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# Staff Review of the Jaakko Pöyry Report

New Brunswick Crown Forests:  
Assessment of Stewardship and Management

January 2004

New  Nouveau  
**Brunswick**  
C A N A D A

**NATURAL RESOURCES**



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# Executive Summary

In 2001, the New Brunswick Forest Products Association raised concerns with the Department of Natural Resources and Energy about the declining wood supply and several elements of the forest management system for Crown land in New Brunswick. As a result, Jaakko Pöyry Management Consulting was commissioned to benchmark the management of New Brunswick Crown forests with other jurisdictions and to identify potential areas for improvement.

In April 2003, an internal process was initiated within the Department of Natural Resources (DNR) to evaluate the findings of the Jaakko Pöyry report. A Review Committee composed of representatives from various DNR sectors was established. In response to the Jaakko recommendations, their goals were to identify:

- (a) pertinent facts;*
- (b) obvious gaps or conflicts in knowledge;*
- (c) work that should be undertaken to investigate issues further; and*
- (d) any clear recommendations that could be endorsed immediately.*

The Jaakko Pöyry report cites six recommendations to enhance the New Brunswick forest management system and proposes a scenario of intensive forest management to double the wood supply. The six recommendations pertain to:

- (1) establishing a wood supply objective;*
- (2) overlap in administration between the Department and industry;*
- (3) increased harvesting in special management areas;*
- (4) public participation;*
- (5) conservation on private lands; and*
- (6) research and development.*

Jaakko Pöyry's "doubling" scenario predicts that the current spruce-fir-jack pine annual allowable cut (AAC) could double (106%) 60 years from now. However, as a future AAC increase is already anticipated, the actual net increase realized would be only 2.3 million m<sup>3</sup>/yr, representing a 51% increase over the AAC currently expected in 60 years.

Sustainable management of the natural resources in the best interest of the citizens of the Province is a mandate that the DNR staff take very seriously. Ten workshops were held across the Province, soliciting input from staff; 175 people participated. In addition, over 70 submissions were forwarded to the Committee. The many people who contributed to the internal review are foresters, biologist, geologist, planners, forest rangers and administrative personnel. This report analyzes the issues raised, but more importantly reflects the Committee's desire to see the Department's mandate fulfilled to staff's best abilities. The overriding objective was to create a product that would focus attention upon the key elements within the Jaakko Pöyry report, draw out the opportunities of merit, and make positive recommendations for change to the forest management system of the Province of New Brunswick.

The Jaakko Pöyry report raised important issues for consideration. Based upon their deliberations the Committee makes 31 recommendations, listed below. Seven require no new action, but are recommended positions for the Department to assume. The Committee believes 20 of the recommendations should be implemented immediately, with the remaining four likely requiring a longer timeframe to initiate and implement.

The DNR Committee concludes that it is imperative to maintain an adaptive and flexible management approach, which can accommodate changes in forest and societal values. The New Brunswick forest management approach would be restricted if a binding, long-term timber objective was adopted. At the same time, they believe there is merit in developing a timber supply objective. This objective must be broad in its scope, going beyond spruce-fir-jack pine to include other commercial species. Alternative options must be analyzed to effectively develop appropriate species- and product-specific objectives. As well, value-added products must be given priority. Research and development in the field of forest management, particularly applied management, is important for New Brunswick. Avenues must be pursued to better position the Province for future decision making.

DNR involvement in the forest management system is essential and cannot be wholly replaced by certification. DNR should undertake an analysis of the certification system to determine how it may be used to complement DNR's auditing responsibilities. Further, the roles and responsibilities of DNR and industry need to be examined to identify opportunities for efficiencies.

Natural resource management requires consideration and balancing of economic, ecological and social factors, striking a balance among them to satisfy the citizens of New Brunswick. This requires meaningful public consultation to determine what kind of forest and forest industry the people of New Brunswick want. The lands now under special management must be periodically reviewed to ensure they are achieving their desired effects, and modified in accordance with scientific knowledge and societal interests. Conservation on private lands should be encouraged and promoted, but should not be considered as a replacement for existing commitments on Crown lands.

In response to the "doubling" scenario, the Committee concludes that prior to committing to additional silviculture treatment, DNR must conduct further analysis to inform the decision making. Determining the desired future of our Provincial forests is a complex matter; the significance and importance of these decisions should not be underestimated. While this work may take upwards of two years to complete it, options are not foreclosed by this delay. The eventual decision may then be based on a more comprehensive analysis.

## Summary of DNR Internal Committee Recommendations

The Committee recommends that:

- 1) DNR conduct a strategic analysis of future Crown wood supply and develop a process to establish quantifiable, species- and product- specific wood supply objectives. (p. 14)
- 2) DNR establish forest level objectives (timber and non-timber) that remain binding for five-year periods. (p. 14)
- 3) Government delay its decision on the "doubling" option until action is taken on the following four recommendations. (p. 24)
- 4) DNR look at the feasibility of intensified management options based on different long-term harvest objectives, with consideration for the concerns raised by various public input. (p. 24)
- 5) Government enhance development of the value-added wood products through mechanisms such as DNR placing greater priority on the allocation of wood volume on this basis, and continued focus in this area by Business New Brunswick. (p. 24)
- 6) DNR improve its level of knowledge through research regarding the impacts of increased plantation area and harvest levels. (p. 24)



- 7) DNR initiate a review of the maintenance of populations of all species, even if intensified management is not considered an option. (p. 14)
- 8) DNR review the possibility of sharing responsibility for silviculture funding with industry and develop options for different funding formulas. (p. 14)
- 9) DNR undertake a detailed analysis of its forest management, to determine what functions currently carried out by DNR could be added to an enhanced certification system. (p. 32)
- 10) DNR reject the self-inspection system used in Ontario as a possible model to implement in New Brunswick. (p. 32)
- 11) DNR review and revise its forest planning procedures and related documents with the intent of improving clarity and understanding to ensure more standardized implementation by licensees and improved performance monitoring. (p. 33)
- 12) DNR consider providing incentives to Licensees for good management. (p. 33)
- 13) DNR analyze forestry and environmental violations in order to direct its monitoring to areas of greatest risk. (p. 33)
- 14) DNR review and revise the penalty schedule and its application. (p. 33)
- 15) DNR introduce a systematic sampling scheme for harvest monitoring. (p. 33)
- 16) DNR develop an electronic block management system for use with the Violation and Electronic Scale systems. (p. 33)
- 17) DNR continue periodic review of guidelines for non-timber objectives and watercourse buffers, adjusting them to incorporate new scientific knowledge and address social concerns. (p. 38)
- 18) DNR periodically conduct Special Management Area (SMA) Workshops, involving key people from Headquarters, the Regions and industry, to clarify objectives, standards and performance criteria for SMA, and to foster effective communication between DNR and Licensees. (p. 38)
- 19) DNR ensure the first right of refusal to harvest the AAC from a SMA goes to the Licensee. However, if that Licensee declines, then the AAC from that SMA should be offered to another Licensee. (p. 38)
- 20) DNR re-evaluate the DWA land base to determine if increased levels of timber harvesting could occur, while still maintaining short- and long-term deer population expectations. (p. 38)
- 21) DNR expand its program of educating and informing the public about New Brunswick forestry, including the periodic publication of a report on the state of New Brunswick forests. (p. 42)
- 22) DNR adhere to the principles for public consultation established in the *Vision* document. (p. 42)
- 23) DNR develop a process whereby the public can be engaged in future goal-setting for Crown forest management. (p. 42)
- 24) DNR draft a strategy/guidelines for engaging the public in the goal-setting process for Crown land management. (p. 42)
- 25) DNR review its current approach for consulting the public on forest management plans with a view to making it more than just "informing" the public. (p. 42)

- 26) In order not to confuse the public, the implementation of recommendations 23 and 24 should be staggered rather than undertaken at the same time. (p. 42)
- 27) DNR consider conservation activities on private and industrial lands only as a supplement to, and not a replacement for, special management areas on Crown land. (p. 45)
- 28) DNR should provide education on conservation values to private land owners and encourage establishment of SMA on private and industrial lands. (p. 45)
- 29) DNR instigate the re-activation of an NBFrac-like group to direct applied forest management research. (p. 48)
- 30) DNR work towards enhancing links between existing Research and Development groups and field agencies. (p. 48)
- 31) DNR reactivate its Senior Forestry Committee to provide direction for whatever portions of this work are deemed a priority, as well as other forest management work the Department is directed to conduct in response to the Select Committee's recommendations. (p. 49)

# 1.0 Introduction

## 1.1 The Jaakko Pöyry Report

In correspondence to then Minister of Natural Resources and Energy, Jeannot Volpé, dated September 14, 2001, the New Brunswick Forest Products Association (NBFPA) raised concerns about the declining wood supply and issues related to several elements of the forest management system currently in place for Crown land in New Brunswick. Following further discussion of these concerns, the Department of Natural Resources (DNR) and the NBFPA agreed to contract for a study to examine the issues raised.

As a result, Jaakko Pöyry Management Consulting (Jaakko Pöyry), an internationally recognized Finnish forestry consulting company, was hired to benchmark the management of New Brunswick Crown forests to other regions in North America and the Nordic countries. The company was also asked to identify potential areas for improvement in the forest management system employed in New Brunswick and to respond to the four questions raised by the Minister.

- 1. Can long-term wood supply for industrial purposes be increased within the current objectives for Crown land usage in New Brunswick? If so, how?*
- 2. Are the current objectives for habitat protection, wildlife, water protection and biodiversity appropriate? Are methods by which these objectives are being achieved appropriate?*
- 3. How do the objectives for New Brunswick's Crown lands compare with other jurisdictions? Do other jurisdictions have specific objectives for wood supply for industrial purposes? Are licensees in New Brunswick at an advantage or disadvantage with respect to wood supply?*
- 4. Should DNRE change its current objectives, policies and procedures?*

Jaakko Pöyry submitted their findings in November, 2002, in a document entitled *New Brunswick Crown Forests: Assessment of Stewardship and Management*<sup>1</sup>. On July 23, 2003, twelve Members of the Legislative Assembly were appointed to the Select Committee on Wood Supply. In November and December of 2003, the Select Committee held thirteen public hearings in seven locations across the Province.

## 1.2 Internal DNR Process

The Department wished to provide an opportunity for its employees to comment upon the Jaakko Pöyry report. To this end, an internal process was initiated early in 2003, which included staff consultation and the formation of an Internal Review Committee. The Committee was asked to review the issues raised by the Jaakko Pöyry report and staff workshops, to consider possible implications and options for response, and to make recommendations which would subsequently be presented as advice to the Minister.

Phase I of the DNR process began in June 2003, with 175 staff attending ten Information/Input Forums held across the Province. Each workshop began with an overview of the current Crown land management system, highlights of the rationale behind the Jaakko Pöyry study, and its conclusions. This was followed by a discussion period, allowing staff to ask questions and express their concerns, personal opinions and thoughts related to the future of Crown land management in the context of the Jaakko Pöyry study and its recommendations.

Considerable input was received from staff and while opinions expressed varied from individual to individual, and subject to subject, the following three main themes emerged from the issues raised.

- *There are many questions related to the future condition of the forest which need to be addressed prior to Government making a significant investment in more intensive silviculture on Crown land. This included information that would be gleaned from meaningful consultation with the citizens of the New Brunswick.*
- *DNR staff plays a crucial role in monitoring forestry activities on the ground; this function cannot be fully replaced by the adoption of forest certification systems.*
- *It was difficult to substantiate many claims made in the report with the information provided.*

In addition to feedback received at the ten workshops, 16 written submissions were received from DNR staff. As well, DNR, in collaboration with Service New Brunswick, established an electronic 'Discussion Forum' for staff, which allowed posting and viewing of individual's comments related to seven subject areas from the Jaakko Pöyry report; 55 entries were received. The information gathered from staff through this consultative process was used to build the foundation of this report.

Phase II of the process began in mid-July 2003 with the establishment of the Internal Review Committee comprised of 11 representatives from various branches and the four regions of the Department (Appendix A). The Committee operated under two assumptions: (i) that their reflections would be within the context of the current forest management system, and (ii) that the land base available for forestry remains subject to pressures from other users (recreation, utility corridors, conservation, and other land use developments). In addition, in order to gain greater depth of understanding of the issues, the Committee explored other pertinent elements. Due to the limited timeframe and the comprehensive scope of the task, it was not feasible for the Committee to research all issues or to evaluate all possible implications and options. The Committee's intent, therefore, was to facilitate progress by identifying: (a) pertinent facts; (b) obvious gaps or conflicts in knowledge; (c) work that should be undertaken to address specific issues; and, (d) clear recommendations that could be endorsed immediately. The overall goal was to create a product that would focus attention upon the key elements and make recommendations for positive change to the New Brunswick forest management system. The process was very challenging, given the complexity and breadth of the issues.

The Committee formed seven sub-groups to address each recommendation and the proposed doubling scenario from the Jaakko Pöyry report. The full Committee held 18 days of meetings from July 2003 to January 2004. Sub-groups met frequently between Committee meetings to discuss their assigned subjects in greater detail. Individuals from each sub-group assumed responsibility for researching, analyzing and writing segments of the report.

The Committee felt that certain factual background material pertaining to forest management in New Brunswick was required to minimize misconceptions and to provide an accurate understanding among the readership of this report. The text that follows reflects staff's commitment to the Department's mandate, *to manage the natural resources of the Province in the best interest of its people.*

# 2.0 Background

## 2.1 New Brunswick Land Base

For the purpose of this report, there are four general categories of land ownership in New Brunswick: Crown land, industrial freehold, private land, and federal land. *Crown land* is defined as all or part of the lands that are vested in the Crown and are under the administration and control of the Minister of Natural Resources, including water upon or under the surface of such lands. This represents approximately 3,399,200 hectares or 47% of the Province’s land mass. *Industrial freehold* is land held by individuals or companies with a wood processing facility. Such companies currently own approximately 1,190,000 hectares (16.5%). *Private land* is land held by individual owners without a wood processing facility. In 2003, individuals owned approximately 2,452,600 hectares (34%) within the Province. *Federal land* includes the 15 Native Reserves, the two Federal Parks (Kouchibouguac and Fundy National Parks), the Acadia Research Forest and Canadian Forces Base Gagetown; these lands comprise approximately 175,400 hectares or 2.5% of the land base.

More pertinent to this report is the amount of *productive forest land* in New Brunswick, which is land capable of producing a merchantable stand within a defined period of time. There are over 6 million hectares of productive forest land in New Brunswick accounting for 84% of the provincial landmass. The distribution by ownership is shown in Figure 1. There are approximately 40,000 woodlot owners in the Province.

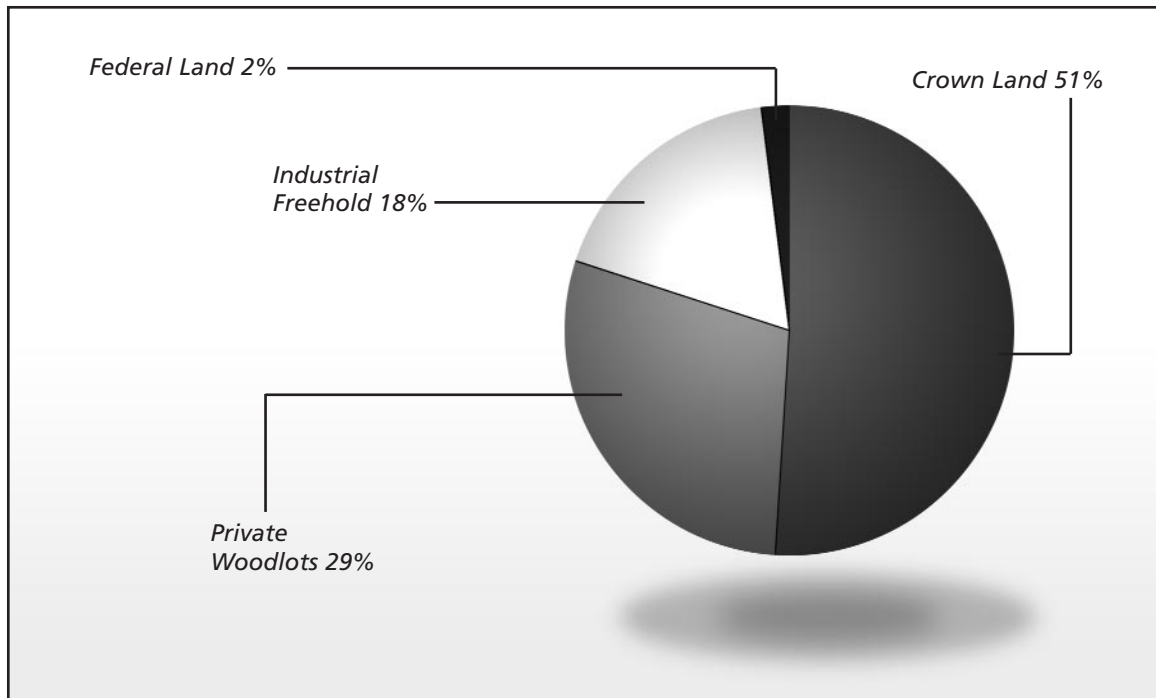


Figure 1. Distribution of productive forest lands in New Brunswick, by ownership.

## 2.2 Forest Management System

The mission of the New Brunswick Department of Natural Resources is *to manage the natural resources of the Province in the best interest of its people*. To achieve this, the Department retains a staff of approximately 800 people, with 44% employed in 11 central branches in Fredericton and 56% employed across a network of four regional offices, which are further divided into 26 district offices. In 2002, a Strategic Plan<sup>2</sup> was developed describing the Department's eight core business areas, one of which is "Sustainable Forest Management".

In 1982, the New Brunswick government implemented *the Crown Lands and Forests Act*<sup>3</sup> (CLFA) enabling the Minister of Natural Resources to enter into Forest Management Agreements<sup>4</sup> (FMA) with timber companies that own and operate wood processing facilities in the Province. Crown land was divided into ten license areas, and the companies that were assigned management responsibility for these areas became Crown Timber Licensees (*Licensees*). In addition, smaller companies (mostly sawmills) could operate on these same areas as sub-Licensees.

Currently, six forest companies manage the ten licenses, and approximately 80 smaller companies operate as sub-Licensees. The Licensees and areas under each Crown Timber License, as reported in the 2002 Forest Management Plans<sup>5</sup>, are shown in Table 1. Crown lands that are leased or set aside for uses incompatible with forestry, such as parks, are not under Crown Timber License.

**Table 1. Areas under Crown Timber License.**

<b>License #</b>	<b>Licensee</b>	<b>Area (ha) *</b>
1	<i>Bowater Maritimes Inc.</i>	427 580
2	<i>UPM-Kymmene Miramichi Inc.</i>	259 369
3	<i>UPM-Kymmene Miramichi Inc.</i>	316 354
4	<i>UPM-Kymmene Miramichi Inc.</i>	384 049
5	<i>Weyerhaeuser Company Limited</i>	71 590
6	<i>J. D. Irving, Limited</i>	631 351
7	<i>Irving Pulp &amp; Paper, Limited</i>	428 784
8	<i>St. Anne Nackawic Pulp Company Ltd.</i>	252 027
9	<i>Fraser Papers Nexfor (Carleton)</i>	133 245
10	<i>Fraser Papers Nexfor</i>	402 200
<b>Total area</b>		<b>3 306 549</b>

\* as recorded in the 2002 Forest Management plans

Under the *CLFA*, the Minister is responsible for setting forest management goals, objectives and standards, whereas the Licensees are responsible for developing and implementing Forest Management Plans that meet these goals, objectives and standards. The goals and objectives pertaining to timber and non-timber (e.g., wildlife habitat, water, recreation) values are compiled in *A Vision for New Brunswick Forests: Goals and Objectives for Crown Land Management*<sup>6</sup> (referred to herein as the *Vision* document) which DNR updates every five years. The standards, criteria, and procedures established for forest management on Crown land are contained in the *Forest Management Manual*<sup>7</sup> (FMM), which is amended as needed by mutual consent of the Minister of Natural Resources and the Licensees.

Under this management scheme, the roles and responsibilities of the Department and the Licensees, in simplified terms, are as follows:

- **Forest Management Agreements (FMA):** *These contractual agreements between the Minister and the Licensees specify the terms and conditions of forest management on Crown lands, and outline the responsibilities of both parties. The term of the FMA is 25 years. As noted below, the performance of the licensees is reviewed every five years. If the Licensee is performing in accordance with set indicators, the term of the agreement is extended for an additional five years.*
- **Forest Management Plans:** *Every five years, Licensees must prepare Forest Management Plans which comply with the latest version of the Vision document and the FMM. These plans are based on forecasts over an 80-year horizon, with the first twenty-five years of operations being spatially referenced. These plans are reviewed and approved by DNR.*
- **Harvest Allocations:** *From the projections of long-term sustainable wood supply made in the management plans, every five years DNR assigns allocations of annual allowable cut (AAC) to each of the Crown Licensees and sub-Licensees.*
- **Operating Plan:** *Licensees prepare operating plans annually, outlining their upcoming activities for the year. Specific spatially-referenced blocks from the forest management plans are identified and the harvest or treatment prescription is defined for each block. The operating plans are reviewed and approved by DNR, as are any subsequent amendments.*
- **Harvest Operations:** *The actual harvest of trees and delivery to the processing facility is carried out as per the approved operating plans. Each load of wood is moved under a Transportation Certificate, which states the source and destination of the volume harvested by the Licensee or sub-Licensee. That volume is also recorded in the DNR e-Scale System for royalty payment to the Province.*
- **Silviculture:** *DNR provides seedlings, establishes standards and treatment reimbursement rates, and pays for all silviculture on Crown land except remedial treatments. The Licensees conduct silvicultural operations, including scarifying, planting and pre-commercial thinning. DNR is responsible for the herbicide program which controls hardwood growth in plantations on Crown land.*
- **Annual Report:** *Licensees report activities undertaken on Crown land over the past year in an annual report. Information contained in that report, such as blocks harvested, areas planted or thinned and areas burned, is used to update DNR's Geographic Information System (GIS) forest inventory database.*
- **Licensee Performance Evaluation:** *DNR establishes forest management performance criteria at the beginning of each five-year period and completes a formal review of each Licensee's performance in meeting these criteria at the end of that period. The results of the evaluation are made public in the Legislature by the Minister of Natural Resources.*



Since 1980 when the CLFA was introduced, forest management has evolved from a conceptual model to implementation on the ground. New Brunswick's forest management has benefited from the continuous development and growth of the geographic information technology. As well, the Province's forest inventory is updated on a regular basis to reflect the data from new photography, forest fires, and silviculture treatments. Both DNR and Licensee staff have become more experienced and proficient with each five-year planning cycle.

While knowledge of our forest has increased, forest dynamics are complex. Factors that were little known as recently as two decades ago, are now more critical to management. Increased awareness and understanding of issues related to such things as climate change, public values, fish and wildlife habitat, water quality, and species diversity is necessary for those managing forest resources.

## 2.3 Aboriginal and Treaty Rights

An important consideration with respect to the Crown forest resource is the rights of the First Nations of New Brunswick. Courts continue to provide judgments related to Aboriginal and Treaty Rights vis-à-vis natural resources within New Brunswick. These decisions, as well as the on-going discussions between the First Nations and the governments of New Brunswick and Canada will have a bearing on the future management of Crown land in the Province.

The current harvesting agreements with the 15 First Nation communities provide them 5.3% of the provincial annual allowable cut. This is distributed among the 15 communities in proportion to their populations. Specific harvest blocks are identified on each licence to provide this wood volume. In addition, each community receives the timber royalties that would normally accrue to the provincial government from these harvest blocks. It is estimated that the annual economic benefit derived by the First Nations from the current Harvest Agreements is in the order of \$13 million. The agreements are for the purpose of economic development and are not intended to define or affect rights, nor to be construed as an interpretative aid in the determination of aboriginal or treaty rights.

## 2.4 Forest Certification

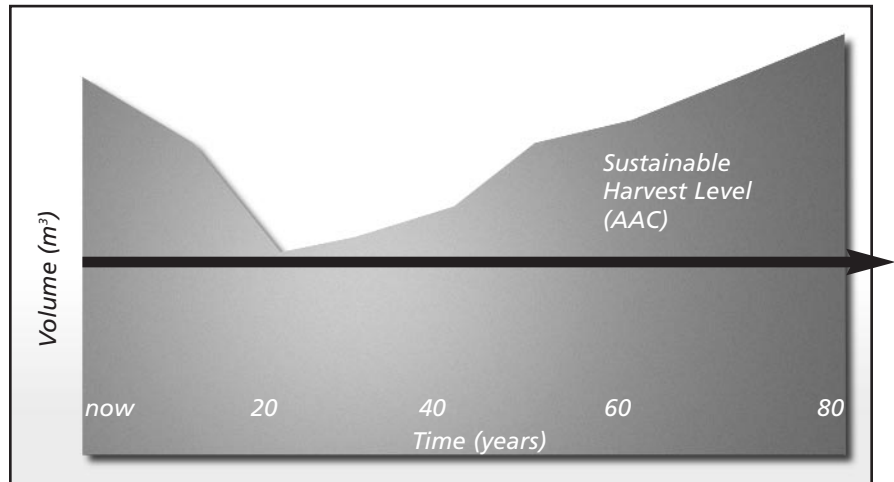
Forest certification involves the independent auditing of forest management practices for compliance with specific international standards. This provides assurance to all stakeholders that the marketed forest products are generated from sustainable and well-managed forests. The process began in the late 1980s and is now a world-wide practice. In Canada alone, the area of certified forest land totals more than 115 million hectares. DNR required all Licensees and sub-Licensees operating on Crown land to be certified under the ISO 14001 Environmental Management System by December 2002. This was accomplished by all parties. By December 2003, the Licensees and sub-Licensees were also required to be certified under at least one of the three sustainable forest management systems.

## 2.5 Current Wood Supply Situation

The main impetus behind the Jaakko Pöyry study was the concern over decreasing wood supply over the long term. Figure 2 illustrates the current total wood supply projections from Crown land. Since 1982, the AAC from Crown land has been set at a sustainable level. The low point in volume (at time 20 years) has been anticipated since the Forest Resources Study<sup>8</sup> that was conducted in the 1970s. Since then, in an effort to increase efficiency and



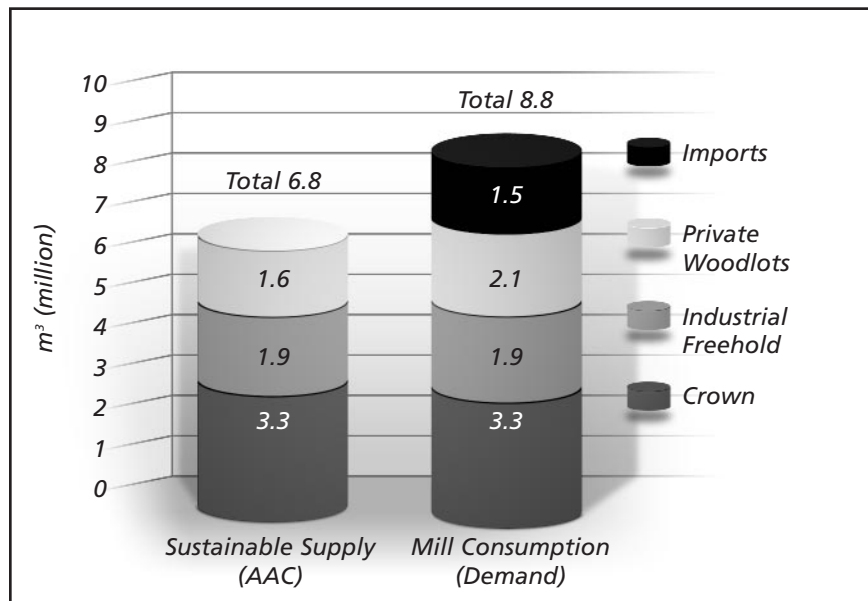
remain competitive, many NB companies have also expanded their operations, thus compounding the problem. Consequently, it is now known that the demand for wood within New Brunswick exceeds the available supply. On a more optimistic note, based on the current levels of silviculture, the available wood supply begins to gradually increase in about 20 years time, with a more significant rise about 50 years from today.



**Figure 2.**  
**Illustration of total Crown wood supply in New Brunswick.**

### 2.5.1 Softwood

When all ownerships are considered, the New Brunswick forest industry currently consumes more softwood fibre than can be sustainably harvested from New Brunswick forests under present management practices (Figure 3). Findings reported in the Timber Utilization Survey<sup>9</sup> indicate that both the Crown and industrial freehold land bases are harvested at sustainable levels. While many private woodlots are managed on a sustainable basis, the total harvest from the private woodlot land base has exceeded sustainable levels for the past several years. In addition to the domestic supply, the forest industry imports a significant volume of fibre from adjacent jurisdictions (mainly Quebec, Maine, and Nova Scotia) to help meet the demand for softwood.

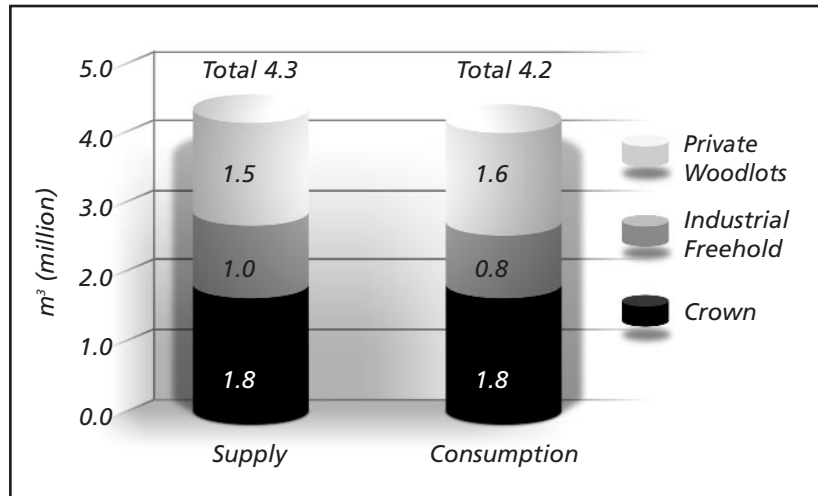


**Figure 3. Supply and demand of softwood (million m<sup>3</sup>) within New Brunswick.**

This supply/demand scenario underlies industry's desire to increase the sustainable harvest potential of Crown land in order to meet the forecast need for wood volume in the future. This is fuelled by increasing external competition for imported wood, which places the long-term status of this source of supply at risk.

### 2.5.2 Hardwood

In terms of total hardwood fibre, the industrial demand in New Brunswick<sup>9</sup> is approximately equal to the sustainable harvest level from New Brunswick forests (Figure 4). Until recently, there has been an excess of hardwood fibre within New Brunswick. This has changed dramatically in the recent years as the result of new and/or expanded production capacities at some processing facilities, and the substitution of hardwood in place of softwood in others. There continues to be a shortage of quality hardwood (sawlogs and veneer) to meet the needs of New Brunswick hardwood mills.



**Figure 4. Supply and demand of hardwood (million m³) within New Brunswick.**

## 3.0 Findings

There are six recommendations in the Jaakko Pöyry report<sup>1</sup> along with a specific scenario that involves doubling the annual allowable cut from Crown land. The Committee addressed these seven issues:

- 3.1 Setting wood supply objectives by License;*
- 3.2 Doubling the annual allowable cut;*
- 3.3 Overlap in management/supervision;*
- 3.4 Harvesting in special management areas;*
- 3.5 Public participation;*
- 3.6 Conservation values on private lands; and*
- 3.7 Research and development.*

Each issue is detailed in subsequent sections, and begins with the specific recommendation or key finding from the Jaakko Pöyry report. For each issue, the Committee developed a brief description, a synopsis of the current situation to provide context, a summary of staff input, options or possible solutions, a discussion of the options and their implications, and recommendations.

## 3.1 Setting Wood Supply Objectives by License

*“A timber supply objective should be set for each License area that would be binding on Government and on the Licensee. Timber supply objectives should be set for the range of species harvested commercially from each License. This would include a feedback loop to evaluate timber supply implication of DNRE management changes.”*

*(JP Recommendation #1, p.9)*

### 3.1.1 Issue Description

According to the Jaakko Pöyry report, the existing process for determining Crown objectives does not evaluate timber supply on the same footing as non-timber values. The current *Vision* document states that wood supply will be maximized after meeting all of the stated non-timber objectives.

Jaakko Pöyry states that industry would benefit from an explicit timber supply objective, for commercially harvested tree species and products, which would be binding in some way on government and Licensees. The implication is that the existing binding relationship (a 25-year Forest Management Agreement and a five-year guarantee of fibre) between the Minister of Natural Resources and the Licensees, is insufficient. The creation of an explicit timber supply objective(s) would allow for informed trade-off decisions to be made during development of objectives for the *Vision* document.

### 3.1.2 Context

#### 3.1.2.1 Setting Objectives

Within DNR a process exists for determining objectives for Crown land forest management. The *CLFA*<sup>3</sup>, *Clean Water Act*<sup>10</sup> and *Canada’s Forest Accord*<sup>11</sup> are the basis for the fundamental management goals for Crown land. Objectives are based in part on estimates of impact on total wood supply of various potential management strategies for timber and non-timber values. The final selection of strategies has involved making trade-off decisions between timber supply and other non-timber objectives. The selected objectives are incorporated into the *Vision*<sup>6</sup> document, which directs Crown Timber Licensees in their forest management planning. Although these management objectives are updated every five years, this process does not explicitly incorporate public or stakeholder involvement.

Currently, the timber supply objective requires Licensees to maximize sustainable timber harvest after other non-timber objectives are met. The simple objective of maximizing wood supply allows flexibility with regard to Licensee management style as well as differences in forest composition. However, the process has evolved such that non-timber objectives have been developed and considered by DNR in a much more comprehensive way than any perceived timber objective. A process to explore Crown timber supply concerns is not in place (i.e., there is no DNR program or DNR/Licensee group looking comprehensively at supply issues). Given New Brunswick’s wood supply situation, where utilization capacity is greater than sustainable supply, putting thought into what the future wood supply should look like, is justifiable. The existing process and current objectives selections (*Vision* document) for Crown forest have probably created a sense of imbalance with respect to timber and non-timber values.

Other jurisdictions have different processes to set objectives for Crown land. In Ontario and British Columbia (*British Columbia Forest Act*<sup>12</sup>; *Crown Forest Sustainability Act*<sup>13</sup>), high level, broad goals are set out in legislation and specific objectives are developed through local/regional processes. These broad goals are similar to goals laid out in New Brunswick's *Vision* document, with the emphasis on sustainability, clean environment, maintaining wildlife and biodiversity, and maximizing timber value. The types of timber objectives have ranged from total wood supply (e.g., m<sup>3</sup> of wood fibre), to specific amounts for individual products (e.g., m<sup>3</sup> of red pine poles), to a combination of similar types of objectives.

In these and other jurisdictions wood supply guarantee varies, but the majority of license agreements are for 20 to 25 years with five-year assessments and evaluation of AAC and performance.

### 3.1.2.2 Binding Commitments

In New Brunswick's current management system, AAC is guaranteed for a five-year period. The historic and current levels of guaranteed AAC for softwood and hardwood are shown in Figure 5. To guarantee wood supplies for longer than five years would affect the ability to adapt the system to future changes that cannot be predicted.

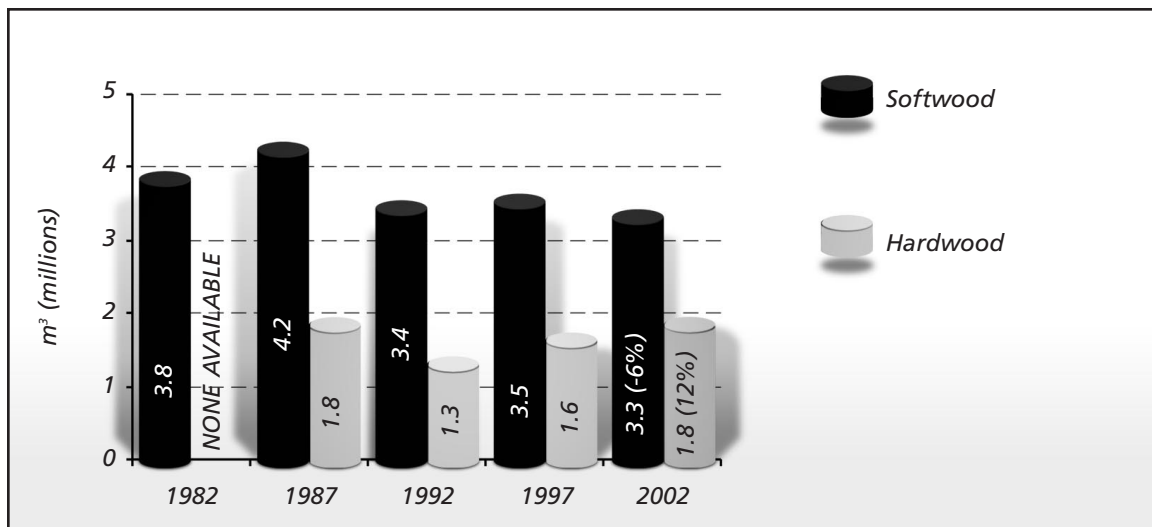


Figure 5. Levels of guaranteed softwood and hardwood AAC for Crown timber license areas, since 1982.

### 3.1.2.3 Factors That Influence AAC

The New Brunswick forest management planning process is complicated. Every component of management planning, from basic inventory updates to the blocking of harvest, has the potential to affect the ability of the land base to meet timber and non-timber objectives. During the creation of any given forest management plan the AAC will be affected by any one or a combination of the factors outlined in Table 2.

**Table 2. Factors influencing the AAC as determined from forest management plans.**

<b>Factor</b>	<b>Examples</b>	<b>DNR Control Function</b>	<b>Licensee Control Function</b>
<i>New management treatments</i>	<i>Commercial thinning</i>	<i>Limited</i>	<i>Considerable</i>
<i>Poor implementation of previous plan</i>	<i>Silviculture levels, harvest prescriptions and levels</i>	<i>Silviculture funding Herbicide Program</i>	<i>Proper planning and implementation</i>
<i>Man-made changes to the forest</i>	<i>fire, wood theft, non forestry land uses</i>	<i>Education &amp; Awareness Enforcement patrol Fire Suppression</i>	<i>Education &amp; Awareness Local presence</i>
<i>Natural changes to the forest</i>	<i>Fire, wind throw, insect &amp; disease</i>	<i>Fire suppression, pest &amp; disease monitoring</i>	<i>Mapping and salvaging wind throw/fire</i>
<i>Stratification, characterization and planning methods</i>	<i>FDS, age distribution, yield forecasts / assumptions, regeneration transitions</i>	<i>Limited</i>	<i>Limited</i>
<i>Non-timber objectives and restrictions</i>	<i>Vegetative communities PNA</i>	<i>Considerable</i>	<i>Limited</i>
<i>Blocking cost</i>	<i>Larger block sizes increase blocking costs</i>	<i>DNR sets adjacency rules</i>	<i>Logistics and costs</i>
<i>Net down cost</i>	<i>Unmapped features, site specific inoperability</i>	<i>Limited, improved forest inventory</i>	<i>Proper planning and implementation</i>
<i>Variation between Licensees</i>	<i>Poor implementation of plans; more harvest options available</i>	<i>Moderate</i>	<i>Considerable</i>
<i>Variation within DNR</i>	<i>Interpretation of guidelines and performance criteria</i>	<i>Considerable</i>	<i>Limited</i>
<i>Local area public interest groups</i>	<i>Blue Mountain, Clearwater Brook</i>	<i>Limited</i>	<i>Limited</i>

Some of these factors are not necessarily under the direct control of either DNR or Licensees. Two of these are worth noting because of the potential magnitude of the impact on timber values: (i) man-made (e.g., fires, erroneous yield predictions or new objectives); and, (ii) natural changes to the forest (e.g., wildfire, insect damage, wind throw or ice damage). Both have the potential to drastically alter the forest inventory which is at the basis of timber and non-timber projections.

One aspect of man-made change to the forest is the allocation of land for purposes other than forest management. Crown land may be transferred to other Departments, or may be leased to companies or individuals for reasons other than forest management. Crown land leases have variable impacts on the harvesting of wood in the lease area, depending on the lease type. The amount of Crown land available to timber Licenses may also increase. According to DNR's annual reports 217,500 hectares were added to the Crown land base for the period 1992 - 2001, mostly reflecting the additions of the former Georgia-Pacific land, Hearst land and Tracadie Range.

The impact of natural change to the forest is more difficult to determine. The amount of fire, as reported in the Department's annual reports, has averaged 1 086 hectares per year for the period 1992 - 2001. However, other natural impacts like climate change and insect damage are very difficult to gauge.

Given that the New Brunswick forest industry's capacity to utilize wood is greater than the sustainable supply there is a need to manage the forest to supply wood products from Crown land in a more strategic manner. Currently, supplies of certain wood products from Crown land exist only as by-products of maximizing the total annual harvest. New Brunswick is facing a serious overall wood supply situation and without strategic planning, gaining insight into current and future wood supply problems will be difficult.

### 3.1.3 Staff Input

Because wood supply plays such a prominent role in all matters related to forest management, most of DNR staff thought that timber already is the primary objective for Crown land. The following three main themes emerged surrounding the issue of setting timber objectives.

- *It is important to maintain flexibility in the allocation and use of Crown forest land to supply a range of timber and non-timber values in the face of changing public/industry pressures, market pressures and other unpredictable events such as fire or spruce budworm outbreaks. Current non-timber objectives and supply of these values will not likely remain static.*
- *Public input and participation needs to be part of the objective setting process for Crown forest land.*
- *It is important that DNR safeguard wildlife and environmental values.*

Finally, it should be noted that DNR staff felt very strongly about how Crown land is managed and recognize that it is a balancing act between competing values. They are very concerned about how that balance is determined.

### 3.1.4 Options

Two options to address this issue, and the positive and negative aspects of each, are presented below.

#### **3.1.4.1 Current Management Approach**

The first option is to maintain the currently defined timber objective which requires that the sustainable wood supply is maximized after meeting all other non-timber objectives. The AAC is then established and is binding for a five-year period. Management decisions must keep pace with dynamic changes to the forest. This practice is responsive, flexible and adaptive. The addition of any new non-timber objectives is preceded by an assessment of the impact on total timber supply. This approach does not require any changes to the current system or the allocation of additional resources to forest management planning by DNR.

On the other hand, the current system is not completely satisfactory because the positive impacts of non-timber objectives to timber supply are not evaluated, e.g., maintaining old vegetation communities increases the harvested piece size and therefore, enhances log quality. Furthermore, the existing total-volume AAC does not permit species/product-specific objectives to be set.

Without quantified timber objectives it is difficult to plan for long-term silviculture funding. The levels of required silviculture fluctuate and are only known after all forest management plans are approved. Quantified objectives would make it easier for government to justify its financial commitment to silviculture.

Currently no forest-level objectives are binding for more than a five-year period. All objectives are continually assessed and restated every five years. The only binding wood supply component is a legal agreement to supply an identified wood volume for a five-year period based on forest management plans. Given the uncertainty related to changing societal values, state of the forest industry, and unpredictable influences on the forest such as fire, insect, disease and weather, the process of determining forest level objectives must be adaptive. The existing process, with the 25-year Forest Management Agreements, allows for unforeseen impacts to wood supply and for other non-timber values to be incorporated. These agreements affirm DNR's commitment to wood supply and to the Licensee.

#### **3.1.4.2 Product - Specific Management Approach**

The second option is for DNR to evaluate Crown wood supply on a species- and product-specific basis. There may be options to create a more stable or directed flow of benefits from the Crown wood supply. DNR has developed non-timber objectives which are explicit and measurable. Similar attention to a strategic assessment of Crown wood supply would be invaluable for making tough management decisions and developing quantified timber objectives.

The lack of a species/product-specific evaluation of wood supply is troubling given New Brunswick's wood supply situation where demand exceeds supply. Without evaluation, options to direct the forest to mitigate timber supply concerns are diminished. In the absence of clear timber objectives, industry and government have a less precise vision for the future.

Conducting a species/product specific evaluation of wood supply requires a commitment of resources to look at stakeholder needs, species group/product trends, and concomitant problems/concerns with potential strategies developed to address them. However, this would show industry that the New Brunswick government is committed to wood supply from the Crown forest and allow DNR to make better decisions regarding forest management.



### 3.1.5 Recommendations

It is recommended that:

- 1) DNR conduct a strategic analysis of future Crown wood supply and develop a process to establish quantifiable species/product-specific wood supply objectives. This would entail the following actions:
  - a) *Revise the goal for timber production. This would require input from industry, stakeholders and consultation with the public.*
  - b) *Determine short- and long-term forecast supplies of all forest products utilized from Crown land using the most recent forest management plan and wood allocation information.*
  - c) *Determine short- and long-term demand by the forest industry and related stakeholders, taking into consideration the local demand for wood and the potential for new opportunities (utilization and value-added production).*
  - d) *Identify any wood supply issues given other DNR goal(s), stakeholder wood requirements and forecast supplies.*
  - e) *Develop strategies to address specific wood supply issues identified above and document the impacts (volume or hectares) on other Crown land objectives.*
  - f) *Based on the above assessment, revise the objectives.*

These steps would lead to informed decisions with respect to developing wood supply objectives for Crown land where the trade-offs between objectives are explicit and the process is more transparent.

- 2) DNR establish forest level objectives (timber and non-timber) that remain binding for five-year periods.

## 3.2 Doubling of the Annual Allowable Cut

*"It is possible to almost double the long term softwood supply for industrial purposes while meeting the current non-timber objectives for Crown Land in New Brunswick."*

*(JP Key Finding, p.11)*

### 3.2.1 Issue Description

Plantations provide increased levels of wood fibre (pulp and logs) at a faster rate than natural stands. As a result one might assume that it would be an easy decision for Government to increase the area of plantations on Crown land and thus provide increased economic value for industry, government and New Brunswick society. However, more plantations and increased harvest levels have a number of important implications related to the future forest condition; both negative and positive. Examples include the increased use of herbicides, dependence on genetically improved trees, impact on non-timber objectives as well as industrial competitiveness, employment levels, future global markets and silviculture funding.

Clearly a decision to "double" the wood supply must be predicated upon an examination of the type of forest and forest industry the New Brunswick public wants in the future, how much they are willing to pay for it, and to what extent they understand the implications of their decisions.



### 3.2.2 Context

#### 3.2.2.1 Understanding the issue

In order to better understand the doubling scenario, several key words or phrases from the Jaakko Pöyry statement need to be clearly defined. They are addressed in the form of questions as follows:

a) What is included in the softwood supply?

*Spruce, balsam fir and jack pine make up approximately 95% of all softwood species harvested on Crown land (Table 3). References to “softwood” in the following discussion of doubling wood supply will refer to spruce, fir and jack pine (SPFJP) only. “Supply” refers to the annual allowable cut (AAC) which represents the volume in cubic metres (m<sup>3</sup>) available to harvest annually on a sustainable basis. The current 2002 Forest Management Plans<sup>5</sup> predict a sustainable Crown land SPFJP AAC of approximately 3.3 million m<sup>3</sup>/year.*

**Table 3. New Brunswick Crown land annual allowable cut levels as approved in the 2002-2006 forest management plans.**

License	Annual Allowable Cut (m <sup>3</sup> /year)					Total Softwood	Hardwood
	SPFJP	Cedar	Pine	Hemlock			
<b>1</b>	334 337	9 111	3 309	0		346 757	262 658
<b>2</b>	271 514	5 000	3 000	406		279 920	128 246
<b>3</b>	282 411	7 060	7 200	750		297 421	98 955
<b>4</b>	439 700	9 010	7 635	2 050		458 395	122 700
<b>5</b>	42 541	2 475	1 773	0		46 789	22 885
<b>6</b>	654 340	14 806	35 099	3 349		707 594	305 709
<b>7</b>	362 200	4 400	11 100	7 121		384 821	218 900
<b>8</b>	171 561	10 649	4 757	2 350		189 317	201 713
<b>9</b>	142 904	2 960	717	972		147 553	113 174
<b>10</b>	626 700	4 600	1 520	2 900		635 720	395 600
<b>Total</b>	3 328 208	70 071	76 110	19 898		3 494 287	1 870 540
<b>% SW</b>	95 %	2 %	2 %	< 1%		100 %	

b) What is implied by supply for industrial purposes?

*The supply for “industrial purposes” relates to discussion of the size of specific forest products that industry is capable of using now and in the future. Both the current management planning and the Jaakko Pöyry doubling scenario assume that wood fibre volume is maximized. This means that future stands are harvested at a younger age and thus have smaller average tree sizes. Current AAC forecasts assume that plantations are available for harvest when the average diameter reaches 16 cm (0.12 m<sup>3</sup>/tree). This represents an average harvest age of 40 years although variation does occur depending on site quality and how well the plantation was tended. Since trees with a DBH of 16 cm do not meet current industry sawlog specifications, current forest management plans, including the scenario proposed by Jaakko Pöyry, potentially fall short in addressing future requirements for sawmills in New Brunswick.*

*Growing more wood allows for increased flexibility in decision making. Depending upon individual License objectives, not all plantations will be harvested at age forty. Treatments that enhance piece-size, such as commercial thinning, result in longer rotations. However, increased rotation length reduces AAC.*

c) What changes occur in supply over the long term?

*Given current levels of silviculture investment, the 2002 forest management plans already forecast a 36% increase in SPFJP AAC starting 45 years from now (i.e., the current SPFJP AAC will increase from 3.3 to 4.5 million m<sup>3</sup>/yr). Jaakko Pöyry’s doubling scenario forecasts that SPFJP AAC could increase an additional 22%, from 4.5 to 5.5 million m<sup>3</sup>/yr, in 45 years as the result of increased silviculture investment. Under this same scenario, the SPFJP AAC would continue to increase for a period of 15 years, where it would plateau at 6.8 million m<sup>3</sup>/yr in 60 years, representing an additional 29% increase.*

*In other words, Jaakko Pöyry’s doubling scenario predicts that the current SPFJP AAC could double (106%) 60 years from now. However, based on the current level of investment we already anticipate a future AAC increase. The actual net increase realized as a result of the additional silviculture investment would be 2.3 million m<sup>3</sup>/yr, representing a 51% increase over the current planned increase in 60 years.*

d) Are there concerns about meeting current non-timber objectives if wood supply is doubled?

*The goals and objectives for managing New Brunswick’s Crown forests are outlined in the Vision<sup>6</sup> document. This document describes the non-timber objectives to be addressed in the 2002 forest management plans.*

*Non-timber objectives can be categorized into two groups: (i) aspatial, which have no spatial configuration requirements and are listed in the Vision document as minimum thresholds of area to be maintained on the landscape over time for various wildlife habitat types and vegetation community types; and (ii) spatial, which consist of areas set aside as fixed zones where levels of conservation range from no intervention (e.g., Protected Natural Areas) to more intensive management (e.g., Deer Wintering Areas).*

*The Jaakko Pöyry recommendation implies that the current non-timber objectives will remain static over time. Given the increased emphasis on these objectives from 1982 to date, the increasing societal focus on conservation initiatives, and the anticipated effects of more intensive management, it is anticipated that there will be even more pressure on the Crown forest to accommodate both spatial and aspatial non-timber objectives.*

### 3.2.2.2 Silviculture Requirements

Jaakko Pöyry's doubling scenario is predicated upon two assumptions with silviculture, which differ from current practice, as follows.

- a) All clear-cuts are eligible for softwood planting.

*Currently, there are limits on the area eligible for planting on Crown land. DNR specifies stand level criteria to prevent conversion of hardwood stands into softwood plantations and to promote existing natural regeneration of good quality. Under these criteria, each clear-cut block is assessed one year after harvest to measure the quantity and quality of natural softwood regeneration. Depending upon the stocking of this natural regeneration, a decision is made to plant or allow the area to regenerate naturally.*

*Jaakko Pöyry's doubling scenario would necessitate that all clear-cuts, with the exception of those covered under the Tolerant Hardwood Policy<sup>4</sup>, would be eligible for full planting regardless of their levels of natural softwood regeneration. Without this assumption, there would be insufficient area to plant for this scenario to be successful.*

- b) Increased silviculture funding would be required.

*Jaakko Pöyry's doubling scenario requires an initial increase in Crown land silviculture investment from the \$23 million budgeted in 2001 to \$50 million. The 2001 budgeted figure of \$23 million includes government monies spent directly on silviculture treatments, stand tending with herbicide and the growing of seedlings planted on Crown land. It also includes Licensee costs incurred during full plantation cleaning. It is assumed that these same costs are included in Jaakko Pöyry's silviculture cost projections. This would be expected to decrease to \$34 million after approximately 10 years. As a result of increased silviculture levels in the approved 2002 forest management plans (see below), costs for silviculture have risen and government is currently finding it difficult to fund these levels.*

### 3.2.2.3 New Brunswick's Current Silviculture Program

Since 1962 New Brunswick has planted approximately 260,000 ha and pre-commercially thinned 280,000 ha of Crown land. The 2002 Forest Management Plans<sup>5</sup> call for the planting of 12,932 ha/yr and the pre-commercial thinning of 34,973 ha/yr. Both of these activities are funded entirely by government. Approximately 40% of plantations require thinning at about 12 years of age to decrease stand density. This activity is funded by Licensee contributions to the Levy Fund. The 2003 DNR silviculture budget was approximately \$26 million, consisting of \$21.2 million from government and \$4.8 million from the industry Levy Fund. Over and above these amounts, DNR funds nursery and herbicide operations that cost approximately \$5 million annually. Currently, all plantations receive one herbicide application and many receive two.

In addition to Crown land silviculture, DNR also funds silviculture on private woodlots through the seven Forest Products Marketing Boards at a cost of approximately \$8 million per year. Planting levels have averaged approximately 1,562 ha/year while pre-commercial thinning levels have averaged 8,793 ha/year over the last 5 years.

Industrial freehold landowners conduct silviculture programs on their own lands. Although an attempt was made to quantify the extent of the silviculture effort on the licensees' private holdings, the data received was of inconsistent format, making it impossible to draw any conclusions. Further clarification of the industry data is necessary before a complete analysis is possible.

### 3.2.2.4 Current Silviculture Program versus Jaakko Pöyry Doubling Scenario

Under the current DNR management scenario, the area of Crown land in plantation will rise from 260,000 ha (9% of 2.8 million ha of productive Crown land) to 541,000 ha (19%) in 40 years. Jaakko Pöyry estimates that, in the same time frame, the area of plantation under the doubling scenario will rise to approximately 42%.

Also under the current management scenario, the area of Crown land in pre-commercial thinning will rise from 280,000 ha (10% of 2.8 million ha of productive Crown land) to 760,000 ha (27%) in 40 years. Under the doubling scenario, the area of pre-commercial thinning will increase to only 18% from the current 10 % level.

Clearly, the additional planting levels recommended under Jaakko Pöyry's doubling scenario drive the SPFJP AAC to double 60 years from now. This reflects the increased softwood stocking and higher volumes that plantations are predicted to yield on a shorter rotation, given their level of genetic improvement compared to natural regenerating stands.

### 3.2.2.5 Tree species diversity in plantations

A common concern expressed by individuals is that plantations are monocultures and an offence to the landscape. One possible reason for this may be aesthetics, as plantations often have straight boundaries and provide a visually homogeneous appearance on the landscape when compared to the previous mature stand.

Tree species diversity in plantations has been documented. Table 4 describes the average tree species make-up of existing plantations and pre-commercially thinned stands within New Brunswick. It shows that while plantations are stocked by the species planted, some natural trees occur. Although limited, this does add to the tree species diversity in plantations.

**Table 4. Tree species composition found in plantations and pre-commercially thinned stands on New Brunswick Crown land.**

Treatment	Type	% area	Tree Species Mix (%)			
			SPJP	BF	Other Softwood	Hardwood
Plantations	Full <sup>1</sup>	(78%)	77	12	4	7
	Fill <sup>2</sup>	(22%)	63	28	4	5
Thinning <sup>3</sup>	Softwood	(60%)	42	45	4	9
	Mixed wood	(33%)	14	39	1	46
	Hardwood	(7%)	2	12	1	85

<sup>1</sup> - Full plantation tree species mix based upon 40 578 ha of plantation cleaned between 1994 and 2002.

<sup>2</sup> - Fill plantation species mix based upon 1 869 ha of fill plantation cleaning done between 1997 and 2002.

<sup>3</sup> - Thinning tree species mix based upon 158 485 ha of stands thinned between 1994 and 2002.

A lack of genetic diversity is another concern. However, the makeup of seed used for plantations has a higher genetic diversity than the seed contributing to a natural stand. Seed in a natural stand comes primarily from a small group of individual trees around the local area. In contrast, seed orchards, from which seed for plantations are collected, have been created from seed collected from a large number of individual trees located throughout the Province. A study<sup>15</sup> comparing genetic diversity in seed orchards and natural populations showed that genetic diversity was maintained in the orchard. The study also showed that genetic diversity is not compromised by the removal of poorer growing trees from the seed orchard.

Also, contrary to popular belief, the New Brunswick forest is not being converted from hardwood to softwood by modern forest practises. A comparison of the 1958 and 2002 provincial forest inventories shows that the area of softwood cover types has remained relatively stable over time. In fact, there is a higher proportion of hardwood on the landscape today, in comparison to 45 years ago. This occurred at the expense of mixedwood cover types (Table 5).

*Table 5. Summary of stand cover type change over time from Provincial Forest inventory documents (1958, 1979, 1986, 2002; data not available for 1938 and 1969 inventories).*

<b>Change in Percent Cover Type by Ownership</b>				
	<b>Private</b>	<b>Industrial Freehold</b>	<b>Crown</b>	<b>Total</b>
<b>1958</b>				
<i>Softwood</i>	37	41	48	43
<i>Mixedwood</i>	47	40	43	43
<i>Hardwood</i>	16	19	9	14
<b>1979</b>				
<i>Softwood</i>	24	35	48	38
<i>Mixedwood</i>	61	43	41	48
<i>Hardwood</i>	15	22	11	14
<b>1986</b>				
<i>Softwood</i>	37	39	54	46
<i>Mixedwood</i>	34	28	23	27
<i>Hardwood</i>	29	33	23	27
<b>2002</b>				
<i>Softwood</i>	31	44	50	44
<i>Mixedwood</i>	40	26	30	32
<i>Hardwood</i>	29	30	19	24

*Softwood* ≥ 75% of volume composed of softwood species.

*Hardwood* ≥ 75% of volume composed of hardwood species.

*Mixedwood* < 75% of volume composed of softwood and < 75 % of volume composed of hardwood species.

### 3.2.2.6 Protection of the Province's forests

Although it may be implicit, present and future management will necessarily mean the willingness to make tough decisions about potential losses because of insect predation and/or disease. Regardless of the management approach selected, protection of forest resources will always require careful consideration of the risks and benefits.

In the past, New Brunswick provided protection against spruce budworm outbreaks, despite strenuous public opposition. Current protection programs cost about \$50 per ha. Consequently, even a modest 200,000 ha program would require \$10 million. During the years of persistent spruce budworm outbreak (1952-1993), it was common to have programs protecting between 1-2 million ha per year.

In addition, the toolbox of available pest control products is meagre. Traditional chemical insecticides are virtually non-existent due to deregulation of products formerly approved.

### 3.2.2.7 Ecological impacts of intensive even-aged forest management

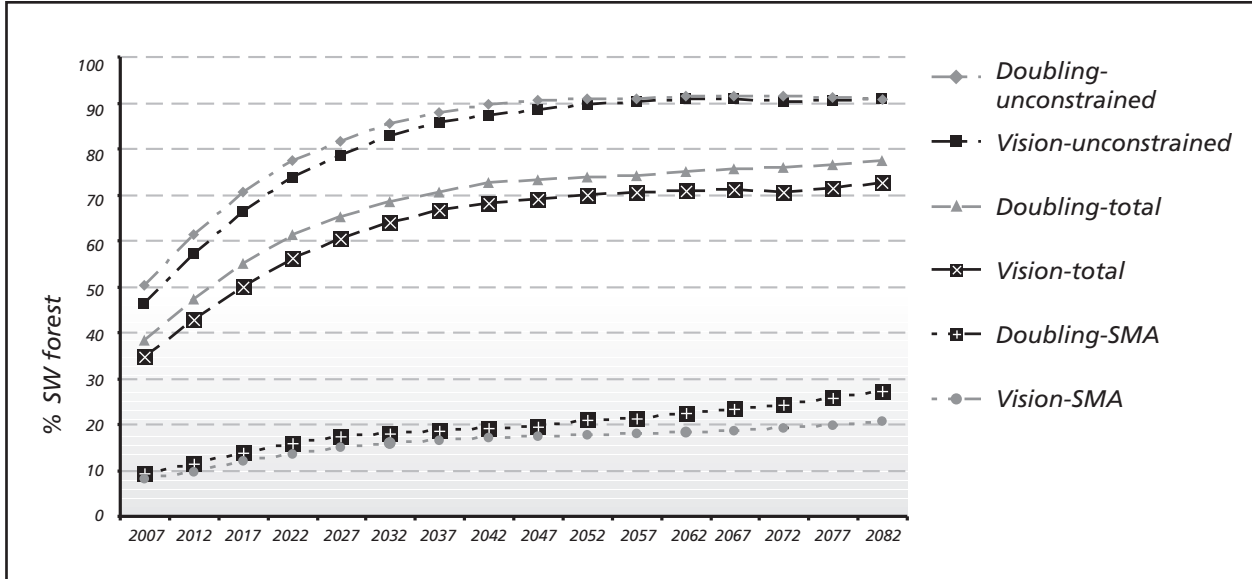
In the last 15-20 years there has been an increased amount of research directed to “non-traditional” species groups (i.e. mosses, lichens, fungi, insects, soil invertebrates, and vascular plants). The response of these groups (the majority of the approx. 33,000 forest species) to forest harvesting practices has been varied. There have been a number of species identified whose occurrence and/or abundance have been negatively influenced by clear-cutting, pre-commercial thinning and/or plantation (PLN) establishment (such as Indian cucumber root (*Medeola virginiana*), and Hemlock (*Tsuga Canadensis*)). There has also been a number of species (such as the lichens; Angels Hair (*Ramalina thrausta*) and Bark Barnacles (*Thelotrema lepadinum*)) that have been identified as requiring older forest conditions.<sup>16, 17, 18, 19, 20, 21</sup>

Knowledge gaps exist with respect to the impact of intensive forest management on the landscape level (eco-regions, watershed scale). The amount of intensive silviculture on the landscape has the potential to negatively affect the persistence of species in those landscapes through fragmentation and isolation of habitat areas. Currently, there is no assessment of the ability of the existing Special Management Areas (SMA) to provide for the maintenance of populations of all species that require non-clear-cut softwood forest.

Figure 6 shows that approximately 80% of the softwood forest outside of the SMA will be composed of plantation and pre-commercially thinned origin in 25 years, in both the current (*Vision*) and doubling scenarios, and will reach a plateau of 90% in 40-50 years. Given the large proportion of the general softwood forest that will be composed of plantation and pre-commercially thinned origin in either scenario, and the fact that some level of silviculture is also occurring in SMA, the maintenance of all wild species is uncertain in the short (25 years) and longer term.

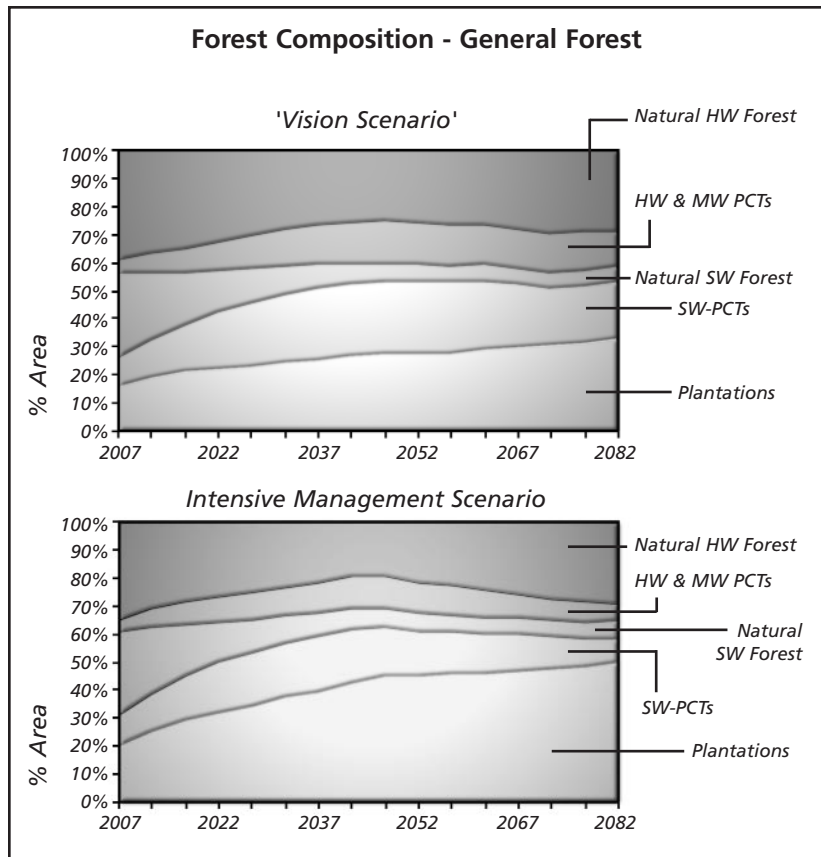
The issue is not limited to the softwood forest. Pre-commercial thinning and partial-harvesting treatments are taking place in the hardwood forest which may negatively affect maintenance of population of species requiring non-disturbed hardwood forest.<sup>22</sup> While the situation in the HW forest does not appear, at first glance, to be as critical as the situation in the SW forest, an assessment similar to the one for the SW forest is needed.

**Figure 6.** The proportions of Crown softwood forest, i.e. stands where softwood species constitute more than 50% of the stand, will be in managed stands (plantations and pre-commercially thinned blocks) as projected over the next 80 years. Both the current management plan and the Jaakko Pöyry doubling scenario are represented in the graph for the SMA softwood forest (the two lower curves), the unconstrained (outside SMA) softwood forest (the two upper curves), and the entire softwood forest (two middle curves) which is the combination of the two preceding softwood forest components.



To help provide a broader perspective, Figure 7 shows the forest composition with all cover types included, and depicts the difference between the “doubling” scenario and the current management plan.

**Figure 7.** The proportion of the Crown forest that will be managed (plantation or pre-commercially thinned) and natural stands as projected from the 2002 Forest Management Plans (Vision) and the Jaakko Pöyry doubling scenario.





There are additional knowledge gaps with respect to other ecological and social impacts of intensive management, including those outlined below. Some of these gaps may be addressed simply by consulting with experts, others by reviewing literature or studies in progress but some will require new research.

- *Public perception about the effects of more extensive herbicide application if the area in plantation increases substantially, given that all plantations now receive at least one application of herbicide;*
- *Long-term effects of intensive stand management on soil quality; and*
- *Effects of increasing levels of exotic species in plantations (e.g., mustards, clovers, Norway spruce).*

It would seem appropriate to establish as quickly as possible some level of understanding with respect to the issues discussed above. If there is indeed a problem with maintenance of viable populations, social and other ecological concerns, then even our current level of harvesting and plantation establishment may be an issue.

### 3.2.3 Staff Input

Concerning the doubling scenario, staff has great concern about the future of Crown forests and the process by which that future is decided. What follows is a brief synopsis of the main themes expressed by staff.

- *About 30% of comments support the current system in that non-timber values are important to safeguard. Many staff felt that increasing wood supply would put more pressure on these non-timber objectives. They believed it is important to maintain flexibility to allow for future and evolving objectives. The current non-timber objectives may be incomplete (e.g., biodiversity) and additional objectives may be required. Crown land is public land; its management should reflect citizens' values.*
- *Approximately 15% of the comments expressed considerable apprehension and resistance to the possibility of more plantations for many reasons - fire, disease, insects, lack of diversity, competition with balsam fir, etc.*
- *Another 10% were concerned with the cost-benefit side of the proposal in terms of the added value derived, the employment benefits from such a scenario and the funding issues surrounding an investment of this magnitude.*
- *Finally, about 7% of comments concerned the need for public education and awareness and the need for providing opportunity for the public to say what is important to them concerning Crown land management.*

### 3.2.4 Options

The options available to increase wood supply and to manage a dynamic forest using an adaptive management system are numerous. Presented here are two general paths to consider.

#### 3.2.4.1 Maintain Current Management

This option involves adhering to silviculture and wood supply strategies developed in the 2002 forest management plans. The advantages of this option are:

- *funding for current silviculture levels is more probable than for increased silviculture;*
- *silviculture expenses are reduced where there is satisfactory regeneration;*
- *more comfort with investment levels and forest change;*
- *leaves options open for future changes to non-timber objectives; and*
- *generates a 36% increase in future wood supply from Crown land.*



The disadvantages of this option are:

- *does not immediately address the forest industry's desire to see increased quantity and security of wood supply;*
- *some will feel government is bypassing an opportunity to substantially increase future wood supply and economic benefits; and*
- *the forest industry has indicated it will be difficult to attract capital for mill modernization.*

#### **3.2.4.2 Intensify Forest Management**

This option involves moving towards the doubling scenario, although the exact level of silviculture and future wood supply increase is left open to debate. The advantages of this option are:

- *enhanced future economic value of the Crown forest;*
- *forest industry gains security with increased future wood supply;*
- *less difficult for industry to secure funding for modernization, thus better positioning them to compete worldwide;*
- *possible increase in silviculture jobs; and*
- *increased future royalties.*

The disadvantages of this option are:

- *increased spending on silviculture;*
- *uncertainty surrounding the advisability of making large investments and significant changes to the forest landscape;*
- *flexibility to respond to changing world markets may be limited if species/product diversity not strategically considered (i.e. if large areas of single species (spruce) are planted);*
- *increased uncertainty with respect to maintaining other non-timber values, (i.e., natural variety of wildlife and plant species as more land is intensively managed); and*
- *increased use of herbicides would be unacceptable to some of the public.*

There are significant costs associated with an intensified forest management program. The advantages and disadvantages of funding options (whether government, industry or joint initiative), including risks and benefits to each investing agency, would have to be evaluated.

#### **3.2.5 Discussion**

The issues surrounding a commitment to doubling future SPFJP AAC revolve around public acceptance, awareness of potential ecological impacts, and rationalization of the cost/benefit trade-offs.

At first glance, doubling the current annual silviculture expenditures appears to be a substantially high risk investment, considering that the bulk of the returns will only start 45 years in the future and that, in the interim, many things can happen that put this investment at risk (fire, insect, disease, market changes, etc.). It is questionable whether this is a sound investment from a cost/benefit point of view when all factors are taken into consideration. The Atlantic Provinces Economic Council (APEC) study<sup>23</sup>, recently completed for DNR, will provide guidance with respect to the cost/benefit of such an investment.

Assuming that "doubling" would be a sound investment, the question remains as to who would pay. It has already been mentioned that Government is having difficulty funding the current levels of silviculture on Crown land. Increasing royalties to cover the cost would simply shift the responsibility back to industry.

Industry's assertion that an increase in AAC is critical to industry survival must be questioned. At some point in time, the growth capacity of Crown forests will be reached, thereby limiting industrial growth. We need to establish a balance between a healthy forest and the type of viable and sustainable future forest industry that is best for New Brunswick. There may be other avenues to explore in order for the forest industry to remain competitive. Although Jaakko Pöyry was not asked to consider value-added opportunities in their assessment, the concept has been promoted in New Brunswick since the mid-1990s. Focused, enhanced development efforts in the value-added sector may provide greater opportunity and flexibility for NB than increasing silviculture effort on Crown land.

It is important to ascertain what is important to the New Brunswick public with respect to Crown forest management. This will be elaborated on in Section 3.5.

### 3.2.6 Recommendations

It is recommended that:

- 1) *Government delay its decision on the "doubling" option until the following four recommendations have been acted upon. The current management plan will produce a 36% increase in AAC in 45 years. Any additional increases will still be achievable in five years time. Options are not foreclosed, although we recognize that the longer government waits to commit, the longer results will take to materialize. Government will maintain flexibility to refine non-timber objectives.*
- 2) *DNR look at the feasibility of intensified management options based on different long-term harvest objectives, with consideration for the concerns raised by various public input.*
- 3) *Government enhance development of the value-added wood products through mechanisms such as DNR placing greater priority on the allocation of wood volume on this basis, and continued focus in this area by Business New Brunswick. This may provide greater opportunity and flexibility for NB than increasing silviculture effort on Crown land.*
- 4) *DNR improve its knowledge through research regarding the impacts of increased plantation area and harvest levels. There are many unknowns (e.g., ecologic and economic) that need to be quantified and qualified about the impacts of intensified management on the future forest. DNR must immediately define issues and knowledge gaps that are important to decision making, undertake or facilitate the required research and then develop strategies to mitigate possible effects or explain chosen trade-offs. As the knowledge level increases, changes can be made to the chosen management direction.*
- 5) *DNR initiate a review of the maintenance of populations of all species, even if intensified management is not considered an option. Given the high proportions of SW forest that will be in PLN and PCT blocks in the near future, there is uncertainty regarding the maintenance of populations of all species. Such an assessment should include the creation of strategies (if needed) to maintain populations and associated wood supply costs (trade offs). Although lower in priority than the SW assessment, an assessment of the impact of management on the HW forest should also be conducted.*
- 6) *DNR review the possibility of sharing responsibility for silviculture funding with industry and develop options for different funding formulas. Industry will seek some level of assurance regarding return on investments made - this could reduce government's flexibility regarding access, land use, wood allocation, changes or additions to non-timber objectives, etc. However, it appears that government is in a strong bargaining position with respect to providing guarantees to industry in return for their investment on Crown land.*

## 3.3 Overlap in Management

*“The DNRE should reduce overlap in management and oversight of Crown lands. Ontario provides a model on how industry/government responsibilities have been streamlined.”*

*(JP Recommendation #4, p.9)*

### 3.3.1 Issue Description

This Jaakko Pöyry recommendation constitutes an evaluation of DNR’s custodial role in Crown land forest management. The *CLFA*<sup>3</sup> enables the Minister to assign management functions to the Licensees while retaining overall management responsibility. The Jaakko Pöyry report suggests there is overlap of work being carried out by Licensees and DNR. It proposes implementing Sustainable Forest Management (SFM) certification to reduce this overlap. The report also looks at staffing levels in other jurisdictions and suggests that DNR staffing levels may be too high. Thus, the crux of this issue is to determine the degree and extent of oversight and management that should be exercised by the Department.

### 3.3.2 Context

Under the *CLFA* and *FMA* the government maintains responsibility for setting forest management goals, objectives and standards. The Licensees assume responsibility for developing and implementing forest management strategies which meet government goals, objectives and standards.

*“The government represents the people and is, therefore, the custodian of the Crown forest resource. As custodian, the government is entrusted with the responsibility for basic forest stewardship, with the fundamental responsibility of ensuring that functional, healthy forest ecosystems are maintained. Beyond this, the government is responsible for ensuring that all uses of the forest resource are in the best interest of the people of New Brunswick, and that these uses are conducted in a sustainable manner that do not foreclose options for future generations. The responsibility for ensuring that public values are reflected with forest management goals, objectives and standards rests with the government.”<sup>24</sup>*

Notwithstanding these well documented distinctions of roles and responsibilities between Licensees and DNR, both agencies are cooperatively and jointly involved at both the planning and implementation levels of forest management.

#### 3.3.2.1 Planning

Licensees submit Forest Management and Operating Plans within an established framework of rules and criteria, based partially on data and comments provided by DNR. These are reviewed by DNR for conformance. When necessary, DNR suggests changes to the plans (which are often accommodated) prior to approval and implementation. As a result, subsequent performance evaluations sometimes examine work that was recommended by DNR staff rather than by industry.

##### a) Management Plans

*Management plans are submitted to DNR by Licensees every five years. Licensees use the Vision document, an updated inventory, a planner’s guide and other necessary tools to create computer modeling files, maps showing the harvest block schedule and a written document that reflects the Vision’s goals and objectives. The process allows Licensees flexibility in the creation and presentation of their plans. A plan consists of a written document, computer modeling files and maps showing the harvest block scheduling. DNR reviews the document and model files. There may be more than one Region involved in the review of a plan, depending upon the geographic location of a license, adding complexity to the review process.*

## b) Operating Plans

*On an annual basis, operating plans are submitted to DNR regional staff by Licensees. The plans are reviewed by DNR to ensure blocks are scheduled as per the management plan, prescriptions are appropriate and environmental concerns are identified. Necessary changes are made by Licensees before the operating plan is approved.*

The development of management and operating plans is a demanding task. Since the enactment of the *CLFA*, knowledge and expertise have matured on both sides. Given the complexity of the subject and changing standards, policies and procedures, it is understandable that both Licensee and DNR staff sometimes experience frustration. Both parties have not always been consistent in the performance of their duties. As with any evolutionary management practice, this is an area where opportunity exists for improvement.

### 3.3.2.2 Implementation

It is at the implementation level that many amendments to operating plans occur. These amendments may be the result of poor planning (e.g. wrong prescriptions) or operational findings (e.g. unmarked streams). It is the responsibility of the Licensee to supervise and monitor their operations as well as those of sub-Licensees. DNR's role is to audit and inspect. If operations are found to be sub-standard, DNR suggests changes and then follows up to ensure compliance.

Although the number of operational penalties has been on the rise in the last few years, it is difficult to draw conclusions. DNR is striving for more standardized, consistent monitoring across the Province. The tracking of infractions has only recently been electronically transmitted allowing more timely and reliable record keeping. With the introduction of this system, minor variations in practices became more apparent. DNR has instigated more systematic training and validation of the inspection work. In some cases, violations may reflect inadequate supervision and/or training of industry staff or their contractors.

### 3.3.2.3 Performance Evaluation

Each Licensee is evaluated in five-year intervals. The *Licensee Performance Evaluation*<sup>25</sup> document outlines the procedure used to evaluate the forest management performance of each Licensee. The evaluation is based on a pre-determined set of action-based criteria (criteria that indicate how to get a desired outcome) and thresholds, which are revised every five years. A consultative process between industry and DNR is utilized to develop mutually agreed upon evaluation criteria. Two general areas are evaluated: the implementation of the past Forest Management Plans; and the development of the upcoming Forest Management Plans. This evaluation is considered in the decision to extend the term of the FMA with the results being made public.

Sectors evaluated in Licensee performance are:

- *basic silviculture;*
- *remedial treatments of plantations;*
- *harvesting;*
- *watercourse crossings;*
- *Deer Wintering Area management; and*
- *development of the actual management plan.*

In 1993, the *Vanguard Report*<sup>26</sup> recommended an outcome-based performance evaluation that would allow Licensees the opportunity to actively manage and be fully accountable for the results of their activities carried out on their Crown licenses. After much consideration, DNR did not feel that technology and reporting systems were adequately

developed to switch to such an evaluation process at that time. This situation has gradually improved and there are currently 2 outcome-based criteria proposed to measure Licensee performance in 2007.

### 3.3.2.4 Staffing Levels

The Jaakko Pöyry report<sup>1</sup> compares DNR staffing levels to those of other jurisdictions. It states (p.37): "New Brunswick has relatively high staffing levels versus equivalent regions (Ontario and Quebec)". However, it appears that all DNR staff (i.e., geologists, Crown land, enforcement, etc.) was included in the comparison while staff numbers for the other jurisdictions only included those "dedicated" to forest management sections.

A review<sup>27</sup> of DNR's time reporting system shows that 0.04 employees per 1000 ha of Crown land are devoted to forest management activities. This is more in line with recent data received from the Ontario and Quebec Ministries<sup>28</sup> responsible for natural resources (Table 6) than numbers reported by Jaakko Pöyry.

**Table 6. A comparison of staffing levels for various jurisdictions.**

	New Brunswick	Ontario	Quebec
<i>Managed Crown Land (km<sup>2</sup>)</i>	33 500	380 000*	454 000
<i>Forest Mgmt. FTEs**</i>	119***	640	1 220
<i>FTEs/1 000 ha</i>	0.04	0.02	0.03

\* This value is for managed forested crown land; total managed Crown land is 450 000 km<sup>2</sup>

\*\* Full Time Equivalents

\*\*\* Branch and regional staff, excluding nursery

### 3.3.2.5 Ontario's Self-Inspection System

In 1998, Ontario instituted a system where the Sustainable Forest Licensees (SFL) were to take responsibility for forest operational requirements - the planning and carrying out of compliance inspection activities. The Ministry of Natural Resources (MNR) was to ensure compliance with the *Crown Forest Sustainability Act*<sup>13</sup> and class environmental assessment terms and conditions by setting standards, reviewing SFL holder compliance plans and conducting audits, and enforcement actions.

The Pembina Institute, an independent, citizen-based environmental think tank, scrutinized Ontario's system of self-inspection and published its findings in the report entitled, *Industry Self-Inspection and Compliance in the Ontario Forest Sector*.<sup>29</sup> The Pembina Institute study found that MNR staff was unable to follow up on all the industry self-reported violations, much less conduct its own random spot checks as originally envisioned because of staff reductions. It should be noted that MNR had only one inspector per 550,000 ha of Crown forest under License. The Pembina Institute study<sup>29</sup> also revealed that:

- "The legal authority for the transfer of primary inspection responsibility to License holders is uncertain. ....The government's duty of care in implementing the statutory duty to inspect is non-negotiable." (pp. 33 & 66)
- "The cost effectiveness of the system must be questioned as, in effect, a double inspection has been created, where MNR inspectors must follow-up on Licensee inspections in cases of reported non-compliance. The possibility exists that the same number of inspections might be provided more effectively by the MNR at less total cost to the Ministry and industry." (p. 61)

- *“Public right of access to inspection-related information ... has been reduced... The ability of legislative officers, particularly the Provincial Auditor, to access material is also limited.” (p. 63)*
- *“The self-inspection regime raises significant issues of conflict of interest.” (p. 34)*
- *“There are no provisions to protect SFL-employed inspectors from interference or reprisal by their employers.” (p. 33)*
- *Although independent audits are required every five years, MNR’s protocol “includes no specific requirements regarding the review of compliance plans or inspection capacity. As a result, the level of detail contained in forest audit reports with respect to inspection and compliance issues varies widely”. (p. 32)*

These observations raise serious concerns regarding Ontario’s system as a model to follow.

### **3.3.2.6 Forest Certification**

The internal DNR document *Forest Certification*<sup>30</sup> provides an overview of forest certification in New Brunswick, the origins, benefits, local systems, DNR’s position on certification and the status of certification efforts. It provides much of the background for this section of the report.

There are two broad types of certification systems in use world wide: Environmental Management (EM) systems and Sustainable Forest Management (SFM) systems. In New Brunswick, four systems of certification are in use. These include: the International Standards Organization - ISO 14001 an EM system, and three SFM systems: the Canadian Standards Association - CSA Z809<sup>31</sup>, the Forest Stewardship Council - FSC<sup>32</sup>, and the Sustainable Forestry Initiative - SFI<sup>33</sup>. Each system has a unique set of principles, objectives, performance measures and core indicators. In New Brunswick, all Licensee and sub-Licensee forest operations on Crown land were certified under ISO 14001 by December 2002. The Licensees and sub-Licensees were also required to be certified under at least one of the three sustainable forest management systems by December 2003. All Licensees and the majority of sub-Licensees have attained this certification. A few major sub-Licensees remain in the process of obtaining independent certification of their businesses.

Certification systems rely upon one or more of three types of audits. First-party auditing is done from within the organization seeking certification. Second-party auditing is done by a party outside the organization but with some affiliation to the organization. Third-party auditing is done by an impartial party not connected to the organization. In order to be certified, participants must show, through third-party auditing, that they apply the required principles, objectives, performance measures and core indicators of the certification system. Third party auditors are selected by the Licensee from a list of accredited auditors approved by the certification organization. Auditors must meet minimum standards related to education and work experience.

The SFM systems require a third-party audit at least once a year. The duration of the audit varies, averaging one to two weeks for large land holdings. Auditing includes an examination and assessment of in-office documentation and on-the-ground forest management practices, including harvesting. Participants can incorporate a more frequent auditing schedule if they wish. In fact, one Licensee has opted for weekly first-party audits and quarterly second- and third-party audits.



Regarding the Jaakko Pöyry suggestion that certification be used to reduce DNR and Licensee overlap, the following questions need to be addressed:

- *Would certification with third party auditing be able to replace the custodial role of DNR?*
- *Would certification ensure the Licensees manage to the standards of the FMM?*
- *Would certification alleviate DNR workload and/or improve the relationship between DNR and the Licensees?*
- *Who would be accountable to the public if certification is implemented?*
- *Is end-product auditing that is used in certification acceptable over DNR's current process auditing?*

### 3.3.3 Staff Input

In general, staff disagreed with the Jaakko Pöyry statement that there is overlap between DNR and Licensee functions. Staff felt that there is insufficient evidence to make an informed judgment on the issue. Among the comments, these were the common themes.

- *30% of the comments supported the continuation of government monitoring. The DNR system as it exists is good. Ground inspections are done on a routine basis and violations are consistently being found. To be responsible, DNR needs to maintain control and be a "watch dog" of the public resource.*
- *25% of staff comments related to certification and its uncertainties. Many feel that certification would be limited only to a few days in the year, looking at paper trails. Some staff expressed reservations regarding a third-party auditor's ability to carry out monitoring effectively.*
- *21% of staff comments related to ways of maintaining or improving the current system. These include new technology; improved monitoring techniques and sampling systems; decreasing (perceived) political interference; developing more accountability and stiffer penalties; and, dedicating more staff - not less.*
- *13% of staff comments related to the inaccurate comparison of DNR to the Ontario model. Many questions were raised concerning the comparability of the two models. There may be legitimate criticism of the DNR system, but little substantiation was offered to defend the Jaakko Pöyry position.*

Other comments worth noting are:

- *some Licensees have failed performance review, even after being certified. This would indicate more monitoring is necessary, not less;*
- *a system of final harvest block inspection, chosen at random, with penalties applied across all harvest blocks should be considered; and*
- *the present performance evaluation criteria may be insufficient for an effective review of performance and may have to be strengthened, especially if certification leads to reduced DNR monitoring.*

### 3.3.4 Options

There are several options available when considering ways to reduce overlap while maintaining the custodial role of DNR on Crown land. For clarity, these options have been separated into two categories: planning and implementation.

### 3.3.4.1 Planning Level

- a) DNR does all the planning:** *With this option, management plans would be developed by DNR and implemented by Licensees. Plans would be developed using a standardized methodology across all Licenses. However, unless more DNR staff is hired, plans would need to be completed on a staggered basis over time to allow for better distribution of workload. There are some obvious difficulties with staggered planning, such as the timing of the release of the Vision document, FMM updating, and volume allocation. These activities currently coincide within a five-year planning cycle. If planning became staggered, adjustments would have to be made to these processes. This may not be feasible or worthwhile given the amount of effort to sequence events under the current system.*
- b) Licensees do all the planning without DNR involvement:** *With this option, DNR would set the goals and objectives, and define the desired outcomes to be attained, but would not participate in the development or approval of management or operating plans. At the end of the five-year period DNR would evaluate Licensee performance using a strict outcome-based set of criteria in lieu of management and operating plan approval. It would be imperative that there be a strong incentive for planning, as well as comprehensive guidelines for the Licensee Performance Evaluation. This option would significantly reduce DNR staff involvement and would move Crown land forest management closer to the model envisioned when the Crown Lands and Forests Act was first envisioned in the Vanguard Report.<sup>26</sup>*
- c) Current planning system:** *This option would maintain the current process of producing and approving Management and Operating Plans. Licensees and DNR participate jointly in plan development (generally done through the Forest Management Planning Committee). With the cooperation of both parties, each iteration of the planning process brings improvements, but these changes occur slowly. As alluded to earlier, the present system involves a back and forth series of submissions by Licensees and approvals by DNR, which eventually lead to a situation where some of the work being evaluated by DNR is actually its own.*
- d) Third party does all the planning:** *Under this option, management plans would be formulated by one consultant, approved by DNR and implemented by Licensees. DNR would give the Vision document and any appropriate updates to the consultant to follow. Plans would be consistent across all Licenses. The consultant would have to be qualified, skilled in forest management planning and knowledgeable about New Brunswick's forests. Costs would be shared by DNR and Licensees. While third-party planning avoids overlap between DNR and Licensees, it divorces planning from implementation. It would not significantly reduce the workload for DNR because staff would still have to review and approve the plan. The Licensee would be required to spend time learning the plan in order to implement it and thus would lose time. Third party planning thus appears to provide little benefit to either DNR or Licensees.*

### 3.3.4.2 Implementation Level

- a) Maintain the current management system:** *This option would maintain the present system which involves both the Licensees and DNR doing regular field checks. An annual review of performance is carried out to pinpoint areas of concern. At the end of the planning period, a performance evaluation is carried out by DNR. Certification (as presently implemented) would not be used to substitute DNR's custodial role at this time.*



*The present system allows DNR to retain its custodial role and to remain accountable to the public; however, the following questions need to be addressed.*

- *Is this system as effective or efficient as possible?*
- *Are roles and responsibilities as clear as they should be?*
- *How can the overlap between the Licensee role of supervision and the DNR role of monitoring be reduced?*

**b) Replace DNR oversight with certification:** *This option would see only one system of verification on Crown land operations. However, certification will not cover the day-to-day inspection of operations and will leave shortfalls in the overall inspection process. This could result in environmental or operational situations where damage is irreparable. Licensees that have been recently certified continue to have major violations. It is felt that certification may complement certain roles of DNR but cannot be substituted for the work of experienced field staff. DNR staff does not have enough confidence in certification's ability to be fully accountable to the public, not having seen the results of compliance monitoring, and given the variation within and between certification systems.*

**c) Investigate how certification could complement/reduce DNR oversight:** *Under this option, DNR would determine what part of the oversight process could be satisfied by certification. This may have to be determined with the aid of a gap analysis and with monitoring of the present certification system for a period of time. If DNR becomes confident in the credibility of certification and the auditing process, and if Licensees show improvement in performance, then incremental changes could be implemented in the DNR monitoring process to reduce duplication. The Licensee would need to adopt a certification process that could incorporate DNR's operational criteria and could be implemented by a third party certifier. This option would require more time and effort to implement; but, oversight costs could be decreased leaving DNR staff with time and flexibility to devote to other activities.*

**d) Other options, excluding certification:** *With these options, DNR continues to play a role in oversight but with some or all of the following enhancements to the current system. Improvements may also occur if staff were dedicated full-time to this function.*

- *Develop a harvest block sampling system: Using a statistically valid modified random sampling system, regional staff would annually carry out inspections of harvest blocks for conformance using established criteria. The results would then be applied to the total population of harvest blocks for a given year.*

*As an example, the present silviculture system involves a random selection of areas to be sampled annually for conformance to pre-established standards (e.g., number of trees/ha). If the survey of a block is found not to be within standards, the Licensee has the option to conduct a joint evaluation with DNR. The results of the joint survey are binding and are applied to all of the individual silviculture treatments within the category being sampled. The penalty process is then weighted and applied to the whole Licensee silviculture program for that year. This scheme could include 100% sampling for critical elements where lack of early detection of violations would lead to significant irreparable damage.*

- *Allow for joint evaluations: Joint evaluations would be done by Licensees and DNR staff. The results would be immediately binding and applied to all blocks in that year. The Harvest Block Sampling system mentioned above could also be modified such that all surveys are joint evaluations. In addition, these joint surveys could serve as the basis for the Licensee's third party certification audit.*
- *Employ independent contractors: Licensed, independent contractors would carry out field surveys. This again could be combined with the "sampling" option described above. Benefits include: fixed costs shared by DNR and Licensees; ongoing monitoring; and, more time for DNR staff to spend on other activities. Some monitoring of contractor performance would be required.*

- *Develop an electronic block management system: Implementing a block management system (eBlock) that could be used in conjunction with the Transportation Certificate, e-Scale and Violation systems would help tie planning and implementation together. The Operating Plan could be available online. Field staff would save time by using the eBlock system for systematic, annual monitoring and performance evaluation.*
- *Increase penalties and reward good performance: The present penalty for failing the Licensee performance evaluation is the loss of five years from the FMA. This does not appear to be sufficient motivation for all Licensees to do a good job. Penalties should be sufficiently onerous to act as a deterrent. For example, if Licensee performance is below standard, a portion of their wood volume allocation could be reassigned during the next five-year period to those more deserving. Licensees who meet or exceed standards should be rewarded by receiving the benefit of this redirected AAC.*

*This reward could be realized through area-based allocations, where any increase or decrease in AAC on a particular License is shared by the Licensees and sub-Licensees on that license would be one way of letting Licensees derive benefits from their good performance and suffer the consequences of poor performance.*

### 3.3.5 Discussion

Some of the options cited above are far less practical than others. Both DNR and industry staff have considerable experience and expertise in the management of Crown lands. It would be unreasonable to expect that roles related to their respective delivery responsibilities could be radically changed overnight with any degree of success. As well, it would be both unproductive and costly to bring in a third party to take on these significant responsibilities.

There is much that is working well within the current system. It should not be assumed, nor implied, that the two parties are performing inadequately. There is considerable collaboration and natural inter-dependency, both at the planning and implementation level. Having said this, there are likely many ways to improve the current DNR/industry delivery of the Crown forest management program. Modification can be made to the present system to ensure greater efficiencies, improve performance and to eliminate areas where unnecessary overlap or duplication exists.

Certification of all Crown forest operators should be viewed as a complementary system to the existing monitoring practices. It affords an opportunity not previously available for third-party reporting on operations.

### 3.3.6 Recommendations

It is recommended that:

- 1) *DNR undertake a detailed analysis of its forest management, to determine what functions currently carried out by DNR could be added to an enhanced certification system. Until this is done and it is determined that certification can satisfactorily replace some functions being carried out by DNR, certification not be used to replace the current system of monitoring and performance review now in place.*
  - *Although all six Licensees have recently adopted SFI, the process is still in its infancy and lacks documented evidence that it is going to be an effective process to replace DNR's traditional custodial role.*
  - *Replacing DNR's custodial role by certification would be contrary to the Crown Lands and Forests Act which very clearly places the responsibility for forest management in the Minister's hands.*
- 2) *DNR reject the self-inspection system used in Ontario, as a possible model to implement in New Brunswick. It is questionable whether such a system reduces overlap or whether it is cost-effective. Furthermore, as was found from the Ontario experience, the government cannot hand over its responsibility and maintain accountability for the public resource.*

- 3) *DNR review and revise its forest planning procedures and related documents with the intent of improving clarity and understanding to ensure more standardized implementation by licensees and improved performance monitoring. More specifically, DNR should:*
- *review Departmental documents (FMM, Vision, policies, etc.) and if any measurable goals, objectives and plan requirements (management and operating) are unclear they should be revised. Subsequently, any changes made to documents would be provided to Licensees, with relevant explanations/meetings as necessary;*
  - *standardize the planning processes across all Licenses;*
  - *improve Licensee performance criteria by:*
    - o *implementing higher standards for acceptable management plans;*
    - o *measuring planning performance on both timeliness of management plan submission and plan quality;*
    - o *creating more detailed descriptions of management and operating plan requirements;*
    - o *including the number of amendments accrued to an operating plan as an indicator of performance;*  
*and*
  - *charge a substantial fee for submission of amendments to operating plans. This would necessitate defining amendments that result from poor planning (e.g., a wrong prescription in a certain cover type such as a clear-cut of a tolerant hardwood stand or constant changes to a road layout) as opposed to those that result from no fault of the Licensee (e.g., requiring a culvert installation as a result of crossing an un-mapped stream).*
- 4) *DNR consider providing incentives to Licensees for good management. This could include:*
- *rewarding Licensees that submit quality plans and have good operations with minimal violations (e.g., allow for a realignment of wood volume allocation);*
  - *implementing an area-based allocation system; and*
  - *making Licensee successes known to the public.*
- 5) *DNR analyze forestry and environmental violations in order to direct its monitoring toward areas of greatest risk.*
- 6) *DNR review the penalty schedule and its application to determine:*
- *if the recording process and/or remediation is adequate;*
  - *if fines are sufficient; and*
  - *logical links to third-party certification audits that could be incorporated in DNR reporting.*
- 7) *DNR introduce a systematic sampling scheme with respect to harvest monitoring.*
- 8) *DNR develop an electronic block management system for use with the Violation and e-Scale systems.*

## 3.4 Special Management Areas

*“Special management zones should be critically reviewed and where possible additional harvesting permitted. These areas should be managed using the best science to meet habitat and timber supply objectives.”*

*(JP Recommendation #5, p.9)*

### 3.4.1 Issue Description

The Department is being asked to re-evaluate its management objectives for the four types of Special Management Areas (SMA) under Crown Timber License, with the intent of freeing up more wood volume for industry consumption. There is also the suggestion that the “best science” has not been used to develop DNR’s non-timber (habitat) objectives and, as a result, these objectives are given greater weight than they deserve in comparison to the wood supply objective.

### 3.4.2 Context

Under subsection 3(1) of the *CLFA*<sup>3</sup>, the Minister is responsible "...for the development, utilization, protection and integrated management of the resources of Crown land, including ... harvesting of timber and maintenance of habitat for fish and wildlife." The goals and objectives pertaining to timber and habitat are set out in the *Vision*<sup>6</sup> document. Through an internal and iterative process that incorporates new information (new science), DNR updates its management strategies and resultant objectives and presents them in the *Vision* document every five years. This document guides the Licensees in the management planning responsibilities as defined in subsections 29(1) to 29(9) of the *CLFA*.

#### 3.4.2.1 History

Since 1980, the non-timber goals and objectives have evolved considerably to the four types of SMA currently managed on Crown land: Protected Natural Areas (PNA), Watercourse Buffers (WB), Deer Wintering Areas (DWA), and Old Spruce-Fir Habitat (OSFH). The history of development of non-timber objectives, including vegetative communities and biodiversity, for Crown forest management is outlined in Table 7.

In the development of these strategies, trade-off decisions were made by DNR to minimize the effects of non-timber objectives on the AAC. As a result, the non-timber objective levels are far from optimal; in fact, they are closer to minimum requirements. The spatially identified land bases identified to meet current non-timber objectives are collectively called SMA. These SMA help meet identified goals for Crown land, which relate to biodiversity, water quality, fish habitat, deer wintering habitat, and wildlife populations.

**Table 7. History of the development/evolution of the non-timber objectives for Crown land forest management in New Brunswick.**

<b>Year</b>	<b>Description of evolution</b>
1980	<i>CLFA created the framework for objective setting. (CLFA proclaimed in 1982.)</i>
1985 -1996	<i>Fifteen Ecological Reserves comprising 1 200 ha proclaimed under the Ecological Reserves Act<sup>34</sup>.</i>
1987	<i>DWA and WB accounted for in wood supply determination in a non-spatial way, i.e. not identified on the ground (no land base).</i>
1992	<i>DWA land base spatially identified and management objectives and standards defined. WB land base spatially defined to reflect past buffering practices. Mature Coniferous Forest Habitat (MCFH) objectives introduced, resulting in a MCFH land base.</i>
1996	<i>Five Conservation Areas, comprising 7 900 ha established under CLFA.</i>
1997	<i>DWA land base further refined. Updated WB guidelines implemented. MCFH objectives not changed. Biodiversity Objectives introduced, non-spatial for four broad cover types (S, SH, HS, and H).</i>
2002	<i>DWA land base refined and two deer winter habitat type incorporated. WB guidelines refined. Strategy to supply six old forest habitat types introduced; MCFH objective renamed OSFH, land base identified. Other old habitat types are non-spatial. Vegetation community objectives modified (8 types, non-spatial).</i>
2003	<i>Protected Natural Areas Act<sup>35</sup> in effect June 2003, replacing the Ecological Reserves Act. The PNA comprise the previously established Ecological Reserves, Conservation Areas and ten new areas.</i>

### 3.4.2.2 The Existing Situation

The areas for the four types of spatially identified SMA on Crown land are summarized in Table 8. Collectively they comprise 907 800 ha or 27.5% of the total area under Crown Timber License. Notably, WB account for the largest portion of this total, whereas PNA account for the smallest portion.

**Table 8. Area of Crown Timber License (CTL) under Special Management.**

<b>Special Management Area (SMA) Type</b>	<b>Total area in each SMA (ha) *<sup>1</sup></b>	<b>Proportion of each SMA (%)</b>	<b>Harvesting Permitted</b>
<i>Protected Natural Areas (PNA)*<sup>2</sup></i>	137 500	13	No* <sup>3</sup>
<i>Watercourse Buffers (WB)</i>	403 000	37	Yes
<i>Deer Wintering Areas (DWA)</i>	278 900	26	Yes
<i>Old Spruce-Fir Habitat (OSFH)</i>	260 700	24	Yes
<i>Total (includes areas of overlap)</i>	1 080 100	100	
<i>Exclusive area*<sup>4</sup></i>	907 800		
<b>Total Area Under CTL</b>	<b>3 306 500</b>	<b>27.5%</b>	<b>CTL under SMA</b>

\*<sup>1</sup> area excludes water coverage

\*<sup>2</sup> the "Fine-Filter Process" will add another 5 000 ha of Crown land to the PNA land base

\*<sup>3</sup> except that limited harvesting will be permitted in three PNA until 2012

\*<sup>4</sup> Exclusive area considers overlap in different SMA types which accounts for 172 224 ha

The objectives for PNA are defined within the *Protected Natural Areas Act*<sup>35</sup>. The objectives and requirements for WB are described in *Watercourse Buffer Zone Guidelines for Crown Land Forestry Activities*<sup>36</sup>. The intent is that these guidelines shall meet or exceed the requirements administered by the Department of Environment and Local Government (DELG) under the *Clean Water Act*<sup>10</sup>. Similarly, management planning and operational standards for DWA are described in *Standards and Guidelines for Management of Deer Wintering Areas on Crown Land*<sup>37</sup>. The definition of OSFH is contained in *Habitat Definitions for Vertebrate Forest Wildlife in New Brunswick*<sup>38</sup>, and the operational requirements for OSFH are described in the FMM<sup>7</sup>.

Since SMA can serve more than one non-timber management objective, they are prioritized. For example, a PNA can contain DWA and/or OSFH, which contribute to their respective objectives for a particular License area. Similarly, WB may contain DWA and/or OSFH, and DWA contain OSFH. This reduces the total amount of SMA required to meet objectives but means that there is overlap among SMA and that some land area is accounted for twice (Table 8). Licensees are concerned about the total area set aside for SMA and are worried that more land area will be set aside in the future.

A critical review of SMA could entail challenging the underlying assumptions or rationale for creating SMA in the first place. For example, ten PNA were selected to represent the seven ecoregions that have been delineated in the Province, but what if these ecoregions are not properly defined, i.e., the actual number is less or greater than seven on the basis of the current "best science". Would fewer or more PNA be required to represent them and would more or less wood be available to industry? Conversely, a critical review could mean accepting the underlying assumptions or rationale for establishing the SMA but challenging the specific management objectives regarding the amount of harvesting that can be done in each one. In this report, the latter interpretation is assumed.



The Jaakko Pöyry report implies that “best science” has not been used in setting management objectives for the SMA, but no data are presented to show this. In fact, the report<sup>1</sup> states the opposite (p.32): “The system combines state-of-the-art tools, and the latest science, bringing these together in a way that will generate spatial and temporal patterns of areas available for protected areas, special management areas, and subsequently harvesting to meet the long-term goals of the *Vision* document.” This science has provided the basis for the wood harvest guidelines that are currently in place for WB, DWA and OSFH areas. For example, salvage of blow-down is permitted, as is any harvest treatment that maintains the required stand structure. Furthermore, royalty rates are reduced for wood harvested from fire/blow-down areas, and a streamlined, management-planning process is in place for DWA that are less than 100 ha.

Existing guidelines have not been applied equally in the ten License areas. Upon analysis of the 2002 management plans, Erdle<sup>39</sup> noted: “The approach to estimating wood supply from buffers, deer wintering area management units, and old spruce-fir habitat varied considerably, as did the forecast wood supply levels, which, when expressed per unit area, varied ten-fold between Licenses.” In Erdle’s analysis, four Licensees are forecasting a smaller wood supply level than average, whereas one Licensee is forecasting a higher supply than average from SMA. Some Licensees are not harvesting all wood that is permitted in SMA because it is more difficult or more expensive to harvest. Perhaps the unused AAC in the SMA of reluctant Licensees could be offered to others that are more diligent in harvesting SMA. It may also be beneficial for DNR to conduct periodic workshops involving all forest management planners, from both industry and government, to make sure everyone interprets the objectives, operating standards and performance criteria in a consistent manner across the Province. Clearly, there is some room for improvement within the existing SMA management framework.

### 3.4.3 Staff Input

Four main themes emerged surrounding the question posed to staff in the June-July workshops about additional harvesting from SMA.

- *The SMA should be reviewed critically to determine if additional harvesting, using the best technology and adhering to approved operating procedures/ standards, will be allowed in any of them, excluding the PNA.*
- *Current restrictions on harvesting in the SMA are fine, and staff caution against allowing any increase in cutting.*
- *The “best science” should be used but this is somewhat subjective and certainly not static; science is constantly evolving and therefore the Department needs to stay current with these advances.*
- *Licensees are not utilizing all of the wood supply currently allotted from the SMA and the level of harvesting is inconsistent among Licensees, so why do they want more?*

Obviously, the first and second themes are contradictory. They were voiced almost equally. The third theme also came through clearly and speaks to the need for research and development, which is addressed under subsection 3.7. The fourth point was the most interesting because it implied that the Licensees are really asking for changes to the operating procedures and standards that will affect their performance appraisal and/or harvesting costs in the SMA.

### 3.4.4 Options

Four types of SMA have been considered but one type (PNA) is unique and is discussed separately from the rest. Thus, the options are discussed under Protected Natural Areas and Other Special Management Areas (p. 37).

#### 3.4.4.1 Protected Natural Areas

The PNA strategy and legislation have only recently been adopted following extensive stakeholder consultation. Implementation of the various elements of the strategy continue. Limited harvesting will be allowed in three PNA (Jacquet River, Kennedy Lakes and Loch Alva) until 2012, under very stringent standards and performance criteria. Another 5 000 ha will be added to the PNA as a result of the "fine-filter process" but even so, this type of SMA has the smallest land base of the four types. As the PNA strategy has only recently been introduced, there is no reason to consider any adjustments to the current plans.

#### 3.4.4.2 Other Special Management Areas

There are basic options that could apply to all three types and there may be special circumstances where additional harvesting would be permitted in a particular type of SMA. Various options are outlined below.

- a) *Retain the current management system vis-à-vis harvest allotment and operating standards, etc. in WB, DWA and OSFH. This means no additional work for DNR staff. However, the levels of harvesting will vary among Licensees, and the AAC from some SMA will be fully utilized but in others it will be under utilized.*
- b) *DNR conduct periodic "SMA Workshops" to clarify its standards and performance criteria and to encourage their consistent application throughout the Province. On the positive side, this will promote cooperation between DNR and Licensees; it will help achieve consistent application of standards and operating procedures by both the Licensees and DNR staff, and promote full utilization of the AAC from SMA. However, operating costs will still be high and environmental groups may not be supportive of DNR promoting full utilization of the AAC from SMA. Also, this option means additional work for some DNR staff.*
- c) *Allocate unused AAC from SMA to another Licensee. On the positive side, the AAC from all SMA might be fully utilized by specialized operators. On the negative side, this could cause friction between Licensees and perhaps resentment toward DNR. It may be difficult for DNR to administer fairly.*
- d) *Assess the possibility of allowing higher levels of timber harvesting in DWA. For example, DWA that currently do not host deer during winter, and likely will not in the future, might qualify as a special case worthy of further consideration. On the positive side, more timber could be available from some DWA. However, DNR will have to re-evaluate the existing data on deer populations and habitat requirements to determine what is feasible.*
- e) *Reassess the guidelines for WB in cooperation with DELG to determine if there are opportunities for additional harvesting, since WB accounts for the largest portion of SMA.*

#### 3.4.5 Discussion

The amount and distribution of SMA are set at minimum or very low levels to achieve the stated objectives. As the loss of habitat types increases on private lands, the importance of Crown land in maintaining habitat increases. New objectives may require the spatial identification of additional area. It cannot be reasonably expected that all of the possible non-timber values are currently accounted for on Crown land.

There are a number of initiatives underway which may affect the non-timber management strategies. The fine filter component of the PNA strategy is being developed. The WB strategy is being reconsidered in response to the recent changes to the Regulations of the *Clean Water Act* (streams < 50cm) and the impact of the new Wetlands Conservation Policy (buffering wetlands). The DWA land base is being reassessed for alignment with short and long-term deer population expectations. The spatial supply of the Old Forest Habitat is



being assessed (using the 2002 Forest Management Plans) to determine if the actual supply is at or above objective levels. There is also an evaluation being conducted of the supply of middle-aged and young habitats that will identify potential supply problems with respect to maintaining populations of wildlife that require these habitats.

“SMA Workshops” to clarify DNR’s objectives, standards and performance criteria should be started as soon as possible. The timing and duration of these workshops need to be established but they should be on an annual basis, at least initially, and in the off-season so that the appropriate people from both industry and DNR can participate. These workshops should foster cooperation and be a vehicle for effective communication between parties. As a result of these workshops, all Licensees should eventually adopt the same operating procedures, become better planners and be more likely to fully utilize the AAC from their SMA without incurring penalties on their performance review. In addition, DNR staff will be able to identify problem areas, clarify objectives and standards as needed, and become more consistent in enforcing standards and performance criteria Province-wide.

### 3.4.6 Recommendations

The recommendations that follow are predicated by the following:

- *this Committee does not challenge the fundamental assumptions that were used to establish the SMA;*
- *“best science” is not static but is constantly evolving as new information is gathered and integrated into the knowledge base;*
- *DNR has been using “best science” to formulate its management objectives for the Crown forest, a fact acknowledged in the Jaakko Pöyry report (p.32); and*
- *some Licensees avoid harvesting and/or do not fully utilize their AAC from SMA.*

In general, the Committee endorses the recommendation from the Jaakko Pöyry report concerning a critical review of SMA and offers the following specific suggestions to help guide implementation. It is recommended that:

- 1) *DNR must continue to be periodically review and adjust guidelines for non-timber objectives and watercourse buffers to incorporate new scientific knowledge and to address social concerns.*
- 2) *DNR conduct periodic “SMA Workshops”, involving key people from DNR and industry, to clarify objectives, standards and performance criteria for SMA, and to foster effective communication between DNR and Licensees.*
- 3) *DNR should ensure that the first right of refusal to harvest the AAC from a SMA goes to the Licensee. However, if that Licensee declines then the AAC from that SMA should be offered to another Licensee.*
- 4) *DNR re-evaluate the DWA land base to determine if increased levels of timber harvesting could occur, while still maintaining short- and long-term deer population expectations.*

## 3.5 Public Participation

*“The public should participate in reviewing the objectives of management of New Brunswick’s Crown lands to provide a mandate for the direction and magnitude of change in forest management.”*

*(JP Recommendation #3, p.9)*

### 3.5.1 Issue Description

The Department is being asked to undertake public consultation in setting the goals and objectives for Crown land and forests. The “public” constitutes individual and corporate citizens (residents) of the Province, who comprise users and non-users as well as direct and indirect beneficiaries of its natural resources. However, the methodology for gathering public input (i.e., the form and nature of “participation”) and the basis (e.g., economic, social) for evaluating the results need to be determined.

### 3.5.2 Context

#### 3.5.2.1 Consultation on Crown Land Management

Although the recommendation in the Jaakko Pöyry study<sup>1</sup> refers to “objectives of management of New Brunswick Crown land” there are no formally stated objectives for the management of Crown land, despite the fact that the *Vision*<sup>6</sup> document is subtitled *Goals and Objectives for Crown Land Management*. The goals and objectives in that document refer largely to forest management. The Department has no formal guidelines regarding public participation in the overall management of Crown land. That is not to say that there is no consultation. Occasionally, the general public is consulted on specific proposals such as the establishment of protected natural areas. Affected interest groups may be consulted, as was done with the shooting community in the establishment of a policy for the leasing of Crown land for shooting ranges. People who may be directly affected by a development proposed on Crown land may be consulted, as happens in the case of coastal developments. However, there has been little public consultation, much less participation by the public, in determining the overall picture for the use and management of Crown land and the role of forestry in that picture.

#### 3.5.2.2 Consultation on Crown Forest Management

The Department does have formally established goals for forest management in the *Vision* document. There was no formal public consultation on this document despite the fact that at the time it was developed, New Brunswick was a signatory to the *Canada Forest Accord, 1998-2003*<sup>7</sup>, which stated:

*We believe . . . all Canadians are entitled to participate in determining how their forests are used and the purposes for which they are managed.*

The third Canada Forest Accord, 2003-2008, continues to recognize that “Canadians have an important role in shaping the decisions affecting forest conservation and use.”<sup>40</sup>

The *Vision* document also sets out three principles for public participation, which were extracted from the *National Forest Strategy*,<sup>41</sup> namely:

- *Public participation in forest policy and planning processes is essential, and carries with it obligations and responsibilities for all involved.*
- *Effective public participation in forest management and planning processes requires an open, fair and well-defined process, with generally accepted procedures and timely deadlines for decisions.*
- *Effective public participation requires current information from a variety of sources, including publicly funded forest resource databases.*

Although the Department does not do any public consultation itself on forest management, the *Vision*<sup>6</sup> document (p.15) requires “the Licensees . . . to solicit public views on how [forest] management plan objectives will be met and must give sufficient opportunity for all stakeholders to participate”. How the Licensees fulfill this obligation varies. All Licensees have established stakeholder committees with representation from the various interest groups, such as game associations, snowmobile clubs, etc. Some Licensees have several committees, representing the various geographic regions in which they operate; while others have only one committee representing all the Licenses they hold. In some cases, each of the stakeholder groups is asked to send a representative to the committee. In other cases, the Licensee determines who will sit on the committee. In most cases, the committees are chaired and otherwise run by the Licensee. Some committees meet on a regular basis, while others are convened infrequently; usually when the Licensee is in the process of getting a management plan approved or seeking certification (see below). There is no obligation on the part of the Licensee to alter their operations in response to input received from the stakeholders committees.

All Licensees produce a brochure outlining the main features of their forest management plan(s) and it is made freely available to the public. Some do a mass mailing. In addition open houses, where the forest management plan is displayed and Licensee representatives are available to answer any questions, are usually held to share with the public the main features of the forest management plan, after the plan has been approved by DNR. These should be viewed as information sessions only because neither DNR nor the Licensee is under any obligation to respond to input received.

### 3.5.2.3 Certification Requirements for Public Consultation

As stated in a previous section of this report, in addition to being ISO 14001 certified, DNR requires Licensees to be certified under one of the following sustainable forestry management (SFM) certification programs:

- *Sustainable Forestry Initiative (SFI)*;
- *Forest Stewardship Council (FSC)*; or
- *Canadian Standards Association CAN/CSA-Z809-02 (CSA)*.

The requirements for public consultation vary by the certification program. The ISO 14001 program merely requires that the Licensee maintain procedures for receiving, documenting, and responding to communication received from external parties. The SFI<sup>33</sup> requires the Licensee to “support and promote, at the state or other appropriate levels, mechanisms for public outreach, education and involvement related to forest management” (p. 27). Apparently, the consultation currently undertaken by the Licensees, as described in the preceding section, suffices for SFI certification. The FSC<sup>32</sup> requires that “local communities and community organizations directly affected by forestry activities must be given an opportunity to participate in the setting of forest management goals and in forest management planning” (p. 11). The CSA<sup>31</sup> requires the Licensee to “establish and implement a public participation process” (p. 11). The CSA requirements take over eight pages to detail, making them the most comprehensive public participation requirements among SFM certifiers. It should be noted that so far, Licensees have chosen to become certified under SFI, which has the least stringent public participation requirements of the three SFM certification programs.

To conclude, the Department has not followed its commitments under the *Canada Forest Accord* or its own principles as enunciated in the *Vision* document. Under the first principle, the Department has not assumed its responsibility for public consultation, and instead has off-loaded it to the Licensees. There is no “well - defined process” as postulated under the second principle. As for the third principle, the Department has considerable information from a variety of sources, and has only just started to make this information available to the public with the release of the publication, *Management of New Brunswick Crown Forest*.<sup>42</sup>

### 3.5.3 Staff Input

Three main themes came through surrounding the question about public participation in the management of Crown land posed to staff in the June workshops. They are as follows:

- *All groups were unanimous in saying that the public should be consulted about the management objectives for Crown land - broad dialogue with the public is needed.*
- *The main concern was about methodology - how to conduct meetings (facilitator); use of the media, information sessions, internet, round table, and involvement of focus groups, not just the stakeholders.*
- *Another concern was related to the provision of unbiased facts and figures to make sure that the public is well-informed. There is considerable misinformation in circulation and a general mistrust of industry and government by the public.*

### 3.5.4 Options

The Department can obtain public input regarding the forest management objectives for Crown land either indirectly or directly.

#### 3.5.4.1 Indirect Approach

In the indirect approach, which is the one currently used, the Department relies upon the forest industry to gather public input, and it has little control over the process. The advantages to this approach are that:

- a) DNR saves time and money as it does not have to undertake the consultation;*
- b) DNR does not have to respond to objections about forest management; and*
- c) DNR is under no obligation to take any action on suggestions made by the public.*

The drawbacks to the indirect approach are that:

- a) it is not an appropriate approach for the setting of goals and objectives for Crown forest management. Asking the Licensee to engage the public in determining these would put the Licensee in a serious conflict of interest;*
- b) the Licensee is under no obligation to consult the public, just inform them, as is largely the case now. This problem is not overcome with certification, unless the CSA standard was required; and*
- c) the public has no recourse if the Licensee does not take its concerns into account.*

### 3.5.4.2 Direct Approach

Using the direct approach, the Department chooses the methodology for gathering public opinion and controls the process, as it did in seeking public participation on Protected Natural Areas. The advantages of this approach are that:

- a) *the citizens of New Brunswick may make their views known directly to the agency entrusted with the stewardship of their forests; and.*
- b) *DNR can act as an arbiter between what the Licensees want and what the public wants.*

The disadvantage is that public participation is time consuming, raises expectation and is costly.

### 3.5.5 Recommendations

In general, the Committee endorses the recommendation from the Jaakko Pöyry report. More specifically, it is recommended that:

- 1) *To enable New Brunswick citizens to participate in a meaningful way, DNR expand its program of educating and informing the public about New Brunswick forestry, including the periodic publication of a report on the state of New Brunswick forests.*
- 2) *DNR adhere to the principles established for public consultation in the Vision document.*
- 3) *DNR develop a process for engaging the public in the goal-setting for Crown forest management. This was recently done through public hearings held by the Select Committee on Wood Supply. The recommendations of this Committee should form the basis for the next version of the Vision document. In subsequent years, DNR will have to draft a strategy for engaging the public in updating the Vision document.*
- 4) *DNR draft a strategy or guidelines for engaging the public in the goal-setting for Crown land management. Crown Land Principles currently exist within the Department and could form the basis for a public participation program.*
- 5) *DNR review its current approach for consulting the public on forest management plans with a view to making it more than just "informing" the public.*
- 6) *In order not to confuse the public, the implementation of recommendations 4 and 5 be staggered rather than undertaken at the same time.*

## 3.6 Conservation Values on Private Lands

*"Conservation values of private lands should be taken into account when evaluating the need for set asides and special management on public lands. This should include a process to establish a form of voluntary conservation designation on private industry lands (and woodlots)."*

*(JP Recommendation #6, p.9)*

### 3.6.1 Issue Description

A common misconception is that NB Crown land carries the responsibility for all of the conservation values for the entire area of the Province. If this is the case, then Jaakko Pöyry suggest that special management areas on private land - especially industrial private land - should count towards meeting Province-wide objectives. This would then allow for a reduction of area on Crown land dedicated to meeting these objectives and thereby free up more wood volume.

### 3.6.2 Context

#### 3.6.2.1 Conservation Values on Crown Land

With the exception of watercourse buffers, Special Management Areas (SMA) were developed and established by DNR to maintain habitat and biodiversity objectives on Crown land. Consequently, any SMA established on private land would have objectives for that private land but these would not replace objectives for Crown land.

The ten large Class II Protected Natural Areas (PNA) were established entirely on Crown land. DNR is currently developing a strategy for the identification of fine-filter sites to fill in some of the gaps in protecting biodiversity as a complement to these PNA. This proposed strategy would identify up to 5 000 ha on Crown land. The major thrust would be to develop partnerships on private land through land trusts, large freehold landowners, private woodlot organizations, municipalities and federal departments.

The objective for wildlife habitat and populations detailed in the *Vision*<sup>6</sup> document is to maintain the populations where they occur on Crown land in New Brunswick. All Deer Wintering Area (DWA) and Old Spruce Fir Habitat (OSFH) land base required to meet these objectives are located on Crown land.

By nature of their location, watercourse buffers are found adjacent to all watercourses in New Brunswick and are protected by the *Clean Water Act*<sup>10</sup> whether on public or private land.

#### 3.6.2.2 Conservation Reserves on Private Land

There currently are significant opportunities for conservation on private land. Mechanisms for protecting areas on private land in New Brunswick are as follows.

- a) *Nature Conservancy of Canada: The Nature Conservancy of Canada (NCC) has been working for over 40 years to protect threatened natural habitats and endangered species through outright purchase, donations and conservation easements. Since 1962 they have secured more than 1,200 properties nationally, comprising 1.73 million acres including woodlands, seashores, internationally significant wetlands, threatened prairies, and a host of other valuable natural places. The NCC has secured approximately 700 ha within New Brunswick, and assisted with the acquisition of more property, turning some over to DNR and the Nature Trust.*
- b) *The Nature Trust of New Brunswick: The Nature Trust of New Brunswick is a charitable land trust dedicated to preserving nature for the benefit of present and future generations of New Brunswick citizens. The aims of the Nature Trust are to identify, classify, protect and preserve natural areas and landscapes in New Brunswick which have outstanding biological, geological or aesthetic value and to foster in the people of New Brunswick awareness and appreciation of their natural heritage. To date, the Trust has established 19 preserves totalling 800 hectares on private land. The Trust is directed by a volunteer Board of Trustees and, apart from government grants for special projects, is supported entirely by private donations.*
- c) *Private forest company lands: There is provision under subsection 40(1) of the CLFA<sup>3</sup> that "upon the request of the Minister, a Licensee shall at his own expense provide the Minister with a copy of, and shall prepare if necessary, a current management plan and a current operating plan for freehold land controlled by the Licensee, such plans to be prepared in the same form as, and to contain comparable information to, that set out in management and operating plans prepared for Crown land." This requirement has been construed by some to mean that Licensees must manage their freehold lands with the same level of objectives as imposed on Crown land. Whether or not this was the intent, use of the Ministerial authority vested by this clause has been limited.*



d) *Municipal conservation plans: Several municipalities have set aside areas that serve conservation purposes. For example, the City of Saint John has acquired and set aside lands for the protection of the Spruce Lake Watershed.*

e) *Conservation easements: Since 1998, the Conservation Easements Act<sup>43</sup> allows individual landowners to grant a conservation easement for one or more of the following purposes:*

- *the conservation of ecologically sensitive land;*
- *the protection, enhancement or restoration of natural ecosystems;*
- *the protection or restoration of wildlife habitat or wildlife;*
- *the conservation of habitat of rare or endangered plant or animal species;*
- *the conservation or protection of soil, air, land or water;*
- *the conservation of significant biological, morphological, geological or palaeontological features;*
- *the conservation of culturally important, archaeologically important or scenically important places;*
- *the protection or use of land for outdoor recreation;*
- *the use of land for public education; and*
- *any other purpose prescribed by regulation.*

*These conservation easements may exist for a fixed term or in perpetuity and may be terminated by written agreement between the holder of the conservation easement and the owner of the land to which the conservation easement relates. The degree of restriction imposed by these easements varies and is captured in the formal agreement. However, as land ownership changes from one family generation to the next, land management objectives may change and conservation easements can be terminated at any time. Therefore, there is no guarantee of conservation values being maintained on private lands by easements.*

f) *Marketing Boards: Forest Product Marketing Boards, which represent individual private woodlot owners in the Province, have recently contracted for the development of new forest management plans. As part of these plans the potential land base for DWA and OSFH will be assessed. Regardless of the outcome of that assessment, it would be up to individual woodlot owners to adopt the prescribed DWA and OSFH objectives and translate them into modified management prescriptions on the ground.*

*Of note, the Northumberland Forest Products Marketing Board has developed plans for five deer yards in their Board area and has actively promoted them with the corresponding land owners.*

g) *INFOR Inc.: There may be more opportunity to educate land owners on the benefits of managing for non-timber values through INFOR Inc., the woodlot education partnership formed by the New Brunswick Federation of Woodlot Owners, the Council of New Brunswick Maple Syrup Producer Associations and the New Brunswick Christmas Tree Growers Co-op Ltd.*

### 3.6.3 Staff Input

Unlike the other recommendations from the Jaakko Pöyry report discussed previously, DNR did not actively solicit staff comments on this issue through a specific workshop activity. However, some comments from the workshops pertain to this issue.

- *Private land management is a significant element when considering Crown objectives.*
- *Tax relief or other incentives for private land owners should be considered.*
- *Education and awareness is important.*



### 3.6.4 Options

The following four options were considered by the Committee:

#### **3.6.4.1 Maintain current system**

Politically, this is the path of least resistance but it allows no chance to transfer SMA objectives from Crown land to private lands. As a result, no SMA on Crown land can be freed up.

#### **3.6.4.2 Legislate special management areas on private woodlots**

This option would allow for the transfer of some SMA objectives from Crown land to private woodlots. However, it would be very difficult politically to impose a limitation on landowners' rights. Furthermore, it would be unrealistic to expect guarantees of SMA on one or more private woodlots, since land owners may change their land management strategies.

#### **3.6.4.3 Legislate special management areas on industrial freehold**

Enhancing both the level (parallel to Crown objectives) and area of special management areas on industrial lands may allow for some adjustments to SMA on Crown land. This option would be conceivably easier to implement than 3.6.5.2. Industrial freehold owners may be opposed but this action could be marketed as a cost of doing business on Crown land.

#### **3.6.4.4 Adopt extensive public education campaign to encourage SMA on private lands**

This is the "carrot" rather than the "stick" approach. This option may not have the desired effect, and it would take a long time to see change. Furthermore, such a campaign could be quite expensive and there are no guarantees that SMA on private land would be protected.

The key point for this issue is that there is no guarantee any SMA on private land would be protected unless there was strong legislation to enforce it. Therefore, SMA on private land should be considered as a supplement to, and not a substitute for, the SMA on Crown land.

### 3.6.5 Discussion

The Crown's efforts for conservation on Crown land are being implemented through mechanisms such as the *Vision* document. Efforts to increase conservation values on private lands should be on-going, requiring the support of DNR, non-government organizations, woodlot and industrial owners. The need for a partnership approach was identified during the Department's recent strategic planning.

Legislation of conservation practices on private lands is not viewed as an effective approach unless all parties are in prior agreement. Provision does exist within the *Conservation Easements Act*<sup>43</sup> for private lands to be set aside. Other incentives for sustainable management are likely more effective in the long term.

### 3.6.6 Recommendations

It is recommended that:

- 1) *DNR consider conservation activities on private and industrial lands only as a supplement to, and not a replacement for, SMA on Crown land.*
- 2) *DNR should provide education on conservation values to private land owners and encourage establishment of SMA on private and industrial lands.*

## 3.7 Research and Development

*“The industry and DNR should jointly fund and support research and development of science-based forest management practices applicable in New Brunswick. ”*

*(JP Recommendation #2, p.9)*

### 3.7.1 Issue Description

At present, there is uncertainty regarding the impacts of increased demand upon the forest. Research and Development (R&D) will be a significant factor in ensuring the success of future forest management efforts, regardless of the management strategies employed. If the Province embarks on a course of increased silviculture, as suggested by the doubling Scenario in the Jaakko Pöyry report, there will be an increased need to conduct more (R&D) on forest management related issues.

### 3.7.2 Context

Forestry-related research and development was funded extensively by the Canadian Forest Service (CFS) during the 1980s. For about 10 years beginning in the mid-1980s, the New Brunswick Forest Research Advisory Committee (NBFRAC) existed to direct funds from Federal/Provincial Agreements to R&D projects in the Province. Committee membership included industry, government and universities, and drew participants from the field level if each agency. It was very effective and resulted in many useful projects that flowed directly into practical application. It came to an end when the Federal/Provincial Agreements concluded in the mid-1990s.

As a result of a change in strategic direction, CFS has recently renewed their interest in R&D, and will once again focus on client-based R&D.

While legislation does not specifically direct DNR to undertake research, there currently are R&D initiatives in New Brunswick jointly funded by DNR and industry, focused on forest management issues. The New Brunswick Tree Improvement Council (NBTIC) and the New Brunswick Growth and Yield Unit (NBGYU) are two good examples.

#### 3.7.2.1 New Brunswick Tree Improvement Council (NBTIC)

NBTIC was established in 1976 to coordinate tree improvement efforts of government and industrial agencies and to facilitate the free exchange of genetic material and information. The provincial government is a core member, participating in all aspects of the program. A number of industrial members, operating primarily on Crown land, were initially reluctant to participate. Following enactment of the *CLFA* in 1981, when management of Crown land was turned over to the forest companies, they became involved in the Council's program. At present, the Council comprises eight industrial companies, two universities, and the provincial and federal governments. The provincial government manages seed orchards and produces all seedlings for planting on Crown land. The provincial government is the lead agency for coordinating and conducting breeding programs and growing seedlings for genetic testing. Industrial members participate in selection and breeding and are responsible for planting, managing, and measuring the tests. The Council members jointly fund a permanent position within DNR for a data analyst (1/3 DNR and 2/3 industry). Research on various projects is usually done with "in-kind" contributions from Council members.

#### 3.7.2.2 New Brunswick Growth & Yield Unit

The NB Growth & Yield Unit grew out of the DNR/Licensee Management Planning Committee in 1997. The Coordinator's position is jointly funded by DNR and industry. However, unlike the NBTIC data analyst position, the Coordinator's position is not

maintained as a permanent position within DNR. The Unit focuses primarily on the incorporation of plot data into the prediction of growth and yield of various species in the Province. This data set forms a cornerstone in the supply predictions made in Crown wood supply analysis.

### 3.7.2.3 Other

In addition to these projects, there are other R&D related initiatives currently underway that involve both DNR and/or industry:

- *Fundy Model Forest (DNR is one of the main partners);*
- *Cooperative Permanent Sample Plot Program (directly funded by both DNR and industry);*
- *Ecological Land Classification (initially developed by DNR and currently under refinement by some Licensees);*
- *Canadian Forest Products Innovation Council, which recently proposed the establishment of an Atlantic Council;*
- *Bowater/UNB Watershed Project (partially funded by industry); and*
- *Fraser/U de M Project (partially funded by industry).*

Like most other provincial government departments, DNR has experienced recent budget reductions. These reductions have threatened major DNR programs, including silviculture. Given the current fiscal environment, it will be challenging to secure additional funds to support increased R&D.

### 3.7.3 Staff Input

Staff comments were not actively solicited on this issue through a specific workshop activity. However, one concern arose from the workshops pertaining to R&D:

- *research and development is important, especially if we are going to increase silviculture.*

### 3.7.4 Options

Two options were considered by the Committee.

#### 3.7.4.1 Re-activate a NBFAC-like group

This option would give a renewed focus to R&D related to forest management. However, targeted funding for projects would be required in order for such a group to function effectively. Therefore, three potential funding sub-options were identified.

- a) Use a royalty-based levy to fund R&D - This option would provide base funding for R&D related to forest management. However, Licensee support for this option may be low, given that Licensees already pay a silviculture levy.*
- b) Use a penalty-based levy to fund R&D - This option would provide base funding for R&D related to forest management. However, the base funding level would be highly variable, depending upon fines, and would require redirecting an existing revenue flow within government. This option would only be successful if poor performance is practiced; something which we do not want to perpetuate.*
- c) Lobby CFS (and other federal sources) for specific funding for R&D.*

### 3.7.4.2 Develop a mechanism for better communication/links between research and field agencies

This option would promote R&D within the forestry community. However, a significant change from the current state is unlikely to occur without dedicated R&D funding. Specifically, CFS, UNB and U de M could be requested to focus attention on New Brunswick needs.

### 3.7.5 Recommendations

It is recommended that:

- 1) *DNR instigate the re-activation of an NBFRAF-like group to direct applied forest management research. If created, DNR should play a central role in providing core support, which requires secure funding. Funding options include:*
  - *a royalty-based levy; and*
  - *the Canadian Forest Service (or other federal sources that CFS may be able to identify).*
- 2) *DNR work towards enhancing links between existing R&D and field agencies.*

## 4.0 Conclusions

The Jaakko Pöyry report raised important issues for consideration. This is evident not only by the input received from DNR staff during the internal consultation but also by the findings of the Internal Review Committee. Thirty-one recommendations, listed below, are the fruit of the Committee's labour. Seven recommendations require no new action, but are recommended positions for the Department to assume. Twenty of the recommendations should be acted upon immediately. The remaining four address matters that will evolve over a longer time horizon and will take more time to implement.

It is imperative to maintain an adaptive and flexible management approach, which can accommodate changes in forest and societal values. The DNR Committee concludes that New Brunswick forest management approach would be restricted if a binding, long-term timber objective was adopted. However, there is merit in developing a timber supply objective. This objective must be broader in scope than the current one, going beyond spruce-fir-jack pine to include other commercial species. Alternative options must be analyzed to effectively develop appropriate species- and product-specific objectives. Priority should be given to value-added ventures.

DNR involvement in the forest management system is essential and cannot be wholly replaced by certification. DNR should undertake an analysis of the certification system to determine how it may be used to complement DNR's auditing responsibilities. Roles and responsibilities of DNR and industry need to be examined to identify opportunities for efficiencies.

Natural resource management requires consideration and balancing of economic, ecological and social factors, to satisfy the citizens of New Brunswick. This requires meaningful public consultation to determine what kind of forest and forest industry the people of New Brunswick want. Research and development in the field of forest management, particularly applied management, is also important for New Brunswick. Avenues must be pursued to better position the Province for future decision making.

Lands now under special management must be periodically reviewed to ensure they are achieving their desired affects, and are modified in accordance with scientific knowledge and societal interests. Conservation on private lands should be encouraged and promoted, but should not be considered as a replacement for existing commitments on Crown lands.

In response to the “doubling” scenario, the Committee concludes that prior to committing to additional silviculture treatment, DNR must conduct further analysis to inform the decision making. Determining the desired future of our Provincial forests is a complex matter; the significance and important of these decisions should not be underestimated. While this work may take upwards of two years to complete, options are not foreclosed by this delay. The eventual decision may then be based on a more comprehensive analysis.

In order to effectively pursue the suggested recommendations, the Review Committee also **recommends that DNR reactivate its Senior Forestry Committee so that it may provide direction for whatever portions of this work are deemed a priority.** This Senior Committee will also be well positioned to address other initiatives that the Department may be directed to conduct in response to the Select Committee’s recommendations.

The Committee recommends that:

- 1) *DNR conduct a strategic analysis of future Crown wood supply and develop a process to establish quantifiable, species- and product- specific wood supply objectives.*
- 2) *DNR establish forest level objectives (timber and non-timber) that remain binding for five-year periods.*
- 3) *Government delay its decision on the “doubling” option until action is taken on the following four recommendations.*
- 4) *DNR look at the feasibility of intensified management options based on different long-term harvest objectives, with consideration for the concerns raised by various public input.*
- 5) *Government enhance development of the value-added wood products through mechanisms such as DNR placing greater priority on the allocation of wood volume on this basis, and continued focus in this area by Business New Brunswick.*
- 6) *DNR improve its level of knowledge through research regarding the impacts of increased plantation area and harvest levels.*
- 7) *DNR initiate a review of the maintenance of populations of all species, even if intensified management is not considered an option.*
- 8) *DNR review the possibility of sharing responsibility for silviculture funding with industry and develop options for different funding formulas.*
- 9) *DNR undertake a detailed analysis of its forest management, to determine what functions currently carried out by DNR could be added to an enhanced certification system.*
- 10) *DNR reject the self-inspection system used in Ontario as a possible model to implement in New Brunswick.*
- 11) *DNR review and revise its forest planning procedures and related documents with the intent of improving clarity and understanding to ensure more standardized implementation by licensees and improved performance monitoring.*
- 12) *DNR consider providing incentives to Licensees for good management.*
- 13) *DNR analyze forestry and environmental violations in order to direct its monitoring to areas of greatest risk.*
- 14) *DNR review and revise the penalty schedule and its application.*
- 15) *DNR introduc a systematic sampling scheme for harvest monitoring.*

- 16) *DNR develop an electronic block management system for use with the Violation and e-Scale systems.*
- 17) *DNR continue periodical review of guidelines for non-timber objectives and watercourse buffers, adjusting them to incorporate new scientific knowledge and address social concerns.*
- 18) *DNR periodically conduct Special Management Area (SMA) Workshops, involving key people from Headquarters, the Regions and industry, to clarify objectives, standards and performance criteria for SMA, and to foster effective communication between DNR and Licensees.*
- 19) *DNR ensure the first right of refusal to harvest the AAC from a SMA goes to the Licensee. However, if that Licensee declines, then the AAC from that SMA should be offered to another Licensee.*
- 20) *DNR re-evaluate the DWA land base to determine if increased levels of timber harvesting could occur, while still maintaining short- and long-term deer population expectations.*
- 21) *DNR expand its program of educating and informing the public about New Brunswick forestry, including the periodic publication of a report on the state of New Brunswick forests.*
- 22) *DNR adhere to the principles for public consultation established in the Vision document.*
- 23) *DNR develop a process whereby the public can be engaged in future goal-setting for Crown forest management.*
- 24) *DNR draft a strategy/guidelines for engaging the public in the goal-setting for Crown land management.*
- 25) *DNR review its current approach for consulting the public on forest management plans with a view to making it more than just "informing" the public.*
- 26) *In order not to confuse the public, the implementation of recommendations 23 and 24 should be staggered rather than undertaken at the same time.*
- 27) *DNR consider conservation activities on private and industrial lands only as a supplement to, and not a replacement for, special management areas on Crown land.*
- 28) *DNR should provide education on conservation values to private land owners and encourage establishment of SMA on private and industrial lands.*
- 29) *DNR instigate the re-activation of an NBFrac-like group to direct applied forest management research.*
- 30) *DNR work towards enhancing links between existing Research and Development groups and field agencies.*
- 31) *DNR reactivate its Senior Forestry Committee to provide direction for whatever portions of this work are deemed a priority, as well as other forest management work the Department is directed to conduct in response to the Select Committee's recommendations.*



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## 6.0 Glossary of Terms

**Annual Allowable Cut:** the volume of timber that may be harvested during a given period to maintain sustained production.

**Biodiversity (biological diversity):** the diversity of plants, animals, and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them.

**Clear-cutting:** the process of removing all trees, large and small, in a stand in one cutting operation.

**Commercial thinning:** a cutting made in a stand in order primarily to accelerate diameter increment but also, by suitable selection, to improve the average form of the trees that remain. Merchantable material is produced at least to the value of the direct costs of harvesting.

**Crown land:** all or any part of the lands vested in the Crown that are under the administration and control of the Minister of Natural Resources and includes any water upon or under the surface of such lands.

**Ecoregion:** an area that has a distinctive geography associated to a unique assemblage of fauna and flora.

**Ecosystem:** a functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area, and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow. An ecosystem can be of any size - a log, pond, field, forest, or the earth's biosphere - but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old-growth ecosystem, or range ecosystem.

**Fine-filter process:** a process to maintain biodiversity that is directed toward identifying particular habitats or individual species that might have fallen through the coarse-filter process. These habitats may be critical in some way and the species threatened or endangered. Part of the Protected Natural Areas strategy.

**Forest land:** land with tree crown cover (or equivalent stocking level) of more than 10 per cent and area of more than 0.5 ha. The trees should be able to reach a minimum height of 5 m at maturity *in situ*.

**Forest management:** the practical application of scientific, economic and social principles to the administration and working of a forest for specified objectives. Particularly, that branch of forestry concerned with the overall administrative, economic, legal and social aspects and with the essentially scientific and technical aspects, especially silviculture, protection and forest regulation.

**Forest Management Agreement:** an agreement which outlines the specific responsibilities of Licensees and the Minister in the management and use of Crown land.

**Herbicide:** chemical substances or living organisms (called bioherbicides) used to kill or control vegetation such as brush, weeds, and competing or undesirable trees.

**Hardwoods:** trees which are generally deciduous, broad leafed species such as maple, birch and aspen.

**Habitat:** the place where an organism lives and/or the conditions of that environment including the soil, vegetation, water, and food.

**Industrial freehold land:** land held by individuals or companies with a wood processing facility.

**Licensee:** the holder of a Crown Timber License.

**Planting:** establishing a forest by setting out seedlings, transplants or cuttings in an area.

**Pre-commercial thinning:** a silvicultural treatment to reduce the number of trees in young stands, often carried out before the stems removed are large enough to be used or sold as a forest product. Prevents stagnation and improves growing conditions for the remaining crop trees so that at final harvest the end-product quality and value is increased.

**Private land:** land held by individual owners without a wood processing facility.

**Productive forest land:** forest land that is capable of producing a merchantable stand within a defined period of time.

**Protected Natural Areas (PNA):** areas of land or water permanently set aside under the *Protected Natural Areas Act* for the conservation of biological diversity. The criteria for designating Class I PNA include rare species and ecosystems, critical habitat, and unique assemblages of native fauna and flora. The existing 20 Class I PNA were the former Ecological Reserves and Conservation Areas. All activities are prohibited, except by permit from the Minister of Natural Resources and for educational and scientific purposes. The main selection criterion for the 10 large Class II PNA was representation of the seven ecoregions of New Brunswick. In Class II PNA, certain recreational uses having minimal environmental impact including traditional food gathering activities are permitted. Educational and scientific activities require a permit.

**Royalty:** the amount payable to the Crown for timber harvested on Crown land as prescribed by regulation.

**Silviculture:** the theory and practice of controlling forest establishment, composition, and growth.

**Softwoods:** cone-bearing trees with needle or scale-like leaves such as spruce, fir, cedar and pine.

**Special Management Areas:** areas where timber supply is restricted for a special purpose. Includes watercourse buffer zones, deer wintering areas, protected natural areas and old spruce-fir habitat.

**Stream:** a watercourse, having an alluvial sediment bed, formed when water flows on a perennial or intermittent basis between continuous definable banks.

**Sub-Licensee:** the holder of a Crown Timber Sub-License.

**Tending:** any operation carried out for the benefit of a forest crop or an individual thereof, at any stage of its life. It includes operations both on the crop itself and on competing vegetation but not site preparation or regeneration cuttings.

**Timber:** all trees of any species or size whether standing, fallen, cut or extracted.

**Watercourse:** a natural stream or source or supply of water, whether usually containing water or not, such as a lake, river, creek, spring, ravine swamp, and gulch.

**Watercourse buffer:** area of relatively undisturbed vegetation maintained between forestry operations and adjacent watercourses for the purpose of managing water quality and aquatic habitats, and other identified resource values, including: aquatic recreation and aesthetic values, waterfowl production areas and wildlife hiding cover & travel corridors.

**Wildlife:** as defined in the *Fish and Wildlife Act*, any vertebrate animal or bird, excluding fish, that is wild by nature in the Province, and any exotic wildlife that has been introduced into the wild in the Province.

**Wood processing facility:** as defined in the *CLFA*, a mill in which timber is manufactured into secondary wood products.

## 7.0 Acronyms

AAC .....	Annual Allowable Cut	HW .....	hardwood
APEC .....	Atlantic Provinces Economic Council	M m <sup>3</sup> .....	million cubic metres of wood volume
CFS.....	Canadian Forest Service	MCFH.....	Mature Coniferous Forest Habitat
CLFA .....	Crown Lands and Forests Act	MNR .....	Ontario Ministry of Natural Resources
CTL.....	Crown Timber Licensee	NBFPA .....	New Brunswick Forest Products Association
CSA .....	Canadian Standards Association	NCC.....	Nature Conservancy of Canada
DBH .....	Diameter at breast height	NTO .....	Non-Timber Objectives
DELG.....	New Brunswick Department of Environment & Local Government	OSFH.....	Old Spruce-Fir Habitat
DNR .....	New Brunswick Department of Natural Resources	PNA .....	Protected Natural Areas
DNRE .....	New Brunswick Department of Natural Resources & Energy	R&D .....	Research and Development
DWA.....	Deer Wintering Areas	SFI .....	Sustainable Forest Initiative
EMC.....	DNR's Executive Management Committee	SFL .....	Sustainable Forest Licensee
FMA.....	Forest Management Agreement	SFM.....	Sustainable Forest Management
FMM .....	Forest Management Manual	SMA.....	Special Management Areas
FSC.....	Forest Stewardship Council	SPFJP.....	Spruce-Fir-Jack Pine
FTE.....	Full Time Equivalent	SW .....	softwood
ISO 14001 .....	International Standards Organization (Environmental Management System)	SH .....	softwood-hardwood
HS .....	hardwood-softwood	UNB .....	University of New Brunswick
		U de M .....	Université de Moncton
		WB.....	Watercourse Buffers

# Appendix A

## Members of DNR Internal Committee

- Paulette Arsenault      Administrative Support  
Policy and Planning Branch
- Jean-Pierre Blanchard      Management Forester  
Region 1 (Bathurst)
- Robert Dick      Manager, Forest Management Planning  
Forest Management Branch
- Jennifer Dunlap      Policy Analyst  
Policy and Planning Branch
- Craig Frame      Silviculture Forester  
Forest Management Branch
- Bernice Johnstone      Management Forester  
Region 2 (Miramichi)
- Jean-Louis Laplante      Regional Forester  
Région 4 (Edmundston)
- Scott Makepeace      Habitat Biologist  
Fish and Wildlife Branch
- Steve McCutcheon      Manager/Regional Geologist  
Geological Surveys (Bathurst)
- Gary Moore      Regional Biologist  
Region 3 (Fredericton)
- Mary Sabine      Fisheries Biologist  
Fish and Wildlife Branch
- Bernadet Samulski      Manager, Land Planning  
Crown Lands Branch

