

**A Vision  
for  
New Brunswick Forests**  
**...Goals and Objectives for Crown Land Management**

New Brunswick Dept. of Natural Resources and Energy

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## TABLE OF CONTENTS

LIST OF TABLES.....	iii
SECTION A: CONTEXT.....	1
INTRODUCTION.....	2
THE NATIONAL CONTEXT - SUSTAINABLE FORESTS.....	2
Forest Ecosystems.....	3
Forest Management.....	4
Public Participation.....	4
The Forest Industry.....	5
FOREST CERTIFICATION.....	5
THE NEW BRUNSWICK APPROACH TO FOREST MANAGEMENT.....	6
PUBLIC VALUES.....	8
FOREST ECOSYSTEMS.....	9
WILDLIFE HABITAT.....	10
TIMBER.....	11
WATER.....	12
SECTION B: OBJECTIVES AND STANDARDS.....	14
1. PUBLIC VALUE AND USES.....	15
(a) Public Input.....	15
(b) Recreation.....	15
2. FOREST ECOSYSTEMS.....	15
(a) Vegetation Communities.....	15
(b) Unique Sites.....	18
3. WILDLIFE HABITAT.....	18
(a) Habitat Types.....	18
(b) Deer Wintering Areas.....	21
4. TIMBER.....	25
(a) Wood Supply.....	25
(b) Scheduling.....	25
(c) Tolerant Hardwood Management.....	25
(d) Harvest Prescriptions.....	25
(e) Harvest Blocking.....	25
(f) Silviculture.....	25
5. WATER.....	26
(a) Watercourse Buffers.....	26
6. RECREATION & AESTHETICS.....	27
(a) Aesthetic Buffers.....	27
7. MANAGEMENT PLAN FORMAT.....	27
APPENDIX 1: INTEGRATION OF VEGETATION COMMUNITY AND WILDLIFE HABITAT OBJECTIVES.....	28
APPENDIX 2: TABLE OF CONTENTS FOR 2002 MANAGEMENT PLANS.....	34

## LIST OF TABLES

Table 1. Species Composition Criteria of Vegetation Communities .....	16
Table 2. Approximate Minimum Ages of the Old and Large Successional Stages .....	16
Table 3. Management Objectives for Vegetation Communities by License and Ecoregion .....	17
Table 4. Stand-level Habitat Composition Criteria.....	19
Table 5. Management Objectives for Habitat Types by License and Ecoregion .....	19
Table 6. Deer Wintering Area Landbase .....	21
Table 7. Stand Structure and Spatial Criteria for MWDH and SWDH .....	23
Table 8. Deer Winter Habitat Suitability by Stand Age for Example Stand Types .....	24
Table 9. Buffer Widths by Crown Timber License and Feature Type .....	26

**SECTION A: CONTEXT**

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## **A VISION FOR NEW BRUNSWICK FORESTS**

### **Section A: Context**

#### **INTRODUCTION**

The purpose of this document is to set forth the philosophy, principles and direction to be followed in the management of Crown forests in New Brunswick. It has been prepared by the New Brunswick Department of Natural Resources and Energy and is intended to provide direction for Crown Timber Licensees in preparation of their Management Plans, and to inform the public about the management of New Brunswick's Crown forest.

The New Brunswick Crown Lands and Forests Act provides for the partition of the provincial Crown forest into Timber Licenses. Each license has been allocated to one of the larger forest-based companies in the Province, and each Licensee has assumed specific obligations under the Act. These obligations, among others, require that Licensees develop and periodically revise 25 year Management Plans. The first Management Plan was prepared in 1982 and has been revised every 5 years since.

The first section of this document provides a context for management and is based on the National Forest Accord, which has been endorsed by governments, industry, labour and other groups with interests in forest values. This is followed by a statement of New Brunswick's approach to implementation through a series of policy goals, strategies and actions which provide a perspective on management. Finally, Section B provides the specific objectives that must be met in the 2002 Crown land management plans.

#### **THE NATIONAL CONTEXT - SUSTAINABLE FORESTS**

New Brunswick is a signatory to the National Forest Accord (NFA). The Accord unites the Canadian forest community in working co-operatively toward the goal of sustainable forests. Internationally, Canada is recognized as a leader in sustainable forest management. Within the national context, New Brunswick receives top marks for forest management planning.

A recent development in the NFA's implementation is the production of a revised national forest strategy, Sustainable Forests: A Canadian Commitment 1998-2003. The strategy will guide efforts in sustainable forest management as Canada enters a new millennium.

Recognizing the changing attitudes of Canadian society toward its forests, the strategy seeks to achieve consensus on an ever-broadening basis for forest management. Forest ecosystems are considered as well as economic, social and

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cultural values. More resources are being directed to environmentally sound forest technologies.

Nine strategic directions provide the strategy's framework, and underlie specific actions toward implementation. Briefly, they outline shared commitments to:

- Conserve the natural diversity of forest ecosystems, maintain and enhance their productive capacity, and provide for their continued renewal;
- Improve the ability to plan and practise sustainable forest management;
- Increase public participation in the allocation and management of forest lands, and provide an increased level of public information and awareness;
- Diversify and encourage economic opportunities for the forest sector in domestic and international markets;
- Increase and focus research and technology efforts to benefit the environment and the economy;
- Ensure the existence of a highly skilled and adaptable workforce and the stability of forest-dependent communities;
- Increase the participation by, and benefits for, Aboriginal peoples in the management and use of forests;
- Assist private woodlot owners in continuing to improve their individual and collective abilities to manage and exercise stewardship of their land; and
- Reinforce Canada's responsibilities as trustee of 10 per cent of the world's forests.

These strategic directions are complementary to New Brunswick's approach to forest management and yield the following principles:

### **Forest Ecosystems**

- Healthy forest ecosystems are essential to maintain the quality of life.
  - The sustainable use and management of forest ecosystems must maintain their essential ecological processes, biological diversity, productivity, resilience and capacity for renewal.
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- Comprehensive, accurate inventories that include information on key forest values are essential for sustainable forest management.
- Forest use and management must maintain the diversity of plants and animals, ecosystems, and landscapes.
- Sustainable use and management of Canada's forests must respect their role in maintaining local and global ecosystems.

### **Forest Management**

- Sustainable forest management requires an adaptive management approach, following exemplary forest practice that is grounded in the best available scientific knowledge.
- Sustainable forest management recognizes a forest's potential to sustain a range of values and the needs and rights of all users, and strives to find the best balance of uses based on the relative benefits and impacts of management alternatives.
- Coordinated direction, applied to objectives from broad land use plans to local site-specific goals, must guide all forest operations.
- Forest land tenure systems must balance rights with responsibilities, encourage sound stewardship, sustain a supply of resources and provide opportunities for a fair return on investments.
- Forest practices must be based on a sound understanding of ecological principles and of the goals established for the forest.
- Ethical conduct on the part of all those who direct, practise or judge performance in forest management is essential.

### **Public Participation**

- 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.
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- Effective public participation requires current information from a variety of sources, including publicly funded forest resource databases.

### **The Forest Industry**

- Canadian wood and paper industries must remain globally competitive with the major timber-producing regions of the world.
- The future competitiveness of Canadian firms in timber and other forest products sectors will depend on the ability of industry and government to respond to competitive pressures in domestic and international markets and changes in wood supply, and implementation of sustainable forest management in an institutional environment conducive to long-term investment.
- A healthy and diversified forest-based economy contributes significantly to the social, spiritual, cultural and environmental well-being of Canadian society.

With trustworthy information about Canadian forest practices, and assurances that forests are being managed sustainably, consumers will express their environmental preferences through the market place.

### **FOREST CERTIFICATION**

Forest management certification is the auditing of forest management for some specified area of forest against an agreed standard. Increasing demand for forest products and other forest benefits, together with widespread public concern over the management of limited forest resources, are leading the forest community to consider the benefits of sustainable forest management certification.

The scope of certification is far-reaching. Associated improvements in management practices have the potential to contribute to the conservation of biodiversity, water and soil, ecosystem productivity, wildlife habitat and populations, and global ecological cycles while increasing the flow of forest benefits to society.

Canada is one of a number of countries that are supporting the development of national and international standards. Governments have tended to view certification as one form of agreement between buyer (wholesaler, consumer) and seller (forest products company). At the same time, certification is seen as an important symbol of the types of changes being applied to the standards for forest management, particularly in the international marketplace. Governments

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therefore support company certification efforts as a route to a general improvement in the state of forest management on lands within their jurisdictions.

In March 1999, the Canadian Forest Service released "Forest Certification: A Canadian Governmental Perspective". The document affirms that certification schemes may serve as a useful tool in the promotion of sustainable forest management. In summary, it includes the following as necessary attributes of certification:

- Schemes must relate, and be responsive, to recognized and agreed-to processes that deal with the principles and practices of sustainable forest management;
- Certification should operate independently and at arms length from proponents, and rely on domestic and international standards for development and auditing;
- Certification should be non-discriminatory with respect to forest type and ownership; fair marketing practices should underlie promotion of certification schemes; and,
- Certification should not distort trade.

In New Brunswick, industry and government have been working together to identify operational requirements that companies might encounter, should they seek certification. The framework for these discussions is the Canadian system of criteria and indicators for sustainable forest management. The system provides the basis for measuring, in quantitative terms, Canada's progress on the commitments in the National Forest Strategy; it defines in technical and scientific terms the forest values Canadians want to sustain and enhance.

## **THE NEW BRUNSWICK APPROACH TO FOREST MANAGEMENT**

The Minister of Natural Resources and Energy is responsible for the development, utilization, protection and integrated management of the resources on Crown lands (Crown Lands and Forests Act). The mission of the Department of Natural Resources and Energy is to manage the natural resources of the Province in the best interest of its citizens. This requires the establishment of goals and objectives to be met over time.

The challenge is to define the best balance of often conflicting objectives that will benefit all New Brunswickers. To do so requires an understanding of the positive and negative impacts associated with objective-setting decisions. It is also

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important to recognize that needs change over time. Consequently, in New Brunswick, Crown land objectives are reviewed every five years to ensure that they reflect the changing needs of society.

The Department regularly involves the public in the ongoing development of its management objectives. Public hearings have been held recently, for example, to gather public input regarding distribution of natural gas in the province, and also about the establishment of a New Brunswick protected areas network. Public input is also gained through the daily interaction between the public and elected government representatives. The public opinions thus expressed are evaluated as objectives for Crown land management are set.

Government is responsible for establishing goals, objectives and standards. Crown Timber Licensees are responsible for developing management and operating plans which achieve them. Management plans forecast timber and habitat supplies for 80 years and map harvest blocks and specific habitat areas for 25 years. These plans must be approved by the Department and implementation is monitored. Management performance is also evaluated at 5-year intervals before the License is renewed. As part of the process, Licensees are required to solicit public views on meeting management plan objectives. This public input is then considered in the development of operating strategies.

Management planning for the next five year period (2002-2007) is underway and the following defines the policy goals and strategies with respect to: public values and uses; the forest as a whole; timber; wildlife habitat; and, water. These set the stage for Section B of this document which defines structural objectives at the forest level that Licensees must achieve in the next management plan.

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## **PUBLIC VALUES**

### **Policy Goal**

To account for public values on Crown lands.

### **Strategies/Actions**

- Maintain opportunities for government consultation with individuals and special interest groups on Crown Land management objectives.
  - Provide information on management activities to the public.
  - Maintain appropriate levels of public access to Crown land.
  - Protect Crown lands from illegal use.
  - Provide for recreational opportunities.
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## FOREST ECOSYSTEMS

### **Policy Goal**

To maintain the diversity of forest ecosystems and their associated ecological values.

### **Strategies/Actions**

- Direct forest management activities to ensure that the full range of naturally occurring forest types and successional stages are maintained.
  - Identify and protect unique sites and their associated values.
  - Use harvest practices that favour natural regeneration.
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## **WILDLIFE HABITAT**

### **Policy Goal**

To provide habitat necessary to support populations of native wildlife species at desired levels across their natural ranges.

### **Strategies/Actions**

- Develop quantitative habitat objectives for selected wildlife species or species groups for inclusion in forest management.
  - Ensure forest management activities provide the amount, quality and distribution of identified habitats to meet population objectives for all native vertebrate species.
  - Protect the habitat of endangered species.
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## TIMBER

### **Policy Goal**

To maximize the long-term economic benefits from the sustainable timber supply while meeting identified non-timber objectives.

### **Strategies/Actions**

- Schedule harvesting to minimize volume loss, including loss due to fire, insect and wind damage.
  - Ensure that the annual allowable cut is not exceeded.
  - Select harvest methods that sustain timber supply and that are consistent with other management objectives.
  - Employ uneven-aged management techniques in tolerant hardwood stands that have potential for sawlog production.
  - Ensure harvested areas are adequately restocked through natural regeneration or planting of species appropriate to the site.
  - Implement silvicultural activities of planting, spacing and stand tending that support the annual allowable cut and other forest management objectives.
  - Minimize waste on harvest operations.
  - Direct harvested timber products to the best end use.
  - Implement appropriate levels of fire and insect suppression to achieve forest management objectives.
-

## **WATER**

### **Policy Goal**

To protect water quality and maintain aquatic habitat for fish and wildlife species.

### **Strategies/Actions**

- Maintain buffer zones around lakes and along watercourses.
  - Ensure conformance to standards for the design and construction of roads and the installation of bridges and culverts.
  - Ensure conformance with requirements of the N.B. Clean Water Act.
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## RECREATION & AESTHETICS

### **Policy Goal**

To provide for recreational opportunities on Crown Land.

### **Strategies/Actions**

- Maintain appropriate levels of public access to Crown land.
  - Provide for recreational opportunities.
  - Improve aesthetic values along recreational watercourses and provincial highways.
  - Develop trails and lookouts.
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**SECTION B: OBJECTIVES AND STANDARDS**

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**A VISION FOR NEW BRUNSWICK FORESTS**  
**Section B: Objectives and Standards**

**1. PUBLIC VALUE AND USES**

**(a) Public Input**

Licensees are required to solicit public views on how management plan objectives will be met and must give sufficient opportunity for all stakeholders to participate.

**(b) Recreation**

The integrity of existing recreational sites will be maintained.

**2. FOREST ECOSYSTEMS**

Forest management objectives have been strengthened to include maintenance of the diversity of forest ecosystems and their associated ecological values. Both coarse-filter and fine-filter objectives have been developed to address these values. The coarse-filter approach ensures that the full range of naturally-occurring forest types and successional stages will be maintained on Crown land. The fine-filter approach is currently supported through the protection of unique sites and may be enhanced through the Protected Areas Strategy still under development by government.

**(a) Vegetation Communities**

Forest ecosystems are represented by aggregations of forest stands in the management planning process. The ecological descriptors of stands are Vegetation Community and Successional Stage. Vegetation Communities are defined using overstory tree species composition (Table 1).

Based on a biodiversity assessment of Crown lands, older successional stages are targeted for objectives, as these stages are most at risk of decreasing in area due to human activities. The OLD successional stage occurs when crown closure declines due to mortality in the overstory. Its description is further refined by a LARGE stage that occurs when there are stems of 45 cm in diameter or greater in the stand. The LARGE stage is required to provide habitat for certain forest-dwelling vertebrate species (See 3: Wildlife Habitat). The approximate ages at which the OLD and LARGE stages begin were estimated for each vegetation community based on the most abundant species (Table 2); actual assigned ages may be modified based on expected stand development.

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Table 1. Species Composition Criteria of Vegetation Communities

Vegetation Community	Compositional Criteria <sup>1</sup>
Tolerant Hardwood Pure (THP)	SW <sup>2</sup> < 50%; TH <sup>3</sup> ≥ 20%; TH+RM <sup>4</sup> ≥ 75%
Tolerant Hardwood - Softwood (THSW)	SW < 50%; TH ≥ 20%; TH+RM ≥ 35% and < 75%
Intolerant Hardwood - Softwood (IHSW)	SW < 50%; TH < 20% or TH+RM < 35
Pine (PI)	SW ≥ 50%; PI <sup>5</sup> ≥ 35%
Jack Pine (JP)	SW ≥ 50%; JP <sup>6</sup> ≥ 35%
Cedar (CE)	SW ≥ 50%; EC <sup>7</sup> ≥ 35%
Black Spruce (BS)	SW ≥ 50%; BS <sup>8</sup> ≥ 35%
Spruce (SP) <sup>11</sup>	SW ≥ 50%; SP <sup>9</sup> ≥ 35%
Balsam Fir (BF) <sup>12</sup>	SW ≥ 50%; BF <sup>10</sup> ≥ 35%
Tolerant Hardwood - Softwood (THSW)	SW ≥ 50%; TH ≥ 20%; TH+RM ≥ 35% and < 75%

<sup>1</sup> Criteria are not mutually exclusive. Stands that meet more than one set of criteria are assigned based on the priority indicated by the order in the table.

<sup>2</sup> All softwood species; <sup>3</sup> Tolerant hardwood: primarily sugar maple, yellow birch and American beech; <sup>4</sup> Red maple; <sup>5</sup> Pine: white and red pine; <sup>6</sup> Jack pine; <sup>7</sup> Eastern cedar; <sup>8</sup> Black spruce;

<sup>9</sup> Spruce: white and red spruce; <sup>10</sup> Balsam fir;

<sup>11</sup> Includes those stands with greater than 75% spruce+fir and greater than 35% spruce (SPP);

<sup>12</sup> Includes those stands with greater than 75% spruce+fir and greater than 35% fir (BFP)

Table 2. Approximate Minimum Ages of the Old and Large Successional Stages

Vegetation Community	Approximate Minimum Age	
	Old	Large <sup>2</sup>
Tolerant Hardwood Pure (THP)	90 / 120 <sup>1</sup>	90 / 120
Tolerant Hardwood - Softwood (THSW)	90 / 120	90 / 120
Intolerant Hardwood - Softwood (IHSW)	70	90
Pine (PI)	90	90
Jack Pine (JP)	70	-- <sup>3</sup>
Cedar (CE)	80	--
Black Spruce (BS)	80	--
Spruce (SP)	90	110
Balsam Fir (BF)	60	--

<sup>1</sup> Currently-existing uneven-aged stands with a vegetation community of THP or THSW are assigned a start age of 90 for OLD; current and future clearcut stands are assigned the age of 120.

<sup>2</sup> Habitat requirement only

<sup>3</sup> Stands with vegetation communities of JP, CE, BS or BF do not regularly produce trees of 45 cm or greater in diameter; hence they do not achieve a successional stage of LARGE

Vegetation community objectives are expressed as area (ha) in the OLD and/or LARGE stage for each community across Crown land (except IHSW, which increases after human disturbance and is not at risk under present activities). These areas are equivalent to 12% of the total area in each community as defined in the 1982 provincial inventory and adjusted for human disturbance. Objectives were determined for ecoregions and prorated to Crown Licenses (Table 3). In the event that an objective for a specific license/ecoregion cannot be met anytime during the planning horizon, it will be maximized, and a strategy for meeting the objective over the longer term will be proposed. A table showing integration of habitat and vegetation community objectives is found in Appendix 1.

Table 3. Management Objectives for Vegetation Communities by License and Ecoregion <sup>1</sup>

Eco-region	Vegetation Community	Objective by Crown License for OLD and/or LARGE Successional Stage (ha)									
		1	2	3	4	5	6	7	8	9	10
1	THP	320									1520
	THSW	470	480								2640
	PINE		110								
	JP		700		1000						
	SP	630	1670		3920						4840
	BF	1340	2210		8660						12710
	BS		1170		4160						
2	THP	5330	940								530
	THSW	6090	1730								1370
	PINE	890									
	CE		610								
	SP	6760	3140								2090
	BF	14180	3890								1250
	BS		690								
3	THP	310		330	820		700	1940		3680	3690
	THSW	460	130	530	980		560	1110		1770	3050
	PINE				50						
	JP		90								
	CE	220	70	390	750						
	SP	500	540	2680	5260		1710	2380		2720	2780
	BF	1140	330	760	1970		310			770	3170
	BS		90	1330							
4	THSW						280	450			
	CE						240				
	SP						1570	2800			
5	THP				920		3340	820	1970	1130	
	THSW				660		4260	1830	2930	950	
	PINE				50		1000	240	200		
	CE				430		1680		1540	530	
	SP				1280		11100	6000	6200	1670	
	BF				310					500	
	BS				390		3980	1540			

Eco-region	Vegetation Community	Objective by Crown License for OLD and/or LARGE Successional Stage (ha)									
		1	2	3	4	5	6	7	8	9	10
6	THSW		720	2530	800	1080	2610	1740			
	PINE		60	720	130	150	1330	230			
	JP		430	2510		350	2620	1130			
	CE		320	1100		440					
	SP		2060	4900	1990	1340	3470	3110			
	BF		670								
	BS		4460	9020	4520	2580	8000	5590			
7	THSW						610	1350	320		
	PINE						180	180			
	JP						180				
	CE								80		
	SP						950	2160	300		
	BS						1280	1660	130		

<sup>1</sup> There are no objectives where the area of overlap between an ecoregion and a license is less than 5% of the total license area. If a license contains over 30% of an ecoregion, there will be objectives for that ecoregion. This applies to ecoregion 4 in licenses 6 and 7. There is no objective for a vegetative community (other than PINE) when it comprises less than 5% of the overlap area between an ecoregion and a license. There is an objective for the Pine community for all overlap areas except if the area is less than 1% or less than 10ha.

### (b) Unique Sites

Forest ecosystems are further protected using a fine-filter approach of preserving sites of high or unique ecological, historical, cultural or scenic value. As stated previously, this objective may be further enhanced through the Protected Areas Strategy still under development by government.

## 3. WILDLIFE HABITAT

### (a) Habitat Types

All forest-dwelling vertebrate wildlife species (birds, mammals, reptiles, amphibians) have been characterized with respect to habitat associations that occur at the scale of forest stands. Five distinct upland habitat types were described as a result of that process: Hardwood, Tolerant Hardwood, Spruce-fir, Pine and Mixedwood. At the stand level, habitats are defined in terms of vegetation communities, successional stages, and peak volume (Table 4).

Table 4. Stand-level Habitat Composition Criteria

Habitat Type	Composition Criteria		
	Vegetation Communities <sup>1</sup>	Successional Stages <sup>2</sup>	Volume
Old Hardwood Habitat (OHWH)	IHSW, THP, THSW	Old or Large	Peak total volume ≥ 70 m <sup>3</sup> /ha
Old Tolerant Hardwood Habitat (OTHH)	THP, THSW	Old	
Old Spruce-fir Habitat <sup>3</sup> (OSFH)	SP, BF, BS, EC	Old or Large	
Old Pine Habitat (OPIH)	PINE	Old	
Old Mixedwood Habitat (OMWH)	Any community; softwood content ≥ 25% and < 75%	Old or Large	
Large Mixedwood Habitat (LMWH)		Large	

<sup>1</sup> See Table 1; <sup>2</sup> See Table 2; <sup>3</sup> Old Spruce-fir Habitat replaces Mature Coniferous Forest Habitat objectives from 1997 Forest Management Plans

Habitat objectives were calculated based on maintaining viable populations of all species across the areas of Crown land to which the species are indigenous. Objectives were compiled for each ecoregion, and prorated to Crown Licenses (Table 5). In the event that an objective for a specific license/ecoregion cannot be met in the near term, it will be maintained elsewhere on the license, and a strategy for meeting the objective over the longer term will be proposed. A table showing integration of habitat and vegetation community objectives is found in Appendix 1.

Table 5. Management Objectives for Habitat Types by License and Ecoregion

Eco-region	Habitat Type	Objective by Crown License for OLD and/or LARGE Successional Stage (ha)									
		1	2	3	4	5	6	7	8	9	10
1	OHWH	170	180								520
	OTHH	330	500								4130
	OSFH	1760	4150		12260						13570
	OMWH	1710	1570		2320						9040
	LMWH	170	220		200						430
2	OHWH	3720	730								750
	OTHH	3260	1650								2020
	OSFH	20530	6150								2700
	OMWH	17690	3230								3150
	LMWH	1870	440								370
3	OHWH	190	60	80	200		200	340		950	720
	OTHH	390	290	640	1890		1650	3720		9400	8840
	OSFH	1610	1090	4110	6740		1760	2320		3060	6490
	OMWH	1650	620	1780	3610		860	920		2380	6250
	LMWH	220	100	110	290		100	180		530	510
4	OHWH						180	250			
	OTHH						130	380			
	OSFH						1330	2220			

Eco-region	Habitat Type	Objective by Crown License for OLD and/or LARGE Successional Stage (ha)									
		1	2	3	4	5	6	7	8	9	10
	OPIH						80				
	OMWH						680	480			
	LMWH						120	90			
5	OHWH				220		1830	850	1420	580	
	OTHH				1700		5710	2900	4470	3550	
	OSFH				1800		13790	5820	6720	2070	
	OPIH						1080		430		
	OMWH				1650		6020	2010	6180	1330	
	LMWH				190		980	390	1150	270	
6	OHWH		340	840	220	610	920				
	OTHH		410	3000	1070		1790	1400			
	OSFH		4960	13060	5700	3950	9980	6960			
	OPIH						2030				
	OMWH		1840	5940	2030	2560	3430	2290			
	LMWH		300	650	190	490	540	460			
7	OHWH						280	690	130		
	OTHH						430	1410			
	OSFH						1810	3040	420		
	OPIH						190	160			
	OMWH						990	1280	490		
	LMWH						160	250	100		

All habitat types have spatial criteria. Minimum patch sizes are 375 ha for Old Spruce-fir Habitat (OSFH), and range from 10 to 60 ha for other types. As it is likely that spatial criteria for types other than OSFH can be met without active control, spatial referencing is only required for OSFH.

OSFH blocks must be identified for the entire spatial planning horizon and must meet the following criteria: (1) a minimum of 375 ha must meet stand-level criteria within each block, (2) a minimum of 75% of the area of each block must meet stand-level criteria, and (3) block widths must normally exceed 1000 metres and always exceed 500 metres. In areas where spatial criteria cannot currently be met, the closest approximations will be acceptable for the short term. A strategy for meeting the spatial criteria over the longer term will be proposed.

Provision of spatially-adequate OSFH beyond the spatial planning horizon requires that the area of non-spatially referenced habitat (gross habitat) exceed that of the spatially-referenced objective (net habitat). To that end, an objective exists for Gross OSFH for all planning periods beyond those spatially referenced, as follows:

$$\text{Gross OSFH} = \text{Net OSFH} \times \text{GNR} ,$$

where GNR = Gross:Net Ratio.

GNR is calculated as:

$$GNR = \text{MinGross OSFH} \div \text{Net OSFH}$$

where Min Gross OSFH = the minimum gross OSFH level during the spatial planning horizon, and Net OSFH = the net OSFH level for the same planning period.

**(b) Deer Wintering Areas**

Winter habitat is important to maintaining deer populations in New Brunswick. Deer experience conditions of cold and snow that fluctuate between moderate and severe, and are limited to browse for food. Two habitat types have been identified as important to winter survival of deer: Moderate Winter Deer Habitat (MWDH) and Severe Winter Deer Habitat (SWDH). MWDH is provided by stands with high food value and at least some cover for thermal shelter. Deer access MWDH when snow and temperature conditions do not restrict mobility. SWDH is provided by stands with high snow and thermal cover value and at least some browse. Deer use SWDH when deep snow or very cold temperatures limit access to other stand types.

Habitat management is planned and implemented on the deer wintering area (DWA) landbase defined for each license (Table 6). The primary management objective in DWAs is to maximize the long-term sustainable supply of deer winter habitat; emphasis on moderate or severe habitat varies regionally with winter severity. Winter severity in New Brunswick decreases from north to south; durations of the winter season, of the yarding period (time spent in DWAs), and of severe conditions are shorter in areas of lesser winter severity.

Table 6. Deer Wintering Area Landbase

License	Deer Wintering Area Landbase (ha)
1	56,710
2	21,670
3	10,070
4	19,670
5	2,760
6	39,940
7	26,850
8	26,030
9	18,560
10	46,380
Total	



For the purpose of deer habitat management, the province is divided into northern and southern regions. The northern region includes ecoregions 1, 2, 3-north, 5 north of the Saint John and Aroostook rivers, and the northern portion of ecoregion 6 (ecodistricts 13, 14, 15, 17, and the northern third of 16). The southern region includes ecoregions 3-south, 4, 5 south of the Saint John and Aroostook rivers, the southern portion of ecoregion 6 (ecodistricts 24, 30, and the southern two thirds of 16), and ecoregion 7. All DWAs have been assigned to either the northern or southern regions.

Management plans are required for individual DWAs before timber harvest operations can take place. The management objective is to maximize the sustainable supplies of SWDH and MWDH, but with priority given to SWDH in northern New Brunswick, and to MWDH in the south. This means maximizing the level of one habitat while maintaining the other at as high a level as possible. Forestry activities should not reduce habitat levels by more than 15% in a single 5-year period, and the benefits of planting and spacing to habitat supplies should be investigated.

The 2002 management plans will provide a strategic overview of deer winter habitat supplies, management activities, and expected wood supply from DWA on the license for the 80-year planning horizon. They will include summaries of DWA activities from 1992 to 2002, identify DWAs for which follow-up treatment is scheduled during 2002-2007, and identify the amount of DWA area for which first-time management plans will be developed from 2002 to 2007. For a description of 2002 management plan submission requirements, refer to the Management Plan Format section of this document (Appendix 2).

Deer habitat is defined at both the operational and management planning levels.

The operational-level definitions include stand structure and spatial criteria that describe ground conditions that meet cover and food requirements during moderate and severe periods (Table 7). These criteria are to be used for operational assessments of DWA in the field.

For MWDH and SWDH, the preferred spatial arrangement of habitat components is for both cover and food to be provided within stands. During moderate periods, however, adjacent food and cover stands also produce useful habitat combinations because mobility allows access to open habitats. There are no specific objectives for these habitat components, but the benefits of these types will be considered at the individual DWA plan level.

Management planning-level definitions are estimates of the times during which forest stands supply habitat; they are used to predict habitat abundance resulting

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Table 7. Stand Structure and Spatial Criteria for MWDH and SWDH.

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Moderate Winter Deer Habitat (MWDH)

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Stand Structure

**Forest Type:** Conifer, Conifer-Hardwood and Hardwood-Conifer stands excluding larch, pine, poor-site-spruce, and most black spruce types.

**Conifer Crown Closure:**  $\geq 30\%$  (of trees  $\geq 10$  metres tall)

**Understory:**  $\geq 30\%$  ground cover of available browse species

**Mean Conifer Stem DBH:**  $\geq 18$  cm (of trees  $\geq 10$ cm dbh)

**Conifer Basal Area:**  $\geq 12$  m<sup>2</sup>/ha (of trees  $\geq 10$ cm dbh)

Spatial Criteria

**Patch Size:**  $\geq 5$  ha  
 $\geq 75\%$  of area must meet stand structure criteria  
 $\geq 150$  metres minimum patch width

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## Severe Winter Deer Habitat (SWDH)

Stand Structure

**Forest Type:** Conifer and Conifer-Hardwood stands excluding larch, pine, poor-site-spruce, and most black spruce types.

**Conifer Crown Closure:**  $\geq 50\%$  (of trees  $\geq 10$  metres tall)

**Understory:**  $\geq 10\%$  ground cover of available browse species

**Mean Conifer Stem DBH:**  $\geq 18$  cm (of trees  $\geq 10$ cm dbh)

**Conifer Basal Area:**  $\geq 20$  m<sup>2</sup>/ha (of trees  $\geq 10$ cm dbh)

Spatial Criteria

**Patch Size:**  $\geq 10$  ha  
 $\geq 75\%$  of area must meet stand structure criteria  
 $\geq 300$  metres minimum patch width

**Connectivity:** Patches should be inter-connected by winter travel corridors: conifer crown closure  $\geq 50\%$ ; development stage  $\geq$  immature; width  $\geq 100$  metres.

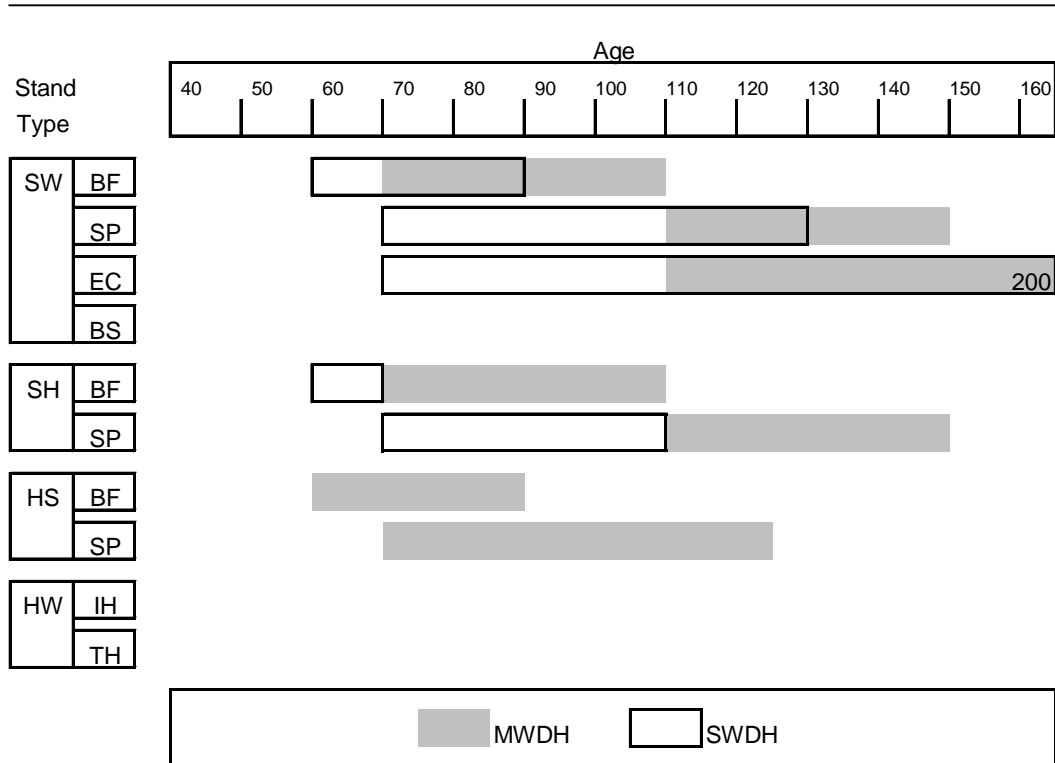
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Elevation, slope, and aspect are also important factors affecting the habitat value of forest stands as both SWDH and MWDH. South facing slopes at lower elevations are warmer and preferred by deer, especially along water courses.

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from alternate management scenarios. Habitat suitability for the 2002 forest management plans is illustrated for an example set of stand types in Table 8. Suitability of similar stand types may vary, depending on the abundance of other tree species. Stands that are not expected to achieve a peak softwood volume of 80 m<sup>3</sup>/ha (60 m<sup>3</sup>/ha if cedar-dominated) do not contribute to SWDH; those that are not expected to achieve 50 m<sup>3</sup>/ha of softwood do not contribute to MDWH.

Table 8. Deer Winter Habitat Suitability by Stand Age for Example Stand Types.



Habitat suitability will be assigned to management plan strata by DNRE. However, habitat assignments should be reviewed by licensees in the context of operational criteria before being used in management planning. For individual DWA management plans, it may be necessary to modify habitat suitabilities to better reflect site-specific conditions. Adjustments should be made based on local cruise or site data, and justified in relation to stand-structure criteria and development patterns of cover and food.

**4. TIMBER**

**(a) Wood Supply**

After meeting identified non-timber objectives, sustainable hardwood and softwood timber supplies will be maximized.

**(b) Scheduling**

Stands will be scheduled for harvest so as to minimize volume loss due to mortality.

**(c) Tolerant Hardwood Management**

Uneven-aged management techniques will be employed in tolerant hardwood stands that have potential for sawlog production.

**(d) Harvest Prescriptions**

The full range of harvest prescriptions (selection, multi-pass, clearcut, etc.) will be investigated. Those that are biologically and economically suited to existing stand structures and are compatible with achieving the stated forest objectives will be implemented.

**(e) Harvest Blocking**

Hardwood and softwood clearcut harvest blocks will not exceed 100 ha in size. The timing of harvest in adjacent blocks must not be less than 2 periods (period = 5 years) when the combined area of adjacent blocks exceeds 100 ha. Larger harvest blocks are possible if their purpose is to salvage mortality resulting from blowdown, fire, disease, etc.

**(f) Silviculture**

Silvicultural treatments of planting and spacing in hardwood and softwood will be implemented to support maximum increases in both present and future sustainable wood supplies and the provision of other non-timber objectives.

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## 5. WATER

### (a) Watercourse Buffers

A watercourse is any natural water drainage feature. Watercourse buffer zones and vehicle exclusion zones are observed to protect water quality and aquatic habitat. Watercourse buffer zones will be maintained along all watercourses with a discernible channel of 0.5 metres and wider. Buffer zones are applied to both sides of a watercourse. Vehicle exclusion zones are applied to all watercourses and vehicles are not permitted to travel in or through a watercourse except during construction of a watercourse crossing. The provincial Crown forest database includes average buffer zones for mapped watercourses and widths range from 30 to 150 metres depending upon the characteristics of the watercourse (Table 9). Timber harvesting is permitted in buffer zones so long as it does not compromise the function of the buffer. On the ground, watercourse buffer zones are applied according to the objectives and guidelines detailed in "Watercourse Buffer Zone Guidelines for Crown Land Forestry Activities" (DNRE 1996, revised 1999).

Table 9. Buffer Widths by Crown Timber License and Feature .

License	2002 Buffer Widths (metres) by Feature				
	Single Line <sup>1</sup> Stream	Double Line <sup>2</sup> Stream	Rivers	Lakes	Provincial Highways
1	33	66	150	100	30
2	30	60	150	100	30
3	33	89	128	100	30
4 a <sup>3</sup>	55	117	139	150	30
4 b <sup>4</sup>	100	150	150	150	30
5	37	76	100	100	30
6	60	85	110	100	30
7	60	85	110	100	30
8	40	61	107	100	30
9	35	60	112	100	30
10	37	80	100	100	30

<sup>1</sup> **Single Line** - Single line water features on GIS cover type maps (streams). Also applies to lakes / ponds 4ha.

<sup>2</sup> **Double Line** - Double line water features on GIS cover type maps (small rivers).

<sup>3</sup> Area of license not in Big South or Nepisiguit area.

<sup>4</sup> Big South and Nepisiguit area.

**6. RECREATION & AESTHETICS**

**(a) Aesthetic Buffers**

Aesthetic buffer zones 30 metres wide will be maintained along all provincial highways that abut Crown forest land. Aesthetic buffer zones 60 metres and wider may be applied along watercourses with high recreational use.

**7. MANAGEMENT PLAN FORMAT**

The 2002 management plans will include all of the information described in the Format found in Appendix 2. This also establishes the minimum standards required to meet Licensee Performance Evaluation for forest management preparation.

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**APPENDIX 1:**  
**INTEGRATION OF VEGETATION COMMUNITY  
AND WILDLIFE HABITAT OBJECTIVES**

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APPENDIX 1  
INTEGRATION OF VEGETATION COMMUNITY  
AND WILDLIFE HABITAT OBJECTIVES

## License 1

Vegetation Community	Constraining Objective by Ecoregion (ha)		
	1	2	3
THP	320	5330	310
THSW	470	6090	460
SP	630	6760	500
BF	1340	14180	1140
PINE	0	890	0
EC	0	0	220
<i>OHWH</i> <sup>1</sup>	170	3720	190
<i>OSFH</i> <sup>2</sup>	1760	20530	1610
<i>OMWH</i> <sup>3</sup>	1710	17690	1650
<i>LMWH</i> <sup>3</sup>	170	1870	220

## License 2

Vegetation Community	Constraining Objective by Ecoregion (ha)				
	1	2	3	6	
THP	0	940	0	0	0
THSW	480	1730	130	290 <sup>4</sup>	720
SP	1670	3140	540		2060
BF	2210	3890	330		670
BS	1170	690	90		4460
EC	0	610	70		320
PINE	110	0	0		60
JP	700	0	90		430
<i>OHWH</i> <sup>1</sup>	180	730	60		340
<i>OSFH</i> <sup>2</sup>	4150	6150	1090		4960
<i>OMWH</i> <sup>3</sup>	1570	3230	620		1840
<i>LMWH</i> <sup>3</sup>	220	440	100		300

<sup>1</sup> *OHWH*– Overlaps with IHSW, THSW and THP; a separate habitat window will be applied to all eligible curves

<sup>2</sup> *OSFH* - Has spatial requirements and may contain any of SP, BF, BS, EC; a separate habitat window will be applied to all eligible curves

<sup>3</sup> *OMWH*, *LMWH* - May overlap with any/all vegetation communities except THP; a separate habitat window will be applied to all eligible curves

<sup>4</sup> Due to Habitat *OTHH* objective being higher, this total of THP + THSW must be maintained



## License 3

Vegetation Community	Constraining Objective by Ecoregion (ha)	
	3	6
THP	330	0
THSW	530	2530
SP	2680	4900
BF	760	0
BS	1330	9020
EC	390	1100
PINE	0	720
JP	0	2510
<i>OHWH</i> <sup>1</sup>	80	840
<i>OSFH</i> <sup>2</sup>	4110	13060
<i>OMWH</i> <sup>3</sup>	1780	5940
<i>LMWH</i> <sup>3</sup>	110	650

## License 4

Vegetation Community	Constraining Objective by Ecoregion (ha)			
	1	3	5	6
THP	0	820	920	0
THSW	0	980	660	800
SP	3920	5260	1280	1990
BF	8660	1970	310	0
BS	4160	0	390	4520
EC	0	750	430	0
PINE	0	50	50	130
JP	1000	0	0	0
<i>OHWH</i> <sup>1</sup>	0	200	220	220
<i>OSFH</i> <sup>2</sup>	12260	6740	1800	5700
<i>OMWH</i> <sup>3</sup>	2320	3610	1650	2030
<i>LMWH</i> <sup>3</sup>	200	290	190	190

<sup>1</sup>*OHWH*– Overlaps with IHSW, THSW and THP; a separate habitat window will be applied to all eligible curves

<sup>2</sup>*OSFH* - Has spatial requirements and may contain any of SP, BF, BS, EC; a separate habitat window will be applied to all eligible curves

<sup>3</sup>*OMWH*, *LMWH* - May overlap with any/all vegetation communities except THP; a separate habitat window will be applied to all eligible curves

<sup>4</sup>Due to Habitat *OTHH* objective being higher, this total of THP + THSW must be maintained

## License 5

Vegetation Community	Constraining Objective by Ecoregion (ha)
	6
THSW	1080
SP	1340
BS	2580
EC	440
PINE	150
JP	350
<i>OHWH</i> <sup>1</sup>	610
<i>OSFH</i> <sup>2</sup>	3950
<i>OMWH</i> <sup>3</sup>	2560
<i>LMWH</i> <sup>3</sup>	490

## License 6

Vegetation Community	Constraining Objective by Ecoregion (ha)				
	3	4	5	6	7
THP	700	0	3340	0	0
THSW	560	280	4260	2610	610
SP	1710	1570	11100	3470	950
BF	310	0	0	0	0
BS	0	0	3980	8000	1280
EC	0	240	1680	0	0
PINE	0	80 <sup>5</sup>	1080 <sup>5</sup>	2030 <sup>5</sup>	190 <sup>5</sup>
JP	0	0	0	2620	180
<i>OHWH</i> <sup>1</sup>	200	180	1830	920	280
<i>OSFH</i> <sup>2</sup>	1760	1330	13790	9980	1810
<i>OMWH</i> <sup>3</sup>	860	680	6020	3430	990
<i>LMWH</i> <sup>3</sup>	100	120	980	540	160

<sup>1</sup> *OHWH* – Overlaps with IHSW, THSW and THP; a separate habitat window will be applied to all eligible curves

<sup>2</sup> *OSFH* - Has spatial requirements and may contain any of SP, BF, BS, EC; a separate habitat window will be applied to all eligible curves

<sup>3</sup> *OMWH*, *LMWH* - May overlap with any/all vegetation communities except THP; a separate habitat window will be applied to all eligible curves

<sup>4</sup> Due to Habitat *OTHH* objective being higher, this total of THP + THSW must be maintained

<sup>5</sup> Due to Habitat *OPIH* objective

## License 7

Vegetation Community	Constraining Objective by Ecoregion (ha)									
	3		4		5		6		7	
THP	1940	3720 <sup>4</sup>	0	820	2900 <sup>4</sup>	0	0	1410 <sup>4</sup>		
THSW	1110		450	1830		1740	1350			
SP	2380		2800		6000		3110		2160	
BS	0		0		1540		5590		1660	
PINE	0		0		240		230		180	
JP	0		0		0		1130		0	
<i>OHWH</i> <sup>1</sup>	340		250		850				690	
<i>OSFH</i> <sup>2</sup>	2320		2220		5820		6960		3040	
<i>OMWH</i> <sup>3</sup>	920		480		2010		2290		1280	
<i>LMWH</i> <sup>3</sup>	180		90		390		460		250	

## License 8

Vegetation Community	Constraining Objective by Ecoregion (ha)	
	5	7
THP	1970	0
THSW	2930	320
SP	6200	300
BS	0	130
EC	1540	80
PINE	430 <sup>5</sup>	0
<i>OHWH</i> <sup>1</sup>	1420	130
<i>OSFH</i> <sup>2</sup>	6720	420
<i>OMWH</i> <sup>3</sup>	6180	490
<i>LMWH</i> <sup>3</sup>	1150	100

<sup>1</sup> *OHWH* – Overlaps with *IHSW*, *THSW* and *THP*; a separate habitat window will be applied to all eligible curves

<sup>2</sup> *OSFH* - Has spatial requirements and may contain any of *SP*, *BF*, *BS*, *EC*; a separate habitat window will be applied to all eligible curves

<sup>3</sup> *OMWH*, *LMWH* - May overlap with any/all vegetation communities except *THP*; a separate habitat window will be applied to all eligible curves

<sup>4</sup> Due to Habitat *OTHH* objective being higher, this total of *THP* + *THSW* must be maintained

<sup>5</sup> Due to Habitat *OPIH* objective

## License 9

Vegetation Community	Constraining Objective by Ecoregion (ha)			
	3		5	
THP	3680	9400 <sup>4</sup>	1130	3550 <sup>4</sup>
THSW	1770		950	
SP	2720		1670	
BF	770		500	
EC	0		530	
PINE	0		0	
<i>OHWH</i> <sup>1</sup>	950		580	
<i>OSFH</i> <sup>2</sup>	3060		2070	
<i>OMWH</i> <sup>3</sup>	2380		1330	
<i>LMWH</i> <sup>3</sup>	530		270	

## License 10

Vegetation Community	Constraining Objective by Ecoregion (ha)				
	1		2		3
THP	1520	530	2020 <sup>4</sup>	3690	8840 <sup>4</sup>
THSW	2640	1370		3050	
SP	4840	2090		2780	
BF	12710	1250		3170	
<i>OHWH</i> <sup>1</sup>	520	750		720	
<i>OSFH</i> <sup>2</sup>	13570	2700		6490	
<i>OMWH</i> <sup>3</sup>	9040	3150		6250	
<i>LMWH</i> <sup>3</sup>	430	370		510	

<sup>1</sup>*OHWH*– Overlaps with IHSW, THSW and THP; a separate habitat window will be applied to all eligible curves

<sup>2</sup>*OSFH* - Has spatial requirements and may contain any of SP, BF, BS, EC; a separate habitat window will be applied to all eligible curves

<sup>3</sup>*OMWH*, *LMWH* - May overlap with any/all vegetation communities except THP; a separate habitat window will be applied to all eligible curves

<sup>4</sup>Due to Habitat *OTHH* objective being higher, this total of THP + THSW must be maintained

**APPENDIX 2:**  
**TABLE OF CONTENTS FOR**  
**2002 MANAGEMENT PLANS**

**A VISION FOR NEW BRUNSWICK FORESTS**  
**Appendix 2**  
**2002 Management Plan Format**

**Letter of Submission From Licensee**.....  
*Indicate that plan has been prepared by RPF and has been designed to meet Crown land objectives.*

**Letter of Plan Acceptance From Regional Resource Manager** ..... (i)  
*Shows up front that the plan has been submitted and approved by the DNRE.*

**Executive Summary**..... (ii)  
*Summarize all relevant information supplied in the plan, especially AAC + fallout by species group and habitat levels.*

**1.0 Background**.....

**1.1 Requirements of the Crown Lands and Forests Act**.....  
*Set the stage to put the rest of the plan in context. Describe requirements under the Act, describe the link to the Operating Plan. Describe the DNRE role in approval and link to the evaluation process.*

**1.2 Summary of the 1997 Management Plan**.....  
*Put this plan in further context by describing timber and habitat levels from the 1997 management plan. Discuss any forest management issues that were revealed in the 1997 plan.*

**1.3 Management Planning Objectives for 2002** .....  
*Summarize the objectives for the 2002 plan. Include the "public" objectives document.*

**1.4 Management Planning Procedures**.....  
*Introduce modelling procedures, data used, etc. Note improvements since 1997.*

**2.0 Present Land Base Description**.....

**2.1 Forest Inventory**.....  
*Describe the inventory used, its source and data to support it.*

**2.2 Area Description**.....  
*Describe the total Licence area in terms of primary management objective. Include non-productive forest. Describe landbase*

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categories e.g., Vegetation Communities, OSFH, DWA, Buffers, Sugar Bushes, Ecological Reserves, inoperable. Show numbers of and size of each where applicable.

- 2.3 Age Class Distribution** .....  
*Show age class structure for hardwood and softwood. Discuss why age class is a problem, long term plans to rectify and why harvest strategy requires harvesting oldest first.*
  - 2.4 Forest Stratification** .....  
*Describe the stratification process - what data used and how decisions made to create strata. Describe strata created and the area of each.*
  - 2.5 Yield Curves** .....  
*Describe how yield curves were created and the data used to support them. Reference the complete set of yield curves in the Appendix.*
  - 2.6 Description of Harvest and Silviculture Treatments** .....  
*Provide a list of all harvest prescriptions used in the plan and a description of each including, for example, percent removal modeled where applicable, and expected regeneration response.*
  - 2.7 Post Treatment Regeneration Response** .....  
*Describe transition matrix and data and rationale to support it. Describe its importance in the modelling exercise.*
  
  - 3.0 General Forest**.....  
*Introduce the general forest components and the reasons for describing the forest this way.*
  
  - 3.1 Spruce, Fir and Jack Pine**.....
    - 3.1.1 Objectives**.....  
*Describe the objectives for this part of the forest i.e., to determine the non-declining harvest level over 80 years, harvesting "oldest first", factoring in silviculture to the maximum allowable cut effect.*
  
    - 3.1.2 Silviculture Levels** .....  
*Show impact of silviculture compared to no silviculture. Show what factors were used to zero in on the chosen levels.*
-

**3.1.3 Harvest Prescriptions**.....  
*Describe harvest prescriptions chosen and why. Describe the periods each will be implemented. This should link back to 2.6 above.*

**3.1.4 Blocking Strategy** .....  
*Describe block size and adjacency rules. Describe how blocking was done. Describe average block size. Describe degree of compliance with block size and adjacency rules. Map the first 25-35 years of harvest blocks (i.e., through the low point in growing stock).*

**3.1.5 Sustainable Harvest Level** .....  
*Describe sustainable harvest level from this landbase. Show all fallout volumes.*

**3.1.6 Growing Stock**.....  
*Describe and graph the growing stock for this landbase*

**3.2 Hardwood** .....

**3.2.1 Objectives**.....  
*Describe objectives for this part of the forest i.e., maximize sustainable harvest, select harvest in tolerant hardwood with sawlog potential.*

**3.2.2 Silviculture Levels** .....  
*Describe chosen silviculture levels and why.*

**3.2.3 Harvest Prescriptions**.....  
*Describe harvest prescriptions chosen and why. Describe the periods each will be implemented. This should link back to 2.6 above.*

**3.2.4 Blocking Strategy** .....  
*Describe block size and adjacency rules. Describe how blocking was done. Describe average block size. Describe degree of compliance with block size and adjacency rules. Map the first 25-35 years of harvest blocks (i.e., through the low point in growing stock).*

**3.2.5 Sustainable Harvest Level** .....  
*Describe sustainable harvest level from this landbase. Show all fallout volumes.*

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**3.2.6 Growing Stock**

*Describe and graph the growing stock for this landbase*

**3.3 Cedar and White Pine**.....

**3.3.1 Objectives**.....

*Describe objectives for this part of the forest.*

**3.3.2 Silviculture Levels** .....

*Describe chosen silviculture levels if any.*

**3.3.3 Harvest Prescriptions**.....

*Describe harvest prescriptions chosen and why. Describe the periods each will implemented. This should link back to 2.6 above.*

**3.3.4 Blocking Strategy** .....

*Describe as necessary.*

**3.3.5 Sustainable Harvest Level** .....

*Describe sustainable harvest level from this landbase. Show fallout volumes, if present.*

**3.3.6 Growing Stock**.....

*Describe and graph the growing stock for this landbase*

**4.0 Wildlife Habitat** .....

*Provide a general introduction of the wildlife habitats being managed for on the license and the habitat types being tracked*

**4.1 Old Spruce-Fir Habitat**.....

**4.1.1 OSFH Objectives**.....

*Describe what OSFH is (stand level and block level requirements) and the Net and Gross objectives by ecoregion. Reference other documents where necessary.*

**4.1.2 Net OSFH Supply** .....

*Provide a table summarizing habitat and timber supplies from OSFH blocks. Habitat summary should include, for each period, net OSFH supply by block, by ecoregion and for blocks combined. Timber summary should include, for each period,*

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*wood supply for blocks combined and area by treatment type. For wood supply allocation purposes, the Licensee should estimate spatial wood supply for Period 1 and describe how it was estimated.*

*For each OSFH Block, describe in Appendix IV the habitat supply and planned timber harvesting by period and Ecoregion(s) (see example in Figure 1). Information is to include:*

- OSFH Block ID
- Ecoregion(s) #
- Periods the OSFH Block contributes to the Net OSFH objective.
- Total area (ha) (forest + non-forest) and DWA overlap (ha)
- Projected non-spatial timber harvest level (volume & hectares) by period, indicating treatment type and, for Period 1, pre/post treatment OSFH response as per FMM Appendix 11 requirements.
- Habitat supply (ha) by ecoregion for each period for the proposed management scenario and for a no-harvest scenario.
- Percent of OSFH Block in habitat condition by period for the proposed management scenario and for a no-harvest scenario.

*Provide the computer files necessary to project habitat and timber harvesting.*

*Provide a OSFH Block stand file listing: OSFH Block ID; DWA #; map number; stand number; stand area in the OSFH Block; curve ID; stand age; the periods the stand contributes to the OSFH Block.*

*OSFH blocks must be features on License harvest block maps. OSFH Blocks must be referenced with a nine character code (e.g. OSF453802, where: OSF = OSFH Block; 4538 = principle FDS map#; 02 = second OSFH Block on map 4538). The management periods that the OSFH Block is contributing to the Net OSFH objective should be indicated on the maps. In the case of OSFH Blocks that have multiple sections, the sections should be identified on the map with periods of suitability indicated.*

#### **4.1.3 Gross OSFH .....**

*Describe the calculation of the Gross OSFH objective. Show the 80 year supply of Gross OSFH along with the License Gross OSFH objective under the proposed forest management strategy (graphed). The source landbases (General forest, DWA, OSFH Block, Buffer, etc.) should be identified separately.*

Figure 1. Sample Appendix OSFH Block Summary

**OSFH Block:** OSF330101 (MC330101 (P1-7) in 1997 FMP)  
**Ecoregion(s):** 2 (100 %)  
**Contributes to Net OSFH:** Periods 1 to 5  
**Total Block Area:** 4000 ha  
**DWA Overlap:** 1500 ha (38%)(50% of DWA330101 is in the OSFH Block)  
**Model:** Woodstock 1.5  
**Files:** OSF330101.\*; Appendix 2, disk 1

Management Period	1	2	3	4	5	6	7
<b>No Intervention</b>							
OSFH Supply (ha)	3500	3500	3400	3250	3150	---	---
% OSFH	88 %	88 %	85 %	75 %	79 %	---	---
<b>Intervention</b>							
<u>DWA Portion</u>							
Clearcut (ha)	200	100	0	150	0	---	---
Selection (ha)	50	50	0	0	50	---	---
<u>Non-DWA Portion</u>							
Clearcut (ha)	100	0	50	100	50	---	---
Selection (ha)	100	0	50	0	0	---	---
Harvest Volume (m <sup>3</sup> )	30,000	10,000	6,000	20,000	6,000	---	---
Post-Intervention OSFH Supply (ha)	3300	3250	3250	3100	3050	---	---
% OSFH	83 %	81 %	81 %	78 %	76 %	---	---

### Period 1 Harvest Summary:

DWA CC 200 ha pre/post = habitat to non-habitat (HN)  
 DWA SC 50 ha pre/post = habitat to habitat (HH)  
 non-DWA CC 100 ha pre/post = non-habitat to non-habitat (NN)  
 non-DWA SC 100 ha pre/post = habitat to habitat (HH)

**Notes:** OSF330101 habitat projections are based on 2002 forest characterization supported by an aerial survey in 2000, precuts for 10% of the block in 1991 and cruise data collected in 1998 for the DWA management plan. The approved DWA harvest was imposed on the OSFH block and an additional 100 hectares of selection and 100 hectares of clearcut harvest is proposed for outside the overlap in Period 1. The management plan for DWA330101 will be reviewed and approved in Period 1 before timber harvesting will take place in the OSFH block.

## 4.2 Deer Wintering Area Management .....

### 4.2.1 DWA Habitat Management Objectives.....

*Describe the DWA landbase on the license (# of DWA, total area, DWA management region, deer activity), the winter habitats being managed (moderate winter deer habitat (MWDH) and severe winter deer habitat (SWDH)) and the habitat management objectives.*

### 4.2.2 Summary of Past DWA Management.....

*Summarize in a table DWA management from 1992 to 2002 (# of DWA and total area). Identify the DWAs and total DWA area that require follow-up management plans during 2002 to 2007 (performance criteria).*

### 4.2.3 DWA Management 2002 to 2007 .....

*Identify in a table the total hectares of DWA for which 1<sup>st</sup>-time DWA Management Plans will be developed and implemented during 2002 to 2007 (performance criteria).*

*Management Scenarios:* *For each scenario listed below, describe in tables and figures for the entire DWA landbase: MWDH and SWDH supply, percent of DWA landbase in MWDH and SWDH, non-spatial wood supply, harvest levels (hectares) by broad harvest type, planting and spacing levels. Additional scenarios can be included.*

- i) A no-intervention scenario.*
- ii) Proposed management scenario for the DWA landbase as a whole; include reasons why this scenario has been proposed over other scenarios explored from a SWDH, MWDH and wood supply perspective.*

*For wood supply allocation purposes, estimate spatial wood supply for Period 1, describe how the estimate was determined, and estimate silviculture requirements for Period 1. Computer files for modelling should be provided. OSFH area located in DWAs should be uniquely identified. DWAs should be a feature on License harvest blocking maps.*

## 4.3 Wildlife Habitat Types.....

*Describe the wildlife habitat types being tracked on the license (OHWH, OTHH, OMWH, LMWH and, if applicable, OPIH). Show in a table and discuss the identified thresholds and supply of each by ecoregion under the proposed forest management strategy.*

*Identify any periods where the supply of a habitat type falls below the threshold and what actions will be undertaken to address it, as approved by DNRE.*

**5.0 Water .....**

**5.1 Watercourse Buffer Zones.....**

*In general terms describe the function of watercourse buffer zones in relation to water quality and aquatic habitat.*

*Identify in a table the average buffer zone widths by watercourse feature applied for management planning on the license. Identify the total area in watercourse buffer zones.*

*Identify whether timber harvest treatments will occur in watercourse buffer zones and, if so, identify the harvest treatments involved, the aspatial wood supply by period, the estimated spatial wood supply and hectares to be treated during 2002 to 2007.*

**6.0 Recreation & Aesthetics.....**

*Describe the recreational resources on the license*

**6.1 Highway Aesthetic Buffer Zones.....**

*In general terms describe the function of aesthetic buffer zones.*

*Identify the width of buffer zones along provincial highways (30 metres) and the total area in these buffers.*

*Identify whether timber harvest treatments will occur in highway buffer zones and, if so, identify the harvest treatments involved, the aspatial wood supply by period, the estimated spatial wood supply and hectares to be treated during 2002 to 2007.*

**7.0 Unique Sites .....**

*Describe the unique sites on the license.*

**8.0 Long Term Forest Indicators .....**

**8.1 Vegetation Communities.....**

*Discuss the implementation of the vegetation community objectives. Document reduction in wood supply required to meet objectives.*

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*Note any community objective that could not be met and what actions will be undertaken to address it, as approved by DNRE.*

**8.2 Piece Size**

*Show graph of softwood and hardwood piece size over the 80-year planning horizon and discuss features, issues, etc.*

**8.3 Harvest Prescriptions.....**

*Show graph of softwood and hardwood volume by the various harvest prescriptions proposed in the plan. Discuss.*

**8.4 Source of Harvest Volumes.....**

*Show graph of softwood and hardwood harvest volume from each of the landbases (OSFH, DWA, etc.)*

**9.0 Summary of Blocked Timber Supply Volumes.....**

*Summarize by landbase, all of the volumes derived from above analysis. Estimate blocked volumes for those landbases not actually blocked.*

**10.0 Discussion.....**

*Discuss main features of the plan and any issues that have arisen.*

**11.0 Appendices .....**

**Appendix 1: Common Abbreviations and Definitions**

**Appendix 2: Computer File Description**

**Appendix 3: Reports for Timber and Habitat Supply Runs (on disk)**

**Appendix 4: Description of Strata Used in Timber and Habitat Supply Analysis**

**Appendix 5: Yield Curves used in the Timber and Habitat Supply Analysis**

**Appendix 6: OSFH Block Summary**

**Appendix 7: Mapped Harvest Blocks, DWAs and OSFH by Period at 1:125,000**

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**Appendix 8: Mapped Harvest Blocks, DWAs and OSFH by  
Period at 1:25,000**

**Appendix 9: Management Plan Highlights**

*Provide a document, for public distribution, in the same  
format as 1997 Management Plan Highlights.*

**Appendix 10: Development of Silvicultural Prescriptions**

**Appendix 11: Description of Treatment Response**

**Appendix 12: Harvest Block Summaries for all Blocked Periods to  
Low Point and Stand Listing**

**Appendix 13: Final Database Used for Planning**

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