature forests,
 - Spatial distribution of logging areas,
 - Protection of threatened or vulnerable forest species.

With regard to social requirements, the proposed objective is designed to satisfy one of the major requirements of forest users, namely:

- Maintenance of the visual quality of forest landscapes.

The Minister has not proposed any development objectives for this consultation, but is open to suggestions from the general public.

Performance indicators will be devised for each objective retained after the consultations, to measure whether or not agreement and contract holders have achieved that objective at the end of the planning exercise, in 2010. The indicators will also be submitted for public consultation before the next GFMPs are filed.

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 the others.

The MRNFP has also developed performance indicators for all three types of physical soil disturbances, which it will use to measure the attainment of the related objectives.

Road construction, the use of heavy machinery in logging areas and transportation of logging waste are all likely to disturb soil and water resources. 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 all the environmental criteria for sustainable forest development, 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.

Furthermore, the Department has carefully monitored three types of physical soil disturbances as part of the *Forest Protection Strategy*. They are **rutting**, **loss of productive area** and **severe erosion**.

To counter these problems, the MRNFP has introduced a management approach that allows agreement holders to select appropriate forest management methods, provided they attain the objectives set by the Department. By introducing these objectives into the forthcoming GFMPs, the MRNFP is in effect legalizing its management-by-results approach.

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 soil³, which is deformed or displaced as a result, forming a rut⁴. Ruts vary in depth, and often become permanent features. Rutting, or the formation of ruts, generally occurs on finely textured mineral soils 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.

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 effect on tree growth in the medium term. In addition, rutting may occasionally cause significant damage to the roots of residual trees.

Ruts can disturb runoff patterns over the entire felling area, leading to waterlogging. 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 cases, rutting also has a negative impact on visual landscape quality.



Direction de l'environnement forestier

Ruts formed as a result of logging operations

3. Load-bearing capacity: the soil's capacity to bear weight.

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

Regionalization

The problem of rutting arises 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 Northwestern Québec.

THE DEPARTMENT'S APPROACH

In the last few years, the MRNFP has developed an indicator to measure rutting in all regeneration cutting sites⁵ in Québec. The results are used to review the state of the situation and to establish 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 cutting, first because very little rutting has been detected on these sites in the past, and second because the measurement method itself is unsuitable.

The indicator is measured by classifying all logging sites⁶ 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 (see Figure 2), and the data are compiled to different scales (see Figure 3). Since 1999, the MRNFP has drawn up periodic profiles (one harvesting year in every two) of the rutting situation in every region of Québec.

THE DEPARTMENT'S PROPOSAL

In the next two years, based on previous results for this indicator, the MRNFP will set realistic continuous improvement objectives for each management unit, with due consideration for local conditions. The ultimate target 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 are classified in the “severe disturbance” category.

QUESTIONS

1. Do you agree that the reduction of rutting should be retained as a protection objective in the next GFMPs? If not, please explain why.
2. Do you approve of the target set by the Department? If not, please explain why.
3. Do you have any comments or suggestions concerning this objective?

FOR FURTHER INFORMATION

SCHREIBER, A., J.-P. JETTÉ and I. AUGER, 2002. *L'orniérage dans les CPRS et dans les autres coupes de régénération : méthode de mesure utilisée en 2001*, Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier, 37 p.

5. Regeneration cutting: removal of trees in order to trigger regeneration or promoting advance regeneration. Cutting with protection of regeneration and soils (CPRS), progressive seed cutting (PSC), seed cutting and strip cutting are all forms of regeneration cutting.
6. Logging site: a single-block cutting area located between cutting separators.

Physical Soil Disturbance Indicator

Rate of Rutting in Regeneration Felling Areas

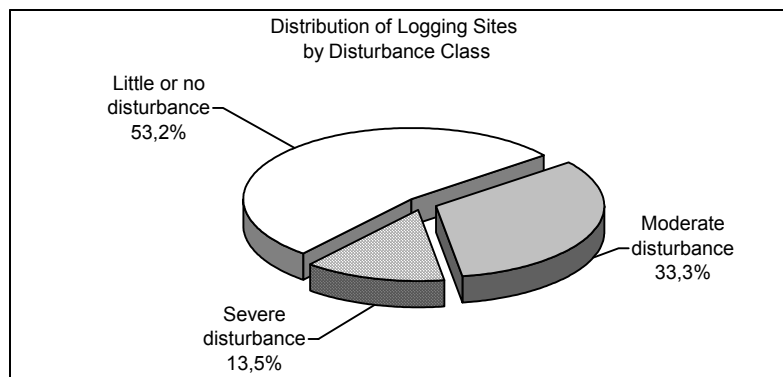
2001-2002 Report

Name of company : eeee

Area (ha) : 2525

Management unit : 000--00

No. of logging sites : 83



Produced by :
Ministère des Ressources naturelles, de la Faune et des Parcs
Direction de l'environnement forestier

Data source :
Ministère des Ressources naturelles, de la Faune et des Parcs
Forêt Québec

Figure 2 Example of a “Rutting Grade Card” for a Management Unit

In the above example, the pie chart shows that a significant effort will be required to achieve the ultimate target (no logging sites classified in the “severe disturbance” category), since 13.5% of all logging sites within the harvesting area are currently classified as “severely disturbed” by rutting.

These results will be used as a basis for setting continuous improvement objectives, with due consideration for local land features. The objectives will then serve to establish a stepped process leading to attainment of the final target.

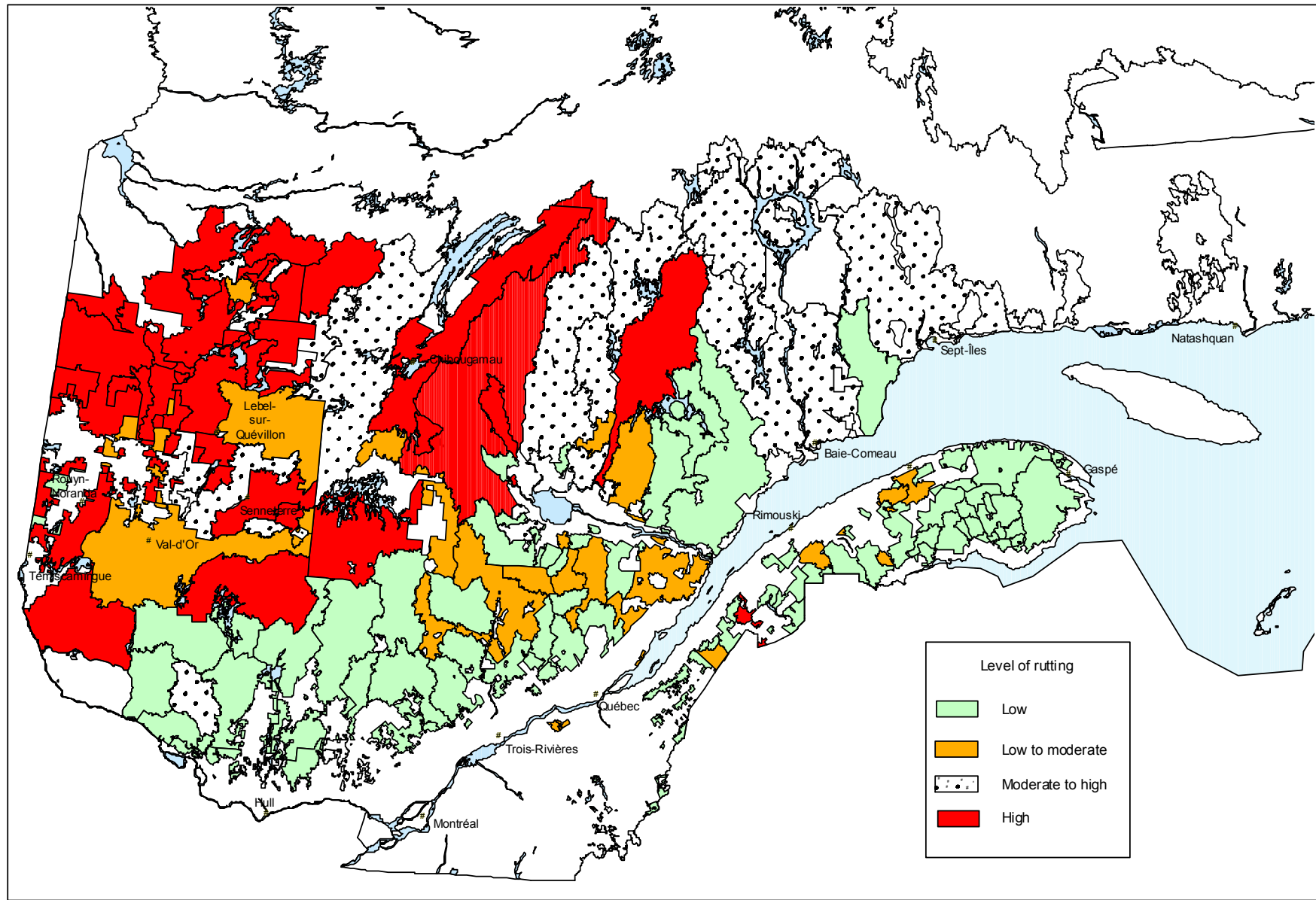


Figure 3 Rutting Profile (1997-1998) Obtained from MRNFP Monitoring Data (By Common Area)

Objective 2

Minimizing Losses of Productive Forest area

THE PROBLEM SITUATION

Some areas may become unsuitable for tree growth after logging has taken place. This is referred to as loss of productive area. Road construction is one possible cause of such 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 essential to the entire forest management process, but it is possible to minimize losses of productive area simply 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. This type of loss is caused principally by severe physical disturbances⁷ such as exposure of rock or infertile soils, the formation of ponds and the accumulation of logging waste.



Direction de l'environnement forestier

Formation of ponds and the accumulation of logging waste can result in loss of productive area

7. A physical soil 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.

THE DEPARTMENT'S APPROACH

The MRNFP has developed an indicator to help minimize losses of productive area. The area occupied by forest roads and roadside disturbances (40 metres on each side) is measured as a ratio of the area harvested annually. In 2002, the MRNFP introduced a monitoring program applicable to all logging operations. Grade cards similar to those issued for rutting are produced (see Figure 4), and can be compiled for different administrative levels (see Figure 5).

Regionalization

The density of the road network and, to a lesser extent, the level of roadside disturbance, is closely linked to the physical features of the region (average slope, type and thickness of surface deposit). In view of these regional differences, it is not possible to set a single, standard threshold for the province as a whole.

THE DEPARTMENT'S PROPOSAL

It is impossible, in the short term, to set a single, standard productive area loss threshold for Québec as a whole. The results of this indicator will first need to be examined. Thresholds will

then be set in the medium term, based on the physical features of each territory. In the next two years, the MRNFP will establish improvement targets for individual management units. It will require forestry companies to prepare continuous improvement plans, which will form an integral part of their GFMPs.

QUESTIONS

4. *Do you agree that minimizing losses of productive area should be retained as a protection objective in the next GFMPs? If not, please explain why.*
5. *Do you have any comments or suggestions concerning this objective?*

FOR FURTHER INFORMATION

L'ÉCUYER, H., 2003. *Méthodologie d'évaluation de la perte de superficie productive associée aux réseaux routiers*, Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier, 24 p.

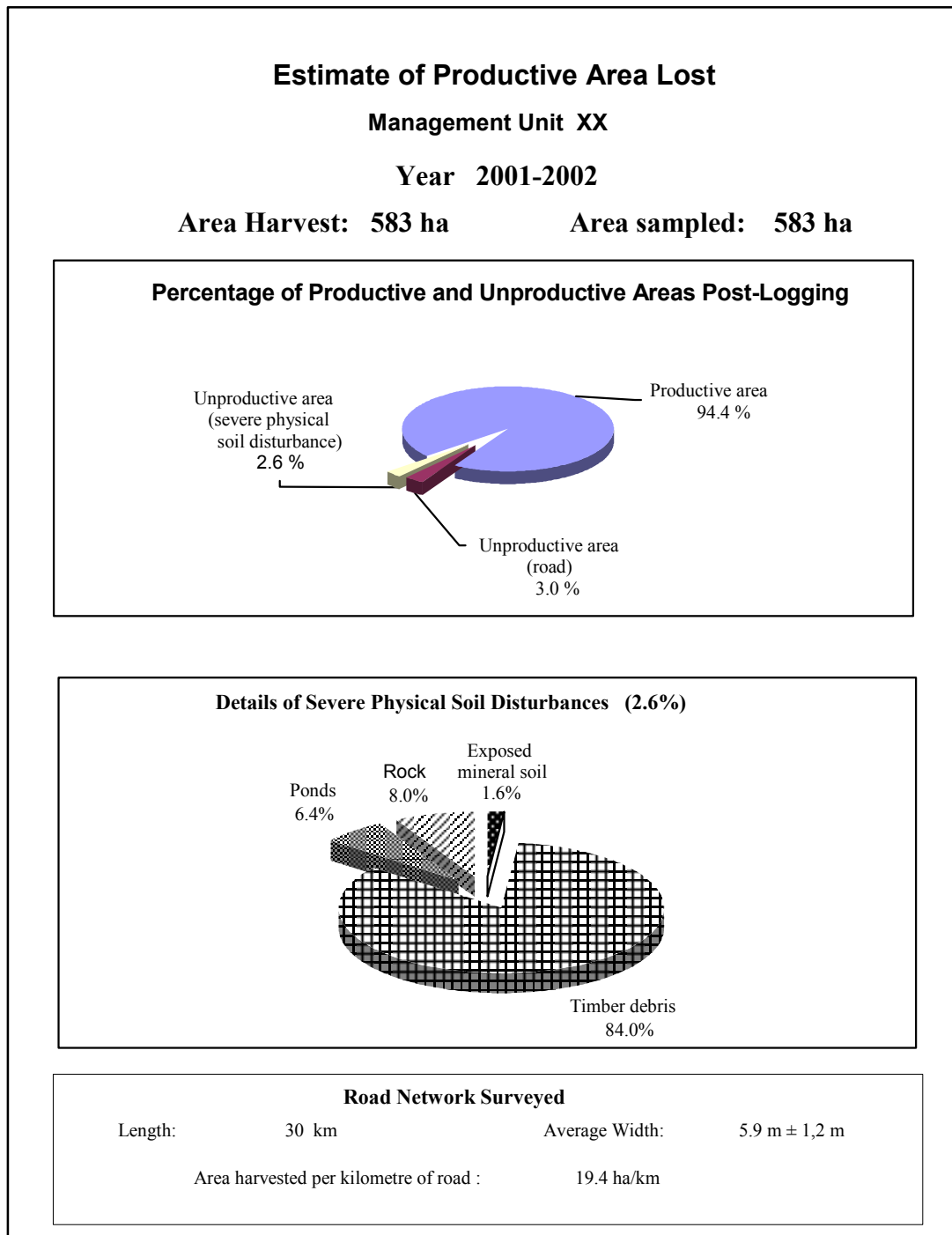


Figure 4 Sample “Grade Card” for Productive Land Losses

In the above example, the grade card shows severe physical disturbances affecting an area more or less equal to that occupied by roads. The resulting losses are therefore significant, and need to be reduced as much as possible.

The diagrams also reveal some possible avenues for improvement. For example, the loss of productive area due to severe disturbances (2.6% of the area harvested) is due in large part (84%) to the presence of logging waste. Waste management should therefore be a priority element of the continuous improvement plan.

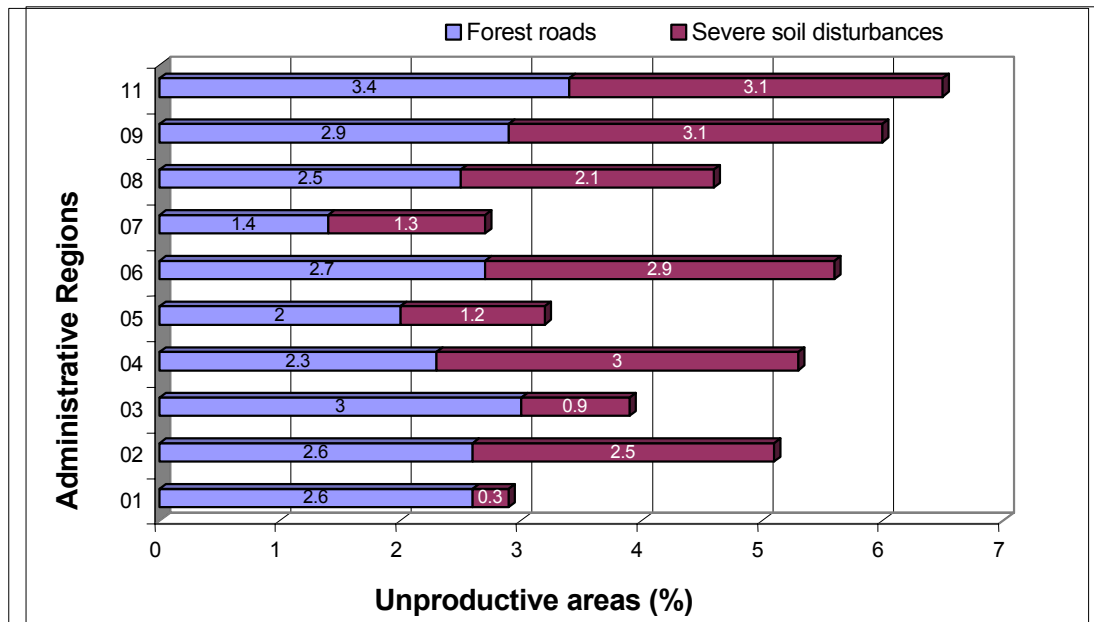


Figure 5 Percentage of Area Lost by Region (2001-2002)

This graph shows regional variations in the performance of forestry companies. The losses caused by forest roads are basically the result of poor planning and the difficulties generated by regional biophysical features (slopes, soils, etc.). The losses due to severe roadside disturbances are also due in part to regional biophysical features, but working techniques are an important contributing factor.

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 associated 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 deposits 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 harvesting 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.



Erosion of ditches along a forest road

A severe cases of erosion indicator has been under development for some years, and will be used as a complement to the present system. It will serve as a basis for a management mechanism involving a local or regional diagnosis targeting forestry practices that need to be remedied in order to reduce instances of erosion. The indicator will be used to identify cases of erosion along stretches of road used recently for forest management purposes. Again, a “grade card” will be published, and a remedial plan established in light of local conditions. At the present time, however, the indicator is still at the experimental stage.

• Increases in Peak Flows Due to Harvesting

The forests play a major role in the water cycle, and harvesting can increase both the soil's water content and the spring thaw rate, thus increasing the peak flow⁸ of watercourses. The road network may also be a contributing factor.

Peak flow increases caused by logging are a significant cause of concern, principally because of the potential risk of erosion and sediment deposits 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 flows in the watersheds of rivers used by Atlantic salmon. It is extremely important to protect salmon rivers from the potential adverse effects of logging operations because the situation of the species is now causing concern throughout the world.

THE DEPARTMENT'S PROPOSAL

- Erosion in the managed forests should be limited to exceptional circumstances only, thus reducing its potential impacts for aquatic habitats. The road network severe cases of erosion indicator will be used as a management mechanism alongside existing regulations (RSFM). The MRNFP will require forestry companies to prepare a continuous improvement plan as an integral part of their GFMPs. In the next two years, the MRNFP will establish local improvement targets for individual forest management units, based on past performance.
- In view of the vulnerable status of the Atlantic salmon, the MRNFP proposes to maintain deforested areas⁹ (due to logging, fire, infestations and windfall) at or below 50% of the total area of every Atlantic salmon river watershed¹⁰ (see Figure 6) of 100 km² or over. This will ensure that the risk of aquatic habitat disturbance due to peak flow increases always remains at a very low level.

QUESTIONS

6. Do you agree that the Department's proposal to protect aquatic habitats by avoiding sediment inputs should be retained as a protection objective in the next GFMPs? If not, please explain why.
7. Do you agree with the approach taken by the Department (severe cases of erosion and limits on the size of deforested areas in all Atlantic salmon river watersheds)? If not, please explain why.
8. Do you have any comments or suggestions concerning this objective?

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

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 by cutting with protection of regeneration and soils (CPRS).

10. Watersheds: an area of land contributing to watercourse flow.

**FOR FURTHER
INFORMATION**

LANGEVIN, R., 2003. *Objectif de protection ou de mise en valeur du milieu forestier : fiche d'information sur la problématique des augmentations de débits de pointe attribuables à la récolte forestière et son importance au Québec*, Ministère des Ressources naturelles, de la Faune et des Parcs, Direction de l'environnement forestier, 9 p.

MINISTÈRE DES RESSOURCES NATURELLES, DE LA FAUNE ET DES PARCS, 2003. *Méthode de calcul de l'aire équivalente de coupe d'un bassin versant : guide de l'utilisateur*.



Preservation of Biological Diversity

Preservation of biological diversity is a major aspect of sustainable forest development. 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. Its network of protected areas will undergo considerable expansion in the coming months, 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.

In taking this approach, it is clear that the question of preserving biodiversity involves a lot more than simply protecting threatened species or targeting “star” species such as the moose or salmon. On the contrary, it means targeting all species, from micro-organisms to large mammals, including 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 an inspiration for Forest management. This approach, now applied by a number of countries, initially emerged from the observation that the landscapes generated by forestry operations tend to differ from 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 major features forming part of the habitats of resident species. However, natural habitats 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 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 to natural areas. The MRNFP has initiated such a comparison, and has consulted a number of experts to draw up a first list of biodiversity-related issues. Three objectives have been derived from this list for the 2005-2010 GFMPs. They are **the maintenance of mature and overmature forests, spatial distribution of logging areas and protection of threatened or vulnerable forest species.**

Objective 4

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

THE PROBLEM SITUATION

The scarcity of mature¹¹ and overmature¹² 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 their inherent ecological features, developed over time, such as large snags, coarse woody debris, wildlife trees and living vegetation layers.

Recent research in Gaspésie, the Laurentians wildlife reserve and the North Shore, in virgin old-growth fir and spruce forests and in mature post-logging forests, has highlighted the importance of mature and overmature forests. 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.

Virgin forest landscapes have been profiled in many regions of Québec, making it possible to assess their past 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 1). These findings are based on the natural disturbance regime (fires, insect infestations and trees windfall) in the areas studied.



Jean-François Bergeron, MRN

Mountain Fir Forest in the Chic-Chocs

THE DEPARTMENT'S APPROACH

The Department's approach is designed to ensure the sustainability of these ecosystems in managed landscapes, and uses the available historical profiles as a basis. 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 if known historical proportions are altered.

The Department's approach is to permanently preserve 33% of the known historical proportion of mature and overmature forests in each managed area (see Table 1). According to

11. 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).

12. Overmature forests: Forest stands whose age lies between the onset of tree mortality (senescence) and the establishment of a new stand.

similar experiences in New Brunswick and British Columbia, this threshold appears to be sufficient both to sustain biodiversity and to maintain socio-economic repercussions at an acceptable level. The approach has allowed the Department to establish targets for the preservation of mature and overmature forests in different areas, using the bioclimatic sub-domains as the ecological base (see Appendix 2 and Table1).

Table 1 Targets by Bioclimatic Sub-domain

Bioclimatic Sub-domains	Historical Percentage (%)	Target ^a (%)	Distribution (%)		
			Refuges	Extended rotation patches	Adapted Practices
Eastern spruce-moss	70	23	2	10	11
Western spruce-moss (100 years and over)	57	19	2	10	7
Eastern balsam fir-white birch (50 years and over)	60	20	2	10	8
Western balsam fir-white birch (100 years and over)	57	19	2	10	7
Eastern balsam fir-yellow birch (50 years and over)	60	20	2	10	8
Western balsam fir-yellow birch (70 years and over)	53	18	2	10	6
Sugar maple-yellow birch	52	17	2	10	5
Sugar maple-Basswood	70	23	2	10	11

a. Target: 33 % of historical percentage

The MRNFP plans to maintain the 33% mature and overmature forest threshold by creating biological refuges and extended rotation patches, and by adopting adapted silvicultural approaches.

- The purpose of the **biological refuges** is to ensure integral preservation 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 the territory of Québec, as stipulated in the *Strategy for Protected Areas*. In addition, given that the refuge are scattered throughout Québec and cover a wide range of ecosystems, they will play an important role in the protection of biodiversity, and may be of use to forestry companies seeking environmental certification.

- The purpose of the **extended rotation patches** is to allow certain stands to age beyond the normal harvest age in a given region. For example, the normal harvest age for fir stands in the Lower St. Lawrence region would be increased 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 features of mature and overmature forests. Once this stage has been attained, the stands will be harvested and replaced by other stands, so that a sufficient quantity of mature and overmature forest is always maintained in the area.

- **Adapted silvicultural practices** allow a certain volume of wood to be harvested while maintaining some of the features of mature and overmature forests. They also ensure that forests reach the mature and overmature stage more quickly. They are, however, a compromise solution, since they preserve only the essential features 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 re-colonize the site more quickly;
- Maintain the complexity of the new stand's inner structure;
- 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.
- **Wildlife trees:** Living or partly dead trees with a DBH of more than 10 cm exhibiting features (cavities, well-developed canopy, 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 shrub and tree strata. By adding prescriptions concerning the preservation of large snags, wildlife trees 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 the features described in the box are present in sufficient quantities over certain predetermined areas. The areas in question will have undergone treatments to preserve a portion of the stand structure – for example:

- Cutting with protection of small merchantable trees (CPSMT);
- Shelterwood cutting;
- Selection cutting.

THE DEPARTMENT'S PROPOSAL

Based on the logging history and natural age structure of the forest, maintaining a 33% mature and overmature forest threshold in certain regions would lead to 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 MRNFP recommends gradual implementation of the measure.

However, certain steps would have to be taken as soon as the 2005-2010 GFMPs are implemented, and the goal of maintaining 33% of mature and overmature forests would need to

be incorporated into annual forestry operations as quickly as possible, and in any event within 20 years.

For the 2005-2010 GFMPs, the Department proposes the following measures:

- Implementation of **biological refuge** over 2% of the productive forest area in each forest management unit;
- Based on the MRNFP's current profile of mature and overmature forests in each FMU, application of different scenarios for extended rotation patches, taking acceptable impact levels into account (see Figure 7). The MRNFP proposes a first step towards the target of 10% of extended rotation patches, as follows:
 - **3 % of extended rotation patches** in 27 FMUs (37 %) in 2005-2010;
 - **5 % of extended rotation patches** in 17 FMUs (23 %) in 2005-2010;
 - **8 % of extended rotation patches** in 6 FMUs (8 %) in 2005-2010;
 - **10 % of extended rotation patches** in 24 FMUs (32 %) upon adoption of the 2005-2010 GFMPs;
- Attainment of at least one-third of the target for **adapted silvicultural practices**. This will enable the stakeholders to familiarize themselves with the practices and incorporate new old-growth features maintenance treatments as they are recognized by the Department.

For the 2010-2015 and subsequent GFMPs, a decision will have to 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.

QUESTIONS

9. *Do you agree that the preservation of a certain quantity of mature and overmature forests, established on the basis of regional*

ecology, should be a protection objective in the new GFMPs? If not, please explain why.

- 10. Do you think the Department's approach (refuges, extended rotation patches, adapted practices) is sufficient to respond to ecological concerns about mature and overmature forests? If not, please explain why.*
- 11. Do you agree with the four implementation scenarios for extended rotation patches?*
- 12. Do you have any comments or suggestions concerning this objective?*

**FOR FURTHER
INFORMATION**

- Guidelines for the implementation of biological refuges
- Guidelines for the implementation of extended rotation patches
- Guidelines for the implementation of adapted silvicultural practices

MINISTÈRE DES RESSOURCES NATURELLES,
DE LA FAUNE ET DES PARCS, 2003. *Forest
Management Manual*, 4th Edition.

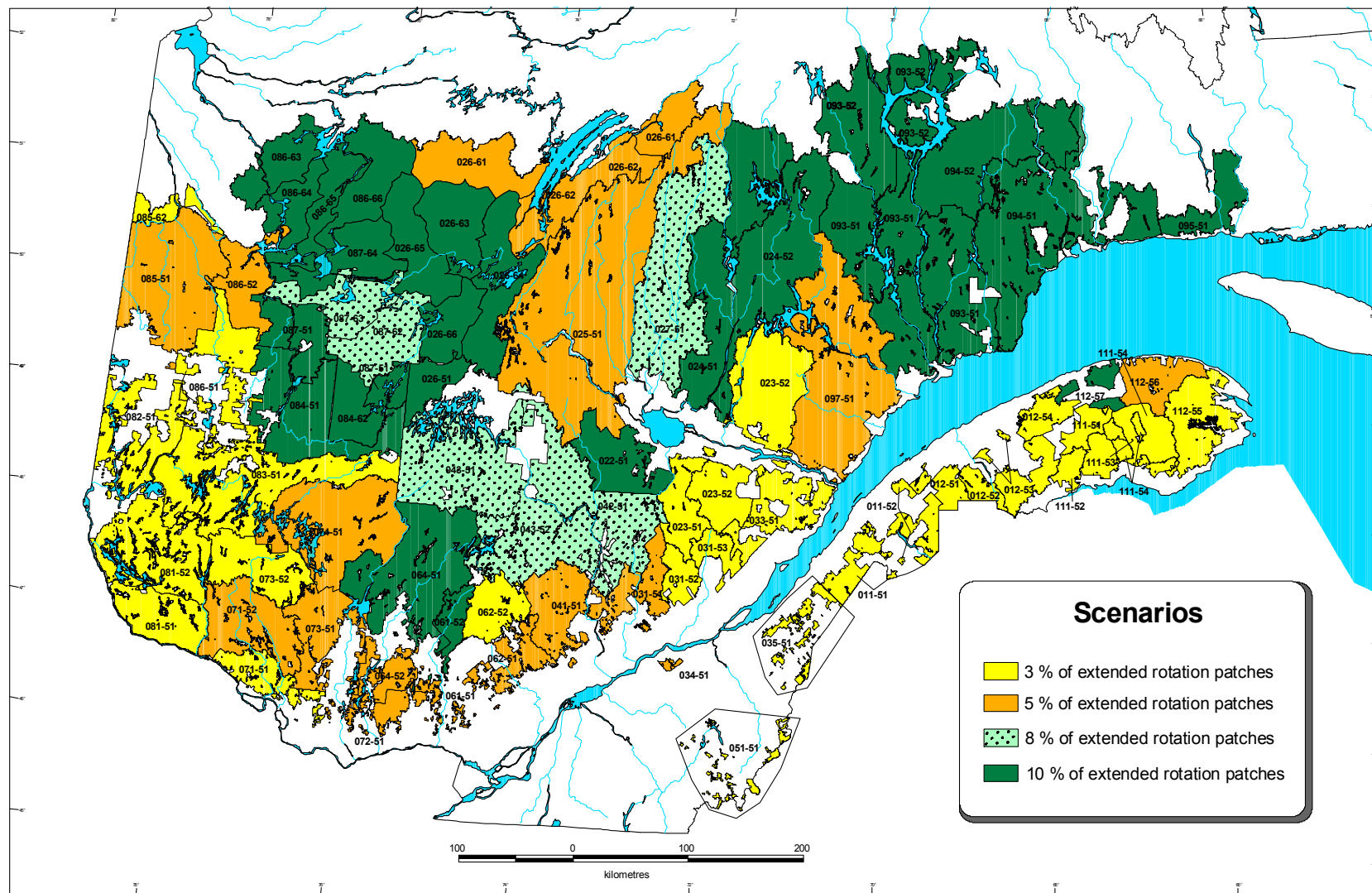


Figure 7 Proposed Scenarios for the Implementation of Extended rotation patches in the 2005-2010 GFMPs in Every FMU (Boundaries of June 13, 2003)

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 (RSFM). In the last fifteen years, the regulatory provisions concerning spatial distribution have changed considerably. First, the size of single block cutting areas has been reduced significantly. Second, the concepts of dispersion 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 “mosaic cutting” to the regulation in 2003¹³.

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 this will continue to be considered, the issue of biodiversity has now forced the Department 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 stand.

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 close by.

- Irregularly shaped stands can create a very specific type of environment (boundary environment) suited to the needs of certain species.
- Spatial stand structure 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 are accustomed to certain types of environmental change.

The principal concern arises from the fact 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 preserved.

This objective cannot be addressed unless we 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 very different activities.

13. 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).

The social acceptability of logging patterns will therefore also be a major objective, and will necessarily depend on the quantity of forest remaining after logging.

THE DEPARTMENT'S PROPOSAL

The Spruce-moss Domain

The spruce-moss forest has always been dominated by mature forests and punctuated by clumps of young stands generated by recent fires. However, current harvesting activities in more northerly sectors are producing forests dominated by young regenerating stands.

When forestry companies plan harvesting operations in the northern spruce forests, they look specifically for concentrations of mature forests, 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 mature forest. Preserving these tracts is the principal goal of spatial distribution.

The MRNFP therefore proposes, in the spruce-moss forest (Appendix 2)¹⁴:

- That at least one closed large mature forest¹⁵ of 100 km² should be preserved in every forest management unit (FMU) in the territory covered by the 2005-2010 GFMPs;
- That these closed large mature forests should be situated between areas harvested in the preceding five-year period and those to be harvested in the following five-year period.

Following local analysis, this objective could be amended in some FMUs, depending on the level of fragmentation and the number of logging sites associated with each lumber camp. The presence of protected areas in the vicinity of sectors logged in the preceding five-year period will also be considered.

This measure, proposed for the period 2005-2010, would enable a certain number of closed large mature forest to be preserved in the area under management. These large mature forests would not be protected as such, but would be managed in accordance with a silvicultural strategy designed to maintain the essential ecological features of a closed forest (unbroken forest cover and diverse habitats). It would therefore be possible for some work to take place in these large mature forests as early as 2005, provided the necessary expertise is available. Moreover, the development and application of a appropriate management approach would eventually make it unnecessary to preserve closed large mature forests within managed landscapes, because their essential ecological features would automatically be maintained.

Except for the large mature forests, harvesting would be governed by current regulations (RSFM) applicable in the area covered by the five-year plan. However, in the spruce-moss domain, the Department will encourage the development and implementation of spatial distribution strategies other than those set out in the RSFM. Since the aim of this is to avoid the temporary extinction of mature large mature forest, 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 strategies accepted by the Department will not be subject to this proposal concerning the maintenance of 100 km² large mature forest. The alternative strategies should help avoid artificial fragmentation of the spruce-moss forest (see Figures 8a and 8b).

14. This proposal applies to FMUs not covered by special caribou habitat protection plans, which provide for the temporary maintenance of forest masses (see Objective 6 for further details).

15. Closed forest: Corresponds to the definition of "residual forest" currently proposed for mosaic 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 within the last ten years.

The Hardwood, Mixed and Fir Forest Domains

In these regions (see Appendix 2), the MRNFP is unable to propose specific regional objectives for the spatial distribution of harvesting areas until further research has been done. In the meantime, the RSFM will apply, since mosaic cutting is a form of dispersal that is sufficiently flexible to reproduce landscapes similar to those found naturally in the areas in question.

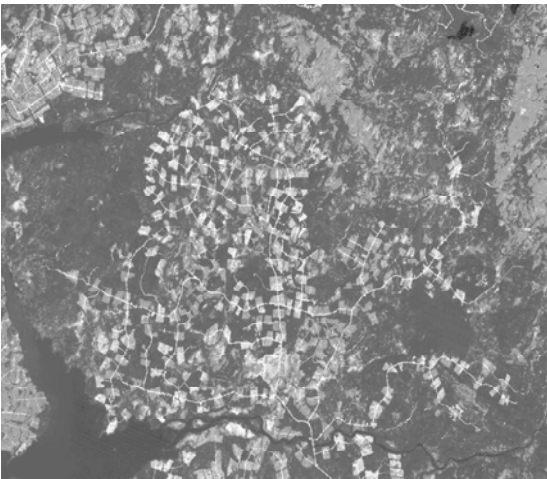


Figure 8a Satellite image showing small harvesting areas

In the spruce forest, a logging pattern comprising numerous small logging areas has caused the ecosystem to become artificially fragmented.

QUESTIONS

13. Do you agree that the development and application of socially acceptable spatial distribution patterns for harvesting, adapted to regional ecology, should be a protection objective in the next GFMPs? If not, please explain why.
14. Do you believe the preventive approach proposed for spruce-moss forests would respond to current concerns? If not, please explain why.
15. Do you have any comments or suggestions concerning this objective?

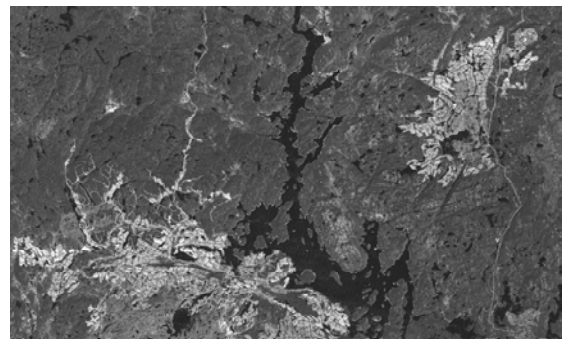


Figure 8b Image satellitaire d'un feu dans la pessière

Figure 8b Satellite image of a fire in the spruce forest

In this type of environment, it is preferable to have larger, scattered logging areas so as to maintain large mature forest blocks and simulate the effects of fire.

Objective 6

Protecting the Habitats of Threatened or Vulnerable Forest Species

THE PROBLEM SITUATION

Approximately 15% of the 2,500 plant and animal species found in Québec's forests are in difficulty – in other words, 290 plant species and nearly 50 animal species. In all, 24 species have been designated as threatened¹⁶ or vulnerable¹⁷ under the *Act respecting threatened or vulnerable species*, including the american ginseng (*Panax quinquefolius*), wild leek (*Allium tricoccum*), wolverine (*Gulo gulo*) and western chorus frog (*Pseudacris triseriata*), as well as all the other species appearing on the 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 the 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 animal and plant species 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

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 harvesting rights to be informed, at the appropriate time, of the presence of threatened or vulnerable species, and of any appropriate protection measures (e.g. harvesting banned in certain areas, harvesting permitted on certain conditions or at specific times of the year). The holders are then able to 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.

Special Management Plans

This approach has been in force for several years for the woodland caribou populations in Abitibi and the North Shore area. A plan is currently being prepared for the Saguenay-Lac-Saint-Jean region. The Gaspésie caribou population has been officially designated as vulnerable, and both the animal and its habitat are now protected by the *Act respecting threatened or vulnerable species*.

Special management plans include the temporary maintenance of large mature forests, the permanent maintenance of connecting 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 the forest canopy in the short and medium term.

16. Threatened species: A species facing extinction.

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

THE DEPARTMENT'S PROPOSAL

The MRNFP, in retaining habitat protection as an objective in the next GFMPs, hopes to ensure that forest management activities will not exacerbate the situation for threatened and vulnerable species. It will also be able to punish agreement holders who do not apply the proposed protective measures.

- For plant and wildlife species requiring small-scale protective measures (turtles, salamanders, small mammals, raptor nests, etc.), the MRNFP proposes that agreement holders should apply habitat protection measures for the species shown on the annual authenticated location lists for each region and entered on regional land use 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 MRNFP proposes that the habitats of populations whose existence is known when the GFMPs are approved should be protected by means of a special management plan reviewed once every five years.

Table 2 presents a list of species, by administrative region, for which authenticated locations are known and habitat protection measures currently exist. The table will be updated annually.

QUESTIONS

16. Do you agree that protection of the habitats of threatened or vulnerable forest species should be an objective in the next GFMPs? If not, please explain why.
17. Do you have any comments or suggestions concerning this objective?



Wood turtle

Mark Mills, Parcs Canada



Northern Calypso, American var.

Norman Dignard, MRN



Spring beauty

Frédéric Coursol



Woodland caribou

Table 2 Species Currently Covered by Objective 6 (By Administrative Region - January 2003)

Wildlife	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
Golden eagle	✓		✓				✓		✓		✓						
Peregrine falcon				✓			✓	✓	✓								
Bald eagle	✓	✓	✓	✓			✓	✓	✓		✓			✓	✓		
Wood turtle		✓		✓			✓	✓				✓		✓	✓		
Woodland caribou	✓	✓	✓					✓	✓		✓						
Plant Life																	
<i>Adiantum aleuticum</i>											✓						
<i>Amerorchis rotundifolia</i>											✓						
<i>Arabis boivinii</i>											✓						
<i>Arabis holboellii</i> var. <i>secunda</i>							✓										
<i>Arctous rubra</i>									✓								
<i>Arethusa bulbosa</i>							✓										
<i>Arnica lanceolata</i>	✓										✓						
<i>Arnica lonchophylla</i> subsp. <i>lonchophylla</i>	✓								✓		✓						
<i>Asplenium rhizophyllum</i>																✓	
<i>Astragalus americanus</i>											✓						
<i>Calypso bulbosa</i> var. <i>americana</i>	✓						✓				✓				✓		
<i>Calamagrostis purpurascens</i>											✓						
<i>Carex hitchcockiana</i>																✓	
<i>Carex hostiana</i>									✓								
<i>Carex platyphylla</i>							✓										
<i>Ceanothus americanus</i>							✓										
<i>Ceanothus herbaceus</i>							✓										
<i>Conopholis americana</i>															✓		
<i>Corallorhiza striata</i> var. <i>striata</i>							✓										
<i>Cypripedium reginae</i>	✓						✓				✓				✓		
<i>Drosera linearis</i>									✓								
<i>Dryopteris filix-mas</i>											✓						
<i>Elaeagnus commutata</i>							✓										
<i>Helianthus divaricatus</i>							✓										
<i>Hieracium robinsonii</i>															✓		
<i>Hudsonia tomentosa</i>		✓					✓		✓								
<i>Juncus greenei</i>							✓										
<i>Juniperus virginiana</i> var. <i>virginiana</i>							✓										
<i>Lesquerella arctica</i>									✓								
<i>Lysimachia quadrifolia</i>							✓										
<i>Moehringia macrophylla</i>											✓						
<i>Muhlenbergia richardsonis</i>									✓								
<i>Panax quinquefolius</i>																✓	
<i>Polygonum douglasii</i> var. <i>douglasii</i>							✓										
<i>Polystichum lonchitis</i>									✓		✓						
<i>Rhus aromatica</i> var. <i>aromatica</i>							✓										
<i>Rhynchospora capillacea</i>									✓								
<i>Rhynchospora capitellata</i>							✓										
<i>Rubus flagellaris</i>							✓								✓		
<i>Schoenoplectus purshianus</i>							✓										
<i>Solidago ptarmicoides</i>							✓										
<i>Symphyotrichum antcostense</i>									✓								
<i>Utricularia resupinata</i>							✓										
<i>Valeriana uliginosa</i>	✓										✓						

Regions: 01 Bas-Saint-Laurent 06 Montréal 11 Gaspésie-Îles-de-la-Madeleine 15 Laurentides
02 Saguenay-Lac-Saint-Jean 07 Outaouais 12 Chaudière-Appalaches 16 Montérégie
03 Capitale-Nationale 08 Abitibi-Témiscamingue 13 Laval 17 Centre-du-Québec
04 Mauricie 09 Côte-Nord 14 Lanaudière
05 Estrie 10 Nord-du-Québec

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

Sustainable forest management should permit several different socio-economic activities to be performed at the same time in the same area. **Maintaining landscape quality** 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 forests 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 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*. In 1998, the MRN, in one of its publications, recommended the use of a landscape sensitivity survey method in cases where the RSFM was insufficient.

A further step will be taken in the next general forest management plans (GFMPs). The Department, by assigning an objective concerning the maintenance of visual landscape quality to every forest management unit (FMU), will seek to mitigate the visual impacts of forestry operations, rather than eliminating logging altogether.



Objective 7

Maintaining the Visual Quality of Forest Landscapes

THE PROBLEM SITUATION

Visual landscape quality¹⁸ is one of the principal concerns of the general public and forest users. In some cases, landscapes are tourist attractions in their own right; an example would be the Jacques-Cartier Valley. Mostly, however, they provide an aesthetic framing that enhances the quality of forest-based activities such as salmon fishing, for example.

The *Regulation respecting standards of forest management for forests in the domain of the State* (RSFM) sets out the conditions applicable in certain areas (preservation of a visual frame for vacation sites, public beaches, scenic routes, etc.). However, its provisions do not always result in landscapes that are acceptable to the general public and forest users, because it 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.

Forest management activities can have the following impacts:

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

Users, however, will agree to a certain level of landscape alteration, and this means that forest management work is possible even in visually sensitive areas.

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

THE DEPARTMENT'S PROPOSAL

Harvesting and recreational activities can be compatible. However, a landscape sensitivity survey method would 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.

As part of the participation process for other forest users in the preparation of GFMPs, the MRNFP proposes that sectors of major interest¹⁹ should be identified in each management unit and classified on the basis of criteria established by the Department.

When the five-year program is prepared, the MRNFP proposes that the landscapes visible from those sectors of interest should be mapped, and measures should be established according to their level of sensitivity. For example, harvesting activities could be structured differently in certain landscape zones.

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

19. A sector of interest may be a vacation zone, a lake or part of a lake, or an outfitter's reception building, where visual landscape quality is important.

QUESTIONS

18. *Do you agree that maintenance of the visual quality of forest landscapes should be a protection objective in the next GFMPs? If not, please explain why.*
19. *Does the approach taken by the Department respond to your concerns? Please explain your answer.*
20. *Do you have any comments or suggestions concerning this objective?*

FOR FURTHER INFORMATION

PÂQUET, J. and L. BÉLANGER, 1998. *Stratégie d'aménagement pour l'intégration visuelle des coupes dans le paysage*, Charlesbourg, prepared 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*, Ministère des Ressources naturelles, de la Faune et des Parcs, 15 p.

It's Your Turn

To continue the process of achieving sustainable forest development, the Ministère des Ressources naturelles, de la Faune et des Parcs (MRNFP) has proposed seven forest protection objectives for inclusion in the next general forest management plans (GFMPs). These objectives will be in addition to the legislative and regulatory measures already in force, and will require certain specific activities in the annual and five-year forest management plans.

Although the objectives proposed for the 2005-2010 GFMPs have been presented here as separate entities, they are clearly interdependent. For example, the objectives concerning the maintenance of mature and overmature forests, spatial distribution of harvesting areas and reduction of physical soil disturbances will also play a role in maintaining visual landscape quality. The Department believes the synergy resulting from the simultaneous application of these objectives in forest management plans will help achieve the desired goals, thus reducing their socio-economic impacts.

The Department is currently preparing guidelines for forest planners, managers and developers, to help them build the objectives into their forest management plans. The guidelines will be available for the preparation of the 2005-2010 GFMPs.

The Minister will also publish the results of the consultations, in line with the provisions of the Consultation Policy on Québec's Forest Management and Development Orientations.

Appendix 3 contains a response grid comprising all the questions raised in this document, to help participants prepare their opinions. The regional development boards can also use the grid as a basis for their regional consultation reports. Use of the grid is optional. The document is also available in electronic form on the website of the Ministère des Ressources naturelles, de la Faune et des Parcs at: www.mrnfp.gouv.qc.ca/forets/consultation/consultation-objectifs.jsp.

Appendix 1

Consideration of Environmental and Social Values in the Management of Québec's Forests: A Constantly Evolving Process

From the time the forest system was first introduced in 1986 until the recent review in 2001, the management of Québec's public forests changed constantly as it was adapted to respond to evolving environmental and social concerns. Its initial focus was the maintenance of species of interest to hunters and fishers. Now, however, the concept of multiple resource use must be addressed from a more general standpoint. All forest users are concerned about the quality of the forest experience, ecotourism and the protection of biological diversity. Maintaining viable ecosystems has become an essential element in ensuring the sustainability of different forest uses, including timber harvesting.

Harmonization of different forest uses requires greater participation on the part of the various stakeholders. Forestry in the 21st century must therefore be approached from the standpoint of integrated resource management and sustainable development. The inclusion of protection and development objectives in the general forest management plans is a step towards this ultimate goal.

PROTECTING THE ENVIRONMENT AND LISTENING TO THE PEOPLE

• The Forest Act

The adoption of the *Forest Act* in 1986 marked the beginning of a major process of change in the management, development and protection of Québec's forests, including:

- The obligation to comply at all times with the allowable annual cut²⁰;
- The obligation to restore to production all sites

logged or used for forestry purposes;

- The obligation to respect the integrity, preserve and allow for the multiple use of forest ecosystems and their resources;
- The introduction of a new timber allocation method for forests in the domain of the State, known as the timber supply and forest management agreement (TSFMA).

The Québec government has also introduced a series of tools to protect all forest resources and harmonize their use. These tools include:

• The Public Land Use Plan (PLUP)

The PLUP is a government instrument created pursuant to the *Act respecting the lands in the domain of the State*. It presents the government's intentions for the development and protection of land and resources, which are then used as a guide for operations carried out on public land. As far as forest management is concerned, the PLUP states where timber harvesting is prohibited, where it is permitted on certain conditions or in harmony with other forest uses, and where it is a priority.

• The Regulation respecting standards of forest management for forests in the domain of the State (RSFM)

The *Regulation respecting standards of forest management for forests in the domain of the State* governs all forest management activities. It contains provisions concerning the protection of aquatic habitats, wildlife habitats, advance regeneration and visual landscape quality.

A review of the Regulation's efficacy was undertaken in 1995. Some of its measures have

20. Allowable annual cut: the maximum volume of timber, by species or group of species, that can be harvested every year, in perpetuity, in a given forest management unit without reducing the productive capacity of the forest.

since been improved, including those governing the protection of lakes and watercourses, and those concerning the size and distribution of harvesting areas. Other measures should also be strengthened in the period preceding the application of the next general forest management plans (2005), including those concerning the protection of riparian environments, soils and recreational uses.

• **The Forest Protection Strategy (FPS)**

The *Forest Protection Strategy*, adopted in 1994 following extensive public consultations, is designed to ensure respect for the biophysical components of the forests, maintenance of forest yields, sustainability of socio-economic activities, development of multiple forest use and elimination of chemical pesticides from the forest environment. The FPS advocates preventive silviculture to protect the forests against insect infestations, diseases and competing vegetation.

The FPS has engendered a number of concrete measures, such as the obligation to replace traditional clear cutting by cutting with protection of regeneration and soils (CPRS), a reduction in the maximum size of single-block cutting areas and the elimination of chemical phytocides from the forests by 2001.

• **Government and Department Commitments to Sustainable Forest Management (SFM)**

The 1990s marked a turning point in global awareness of environmental issues. The Earth Summit, held in Rio de Janeiro in 1992, and its ensuing actions, were the first-ever international commitments to sustainable development.

It was within this context that the *Forest Act* was amended in 1996 to stipulate that the forests constitute a collective heritage and the Minister must promote their sustainable development. Six criteria were introduced into the Act, four of them addressing environmental considerations:

- The preservation of biological diversity;
- The maintenance and improvement of the condition and productivity of forest ecosystems;
- The conservation of soil and water resources;

- The maintenance of the function of forest ecosystems as a component of global ecological cycles.

The other two criteria address the social and economic aspects of sustainable development:

- The maintenance of the multiple socio-economic benefits society derives from forests;
- The giving of proper consideration, in selecting forms of development, to the values and needs expressed by the populations concerned.

The Québec government has made certain commitments in respect of some of these criteria. For example, with regard to biodiversity, it has adhered by the Convention on Biological Diversity (1992) and has drawn up an implementation strategy. The Ministère des Ressources naturelles, de la Faune et des Parcs (MRNFP), for its part, has prepared a review of forest biodiversity in Québec and is currently studying the impacts of forest management practices on biodiversity. At the same time, it is attempting to devise better strategies to ensure that post-harvesting forest ecosystems are able to meet the needs of wildlife and plant populations, and that the impacts of forest activities are socially acceptable.

The Department is also developing a series of sustainable forest management indicators, which it will use periodically to see how far the forest system's goals have been achieved and whether the criteria for sustainable forest development have been upheld.

In addition, the Department is playing an active role in the preparation and implementation of a network of protected areas in Québec. It has also been involved since 1994 in identifying, surveying and protecting exceptional forest ecosystems, and has signed an agreement with the other government departments concerned to protect threatened and vulnerable species in the forests. Lastly, it is working on a plan of action designed to help Québec to attain the objectives of the Kyoto Protocol (1997) and to comply with the United Nations Framework Convention on Climate Change (1992).

With regard to forest management, Québec already has a number of measures, such as the

Regulation respecting standards of forest management for forests in the domain of the State and the *Forest Protection Strategy*, to help it achieve sustainable forest development. Although these measures are conducive to integrated resource management, the protection of wildlife habitats, water quality and multiple forest use, the Department is aware that they will not necessarily guarantee sustainable forest development throughout its territory.

These actions, although significant, still need to be strengthened. The forest system review, begun in 1998, is part of that process.

• The Forest System Review

The concept of sustainable forest development has brought with it a number of challenges for forestry companies. These challenges, many of them new, have meant that **social and environmental concerns** must be more considered in the planning process, as well as economic concerns. The Department therefore based its review of the forest system on three major principles:

- Forest management should be carried out for and by the people.
- Forest management should be respectful of the environment.
- Forest development should contribute to the economic prosperity of Québec, its regions and its municipalities.

Some of the new measures in the revised forest system, which will come into force over the next few years, will result in better protection for the environment and increased public participation in the forest management process. For example, it is now possible under the *Forest Act* to grant legal protection to exceptional forest ecosystems. The Minister of Natural Resources, Wildlife and Parks has also established a northern limit for commercial timber allocations, and will ensure that silvicultural practices tailored to the needs of northern forest ecosystems are developed. Lastly, the MRNFP has adopted a Consultation Policy for Québec's Forest Management and Development Orientations.

Many forest resources are important to society because of their potential contribution to regional and community development. Accordingly, the *Forest Act* contains a number of provisions designed to harmonize forest management with other activities such as maple production, farming (blueberries, etc.), the harvesting of shrubs and half-shrubs for economic purposes and other types of management work. In all cases, provisions exist to protect the forest environment and its resources, and to reconcile the activities of permit holders in the same forest area.

Québec's forest ecosystems are highly complex and differ significantly from region to region. Consequently, the measures proposed in the new forest system, including those intended to maintain biodiversity, must be adjusted to suit the ecological features of each area. Management strategies and techniques must reflect this diversity while meeting public expectations. A new legislative measure allowing the Minister to set protection or development objectives for each forest management unit will help in meeting the new challenges and adapting to local needs.

PROTECTION AND DEVELOPMENT OBJECTIVES FOR EVERY UNIT

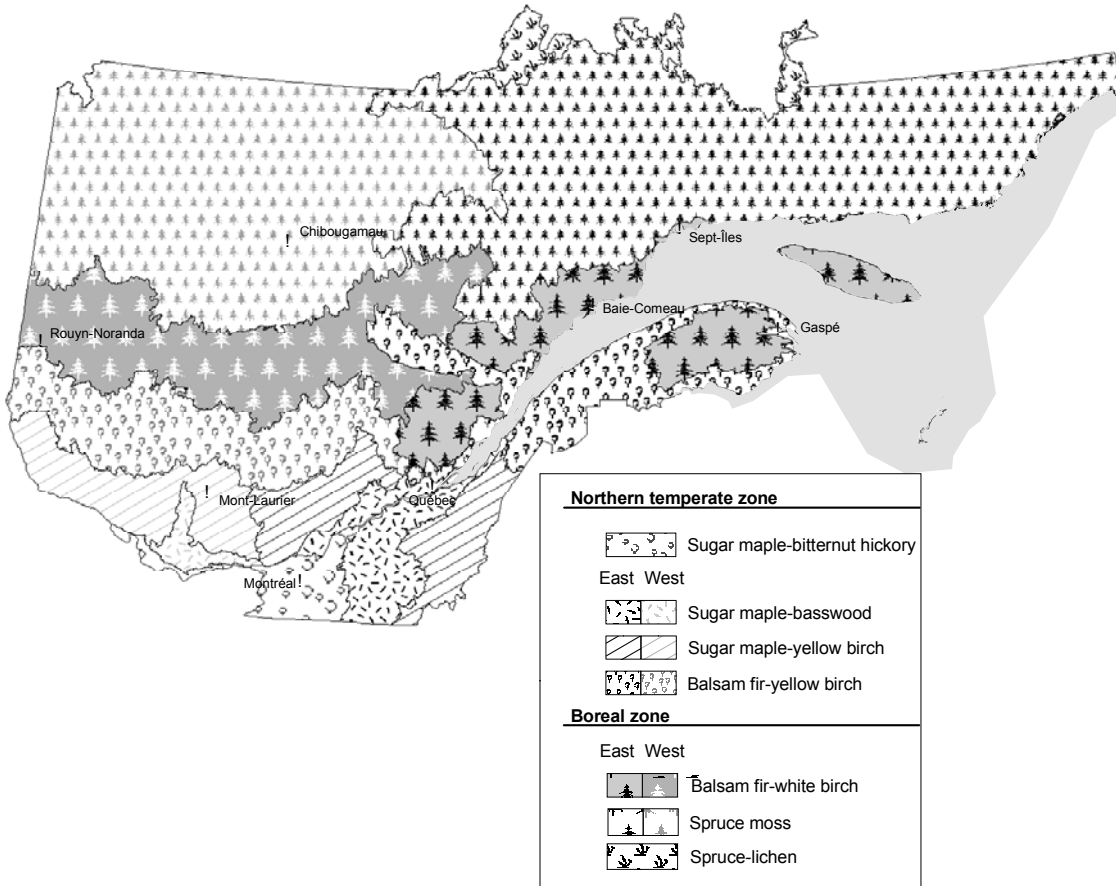
The *Forest Act* was amended in 2001 precisely to enable the Minister to **fix special objectives for each forest management unit (FMU)** (Figure 1) and require agreement and contract holders to consider those objectives when preparing their general forest management plans (GFMPs). This new measure is in addition to the traditional regulatory framework, and offers forest managers an opportunity to implement a range of actions aimed at solving local problems.

To achieve the Minister's objectives, agreement and contract holders may, if they so wish, propose measures that differ from those prescribed by law or by regulation. These alternative measures must, however, be equivalent or superior to existing forest resource protection measures or the ones covering particular resources. They must also take local considerations and the needs of certain groups into account, and they must be authorized by the Minister, in consultation with the other ministers concerned, before being included in the GFMP.

The MRNFP will have a series of incentives and coercive mechanisms to help ensure that the Minister's objectives are attained. It will supervise the preparation of the general forest management plans, which will then be submitted to the parties involved in the participatory process and the consultations stipulated in the Act. The Minister will also consider the forest management, environmental and industrial performance of agreement and contract holders in his five-yearly review of timber allocations.

Appendix 2

Bioclimatic Subdomain Divisions



Appendix 3

Response Grid

This grid is designed to help individuals and organizations taking part in the consultations to prepare their comments and suggestions. The regional development boards may also use it as a basis for their regional consultation reports. Use of the grid is entirely optional.

The grid is also available in electronic form on the website of the Ministère des Ressources naturelles, de la Faune et des parcs, at: www.mrnfp.gouv.qc.ca/forets/consultation/consultation-objectifs.jsp.

Brief or Consultation Report

Name of individual, community, organization or regional development board:

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Date: _____

Objective 1 – Reducing Rutting

In the next two years, based on previous results for this indicator, the MRNFP will set realistic 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 harvesting sites in a given year are classified in the “little or no disturbance” category, and that none are classified in the “severe disturbance” category.

1. *Do you agree that the reduction of rutting should be retained as a protection objective in the next GFMPs? If not, please explain why.*

2. *Do you approve of the target set by the Department? If not, please explain why.*

3. *Do you have any comments or suggestions concerning this objective?*

Objective 2 - Minimizing Losses of Productive area

It is impossible, in the short term, to set a single, standard productive area loss threshold for Québec as a whole. The results of this indicator will first need to be examined. Thresholds will then be set in the medium term, based on the physical features of each territory. In the next two years, the MRNFP will establish improvement targets for individual management units. It will require forestry companies to prepare continuous improvement plans, which will form an integral part of their GFMPs.

4. *Do you agree that minimizing losses of productive area should be retained as an objective in the next GFMPs? If not, please explain why.*

5. *Do you have any comments or suggestions concerning this objective?*

Objective 3 – Protecting Aquatic Habitats by Avoiding Sediment Inputs

- Erosion in the managed forests should be limited to exceptional circumstances only, thus reducing the impacts of sediment inputs for aquatic habitats. The road network severe erosion indicator will be used as a management mechanism alongside existing regulations (RSFM). The MRNFP will require forestry companies to prepare a continuous improvement plan as an integral part of their GFMPs. In the next two years, the MRNFP will establish local improvement targets for individual forest management units, based on past performance.
- In view of the vulnerable status of the Atlantic salmon, the MRNFP proposes to maintain deforested areas (due to harvesting, fire, infestations and windfall) at or below 50% of the total area of every Atlantic salmon river drainage basin of 100 km² or over. This will ensure that the risk of aquatic habitat disturbance due to peak flow increases always remains at a very low level.

6. *Do you agree that the Department's proposal to protect aquatic habitats by avoiding sediment inputs should be retained as a protection objective in the next GFMPs? If not, please explain why.*

7. *Do you agree with the approach taken by the Department (severe cases of erosion and limits on the size of deforested areas in all Atlantic salmon river watersheds)? If not, please explain why.*

8. *Do you have any comments or suggestions concerning this objective?*

Objective 4 – Permanently Maintaining a Quantity of Mature and Overmature Forests, Based on Regional Ecology

For the 2005-2010 GFMPs, the Department proposes the following measures:

- Implementation of **biological refuges** over 2% of the productive forest area in each management unit;
- Based on the MRNFP's current profile of mature and overmature forests in each FMU, application of different scenarios for extended rotation patches, taking acceptable impact levels into account. The MRNFP proposes a first step towards the target of 10% of extended rotation patches, as follows:

- **3 % of extended rotation patches** in 27 FMUs (36 %) in 2005-2010;
- **5 % of extended rotation patches** in 17 FMUs (23 %) in 2005-2010;
- **8 % of extended rotation patches** in 6 FMUs (8 %) in 2005-2010;
- **10 % of extended rotation patches** in 24 FMUs (32 %) upon adoption of the 2005-2010 GFMPs;

- Attainment of at least one-third of the target for **adapted silvicultural practices**. This will enable the stakeholders to familiarize themselves with the practices and incorporate new old-growth features maintenance treatments as they are recognized by the Department.

9. *Do you agree that the preservation of a certain quantity of mature and overmature forests, established on the basis of regional ecology, should be a protection objective in the new GFMPs? If not, please explain why.*

10. *Do you think the Department's approach (refuges, extended rotation patches, adapted practices) is sufficient to respond to ecological concerns about mature and overmature forests? If not, please explain why.*

11. *Do you agree with the four implementation scenarios for extended rotation patches?*

12. Do you have any comments or suggestions concerning this objective?

Objective 5 – Developing and Applying Spatial Distribution Patterns for Harvesting Based on Regional Ecology and Socially Acceptable

The Spruce-moss Domain

The MRNFP proposes, in the spruce-moss forest:

- That at least one closed large mature forest of 100 km² should be preserved in every forest management unit (FMU) in the territory covered by the 2005-2010 GFMPs;
- That these closed large mature forests should be situated between areas harvested in the preceding five-year period and those to be harvested in the following five-year period.

The Hardwood, Mixed and Fir Forest Domains

In these regions, the MRNFP is unable to propose specific regional objectives for the spatial distribution of harvesting areas until further research has been done. In the meantime, the RSFM will apply, since mosaic cutting is a form of dispersal that is sufficiently flexible to reproduce landscapes similar to those found naturally in the areas in question.

13. Do you agree that the development and protection of socially acceptable spatial distribution patterns for harvesting, adapted to regional ecology, should be a protection objective in the next GFMPs? If not, please explain why.

14. Do you believe the preventive approach proposed for spruce-moss forests would respond to current concerns? If not, please explain why.

15. Do you have any comments or suggestions concerning this objective?

Objective 6 – Protecting the Habitats of Threatened and Vulnerable Species

- For plant and wildlife species requiring small-scale protective measures (turtles, salamanders, small mammals, raptor nests, etc.), the MRNFP proposes that agreement holders should apply habitat protection measures for the species shown on the authenticated location lists drawn up every year for each region and entered on regional land use 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 MRNFP proposes that the habitats of populations whose existence is known when the GFMPs are approved should be protected by means of a special management plan reviewed once every five years.

16. Do you agree that protection of the habitats of threatened or vulnerable forest species should be an objective in the next GFMPs? If not, please explain why.

17. Do you have any comments or suggestions concerning this objective?

Objective 7 – Maintaining the Visual Quality of Forest Landscapes

As part of the participation process for other forest users in the preparation of GFMPs, the MRNFP proposes that sectors of major interest should be identified in each management unit and classified on the basis of criteria established by the Department.

When the five-year program is prepared, the MRNFP proposes that the landscapes visible from those sectors of interest should be mapped, and measures should be established according to their level of sensitivity. For example, logging activities could be structured differently in certain landscape zones.

18. Do you agree that maintenance of the visual quality of forest landscapes should be a protection objective in the next GFMPs? If not, please explain why.

19. Does the approach taken by the Department respond to your concerns? Please explain your answer.

20. Do you have any comments or suggestions concerning this objective?

Other Comments and Suggestions

21. Can you suggest any other sustainable forest development objectives that the Department should treat as priorities? Explain why you think these objectives are important.

22. Do you have any special concerns or needs that the Minister of Natural Resources, Wildlife and Parks should be aware of before setting the protection and development objectives?

