Certification Standards for Best Forestry Practices in the Maritimes Region

Forest Stewardship Council Canada

FSC-STD-CAN-Maritimes-SLIMF-2008

January 2008

Standard for Small and Low Intensity Forests

This standard was developed by the Maritime Regions Steering Committee for Forest Stewardship Council Canada, and accredited by FSC International in January 2008.

Questions or suggestions for revision can be sent to FSC Canada at:

400-70 The Esplanade
Toronto, Ontario M5E 1R2
Tel: 1-877-571-1133
Fax: 416-778-0044
Email: standards@fsccanada.org

www.fsccanada.org

Table of Contents

Introduction

This standard applies in the Maritime Provinces of Canada – Nova Scotia, New Brunswick and Prince Edward Island. These three provinces are found within the Acadian Forest Region which also extends north to Québec and east into the northeastern U.S.A. The varied climate, topography and soils of the Acadian Forest have resulted in a number of distinct stand types. These include rich hardwood stands similar to hardwood forests to the south and boreal-like stands found on sites where growing conditions are less favourable. Most of the region's natural forests, however, contain a distinct mix of softwood and hardwood species that are long-lived and shade tolerant. The occurrence of red spruce within these mixed woods is a characteristic of the region. It is estimated that in its natural state most of the Acadian Forest was composed of mature and old growth stands where small-scale disturbances including wind, insects and disease would affect individual or small groups of trees. Large scale disturbances such as stand-replacing fires were relatively uncommon.

For millennia, aboriginal people utilized the resources of the Acadian forest as a source of food, shelter, and spiritual enlightenment. Mi'kmaw, Maliseet and Pasamaquody people traversed the region's woodlands and waterways to meet their daily needs and engage in trade. European-descended immigrants – Acadians, Planters, Loyalists – arrived and claimed the land between the late 17th and late 18th centuries. They saw the forest largely as trees to be cut for market, and wilderness to be cleared for farms. Their activities dramatically changed the landscape, with many river valleys being cleared for farming, dams being installed on rivers to assist with the log drives and the first forest roads being constructed. Old growth softwoods provided the raw material for a regional economy based on shipbuilding and lumber exports. Deer, moose, grouse, and bear became important sources of food, while other small fur-bearers (beaver, fisher, marten, fox) supported a growing fur trade industry.

Over 300 years after the first settlers arrived the region's economy is still highly dependant on the Acadian Forest to supply a diversity of products and services. The region's main forest products are softwood lumber, pulp, newsprint and other paper products. There are also significant smaller-scale operations based on hardwood species including hardwood lumber and flooring. There are more than 30,000 direct forest-related jobs in the region, and the value of forest product exports exceeds $3.5 billion annually. Non-timber forest products (including fiddleheads, maple syrup and ground hemlock) have emerged as important seasonal economic opportunities for many rural residents. The forest continues to be widely used in an informal manner as a source of fuel-wood, food and medicines, as it has been used by aboriginal people for millennia.

Nova Scotia has 4.35 million hectares of forest and wooded land that is 68% privately owned. Prince Edward Island's 270,000 hectares of forest is 91% privately owned. New Brunswick's 6.21 million hectares of forest is made up of small private woodlots (30%), industrial freehold land (20%) and Crown land (50%). Private woodlots are generally 25 to 100 hectares in size and on average change ownership every 10 years. Industrial freehold and Crown land are predominantly larger parcels of land, in some cases several hundred thousand hectares in size.

Throughout the Acadian forest region the natural character of the forest has been altered through repeated harvesting activities. Practices such as high grading and the inappropriate use of clear-cutting have typically focussed on extracting the immediate economic value of the forest rather than maintaining its natural diversity or long term economic value. In much of the region these practices continue to be commonplace. In some cases forest stewardship has maintained many of the natural elements of the Acadian Forest, but original forests or those having characteristics of old growth forests are very rare. The extensive alteration of native forests in the region has made the protection and restoration of the native Acadian forest a conservation priority for provincial, national and international conservation organizations.

In order to reduce the threat to the Acadian Forest, the Forest Stewardship Council's Maritime Region Standard requires that certified forest management operations work towards restoration of the natural features of the Acadian Forest. Two fundamental aspects of the restoration approach are ensuring a diverse and site-appropriate mixture of native species is maintained or restored, and that natural disturbance regimes are followed.

Application of this edition of the FSC Canada Maritimes Standard

This edition of the standard is designed to be applied exclusively in forests designated as Small or Low Intensity Forests (SLIMF). The criteria for whether or not a forest can be designated as a Small or Low Intensity Forest are as follows:

Small forest	Total forest area is less than 1,000 hectares
Low intensity forest	**Timber:** The rate of harvest is less that 20% of the mean annual increment, and the annual harvest from the total production forest area is no more than 5,000 cubic metres (m^3)
	Non-timber: Natural forests not exceeding 50,000 hectares, managed exclusively for non-timber forest products, and with no NTFP plantations exceeding 100 hectares
Groups of SLIMFs	**Small groups** have 50 or fewer members, with the total combined area less that 25,000 hectares
	Large groups have 50 or more members, and/or a total forest area exceeding 25,000 hectares

Any forests that are NOT eligible to be considered a SLIMF according to the above category must refer to the separate standard describing the general requirements for the Maritimes region.

There are several advantages for the owners/managers of small or low intensity forests to form or join groups for the purpose of FSC certification. The benefits include economies of scale when it comes to preparing multiple management plans, as well as sharing the costs of preparing for, obtaining and managing certification. If a Resource Manager is providing centralized management services some requirements, especially relating to Principles 1, 3 and 9 can be met at the group level. Often members of group certifications share a common management philosophy and have similar management goals.

More information about group certification can be obtained from FSC Canada at www.fsccanada.org

In order to avoid confusion when comparing this standard with the "Main" FSC Maritimes standard, the following protocols have been adopted:

a) Where a requirement in the "Main" standard is not applicable to any Small or Low Intensity Forests (SLIMFs) the Indicator is deleted but the number is retained, along with a notation that the Indicator does not apply to SLIMFs. This is done in order to ensure that the numbering system is consistent between both versions of the standard.

b) Where a requirement applies to some but not all SLIMFs (such as to large groups but not to small groups or individual small forests) the Indicator is retained but a note is added in a text box to specify the applicability.

c) In the case of Principle 3 the requirements for SLIMFs are significantly different than they are in the Main standard. For this

reason all SLIMF Indicators in Principle 3 have the letter "a" added, in order to distinguish them from Indicators in the Main standard.

d) Where there is a slight difference between an Indicator in the Main standard and the equivalent Indicator in the SLIMF version, that difference is not specifically noted

It's also worth noting that some Indicators apply only in public forests. These distinctions are made in both versions of the standard.

Principle 1: Compliance with Laws and FSC Principles

Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

1.1 Forest management shall respect all national and local laws and administrative requirements.

See Appendix A for references to applicable provincial and federal requirements.

1.1.1 The operation complies with all applicable federal, provincial, county, municipal and local legislation.

1.1.2 Forest workers are aware of regulations relevant to their work and their legal responsibilities regarding them.

1.1.3 Up-to-date copies of such regulations are maintained and accessible to staff members.

1.1.4 Compliance inspections are performed periodically and kept on record.

1.1.5 Where non-compliances are identified and recorded, corrective actions are implemented.

1.2 All applicable and legally prescribed fees, royalties, taxes and other charges shall be paid.

1.2.1 Information regarding legally prescribed fees, royalties, taxes and other charges and their payment is maintained up-to-date and accessible and provisions have been made to meet the costs of future charges.

1.3 In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA, and Convention on Biological Diversity, shall be respected.

1.3.1 The applicant is aware of and understands their legal and administrative obligations with respect to international agreements.

See Appendix B for references to relevant international agreements.

1.4 Conflicts between laws, regulations, and the FSC Principles and Criteria shall be evaluated for the purposes of certification, on a case by case basis, by the certifiers and the involved or affected parties.

1.4.1 Any identified conflicts and actions taken to address them are documented.

1.4.2 Involved and affected parties are consulted and kept informed.

1.5 Forest management areas should be protected from illegal harvesting, settlement and other unauthorized activities.

1.5.1 A system exists for documenting and reporting to the appropriate authorities instances of illegal harvesting, settlement, occupation or other unauthorized activities.

Means of verification:

- Procedures for recording illegal activities
- Records of illegal activities (if any)
- Interviews with law enforcement agencies/individuals

1.5.2 The applicant has effective measures in place, consistent with the nature of the perceived threat, intended to prevent illegal and unauthorized activities.

Means of verification:

- Documented procedures for preventing illegal activities
- Field inspections of procedures
- Interviews with staff of the applicant and enforcement personnel from other relevant agencies

1.6 Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.

1.6.1 The management plan clearly and succinctly states the owner's endorsement of all the Principles and Criteria of the FSC, as well as the standards of the Maritime Forest Region; and discloses all forest areas over which the owner/manager has some responsibility, whether as owner (including share or partial ownership), manager, consultant or other responsibility. If the area being certified does not include all of the forest areas in which the owner/manager is involved, then the reason for this shall be stated.

Means of verification:

- Documented commitment of the operation to FSC Principles and Criteria and to the Maritime Regional Standards that has been communicated to all staff members, and made publicly available

1.6.2 The manager demonstrates a long-term commitment to adhere to the FSC Principles and Criteria.

Means of verification:

- A written plan or strategy for moving all of the owner/manager's forested lands toward FSC certification
- Management planning based on ecological time frames of at least 100 years

Intent of 1.6.2: FSC does not require a forest management enterprise to apply to have all of its forest operations certified, nor to agree to a timetable for such evaluation. It is the goal of FSC Canada to encourage certificate holders to move towards having all of their holdings FSC certified.

A manager can further demonstrate a long-term commitment to the FSC Principles and Criteria by meeting the FSC standard for controlled wood, i.e. not being involved in harvesting or handling wood that originates from areas where traditional or civil rights are violated; from forests where high conservation values are threatened; from genetically modified (GM) trees; from illegal harvesting or wood from areas which have been converted from natural forest to plantations or non-forest uses (see FSC-STD-30-010).

Principle 2: Tenure and Use Rights and Responsibilities

Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

2.1 Clear evidence of long term forest use rights to the land (e.g. land title, customary rights, or lease agreements) shall be demonstrated.

2.1.1 Ownership of the land by the applicant is demonstrated or the applicant has obtained the legal right to manage the lands and to utilize the forest resources for which certification is sought.

Means of verification:

- Documentation showing the legal status of all land and forest that demonstrates legal, long-term (or renewable) rights to manage the land and/or utilize forest resources
- Documentation on the extent of any First Nations' claims or other claims to forest lands (mining, trap line, water permits, easements, etc)
- Evidence of due diligence in establishing clear title

2.2 Local communities with legal or customary tenure or use rights shall maintain control, to the extent necessary to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies.

2.2.1 Aboriginal communities, local communities or other stakeholders who have recognized legal or customary tenure, or traditional use rights, have been identified.

Means of verification:

- Identification in the management plan of Treaty lands, municipal boundaries, water licenses and permits, community watersheds, trap lines, traditional hunting or gathering areas, etc.

2.2.2 The impacts of proposed forest management operations (including access management) on such uses are evaluated.

Means of verification:

- Information available to all holders of usage rights about current and proposed management activities that may affect their use rights.

2.2.3 There is evidence that free and informed consent to forest management activities affecting legal, customary, or traditional use rights has been given by groups and individuals holding such rights and that their interests have been accommodated.

Means of verification:

- Documentation or other evidence.

Indicator 2.2.3 is normally addressed during the management planning process, including the public participation process outlined in 4.4.

2.3 Appropriate mechanisms shall be employed to resolve disputes over tenure claims and use rights. The circumstances and status of any outstanding disputes will be explicitly considered in the certification evaluation. Disputes of substantial magnitude involving a significant number of interests will normally disqualify an operation from being certified.

2.3.1 Where there is a dispute over tenure claim and use rights the manager is implementing a process to resolve the dispute as it pertains to the manager.

Means of verification:

- Dispute resolution process
- Interim measures agreement
- Interviews with disputants

Principle 3: Indigenous Peoples' Rights

The legal and customary rights of Indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.1.1a First Nation's experience, knowledge, practices and insights are to be fairly considered in planning and operations. Rights of First Nations shall be formally recognized and given fair accommodation.

Means of verification:

- There is documented evidence that efforts have been made to get First Nation participation in the forest management decision-making process
- The owner/manager has a program/procedure for consulting with First Nations
- Decision-making incorporates and respects the traditional knowledge of First Nations
- Local First Nations have not challenged the management plan in court

3.1.2a Where the extent of the rights are in dispute, an appropriate, explicit and documented process for addressing and resolving grievances is in place and is being followed.

Means of verification:

- Where conflicts are likely to occur, the owner/manager has developed a mechanism to resolve grievances

3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.2.1a Forest planning and management processes shall consider and meet obligations with respect to duly established Aboriginal and Treaty rights

Means of verification:

- Local First Nations are involved in forest management processes
- First Nations have jobs in forest-based businesses on their lands, territories and resources

3.3 Sites of special cultural, ecological, economic or religious significance to Indigenous People(s) shall be clearly identified in cooperation with such Peoples, and recognized and protected by forest managers.

3.3.1a Areas of cultural sensitivity shall be identified and incorporated in forest management/operational plans.

Means of verification:

- Local First Nations have participated in the identification of Native Values and in the production of native background information reports
- The protection of sites with unique or sign of First Nations social, cultural or spiritual values are addressed in the planning process and within the management itself
- Areas of significant cultural sensitivity are delineated on maps and forest workers are aware of their location

3.3.2a Informed consent by First Nations to any operations on culturally significant areas shall be granted.

3.4 Indigenous Peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

3.4.1a First Nations shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

Means of verification

- There is evidence that First Nations communities were informed and that compensation was provided as agreed

Principle 4: Community Relations and Worker's Rights

Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities

4.1 The communities within, or adjacent to, the forest management area should be given opportunities for employment, training and other services.

4.1.1 On public lands the owner/manager supports the pursuit by local people or the public of well established traditional, non-timber, environmentally appropriate uses that do not threaten native plant or animal populations or ecological functions. Typical examples include, but are not necessarily limited to:

a) fishing and hunting;
b) recreational use;
c) wildcrafting; and
d) wild food gathering.

Means of verification:

- Evidence of sustained, traditional, non-timber, and environmentally appropriate uses of the forest
- Evidence of support for ecologically sustainable recreation and wildcrafting uses

4.1.2 The landowner demonstrates support for the local community.

Means of verification:
Evidence of support for:

- Local processing and value-added manufacturers
- Local businesses
- Local hiring, education and training
- Local infrastructure, facilities, and social programs, at a level appropriate to the scale of the forest operation
- Employment process and employee composition that demonstrate the operation's commitment to the local people
- Affiliations made as local as possible, and justified where not local
- Awareness in local communities of the opportunity for active involvement in services at a level appropriate to the scale of the forest operation

4.1.3 The applicant provides employment and training opportunities to forest workers and contractors from local and affected communities.

Means of verification:

- Evidence of opportunities provided to forest workers and/or contractors from local communities (newspaper ads, use of local employment services, etc)

4.2 Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.

4.2.1 The owner/manager ensures that all forest workers comply with all relevant provincial occupational health and safety requirements.

Means of verification:

- Safety policy
- Worker interviews
- Written contracts or understandings with contractors or other employers of forest workers

4.2.2 The applicant has developed and is implementing a program of worker safety. Where the owner/manager has more than six workers the program includes, but is not limited to:

a) a comprehensive safety policy;
b) a program to monitor the condition and functionality of equipment;
c) identification of safety training needs and the provision of safety training;
d) the use of appropriate safety equipment by forest workers; and
e) periodic review of the safety program to keep it up-to-date and comprehensive.

Means of verification:

- Documented safety policy
- Safety inspection records
- Equipment and plant inspection records
- Worker interviews
- Safety training records
- Records of lost time injuries
- Records of safety audit
- Inspection/review of first aid training and facilities

4.2.3 Forest workers are aware of relevant regulations and their responsibilities in implementing them.

Means of verification:

- Interviews with forest workers

4.3 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labour Organization (ILO).

4.3.1 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labour Organization (ILO).

Means of verification:

- No evidence of interference in unionization activities
- Interviews with employees

4.4 Management and planning operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups (both men and women) directly affected by management operations.

4.4.1 Employees must be given opportunities to participate in, and give feedback on, major management decisions, policy formulation and on-the-ground practices.

Means of verification:

- Efforts to make all employees aware of such opportunities and to encourage follow up
- Documents available on response of feedback on decisions, policies and practices
- Mechanisms in place for anonymous reporting of non-compliance

4.4.2 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.

Means of verification:

- Publications on the operation's activities and objectives (i.e. through literature, mailings, workshops, and/or advertisements)
- Documented evidence that community feedback was considered in management planning

4.4.2 does not apply in the case of small forests; it does apply for low-intensity forests.

4.4.3 When carrying out major operations within 30 metres of a boundary line, and/or within 100 m of a dwelling, the owner(s) of adjacent land(s) must be given a minimum of 30 days notice and their concerns considered prior to the commencement of the activity.

Means of verification:

- Evidence that such owners were given a minimum of 30 days notice
- Evidence that concerns were considered prior to commencement of the activity

4.4.4 The owner/managers(s) shall demonstrate their cooperation, support, or assistance to other sustainable management initiatives within the region, appropriate to the scale and intensity of the operation, upon which their operation may have an influence.

Means of verification

- A list maintained by the owner/manager of other sustainable management initiatives within the region
- Documentation of consultation and support provided
- Adjustments to forest operations to accommodate other community interests

4.4.5 Harvest operations and road designs must consider impacts on visual and sound quality in the vicinity of high use areas.

Means of verification:

- Evidence of efforts made to address community concerns (e.g., noise abatement measures, avoidance of conflicts with recreational users, etc).

4.5 Appropriate mechanisms shall be employed for resolving grievances and/or for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property, resources, or livelihoods of local people. Measures shall be taken to avoid such loss or damage.

4.5.1 The applicant has a process in place for fairly resolving disputes with employees as well as disputes with other resource users and the general public that result from forest planning and operations.

Means of verification

- Written documentation of the dispute resolution process
- Documentation of the resolution of disputes
- Interviews with former disputants

Principle 5: Benefits from the Forest

Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

5.1 Forest management should strive toward economic viability while taking into account the full environmental, social and operational costs of production, and ensuring investments necessary to maintain the ecological productivity of the forest.

5.1.1 (Does not apply to SLIMFs)

5.1.2 The owner/manager provides for reinvestment to enhance economic, social and forest value for the long term.

Means of verification:

- Documentation of reinvestment (e.g., upgrades, training, silviculture, etc)
- Investments in stand improvement

5.1.3 (Does not apply to SLIMFs)

5.1.4 Stumpage rates and roundwood prices being paid to landowners and governments by a landowner or mill seeking certification should be fair and equitable given logging conditions, timber quality, volume, and local experience with comparable log markets.

Means of verification:

- Evidence that prices paid are consistent with those paid in comparable log markets

5.2 Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products.

5.2.1 (Does not apply to SLIMFs)

5.2.2 Without high grading, the manager captures the optimal value of forest products throughout the production cycle (e.g., planning, harvesting, stand management, sorting, merchandising).

Means of verification:

- Forest product sales records

- Interviews with value-added processors and competitive log markets in the area
- Management plan objectives related to optimizing value of forest products

5.2.3 The manager evaluates different options for enhancing the optimal use of forest products from the management unit and implements measures to achieve optimal use.

5.3 Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.

5.3.1 All harvested merchantable and marketable timber is utilized, unless left on-site to provide site-specific environmental benefits, as defined by the owner/manager.

Means of verification:

- Utilization levels as determined by field inspection
- Compliance records related to utilization
- Utilization standards are clearly stated in operating guidelines and are comparable to industry best-management practices.

5.3.2 Standard Operating Procedures shall be in place and implemented to minimize the damage to the residual stand, including non-merchantable/non-marketable trees and trees being left for future harvest.

Means of verification:

- Damage to residual trees as determined by field inspection
- Compliance/inspection reports
- Directions (SOPs or other written materials) provided to operators related to preventing damage
- Training materials related to reducing damage
- Appropriateness of harvesting and silvicultural equipment to site conditions
- Harvesting layout and procedures

5.4 Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

5.4.1 A diversity of timber and non-timber forest products, compatible with site conditions and local economic objectives for strengthening and diversifying the local economy over time, are produced at present, and predicted to continue under management plan objectives/forecasts.

Means of verification:

- Interviews with forest-dependent businesses and local people
- Adjustments to forest management practices to accommodate strengthening and diversifying the management unit's contribution to the local economy from non-timber forest uses, fish and wildlife

5.4.2 In response to interest from the local community, the manager evaluates proposed production of non-timber forest products within the management unit, and identifies and implements forest management practices that allow for the production of a diversity of non-timber forest products compatible with site conditions and local objectives for strengthening and diversifying the local economy over time.

Means of verification:

- Documentation of forest management practices that are consistent with strengthening and diversifying the management unit's contribution to the local economy from non-timber forest products
- Interviews with local timber and non-timber forest product companies regarding cooperation by the manager in economic diversification

5.5 Forest management operations shall recognize, maintain and, where appropriate, enhance the forest services and resources such as watersheds and fisheries.

5.5.1 The manager identifies forest services provided by the management unit including, but not necessarily limited to, watersheds, fisheries and recreation, drawing on existing information (e.g., relevant assessments, inventories, studies) and public consultation as applicable.

5.5.2 The manager assesses and describes existing and potential impacts of forest management activities on forest services.

5.5.3 The manager identifies and implements measures required to maintain or enhance the range of forest services provided by the management unit.

Means of verification:

- Interviews with local people regarding whether forest services have been adequately maintained

5.6 The rate of harvest of forest products shall not exceed levels which can be permanently sustained.

5.6.1 (Does not apply to SLIMFs)

5.6.2 Rates of harvest of any forest product shall be sustainable within ecological limits, and harvest levels shall be set within a justifiable growth period and growth area.

Means of verification:

- Harvest rates that are based on conservative growth and yield data

5.6.3 A pre-harvest assessment shall be implemented.

Principle 6: Environmental Impact

Forest management shall conserve biological diversity and its associated values, water resources, soils and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and integrity of the Forest.

6.1 Assessment of environmental impact shall be completed -- appropriate to the scale, intensity of forest management and the uniqueness of the affected resources -- and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

6.1.1 Environmental impacts shall be assessed prior to and following the commencement of site-disturbing activities. Assessments shall include landscape level considerations as well as the impacts of onsite processing facilities.

Means of verification:

- Records of assessments
- Interviews with owner/managers

6.1.2 The owner/manager demonstrates a good knowledge of the variety and extent of soil types in their landholdings and uses this knowledge in its management plans, including road system design and silviculture design.

Means of verification:

- Evidence that the forest manager can identify ecosites with severe operating limitations
- Evidence that the forest manager can identify indicator plants
- Selection of road sites that reflects understanding of soil types
- Silvicultural design that reflects knowledge of soil types

6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g. nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.

6.2.1 Threatened and endangered species (as listed by provincial and federal bodies) and their habitat shall be protected or managed in accordance

with approved recovery plans. Where recovery plans are not yet approved, a precautionary approach should be taken to avoid disturbance and protect the species and their habitats.
Means of verification:

- Inventories of areas (for such species) carried out before harvesting stand improvement or road-building activities (appropriate to the scale and intensity of the operation)
- Management plan addressing the protection of such species, including habitat requirements
- Evidence that disturbance of such species and their critical habitat, where known to occur, is minimized
- Evidence that forest workers are aware of known occurrences of such species and are following the management plan with respect to protecting such species and their critical habitat
- Evidence that Management staff are aware of those species that may occur locally

Refer to Appendix C for sources of information about federally and provincially listed species at risk, including rare, vulnerable, threatened and endangered species.

6.2.2 Forest owner/managers shall identify and implement measures within their sphere of influence to reduce the threat (from both timber and non-timber activities) to species that are rare, vulnerable or under investigation by COSEWIC or their provincial equivalents.

Means of verification:

- Management plan addressing the protection of such species, including habitat requirements
- Evidence that disturbance of such species and their critical habitat, where known to occur, is minimized
- Evidence that forest workers are aware of known occurrences of such species and are following the management plan with respect to protecting such species and their critical habitat
- Evidence that Management staff are aware of those species that may occur locally

6.2.3 Primordial forests, where such forests exist on the management unit, shall be included in the High Conservation Value Forest assessment described in Principle 9. Conservation zones shall be established in these primordial forests and identified on maps, and shall not be harvested.

Means of verification:

- Results of HCVF assessment
- Primordial stands identified on management plan maps

- Evidence that Management and forest workers are aware of the existence of primordial stands and their characteristics

6.2.4 The owner/manager cooperates fully with resource management agencies in the efforts to control illegal hunting, trapping and fishing.

Means of verification:

- Documentation of monitoring and reporting
- Control measures undertaken by owner/manager (e.g. closures, signage, patrols, etc)

6.3 Ecological functions and values shall be maintained intact, enhanced or restored, including:

a) Forest regeneration and succession;

b) Genetic, species and ecosystem diversity; and

c) Natural cycles that affect the productivity of the forest ecosystem.

Stand Level Objectives (Indicators 6.3.1 to 6.3.6)

These Indicators require that the owner/manager undertake practices that protect natural Acadian forest conditions, or restore them if lost on the site. They include consideration of the range of ecosystem conditions such as seral stage distribution, patch size distribution, stand structure, disturbance regimes (i.e., frequency, intensity, spatial extent and heterogeneity of disturbances) and species diversity. It is of course impossible to determine the historic range of natural variability with complete precision; the owner/manager is expected to make use of the most relevant and reliable available information.

Uneven aged stand management is consistent with the natural disturbance pattern of most of the Acadian Forest; however, clear-cutting or other aspects of even-aged management may be appropriate when they are used as the best tools to restore the natural forest type, (including non-timber forest values), appropriate to the site (see the references provided in the Glossary definition of "eco-site"). This would apply to natural forest types such as jack pine, black spruce or black spruce/balsam fir and in scenarios such as over-mature white spruce fields, catastrophic insect infestation, or catastrophic wind-throw. If clear-cutting is used it is intended to restore natural forest types to natural configurations on the landscape rather than being intended to mimic catastrophic disturbances.

It is recognized that achieving forest restoration is a long term process that can take more than one rotation to fully achieve. The manager is expected to demonstrate commitment to restoration by showing continual progress over time.

6.3.1 The present and projected silviculture, harvest and regeneration methods shall result in a mix of tree species, stand types, landscape ecology and stand structures that mimic the natural variability and historic local pattern of the Acadian Forest.

Means of verification:

- Current and projected forest inventories consistent with or (in the case of forest restoration) moving towards the descriptions referenced in the definition of "eco-site" in the Glossary

6.3.2 Silvicultural and harvesting practices shall result in canopy closure levels that are consistent with the natural disturbance pattern o the eco-site.

Means of verification:

- Owner/manager's awareness of the natural range of canopy closure and steps taken to remain within the natural range

6.3.3 Silviculture practices result in age, diameter, species and height class distributions that are within the range of natural variability.

Means of verification:

- Tree selection guidelines and silviculture techniques that foster the maintenance of age/diameter/height class distributions that are consistent with the range of natural variability
- Evidence that an appropriate range of age / diameter/height class distributions of tree species is maintained
- Silvicultural prescriptions that mimic the pattern, size, and distribution of natural disturbance patterns appropriate to the eco-site

6.3.4 Coarse woody debris in the form of large fallen trees, large logs and snags of various sizes is maintained in each stand sufficient to maintain wildlife habitat attributes and forest ecosystem productivity through the regeneration period.

Means of verification:

- Post-harvest surveys

Guidelines for managing coarse woody debris to meet wildlife objectives can be found in the "Forest Management Guidelines to Protect Native Biodiversity in the Fundy Model Forest," available online at: http://www.unbf.ca/forestry/centers/cwru/opening.htm.

6.3.5 Harvesting, site preparation, and other forest operations should be undertaken in a manner that minimizes site and soil damage and soil nutrient loss.

Means of verification:

- Harvest prescriptions and site-specific standard operating procedures (dealing with rutting, machinery, landings, siltation, soil organic matter and nutrients, etc)
- Site preparation prescriptions and standard operating procedures.
- Post harvest monitoring

6.3.6 The rationale for all decisions to plant tree seedlings (instead of relying on natural regeneration) shall be well defended and documented in the management plan.

Means of verification:

- Silvicultural prescriptions based on a good understanding of pre-colonization and natural forest types and dominant natural disturbance regimes
- Where planting occurs, use of seed sources that are genetically appropriate to the site

Landscape-scale Objectives

6.3.7 The owner/manager shall strive to approximate spatial patterns and distributions of forest communities representative of natural forest characteristics for the landscape level.

Indicators 6.3.7 and 6.3.8 apply to low intensity forests and large groups of small forests, but do not apply to individual small forests or small groups.

6.3.8 Forest fragmentation is minimized and connectivity is maintained or restored between important wildlife habitats and key landscape features such as HCVFs, late seral stage forests and protected areas.

Means of verification:

- A plan, developed with expert scientific input, or a portion of the management plan that is dedicated to the maintenance of landscape connectivity
- Evidence in operational plans/documents that the connectivity plan is being implemented
- Discussions with local ecologists and biologists

6.3.9 Local seed sources shall be maintained by ensuring that viable populations remain at the landscape level.

Means of verification:

- Evidence of consideration of the population dynamics of tree species (e.g. viable population size, frequency of good seed years,

seed dispersal characteristics, germination/uptake conditions, etc.) in silvicultural and harvesting prescriptions

6.3.10 Specific wild life habitat objectives shall be set and adequate habitat levels must be maintained and developed.

Means of verification:

- Habitat objectives, including consideration of interior forest species, old forest dependent species, vulnerable, threatened or endangered species, and keystone/indicator species (including aquatic species), are specified in the management plan and are being implemented

Indicator 6.3.10 applies to low intensity forests and large groups of small forests, but does not apply to individual small forests or small groups.

Intent: Wildlife Habitat Objectives
Criterion 6.2 addresses the requirements pertaining to species that are "at risk" in some way (endangered, threatened, rare, vulnerable or under investigation). Indicator 6.3.10 provides more general requirements to set and maintain habitat objectives for other important species. There are a number of reasons why it may be appropriate to set habitat objectives in a forest management plan (a focal, umbrella or keystone species, a species of particular social significance, etc), but the owner/manager is expected to consider available information relevant to that management unit when identifying habitat objectives under this Indicator, and provide a rationale in the management plan.

6.3.11 Management plans are in place and are implemented to protect water quality in watersheds and to prevent unnatural fluctuations in water temperature and discharge.

6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

6.4.1 Existing ecosystems on the forest management unit are inventoried according to classification systems in use in the Province and documented on management plan maps.

Indicators 6.4.1 and 6.4.2 apply to low intensity forests and to large groups of small forests, but they do not apply in the case of individual small forests and small groups. In these cases the intent of Criterion 6.4 will be addressed in the course of meeting requirements under Principle 9.

6.4.2 Representative samples of ecosystems that are present on the management unit and underrepresented in protected areas on the landscape are designated in the management plan and on maps and protected in their natural state.

6.4.3 The owner/manager should actively support multi-stakeholder initiatives that include government, industrial and private landowners, and non-government agencies to establish systems of protected areas in the region of the landholding.

Means of verification:

- Landowner/manager's use of gap analysis or other appropriate methodology to address the need for protected areas
- Evidence that the landowner/manager can demonstrate support of multi-stakeholder initiatives to establish a protected areas system in the region of the landholding(s) both in principle and in practice
- Evidence that the landowner/manager has either acted alone to ensure that the protected areas approach to representing regional ecological diversity has been applied on the landholding, and/or has collaborated with neighbouring landowners to this end

6.5 Written guidelines shall be prepared and implemented to control erosion; minimize forest damage during harvesting, road construction and all other mechanical disturbances; and protect water resources.

6.5.1 Road construction and maintenance must be conducted so as to minimize damage to the forest and water areas.

Means of verification:

- Road systems designed to minimize loss of productive forest land and to minimize erosion
- Haul roads, landings and main skid trails designed, planned and laid out prior to tree selection and logging activities
- Evidence that the area of property that is covered by skid trails, roads, and landings is considered and minimized
- Trail systems that avoid wet spots, seeps, poorly drained areas, and intermittent streams

Intent for Indicators 6.5.2, 6.5.3, 6.5.4 and 6.5.5: Riparian and wetland protection is an important characteristic of good forestry, but establishing specific on-the-ground performance requirements is made difficult by the wide variety of field situations, the continually evolving knowledge base and the diverse legal requirements across the three Maritimes provinces. This standard addresses riparian and wetland protection in the following three Indicators, which collectively will ensure that the owner/manager is taking adequate steps to maintain water quality throughout the management unit.

6.5.2 calls particular attention to the need to comply with all provincial requirements.

6.5.3 specifies that rovincial requirements are to be implemented on private lands, even those that are legally required only on Crown lands. Auditors need to verify compliance with these requirements in the field.

6.5.4 requires owner/managers to become informed about recognized best management practices, and to implement those that are relevant in the management unit, taking into consideration site conditions, operability, etc. Recognizing that knowledge about best management practices continually evolves, it is expected that the owner/manager will at a minimum consider the riparian guidelines in the "Forest Management Guidelines to Protect Native Biodiversity in the Fundy Model Forest," available online at: http://www.unbf.ca/forestry/centers/cwru/opening.htm.

6.5.5 requires owner/managers to explicitly and publicly describe the specific requirements that are being implemented on the management unit, highlighting the importance of transparency and accountability with respect to riparian protection.

6.5.2 The owner/manager shall comply with all provincial regulations, policies, guidelines and license conditions pertaining to riparian and wetland protection during harvesting and road construction, including those set forth in Appendix D.

Means of verification:

- Compliance records
- Field inspection

6.5.3 On private lands the owner/manager shall implement the riparian and wetland protection measures as set forth in Appendix D that apply on public lands in that Province.

Means of verification:

- Compliance records
- Field inspection

6.5.4 The owner/manager is implementing relevant best management practices pertaining to the protection of water quality.

Means of verification:

- Documentation of best practices that have been considered, and a written rationale for why any provincially recognized best management practices are deemed to be inapplicable in the management unit

6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

The term "**pesticide**" refers to all substances designed to protect desired trees from harmful organisms. Pesticides include fungicides, herbicides and insecticides, and can be chemical or biological. The term "pesticide" is used here because (1) it is used in the FSC P&C and glossary and (2) the alternative term "biocide" has other legal definitions and restrictions, and includes some household cleaning agents. Where the standard refers to a narrower range or type of pesticides the following terms are used:
biological control agents are living organisms used to eliminate or regulate the population of other living organisms (e.g. Bt, application of fungi to control undesired regeneration);
chemical pesticides (herbicides or insecticides) are synthetic chemical substances used to kill unwanted plants, insects or other organisms (e.g., Roundup, Fenitrothion);
highly hazardous pesticides are chemical pesticides that have been identified in policy documents by FSC International as generally prohibited for use on FSC certified management units (e.g., DDT).
All Indicators in this Criterion (i.e., 6.6.1 to 6.6.6 inclusive) apply to the use of chemical herbicides, and all requirements must be met. Relevant Indicators governing the use of chemical insecticides and fungicides are 6.6.1, 6.6.3, 6.6.5 and 6.6.6. The use of non-chemical biological control agents is addressed in 6.6.1 and 6.6.5, as well as in Criterion 6.8. **The Indicators should be read together, and no Indicator supersedes the need to comply with the other relevant Indicators.**

6.6.1 The applicant has developed and is implementing an integrated pest management program, which includes:

a) a commitment to attaining pesticide-free forest management;
b) a target date for the timely elimination of the use of chemical herbicides on the management unit; and
c) interim targets and objectives for the reduction of chemical herbicide use.

A summary of the program, including the targets and objectives, is included in the Public Summary (7.1).

Means of verification:

- An IPM plan that focuses on alternatives to pesticides
- A written and public plan to phase out all chemical herbicide use, including a phase-out date and interim targets for reduced herbicide use

6.6.2 The manager is effectively implementing the targets and objectives described in 6.6.1 and demonstrates continuous reduction of chemical herbicide use on the management unit.

Means of verification:

- Data on pesticides used, compared with targets and objectives

6.6.3 Chemical pesticides are used only when their use is essential to meet silvicultural objectives as described and limited in 6.6.4, to control major insect outbreaks or to control invasive exotic species, and when non-chemical management practices are:

a) not available; or
b) ineffective in achieving silvicultural objectives; or
c) prohibitively expensive, taking into account environmental and social costs, risks and benefits.

If chemicals are used, the manager uses the least environmentally damaging formulation and application method practical.

Means of verification:

- Written evaluations of non-chemical approaches to pest management
- Information, especially peer-reviewed data, that has been reviewed by the applicant regarding the toxicology of pesticides used

6.6.4 The use of chemical herbicides is further limited to:

a) plantations, subject to the provisions of Criterion 10.7 and the overall limitations on the extent of plantations permissible within the management unit;
b) stand establishment on cutblocks that were created prior to FSC certification, and with a phaseout period of no more than two years from the date of initial certification; and
c) as a last resort, to maintain, enhance or restore forest ecological functions and ecological values as described in Criterion 6.3, with a written and publicly available rationale for each such use.

Means of verification:

- Written rationale for any use of chemical herbicides

- Publicly communicated rationale for any ecological justification for chemical herbicide use

6.6.5 The manager makes publicly available detailed and timely information about the total amount of pesticide use each year on the management unit, including data on at least one year prior to initial certification.

Means of verification:
- Volume applied, by pesticide type
- Hectares sprayed, by pesticide type

6.6.6 Highly hazardous pesticides as determined by FSC International are not used.

Refer to Appendix E for a list of pesticides determined by FSC International to be highly hazardous pesticides.

6.7 Chemical, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

6.7.1 Chemical, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

6.7.2 Biodegradable oil and other biodegradable products should be used when available and cost-effective.

6.7.3 An active recycling program is in place for used motor and machine oil and plastic products.

Means of verification:
- Recycling policy
- Disposal records

6.8 Use of biological control agents shall be documented, minimized, monitored, and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.

Note that 6.6.1a (integrated pest management) and 6.6.5 (documentation of pesticide use) apply to all pesticides, including biological control agents.

6.8.1 Biological control agents (e.g., Bt) are used only where alternative pest control methods are:
a) not available; or
b) ineffective in achieving silvicultural objectives; or
c) prohibitively expensive, taking into account environmental and social costs, risks and benefits.

Means of verification:
- Documented rationale for use of biological control agents
- Application records

6.8.2 The impacts and effectiveness of the use of biological control agents are monitored.

Means of verification:
- Effects monitoring records of biological control agents.
- Field inspection

6.8.3 Genetically modified organisms shall not be used.

6.9 The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

6.9.1 Exotic tree species shall not be introduced unless the owner/manager provides clear evidence that:
a) there is a known risk and low risk of invasion or adverse effects on surrounding habitat;
b) it is not introduced into areas identified as of High Conservation Value under Principle 9;
c) it is limited to no more than 5% of the management unit;
d) there is not more than 50ha of contiguous area of exotic species within an age class; and
e) the exotic species are not concentrated in a particular eco-site type.

Means of verification:
- A risk assessment undertaken by the manager regarding the introduction of the species, which at a minimum verifies: displacement of native communities, hybridization with native species, and introduction of pathogens
- Evidence, provided by the manager, that the exotic tree species is compatible with the ecosystem
- Documented evidence, provided by the manager, that no displacement, hybridization or introduction of pathogens has occurred as a result of introducing an exotic species

- Management plans and field evidence indicating that exotic planting is limited to less than 5% of the management unit and is not concentrated in a single eco-type

6.9.2 The use of any exotic species is monitored for efficacy, invasiveness, unusual mortality, disease or insect outbreak, and adverse ecological impacts.

Means of verification:

- Monitoring program
- Monitoring results

6.10 Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:
a) entails a very limited portion of the forest management unit; and
b) does not occur on high conservation value forest areas; and
c) will enable clear, sustainable, additional, secure long-term conservation benefits across the forest management unit.

6.10.1 Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:

a) does not take place in areas identified as of High Conservation Value Forests under Principle 9;
b) is limited to no more than 5% of the management unit;
c) is limited to no more than 50ha of contiguous area of plantation conversions within an age class; and
d) is not concentrated in a single eco-site type.

6.10.2 Management actions are undertaken to convert unused non-forest areas (landings, gravel pits, camps, roads, trails, former agricultural lands) back to forest.

Means of verification:

- Field inspection that demonstrates re-establishment efforts.

Principle 7: Management Plan

A management plan – appropriate to the scale and intensity of the operations – shall be written, implemented and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.

7.1 The management plan and supporting documents shall provide:

a) Management objectives;
b) Description of the forest resources to be managed, environmental limitations, land use and ownership status, socio-economic conditions, and a profile of adjacent lands;
c) Description of silvicultural and/ or other management system, based on the ecology of the forest in question and information gathered through resource inventories;
d) Rationale for rate of annual harvest and species selection;
e) Provisions for monitoring of forest growth and dynamics;
f) Environmental safe guards based on environmental assessments;
g) Plans for the identification and protection of rare, threatened and endangered species;
h) Maps describing the forest resource base including protected areas, planned management activities and land ownership; and
i) Description and justification of harvesting techniques and equipment to be used.

SLIMF operations have flexibility in how they demonstrate compliance with the requirements of 7.1, understanding that some elements of the management plan (e.g. inventories, monitoring, etc) may be addressed through less formal means than would be the case in large operations.

7.1.1 The vision and objectives of the owner/forest manager shall be articulated clearly to employees, contractors, and made available to suppliers, customers and the interested public.

Means of verification:

- Management plan statement of landowner vision and objectives
- Assessment (in the management plan) of the challenges and opportunities on the management unit relative to the stated vision and objectives

7.1.2 The owned/managed lands, and the adjacent lands, shall be described and mapped in adequate detail to provide the information necessary for making management decisions in accord with the other sections of this document.

Means of verification:

- Management plan detailing the history of ownership and management, (as much as reasonably can be known by the owner/manager)

7.1.3 The management plans shall document the owner's management strategies and prescriptions for meeting silvicultural and management objectives within the context of the forest's long-term sustainability.

7.1.4 Areas of special ecological significance, including habitat of vulnerable, rare, threatened, and endangered species, primordial Acadian forest, areas with unusually high species diversity, or exceptional cultural significance shall be clearly marked on maps with buffer areas and management options described as appropriate to the scale and sensitivity of the cultural or ecological feature.

Means of verification:

- Procedures for identifying and safeguarding vulnerable, rare, threatened, and endangered species, and their habitat, included in the management plan, in accordance with 6.2

7.1.5 The management plan shall document measures for the protection of identified sites of significant cultural, spiritual, or aesthetic value.

Means of verification:

- Procedures for identifying and safeguarding identified sites of significant cultural, spiritual, or aesthetic value included in the management plan

7.1.6 For all lands which do not have the physical or functional characteristics of the natural forest for that site (see references in the Glossary definition of "eco-site"), a restoration plan shall be included in the management plan which considers various options and which moves the site toward a condition more characteristic of an appropriate natural forest type.

7.1.7 Written guidelines and specification for avoiding damage to ecosystems (e.g. in road building and harvesting) shall be comprehensive, readily available and understandable to field personnel. The greater landscape context of individual stands shall be taken into account when prescribing activities.

Means of verification:

- Guidelines and specification for avoiding damage to ecosystems

7.1.8 On management units larger than 500 hectares the management plan shall include a landscape level plan which the owner/manager has initiated or participated in, in accordance with the requirements of Criterion 4.4. If the management unit is less than 500 hectares, the owner/manager shall participate where opportunity exists to the development of landscape level forest planning in the local community. Plans shall take into consideration landscape-level restoration objectives at local and regional scales, including habitat connectivity for species that have large home ranges.

7.1.9 The management plan shall include the assumptions and rationale for the harvest level determinations made in accordance with the requirements of Criterion 5.6, incorporating historical information, research findings and traditional wisdom, as appropriate.

7.1.10 The predictable future influence of pests, pathogens and non-commercial species on allowable harvests, timber values, stocking etc. shall be taken into account and prepared for in the management plan.

7.1.11 Access and harvest schedules and cycles, as well as harvesting techniques and technologies, shall be described and justified.

Intent for 7.1.11
Harvest schedules are typically prepared on a shorter cycle than the management plan, so this information is not required to be included in the management plan but it should be available and up to date.

7.1.12 The management plan shall include a strategy for monitoring forest changes and assessing the environmental and social impacts of forest management.

7.1.12 applies to large groups, but it does not apply to low intensity forests, to individual small forests or to small groups.

7.2 The management plan shall be periodically revised to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances.

7.2.1 Indicators of progress relative to objectives shall be identified and an effective and thorough plan for monitoring these indicators shall be in place.

7.1.12 applies to large groups, but it does not apply to low intensity forests, to individual small forests or to small groups.

7.2.2 Management plans shall be current and be revised at least every five years to incorporate the results of the monitoring described in Principle 8.

7.3 Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

7.3.1 Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

Means of verification

- Training requirements specific to jobs/job categories.
- Awareness and understanding of the operational requirements for implementing the plan shown by the applicant and forest workers.
- Forest workers demonstrate appropriate level of knowledge and skill required for implementation of the plan.

7.4 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the primary elements of the management plan, including those listed in Criterion 7.1.

7.4.1 A summary of the management plan, including all elements referred to in 7.1, shall be made available to the public.

Principle 8: Monitoring and Assessment

Monitoring shall be conducted – appropriate to the scale and intensity of forest management – to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

Owner/managers – especially on small operations – will generally make use of existing information gathered by other agencies and/or organizations to demonstrate compliance with this Principle, rather than undertaking intensive monitoring programs on their own. The compilation of existing information will ordinarily be supplemented by annual site visits.

8.1 The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations as well as the relative complexity and fragility of the affected environment. Monitoring procedures should be consistent and replicable over time to allow comparison of results and assessment of change.

8.1.1 A documented monitoring program that outlines the frequency, intensity, and rationale for monitoring is implemented with the following characteristics:

a) consistent and replicable monitoring procedures;
b) monitoring of the performance of the owner/manager and the owner/managers employees and contractors, including compliance with Standard Operating Procedures and contract specifications;
c) identification of staff members or others with responsibility for implementing monitoring programs; and,
d) procedures for taking corrective actions where non-compliances are identified.

Means of verification:

- Documented monitoring program
- Records of monitoring activities

8.2 Forest management should include the research and data collection needed to monitor, at a minimum, the following indicators:
(a) yield of all forest products harvested;
(b) growth rates, regeneration and condition of the forest;
(c) composition and observed change in the flora and fauna;(d) environmental and social impacts of harvesting and other operations;
(e) costs, productivity, and efficiency of forest management.

8.2.1 Data are collected concerning:

a) yield of all forest products harvested;
b) growth rates, regeneration, forest health, productivity and condition of the forest;
c) composition and observed changes in the flora and fauna (including rare, threatened, and endangered listed species), and seral stages, as a result of forest operations;
d) designated watershed condition, water quality, road condition and drainage structures;
e) environmental and social impacts of harvesting and other operations; and,
f) costs, productivity and efficiency of forest management.

8.2.2 Owner/managers should monitor species at risk as well as protected units on their property, wherever possible in collaboration with other landowners and government agencies.

Means of verification:

- Evidence that the owner/manager is aware of species at risk that may be present on the property
- Data collected concerning natural populations and communities in protected areas

8.3 Documentation shall be provided by the forest manager to enable monitoring and certifying organizations to trace each forest product from its origin, a process known as the "chain of custody".

8.3.1 A documented procedure shall be implemented for identifying all products leaving the forest so that the recipient can easily determine the forest of origin.

Means of verification:

- Documented procedure
- Evidence of implementation

8.4 The results of monitoring shall be incorporated into the implementation and revision of the management plan.

8.4.1 (Does not apply to SLIMFs)

8.4.2 The results of monitoring are incorporated into forest management as well as periodic revisions of the management plan, policy, and procedures.

Means of verification:

- Revisions to the management plan, policy, and procedure.

8.5 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the results of monitoring indicators, including those listed in Criterion 8.2.

8.5.1 A regular summary is compiled of the results of monitoring activities on the indicators listed in 8.2, and is made publicly available.

Means of verification:

- Summary of results
- Evidence of public-availability

Principle 9: Maintenance of High Conservation Value Forests

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of precautionary approach.

9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to the scale and intensity of forest management.

9.1.1 Using the assessment framework in Appendix F, the owner/manager determines the presence of the attributes consistent with High Conservation Value Forests.

Means of verification:

- Documentation of an assessment that has been carried out
- The HCVF assessment

The HCVF Assessment Tool
The HCVF Assessment Tool that is included in Appendix F provides a structured set of questions that can help in determining whether a particular forest contains HCVF attributes. The mere presence of HCVF attributes does not automatically mean that the forest is to be considered a High Conservation Value Forest; the owner/manager will need to assess the uniqueness, distinctiveness and value of the attributes in collaboration with affected and interested parties and qualified experts.

9.1.2 Primordial forests, where they are present on the management unit, shall be identified as High Conservation Value Forests.

The external advice referred to in 9.1.3 can be obtained in a wide variety of ways, including from a Group Resource Manager or from a local expert in some aspect relevant to high conservation value forests.

9.1.3 The owner/manager shall obtain external advice in order to carry out this assessment.

9.1.4 The owner/manager shall make the assessment document(s), associated maps, and external review report available to the public.

9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

9.2.1 The owner/manager includes consideration of high conservation value aspects in the course of meeting the requirements under Criterion 4.4.

9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

9.3.1 The management plan and supporting documents include specific strategies to ensure the maintenance and/or enhancement of the High Conservation Values identified in 9.1.1.

9.3.2 The measures included in 9.3.1 shall be included in the public summary (7.4), without compromising confidentiality or risk to the identified features and values.

9.3.3 The owner/manager implements the measures and strategies outlined in 9.3.1.

9.3.4 Conservation zones shall be established in primordial forests and identified on maps, and shall not be harvested.

9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

9.4.1 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

Means of verification:

- Records of monitoring

Principle 10: Plantations

Plantations shall be planned and managed in accordance with Principles and Criteria 1-9, and Principle 10 and its criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's need for forest products, they should complement the management of, reduce pressures on and promote the restoration and conservation of natural forests.

Plantations in the Maritimes

Plantations occur where high intensity silviculture is practiced, but it does not follow that all areas subjected to intensive silvicultural treatments are plantations. Plantations are characterized as areas undergoing "non-natural" succession. As it is referred to here, this results in some or all of the following stand characteristics being maintained in a highly altered state, or even eliminated:

- Tree species diversity (especially deciduous species. and/or other noncommercial spp.);
- Stand diversity (e.g., patchiness, presence of small openings, variability in tree species diversity, density and/or canopy layers);
- Stand structures and associated habitats resulting from pathogens or physical damage (e.g., forked stems, hollow boles, dead tops);
- Early successional habitats (e.g., berry patches, areas dominated by brush and herbaceous species)
- Presence of mature and old trees; and,
- Coarse woody debris.

In other words, plantations are highly managed treed areas with few natural characteristics. They exist for timber production purposes and are not managed to provide other values or amenities on the planted sites.

The standard recognizes plantations in three contexts: 1) existing lands that are subject to intensive forestry; 2) circumstances in which natural forest is converted to plantations, subject to the limitations described in Criterion 6.10; and 3) new plantations established through afforestation, when previously non-forested land (e.g., farm land) is converted into forest. (Although not all areas afforested necessarily result in plantations, this discussion is limited to those areas which do.)

The total area of land managed as plantations is limited in this standard to no more than 10% of the management unit. The restoration and natural forest management objectives in this Principle should be understood in this context, and in consideration of the ways that intensive forest management can help to generate conservation benefits elsewhere on the management unit.

10.1 The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

10.1.1 The management plan contains goals and objectives for the management and harvest of plantations, including relevant and spatially explicit natural forest conservation and restoration objectives.

10.1.2 The total area of plantations shall not exceed 10% of the management unit.

10.1.3 The objectives referred to in 10.1.1 are implemented.

10.2 The design and layout of plantations should promote the protection, restoration and conservation of natural forests, and not increase pressures on natural forests. Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods shall be used in the layout of the plantation, consistent with the scale of the operation. The scale and layout of plantation blocks shall be consistent with the patterns of forest stands found within the natural landscape.

10.2.1 The location, management and extent of plantation areas are consistent with landscape level biodiversity objectives.

10.2.2 In proportion to the scale of operations, plantation blocks contain features that enhance ecological values, including but not limited to, shoreline and riparian areas, and, if applicable, wildlife corridors and a range of age classes and tree species.

10.3 Diversity in the composition of plantations is preferred, so as to enhance economic, ecological and social stability. Such diversity may include the size and spatial distribution of management units within the landscape, number and genetic composition of species, age classes and structures.

10.3.1 Plantation areas shall be planned and managed in a manner that contributes to site level and landscape level diversity.

Means of verification:

- Diversity of size and spatial distribution of plantation areas within the landscape
- Number and genetic composition of species, age classes and structures of plantations

10.4 The selection of species for planting shall be based on their overall suitability for the site and their appropriateness to the management objectives. In order to enhance the conservation of biological diversity, native species are preferred over exotic species in the establishment of plantations and the restoration of degraded ecosystems. Exotic species, which shall be used only when their performance is greater than that of native species, shall be carefully monitored to detect unusual mortality, disease, or insect outbreaks and adverse ecological impacts.

10.4.1 The management plan shall include a rationale for the selection of all species used in plantations, including their overall site suitability and a justification for the use of any non-native species.

10.4.2 The use of exotic tree species in plantations is subject to the limitations described in 6.9.1 and 6.9.2.

10.5 A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover.

10.5.1 The total area of plantations shall not exceed 10% of the management unit.

The portion of the management unit that is not plantation (i.e., at least 90% of the total area of the management unit) shall be managed so as to maintain, enhance or restore natural forest cover according to the requirements under Criterion 6.3.

10.6 Measures shall be taken to maintain or improve soil structure, fertility, and biological activity. The techniques and rate of harvesting, road and trail construction and maintenance, and the choice of species shall not result in long term soil degradation or adverse impacts on water quality, quantity or substantial deviation from stream course drainage patterns.

10.6.1 The management plan shall include a rationale for the selection of all species used in plantations, including their overall site suitability and a justification for the use of any non-native species.

10.6.2 Preparation of a site for planting shall:

a) consider and mitigate adverse effects on soil structure, fertility and biological activity;
b) include appropriate and effective erosion control measures; and
c) not alter watercourses.

Means of verification:

- No evidence of adverse effects on soil structure, fertility, biological activity, erosion, or alteration of watercourses.

10.7 Measures shall be taken to prevent and minimize outbreaks of pests, diseases, fire and invasive plant introductions. Integrated pest management shall form an essential part of the management plan, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers. Plantation management should make every effort to move away from chemical pesticides and fertilizers, including their use in nurseries. The use of chemicals is also covered in Criteria 6.6 and 6.7

All of the requirements in 6.6 (chemical pesticides and integrated pest management), 6.7 (biological control agents) and 6.9 (exotic and invasive species) apply across the entire management unit, including on plantations.

10.7.1 The risk of damage to plantations by wind, fire, pests, and disease should be minimized through measures that include management for a diverse forest across the management unit in terms of age/height, species, structure and genetics.
Means of verification:

- Sources of information to validate planting design and restoration plan
- Evidence of consistent application of the design and plan

10.7.2 The owner/manager should avoid the use of fertilizers and nursery stock that has been treated with chemicals.

10.8 Appropriate to the scale and diversity of the operation, monitoring of plantations shall include regular assessment of potential on-site and off-site ecological and social impacts, (e.g. natural regeneration, effects on water resources and soil fertility, and impacts on local welfare and social well-being), in addition to those elements addressed in principles 8, 6, and 4. No species should be planted on a large scale until local trials and/or experience have shown that they are ecologically well-adapted to the site, are not invasive, and do not have significant negative ecological impacts on other ecosystems. Special attention will be paid to social issues of land acquisition for plantations, especially the protection of local rights of ownership, use, or access.

10.8.1 The management and impacts of plantations (on-site and off-site) are monitored in accordance with the provisions of Principle 8.

10.8.2 On management units where the total area of plantations is greater than 1000 hectares, a monitoring program shall include a specific focus on the impacts of the plantation(s) on:

a) natural regeneration;
b) water resources;
c) soil fertility;
d) local welfare; and
e) social well-being.

Intent: Monitoring of plantations
All plantation sites must be monitored in accordance with the various provisions of Principle 8. Where the total area of plantations on a particular forest management unit is greater than 1000 hectares it will be necessary for the owner/manager to specifically monitor the impacts on plantations, rather than relying on aggregate monitoring across the entire forest management unit.

10.8.3 Before exotic species are planted on an operational basis the owner/manager ensures that field trials have been conducted in the region, sufficient to ensure full compliance with all aspects of Indicator 10.4.1.

Means of verification:

- Field trial results

10.9 Plantations established in areas converted from natural forests after November 1994 normally shall not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the certification body that the owner/manager is not responsible directly or indirectly for such conversion.

Intent, 10.9
There is an inconsistency in the FSC's required criteria related to plantations. Criterion 6.10 allows for limited conversion of natural forests to plantations, whereas Criterion 10.9 states that areas converted from natural forests to plantations after November 1994 will not normally qualify for certification. This standard recognizes that limited forest conversion to plantations shall be permitted where there are conservation benefits, consistent with Criterion 6.10. Therefore, in instances where there is a conflict between the requirements of these two criteria, Criterion 6.10 has precedence.

10.9.1 The prior land use and, if applicable, forest type(s) present on lands which are now under plantations are documented. The year or estimated year of conversion is reported.

Means of verification:

- Historic land use records
- Correspondence files

10.9.2 For plantations established in areas converted from natural forest after November 1994, the manner and reason for conversion is documented, and is consistent with the requirements of 6.10.

Appendix A: Applicable Provincial and Federal Requirements

New Brunswick

Water Course Buffer Zone Guidelines for Crown Land Forestry Activities, developed by the NB Department of Natural Resources and Energy, 1996, updated 1999

See Appendix D for a summary of these requirements.

Forest Management Manual for Crown Lands, developed by the Department of Natural resources and Energy, 1994

This document contains requirements and standards for practices, annual reports and operating plans for Crown Land Licensees.

Crown Lands and Forests Act & Amendments, 1980

This is a legal document describing the use of New Brunswick's Crown Lands.

New Brunswick Occupational Health and Safety Act, Regulation 91-91. Part 7 -- requirements for protective equipment Part 21 -- Logging and Silviculture Operations,

These regulations cover the following: protective equipment; chain saws, brush saws, and clearing saws; safe operation of powered mobile equipment; hauling logs; woods roads; and loading operations.

Nova Scotia

Forest/ Wildlife Guidelines and Standards for Nova Scotia. 1998. Department of Natural Resources.

Forests Act, 1989. Amended 1992, 1998.

Legal document directed towards the use and forest management planning process of Crown and private land forests. It includes sections regarding the protection of wildlife, habitats, watercourses and wetlands. See Appendix D for a summary of the riparian protection requirements.

Crown Lands Act, 1989

Legal document regarding the use of Crown lands including forest management, leasing and licensing arrangements (i.e. stumpage rates), and wildlife and outdoor recreation considerations in forest management. Land Information, Surveys, Roads, Special Areas, Wildlife

Management, Protective Measures, Fuelwood, License Agreements, Scaling Standards

Wildlife Act, 1989, amended 1990, 1993, 1995-96

Legislation to (a) develop and implement policies and programs for wildlife designed to maintain diversity of species at levels of abundance to meet management objectives; and,(b) integrate appropriate protective measures into policies for use on Crown lands and in guidelines for forest management and other programs on privately owned land to ensure adequate habitat for established populations of wildlife. Habitat Conservation Fund, Wildlife Management Area, Wildlife Park, Habitat for Endangered or Threatened Species, Hunting and Fishing: Licenses and Tags.

Wilderness Areas Protection Act, 1998.

Legislation to (a) maintain and restore the integrity of natural processes and biodiversity; (b) protect representative examples of natural landscapes and ecosystems; (c) protect outstanding, unique, rare and vulnerable natural features and phenomena; (d) provide reference points for determining the effects of human activity on the natural environment; (e) protect and provide opportunities for scientific research, environmental education and wilderness recreation; and (f) promote public consultation and community stewardship in the establishment and management of wilderness areas.

Endangered Species Act, 1998.

Legislation regarding the protection, designation of endangered species. Species at Risk Conservation Fund, Working Group, Protection, Listing, Recovery Plans

Worker's Compensation Act, 1994-1995.

Eligibility and Claim for Compensation, Permanent Impairment Benefit, Earnings Replacement Benefit, Survivor Benefits, Review of Compensation, Duties of Employees and Employers, Medical Aid, Rehabilitation, Accident Fund and Assessments, Liability and Collection

Occupational Health and Safety Act, 1996.

Accident Fund, Employer's, Contractor's and Employee's Precautions and Duties, Occupational Health and Safety Advisory Council, Occupational Health and Safety Policy Requirements, Joint Occupational Health and Safety Committees in the Workplace, Health and Safety Representatives

Natural Products Act, 1989.

Legal document regulating the marketing of certain natural products in Nova Scotia, including maple products and forest products.

Prince Edward Island

PEI Forest Management Act & Amendments: Forest Policy, Inventory, Forest Management, Crown Forest land, Forest harvesting, Scaling & Grading, Forest Conservation, Disease Control, Fire Protection, Forest Improvement Advisory Council, Forest Renewal program regulations.

Occupational Health & Safety Act: Part 41 - Forest Operations Safety, Protective Clothing, Chain Saw Operation, Vehicle Operation, Loading, Safety Precautions, Skidding Equipment.

Environmental Protection Act: Environmental Advisory Council, Environmental Coordinating Committee, Environmental Management Division, Environment Management Division, Environment Officers, Environmental Impact Assessment, Watercourse Permits, Littering, Spills.

Workers Compensation Act: Accidents, Compensation, Effect of Act in Law, Medical Aid & Rehabilitation, Workers Compensation Board, Wage Loss benefits, Review & Appeals, Accident Fund & Assessment, Liability.

Wildlife Conservation Act: Conservation Officers, Endangered, Threatened or Vulnerable Species, Migratory Birds, Permits, Licenses, Angling, Prohibited Activities, Enforcement Activities.

Fish & Game Protection Act: Licenses, Wildlife Trapping, Fur Dealers, Hunting, Firearm Safety, Game Farms, Fishing, Wildlife Management Areas.

Federal

Constitution Act (Canada), **1867 to 1982 and subsequent amendments**

Delivery Agent: Department of Justice, Canada
Link to Act

Canadian Environmental Protection Act Consolidated Statutes of Canada, Chapter C.15

Delivery Agent: Environment Canada
Link to Act

Fisheries Act (Canada), Consolidated Statutes of Canada, Chapter F.14

Delivery Agent: Department of Fisheries and Oceans (DFO)
Link to Act

Forestry Act (Canada), Consolidated Statutes of Canada, Chapter F-30

Delivery Agent: Natural Resources Canada - Canadian Forest Service
Link to Act

Income Tax Act R.S.C. 1985, Chapter 1 (5th Supp.), **updated to December 31, 2000**

Delivery Agent: Revenue Canada
Link to Act

Pest Control Products Act, Consolidated Statutes of Canada, Chapter P.9

Delivery Agent: Health Canada, Pest Management Regulatory Agency

Link to Act

Appendix B: Applicable International Agreements

Links to these international agreements may be found at:
http://www.oag.bvg.gc.ca/domino/env_commitments.nsf/homepage (for environmental agreements); and

http://www.ilo.org/public/english/standards/norm/sources/rats_pri.htm (human rights and labour agreements)

International Labour Organization

The ILO formulates international labour standards in the form of Conventions and recommendations setting minimum standards of basic labour rights: freedom of association, the right to organize, collective bargaining, abolition of forced labour, equality of opportunity and treatment, and other standards regulating conditions across the entire spectrum of work related issues. It provides technical assistance primarily in the fields of vocational training and vocational rehabilitation; employment policy; labour administration; labour law and industrial relations; working conditions; management development; cooperatives; social security; labour statistics and occupational safety and health. It promotes the development of independent employers' and workers' organizations and provides training and advisory services to those organizations. Within the UN system, the ILO has a unique tripartite structure with workers and employers participating as equal partners with governments in the work of its governing organs.

Binding international agreements relevant to FSC Principle 4 are:
ILO 87: Freedom of association and protection of rights to organize convention
ILO 98: Rights to organize and collective bargaining convention
ILO 100: Equal remuneration convention
ILO 111: Discrimination convention
ILO 131: Minimum wage fixing convention
ILO 155: Occupational safety and health convention

Following a Board decision the FSC requires from all certificate holders to comply with a
number of ILO conventions, *even if the country has not ratified the convention*. ILO labour Conventions that have an impact on forestry operations and practices are:

- 29, 87, 97, 98, 100, 105, 111, 131, 138, 141, 142, 143, 155, 169 and 182; and
- The ILO Code of Practice on Safety and Health in Forestry Work.

Responsibilities of Applicants: The applicant respects the ILO international labour standards.

Convention on International Trade in Endangered Species

Known as CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, entered into force on 1 July 1975 and now has a membership of 145 countries. These countries act by banning commercial international trade in an agreed list of endangered species and by regulating and monitoring trade in others that might become endangered. (Convention Text).

CITES' aims are major components of Caring for the Earth, a Strategy for Sustainable Living, launched in 1991 by UNEP - the United Nations Environment Programme, IUCN - The World Conservation Union and WWF - the World Wildlife Fund.

Responsibilities of Applicants: Applicants should respect federal and provincial laws relating to CITES provisions pertaining to listed species

Convention on Biological Diversity

The CBD has three objectives: 1) the conservation of biological diversity; 2) the sustainable use of biological resources; and 3) the fair and equitable sharing of the benefits arising out of the use of genetic resources.

Responsibilities of applicants: The Government of Canada ratified the UN Convention on Biological Diversity in consultation with provincial and territorial governments. By complying with relevant legislation, as well as guidelines for conducting forest operations, applicants contribute to Canada's response to this convention. Compliance with Principles 6, 7, and 8 of this Standard also furthers the objectives of this convention.

Framework Convention on Climate Change

The overall objective of the framework is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system.

Responsibilities of applicants: Forestry has the potential to both positively and negatively impact greenhouse gas emissions. Actions that the applicant can take to contribute to the objectives of this convention include:

- Developing a carbon budget which indicates that the management unit is a net carbon sink; and,
- Taking steps to encourage net carbon uptake and reduce carbon emissions such as:
  complying with Criterion 6.10 (prohibiting conversion of forests to non-forested lands),
  minimizing soil disturbance as required under Criterion 6.5, and ensuring effective and prompt renewal/regeneration as required under Criteria 6.3, 6.5, and 8.2.

Convention for the Protection of the World Cultural and Natural Heritage

This convention establishes mechanisms for the collective conservation and presentation of cultural and natural heritage of universal value.

Responsibilities of applicants: Although other forest areas may fit the definition of "natural heritage" as set out in the convention, to date the Federal Government has only nominated Parks for designation under the convention and as such, FSC certification will not take place there. The applicant will respect the intent of this convention by complying with the requirements for the identification and protection of cultural values as outlined under Principle 3 and 5 of this standard.

Ramsar Convention On Wetlands Of International Importance, Especially As Waterfowl Habitat

The Convention on Wetlands, signed in Ramsar, Iran, in 1971 is an intergovernmental treaty that provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

Responsibilities of applicants: Responsibilities for complying with this convention lie with the federal government. Provincial regulations contribute to Canada's ability to meet the objectives of the convention. By complying with provincial guidelines for wetland protection, applicants contribute to meeting Canada's responsibilities with respect to this convention.

Migratory Birds Convention

The Migratory Birds Convention was signed between the United States and Great Britain (Canada) in 1916 with a stated purpose to "…save from indiscriminate slaughter and of insuring the preservation of such migratory birds as are either useful to man or are harmless". The Convention was updated in 1995 and ratified in 1999 to enable Canada and the U.S. to better work together to manage bird populations, regulated their take, protect the lands and waters on which they depend, and share research and survey information.

Responsibilities of applicants: Applicants should respect the intent of this convention by complying with the Migratory Birds Convention Act. Particular attention should focus on managing forestry activities to account for the habitat needs of priority bird populations, as identified through the North American Bird Conservation Initiative.

Appendix C: Sources of information for listings of Species at Risk

Owners/managers should use the most current listing of Species at Risk, and these lists are regularly updated. For further information on current listings of species at risk please refer to the following sources:

Federal: Listings by the Committee on the Status of Endangered Wildlife in Canada can be found at http://www.speciesatrisk.gc.ca/

New Brunswick: Endangered flora and fauna are listed in New Brunswick Regulation 96-26 under the Provincial Endangered Species Act, which can be found at http://www.gnb.ca/0062/PDF-regs/96-26.pdf

Nova Scotia: Listings are maintained by the Nova Scotia Department of Natural Resources, and are available at http://www.gov.ns.ca/natr/wildlife/endngrd/. Further information on species recovery plans can be found at http://www.speciesatrisk.ca/

Prince Edward Island: Species at risk may be designated by regulation under section 7 of the Wildlife Conservation Act (http://www.gov.pe.ca/law/statutes/pdf/w-04_1.pdf)

Appendix D: Provincial Riparian Requirements

Note: The summaries included in this appendix are not intended to replace the need for forest managers to consider the actual and current regulations that affect their operations.

New Brunswick

New Brunswick has a complex series of rules for the management of "buffer zones". The *Clean Water Act*[1] is the main piece of legislation that regulates that management of water resources, which is administered by the Department of the Environment

The two main policies that govern the management of buffer zones are:
a) the *Forest Management Manual for New Brunswick Crown Lands*[2]; and,
b) the *Watercourse Alteration Technical Guidelines for New Brunswick*[3].

In addition, the *Watershed Protected Area Designation Order*[4] (WsPADO) under the *Clean Water Act* has a provision for the protection of 30 designated watersheds throughout the province, which serve as municipal surface water drinking supply sources. Water Classification is an emerging program from the Department of Environment, which will establish regulations for the management of all water resources (streams, rivers and lakes) in the province over the next few years.

Definitions

The following definitions apply to the various acts and policies relevant to forestry activities adjacent to watercourses and wetlands in New Brunswick:

"buffer" is a barrier of permanent vegetation, either forest or other vegetation, between
waterways and land uses such as agriculture or urban development, designed to intercept and filter out pollution before it reaches the surface water resource.

---

[1] *Clean Water Act*, S.N.B. 1989, c. C-6.1, available online at http://www.gnb.ca/0062/PDF-acts/c-06-1.pdf (March 12, 2006).
[2] *Forest Management Manual for New Brunswick Crown Land*, http://www.gnb.ca/0078/reports/Interim_Forest_Management_Manual-e.pdf#pagemode=bookmarks (March 12, 2006).
[3] *Watercourse Alterations Technical Guidelines for New Brunswick* (Fredericton: Department of the Environment and Local Government, undated), available online at http://www.gnb.ca/0009/0371/0005/index.htm (March 16, 2006).
[4] *Watershed Protected Area Designation Order*, N.B. Reg. 2001-83, available online at http://www.gnb.ca/0062/PDF-regs/2001-83.pdf (March 10, 2006).

A natural boundary of standing timber and / or other vegetation left between watercourses and road right-of-ways or harvest block boundaries.

"fish habitat" is defined as a stream with continuous flow and a streambed of mineral soil and with fish present or inhabiting a connected stream in close proximity." (from *Forest Management Manual for New Brunswick Crown Land*, p. 51)

"protected area" is defined in the WsPADO as a Protected Area A, a Protected Area B or a Protected Area C

"road" is defined in the WsPADo as the entire width between the boundary lines of every highway, street, road, lane or alley when any part of them is used for the passage or parking of vehicles, and includes the bridges on a road and overpasses and underpasses.

"selection cut" is defined in the WsPADO as to cut trees that

a) a well-distributed stand of trees and other vegetation is maintained
b) the trees cut are limited to 10 centimetre or more in diameter at 1.36 metres above ground level, and
c) no openings greater than 300 square metres are created in the forest canopy

"watercourse" means the full width and length, including the bed, banks, sides and shoreline, or any part, of a river, creek, stream, spring, brook, lake, pond, reservoir, canal, ditch or other natural or artificial channel open to the atmosphere, the primary function of which is the conveyance or containment of water whether the flow be continuous or not;[5]

"wetland" means land that
(a) either periodically or permanently, has a water table at, near or above the land's surface or that is saturated with water, and
(b) sustains aquatic processes as indicated by the presence of hydric soils, hydrophytic vegetation and biological activities adapted to wet conditions[6].

<u>Designated watersheds</u>

Designated watersheds receive a 75-metre buffer management zone on certain lakes and
streams that have been specifically identified in the Watershed Protected Area Designation Order as Protected Areas B. This extended buffer zone applies on both public and private forestlands within the designated watersheds.

[5] *Clean Water Act*, s. 1.
[6] *Clean Water Act*, s. 1.

In the setback zones, selective cutting is controlled based on the proximity to public
water supply intakes:

a) within one-kilometer upstream of a public water supply intake, logging of up to 30 percent of the pre-existing riparian forest's basal area is permitted once every 5 years between 30 and 75 meters away from the identified water body; and,

b) further than 1 kilometer upstream of a public water supply intake and between 15 and 75 meters away from the identified water body, either:

i. logging of up to 30 percent of the pre-existing riparian forest's basal area is permitted

ii. logging is permitted once every 5 years or as prescribed by a registered professional forester in a forest management plan.[7]

Furthermore, selection cutting in the buffer zones may take place only from Nov. 1 to the next following March 31 in designated watersheds north of 46 degrees north latitude and from Jan 1. to the next following March 31 at or south of 46 degrees latitude. The later timeframe includes the designated watersheds for the villages of Bath and Perth Andover.

Road construction associated with forestry activities in designated watersheds is permitted only at watercourse crossings that have been approved by the Minister of the Department of the Environment and must adhere to the applicable provisions in the WsPADO (Section 6(n)). These provisions describe how to build appropriate off-take ditches, sediment basins, riprap stabilizers, shoulder widths, roadbeds water bars, borrow pits, ditches and culverts.

Clean Water Act and Watercourse regulations

The *Clean Water Act* and the *Watercourse and Wetland Alteration Regulation*[8] establishe a legal 30-metre buffer zone on watercourses where the channel width is ≥ 0.5 meters wide and on wetlands ≥ 1 hectare in size or associated with a watercourse, which applies to both private and public forest lands in New Brunswick. On Crown land, management zones may be extended to 60 metres when one of the following two criteria apply:

a) the slope of the bank of the watercourse is greater than 25 percent; or,

b) there is determined to be a high-wind throw hazard within the proposed 30 meter
buffer.[9]

[7] *Watershed Protected Area Designation Order*, Schedule b, s. (6)

[8] *Watercourse and Wetland Alteration Regulation*, N.B. Reg. 90-80, available online at http://www.gnb.ca/0062/PDF-regs/90-80.pdf (February 28, 2006).

[9] *Forest Management Manual for New Brunswick Crown Land*, p. 51

A Watercourse and Wetland Alteration Permit is required for selective logging of 30 percent of riparian forests within the 30 meter buffer (expandable to 60 m). Management zones are to be managed according to the following requirements:

a) up to 30% of the fibre volume can be removed from buffer zones every 10 years[10];
b) maintain a minimum basal area of 18 cubic metres per hectare;
c) maintain a crown closure of greater than 50 percent;
d) maintain a source of large trees (greater than 40 centimetres in diameter-at-breast height), cavity nesting trees and snag trees.

(note: b, c, and d only apply to Crown land)

On smaller drainages (<600 hectares), a 15 meter management zone may be approved through annual operating plans for Crown land licenses.

The *Forest Management Manual for New Brunswick Crown Land* states that streams with a channel width of less than 0.5 metres that do not contain fish or are not in close proximity to a stream that is inhabited by fish, regardless of the applicable drainage area (small drainage vs. large drainage), receive a 3-metre management zone. If the small stream is considered "fish habitat," a 15-metre management zone is applied.

[10] *Watercourse Alteration Guidelines for New Brunswick*, p. 79.

Source: *Forest Management Manual for Crown Land* – Interim, pg. 51

Table 3. Watercourse buffer zone standards.

Buffer Zone Objective	Buffer Width Modifiers		No Travel Zone Width[1] (m)	Buffer Zone Width[2] (m)	Vegetative Structure Description	
Water Quality and Aquatic Habitat Code = WQ Applies to all natural watercourses	**Channel Width < 0.5 m**		3	3	Leave non-merchantable trees and shrubs.	
	Fish Habitat[3]		3	15	Same as for Channel Width ≥ 0.5 m	
	Channel Width ≥ 0.5 m					
	Bank Slope	0 to 5 %	15	15[4] to 30		
		6 to 24 %	15	30	**Vegetation Type:**	Conifer or deciduous shrubs or trees
		≥ 25 %	30	60	**Development Stage:**	≥ Mature
	High wind-throw potential[5]		15	30 to 60 ST[7]	**CC/Ht/BA:**	CC ≥ 50 %, Ht ≥ 10 m, BA ≥ 18 m^2/ha
	Critical Fish Habitat[6]		30	30 to 60 ST	**Special Features:**	Manage to maintain a supply of trees ≥ 40 cm DBH, cavity trees and snag trees.
	Waterfowl Production Wetland[8]		15	30 ST		
	Provincially Significant Wetland[9]		30	30 to 60 ST		
	NBDELG Designated Watershed[10]		15	75		
Wildlife Travel Corridor Code = TS or TW	Summer Travel Corridor		see WQ	60 to 90	**Vegetation Type:**	Conifer or deciduous shrubs or trees
					Development Stage:	≥ Sapling
					Ht/Stocking:	Ht ≥ 2 m; Stocking ≥ 80 %
	Winter Travel Corridor		see WQ	60 to 90 ST	**Vegetation Type:**	Conifer trees
					Development Stage:	≥ Immature
					CC/Ht/BA	CC ≥ 50 %, Ht ≥ 10 m, BA ≥ 18 m^2/ha
	Travel corridors along brooks and streams should be ≤ 60 m wide. Travel corridors along rivers and lakes should be ≤ 90 m wide.					
Aquatic Recreation and Aesthetics Code = AR	High-use Recreational Waters (Regional Designation)		see WQ	30 to 60 ST	Same as for WQ Channel Width ≥ 0.5 m	
	Listed Recreational Waters (Provincial Designation)		see WQ	30 to 90 ST		

1 **No travel zone** applies to wheeled or tracked vehicles and extends inland the specified distance from the waterside edge of alders or willows.
2 **Buffer zone width** extends inland the specified distance starting from the waterside edge of woody shrub vegetation ≥ 2 m in height and provides ≥ 50 % crown closure (i.e. sparse shrub cover does not count).
3 **Fish habitat** is a watercourse with continuous flow and a streambed of mineral soil and with fish present or inhabiting a connected stream in close proximity.
4 **15 m wide buffer zones** can only be applied to watercourses that drain < 600 ha.
5 **Wind throw potential** is a qualitative rating of the likelihood of trees being blown down by wind events common for the area. The following factors contribute to "high" wind throw potential: buffer dominated by shallow rooted species (e.g. balsam fir, black spruce, red spruce, larch, white birch, and black ash), moderate to poorly drained soils, clayey soils, buffer edge perpendicular to winds.
6 **Critical fish habitat** consists of significant spawning or nursery area designated by DNR.
7 **ST** designates a buffer zone that shall extend inland for the specified distance stating from the boundary of a wetland or waterside edge of trees.
8 **Waterfowl production wetland** is a wetland that supports cavity-nesting waterfowl and shall have a 30 m standing timber buffer to provide a source of cavity trees.
9 **Provincially significant wetland** is a wetland formally listed by DNR and shall have 30 to 60 m standing timber buffer (based upon protection needs) with a 30 m no intervention and no travel zone.
10 **Designated watersheds** supply drinking water and are protected by regulations of the DELG.

Nova Scotia

Nova Scotia has uniform rules for the management of all special management zones, the term used when referring to forested riparian zones. The *Forest Act*[11]*, section 40 – Wildlife Habitat and Watercourses Protection Regulation*[12] outlines the requirements for these special management zones, which is administered by the provincial Department of Natural Resources.

In addition, the *Environment Act*[13] has a provision for the protection of designated watersheds that are important for water supply. There are a total of nine watersheds designated in Nova Scotia with varying degrees of protection for water quality[14].

The following definitions apply to the *Wildlife Habitat and Watercourses Protection Regulation* in Nova Scotia:

"basal area" means the surface area of the cross-section of the trunks of the standing trees, measured at a height of 1.3 m from the ground;

"bed" means that portion of a watercourse within a defined flow channel containing predominantly mud, silt, sand, gravel or rock;

"forestry operator" means a person who harvests or permits the harvest of primary forest products or who conducts or permits a silviculture operation or related program on forest land and includes, but is not limited to

(i) an owner, occupier, lessee, or tenant of forest land, and

(ii) a producer or buyer of forest products, as defined in the Act,

(iii) and an agent, contractor or anyone otherwise acting on behalf of such a person;

"harvest" means a forestry operation that removes primary forest products from an area of forest land, but does not include the removal of Christmas trees or a forestry operation whose primary purpose is to convert the land to a non-forestry use;
Clause 2(e) amended: O.I.C. 2002-609, N.S. Reg. 166/2002.

---

[11] *Forests Act*, R.S.N.S. 1989, c. 179, s. 1, available online at http://www.canlii.org/ns/sta/csns/20030214/r.s.n.s.1989c.179/whole.html (June 28, 2004).
[12] *Wildlife Habitat and Watercourses Protection Regulation*, N.S. Reg. 138/2001, s. 2 [hereinafter *WatercoursesProtection Regulation*], available online at http://www.canlii.org/ns/regu/rns/20030221/n.s.reg.138- 2001/whole.html (February 16, 2006).
[13] *Environment Act*, S.N.S. 1994-95, c. 1, s. 106, available online at http://www.gov.ns.ca/legi/legc/index.htm (February 16, 2006).
[14] The Forbes Lake Watershed (N.S. Reg. 106/2003 and N.S. Reg. 107/2003), James River Watershed (N.S. Reg. 218/88), Lake Major Watershed (N.S. Reg. 57/86 and N.S. Reg. 154/92), Mill Lakes Watershed (N.S. Reg. 264/86), North Tyndal Watershed (N.S. Reg. 200/92), Pockwock Lake Watershed (N.S. Reg. 12/95), Port Hawkesbury Watershed (N.S. Reg. 116/85) and the Shubenacadie Watershed (N.S. Reg. 62/2002) available online at http://www.gov.ns.ca/just/regulations/rxaa-l.htm#env (February 12, 2006).

"marsh" means an area of permanent standing or slow moving water that is vegetated in whole or in part with aquatic or hydrophytic plants;

"special management zone" means an area of forest required to be established adjacent to a watercourse in accordance with Sections 5 and 6 to protect the watercourse and bordering wildlife habitat from the effects of forestry operations;

"vehicle" means a vehicle propelled or driven otherwise than by muscular power, whether or not the vehicle is registered pursuant to the *Motor Vehicle Act*;

"watercourse" means the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.[15]

A 20 m special management zone is to be established along watercourses who's width is equal to or greater than 50 cm and are situated on or adjacent to forest land where forestry operations are to be carried out. Should the average slope be greater that 20% within the 20m special management zone, said zone shall be increased by 1m for each additional 2% of slope to a maximum of 60m.[16] The average width of a watercourse shall be determined by measuring the width of the bed of the watercourse at 10 approximately equidistant locations extending along the entire portion of the watercourse situated within or adjacent to the forest land where a forestry operation is carried on.[17]

Within a special management zone a forest operator shall not:
(a) permit the use of, use or operate a vehicle for forestry operations within 7 m of the watercourse;

(b) reduce the basal area of living trees to less than 20 m^2 per hectare; or

(c) create an opening in the dominant tree canopy larger than 15 m at its greatest dimension.

One exception to the travel rule within special management zones is the operation of a vehicle for the purpose of watercourse crossing approved by the Department of Environment and Labour[18]

For watercourses less than 50cm, no forestry operator shall permit the use of a vehicle for forestry operations within 5m of the watercourse, except for the above noted exception for watercourse crossings.[19]

Within all special management zones understory vegetation and non-commercial trees are to be retained to the fullest extent possible. Operators

[15] Wildlife Habitats and Watercourses Protection Regulation, s. 2.
[16] Wildlife Habitats and Watercourses Protection Regulation, ss. 6(1) & 6(2).
[17] Wildlife Habitats and Watercourses Protection Regulation, s. 5.
[18] Wildlife Habitats and Watercourses Protection Regulation, ss. 3 & 4.
[19] Wildlife Habitats and Watercourses Protection Regulation, s. 7.

are not allowed to conduct any operation within 20 m of the watercourse that will result in sediment getting into the watercourse.[20]

Prince Edward Island

Prince Edward Island has uniform rules for the management of all forested riparians, which is applied to banks of streams, lakes and wetlands in the same manner, whether on private or public lands. The governing legislation is the *Environmental Protection Act*[21], which is the responsibility of the Department of Fisheries, Aquaculture and Environment.

Definitions

The following definitions apply to the Environmental Protection Act and riparian forests in Prince Edward Island:
"buffer zone" means a buffer zone required to be established and maintained under this section or section 11.2;
"forested land" means land on which the dominant vegetative cover is trees or shrubs;
"watercourse" means a watercourse that

(i) has a defined sediment bed and flow-defining banks that connect with a larger watercourse; or
(ii) exhibits a continuous flow of water during any 72-hour period from July 1 to October 31 of any year;

"watercourse boundary" means the top edge of the bank or slope that defines, under normal high water conditions, the course of water flow or the edge of standing water in a watercourse;
"wetland" means a wetland identified as open water, deep marsh, shallow marsh or salt marsh as defined in the 1990 Prince Edward Island Wetland Inventory[22]

In relation to watercourses the Act is fairly specific regarding allowed uses and areas of travel. There is a no travel zone within 10 metres of the watercourse boundary or wetland boundary, which extends to any of the following alterations:

(a) constructing a control dam, river diversion or drainage diversion;
(b) draining, pumping, dredging, excavating, or removing soil, water, mud, sand, gravel, aggregate of any kind, or litter from any watercourse or wetland;

[20] Wildlife Habitats and Watercourses Protection Regulation, ss. 8 & 9.
[21] Environmental Protection Act RS.P.E.I., C. E-9. Available online at http://www.gov.pe.ca/law/statutes/pdf/e-09.pdf (February 14, 2005).
[22] Environmental Protection Act, s. 1.

(c) deliberately dumping, infilling, or depositing in any watercourse or on any wetland any soil, water, stones, sand, gravel, mud, rubbish, litter or material of any kind;
(d) placing or removing structures, including wharves, breakwaters, slipways, or placing or removing obstructions, including bridges,culverts, or dams;
(e) operating machinery on the bed of a watercourse or wetland;
(f) disturbing the ground, either by excavating or depositing earthen or other material, in or on a watercourse or wetland; and
(g) carrying out any type of instream activity, including debris removal, habitat development, or placement of instream structures.[23]

The Minister does have the power to appoint a watercourse alteration advisory committee to review applications for watercourse or wetland alteration permits and to advise the Minister on proposed watercourse and wetland alteration projects.[24]

The Act states that all forest owners shall establish and maintain forested riparian zones on all forested land owned by that person that is adjacent to a watercourse or wetland. When dealing with a landlocked pond or a perimeter coastline forested riparian zones shall be established and maintained on the strip of forested land on the upland side of, and immediately adjacent to, a watercourse boundary or a wetland boundary.[25]

Forested riparian zones shall be:

a) 20 metres in width where the slope within 20 metres of the watercourse or wetland boundary is 9% or less; and
b) 30 metres in width where the slope within 30 metres of the watercourse or wetland boundary is greater than 9%.[26]

Activities not permitted within the riparian forest zone are as follows:

(a) apply pesticides using the broadcast method or for nonsilvicultural purposes;
(b) construct road ditches or road ditch run outs within 15 metres of a watercourse or wetland boundary;
(c) expose barren soil except as permitted in accordance with this Act or for site preparation for planting trees or shrubs; or
(d) except as permitted by subsection (4.1), operate, or permit to be operated, heavy equipment in a forested riparian zone within 10 metres of the watercourse or wetland boundary.[27]

[23] Environmental Protection Act, s. 10(2).
[24] Environmental Protection Act, s. 11.
[25] Environmental Protection Act, s. 11.3 (1).
[26] Environmental Protection Act, s. 11.3 (5).
[27] Environmental Protection Act, s. 11.3 (6).

When harvesting does occur in a forested riparian zone no person shall cut or remove, within a ten-year period, more than one-third of the live trees having a stem diameter, measured at or less than 20 centimetres above ground level, of

(a) between 10 and 30 centimetres, or
(b) 30 centimetres or greater[28].

All trees harvested from within a forested riparian zone shall be cut or removed by means of a selection harvest. Exceptions to the restrictions may be granted with the written permission of the Minister.[29]

Forested riparian zones may not be converted to any other use than forest production, except for the construction of highways and access roads. This is allowed if

(a) the construction is authorized by a permit from the Minister; and
(b) the length of disturbed area in the riparian zone along the stream is kept to the minimum required to ensure compliance with the safety and design standards applicable to the construction.[30]

[28] Environmental Protection Act, s. 11.4 (1).
[29] Environmental Protection Act, ss. 11.4 (2) and (4).
[30] Environmental Protection Act, s. 11.3 (4.1)

Appendix E: Highly Hazardous Pesticides

Indicators and thresholds for the identification of 'highly hazardous' pesticides This list is effective as of January 2006 but is currently under review. For an up-to-date list contact FSC International at http://www.fsc.org/en/

Criterion (derived from FSC Principles and Criteria, 2002)	Indicator	Threshold for inclusion on FSC list of 'highly hazardous pesticides'
Quantitative or semi-quantitative		
Acute toxicity to mammals	WHO toxicity class (active ingredients) Acute toxicity (oral LD50 for rats) (Acute) reference dose (RfD)	If acute oral LD50 for rats ≤ 200 mg/kg b.w. WHO toxicity class 1a, 1b.
Acute toxicity to aquatic organisms	Aquatic toxicity (LC50)	If LC50 < 50 ug/l (microgrammes per liter)
Chronic toxicity to mammals	Reference dose	If RfD < 0.01 mg/kg day
Persistence in soil or water	Half-life in soil or water (DT50)	If DT50 ≥ 100 d, 'strongly persistent'
Bio-magnification, bio-accumulation	Octanol-water partition coefficient (KOW) or bio-concentration factor (BCF) or bio-accumulation factor (BAF)	If KOW > 1000 i.e. log(KOW) > 3
Carcinogenicity	IARC carcinogen; US EPA carcinogen	If listed in any category below (a) International Agency for Research on Cancer (IARC) within Group 1: 'The agent (mixture) is carcinogenic to humans', or within Group 2A: 'The agent (mixture) is probably carcinogenic to humans' (IARC 2004); (b) US Environmental Protection Agency (EPA) defined as a chemical that is within Group A: 'Human carcinogen' (US EPA 1986); (c) US EPA defined as a chemical that can 'reasonably be expected to be carcinogenic to humans' (chemicals categorised by EPA into Group B2, see below)
Endocrine disrupting chemical (EDC)	EDC listed by the US EPA and NTP	If classified as EDC by US NTP or EPA
Mutagenicity to mammals	(not specified any further)	If mutagenic to any species of mammals

Criterion (derived from FSC Principles and Criteria, 2002)	Indicator	Threshold for inclusion on FSC list of 'highly hazardous pesticides'
Qualitative		
Specific chemical class	Chlorinated hydrocarbon (definition from Radosevich et al, 2002): Compounds which contain only carbon, hydrogen and one or more halogen, AND/OR organic molecules with hydrogen and carbon atoms in a linear or ring carbon structure, containing carbon-bonded chlorine, which may also contain oxygen and/or sulphur, but which do not contain phosphorus or nitrogen.	If chemical meets definition from Radosevich et al, 2002. Note: the 2002 policy includes the statement that "not all organochlorines exceed the stated thresholds for toxicity, persistence or bioaccumulation, and they are not included in this list of prohibited pesticides, but they should be avoided". However, the current list of 'highly hazardous' pesticides does not include organochlorines unless they are excluded on the basis of other indicators.
Heavy metals:	Lead (Pb), cadmium (Cd), arsenic (As) and mercury (Hg)	If pesticide contains any heavy metal as listed
Dioxins (residues or emissions)	Equivalents of 2,3,7,8-TCDD	If contaminated with any dioxins at a level of 10 part per trillion (corresponding to10 ng/kg) or greater of tetrachlorodibenzo-p-dioxin (TCDD) equivalent, or if it produces such an amount of] dioxin[s] when burned
International legislation	Banned by international agreement	If banned by international agreement

Appendix F: High Conservation Value Forest Assessment Framework

This framework is designed to be used in order to help identify potential High Conservation Value Forests (HCVF) in the context of achieving certification to FSC Canada's Maritimes Standard. It is based on a framework originally developed by ProForest and since that time it has been applied in many forest regions around the world.

The framework is organized as a table covering six categories derived from the definition of HCVFs from the FSC standards. The six categories are:

Category 1: Forest areas containing globally, regionally or nationally significant **concentrations of biodiversity values** (e.g., endemism, endangered species, refugia);

Category 2: Forest areas containing globally, regionally or nationally significant **large landscape level forests**, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;

Category 3: Forest areas that are in or contain **rare, threatened or endangered ecosystems**;

Category 4: Forest areas that provide basic **services of nature in critical situations** (e.g., watershed protection, erosion control);

Category 5: Forest areas **fundamental to meeting basic needs of local communities** (e.g., subsistence, health); and,

Category 6: Forest areas **critical to local communities´ traditional cultural identity** (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Each category has a question or questions (the left-hand column below) that aim to identify whether the management unit contains any of the values relevant to each category. Negative answers to these questions mean that the forest operation likely does not include High Conservation Values (HCV) in that category. Positive answers lead to further investigation. The right-hand column explains the rationale for the conservation of the particular value.

Guidance material prepared for use in FSC Canada's Boreal and B.C. standards include two additional columns. The third column (Possible Sources) provides sources of information on these values (e.g., COSEWIC lists in Canada, Conservation Data Centre lists, etc.). The fourth column (Criteria and Guidance for Assessing HCVs) is used if the response to any of the first series of questions

(Item column) is positive. It includes a series of sub-questions to assist the applicant in determining whether the evidence supports a HCVF designation. FSC Canada encourages certification applicants to consult the more detailed guidance in those standards, and expects to publish guidance material along these lines but particularly relevant to the Maritimes provinces in 2007.

Item	Rationale
Category 1) Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia)	
1. Does the forest contain species at risk or potential habitat of species at risk as listed by international, national or territorial/provincial authorities?	Ensures the maintenance of vulnerable and/or irreplaceable elements of biodiversity.
2. Does the forest contain a globally, nationally or regionally significant concentration of endemic species?	Ensures the maintenance of vulnerable and/or irreplaceable elements of biodiversity.
3. Does the forest include critical habitat containing globally, nationally or regionally significant seasonal concentration of species (one or several species, e.g., concentrations of wildlife in breeding sites, wintering sites, migration sites, migration routes or corridors –latitudinal as well as altitudinal, watershed level forests or riparian forests associated with high value fisheries habitat)?	Addresses wildlife habitat requirements critical to maintaining population viability (regional "hot spots").
4. Does the forest contain critical habitat for regionally significant species (e.g., species representative of habitat types naturally occurring in the management unit, focal species, species declining regionally, including concentrations of aquatic species whose habitat is dependent on riparian forest or watershed condition)?	Population and meta-population viability
5. Does the forest support concentrations of species at the edge of their natural ranges or outlier populations?	Relevant conservation issues include vulnerability against range contraction and potential genetic variation at range edge. Outlier and edge of range populations may also play a critical role in genetic/population adaptation to global warming.
6. Does the forest lie within, adjacent to, or contain a conservation area: a) designated by an international authority, b) legally designated or proposed by relevant federal/provincial/ territorial legislative body, or c) identified in regional land use plans or conservation plans.	Ensures compliance with the conservation intent of a conservation area and that regionally significant forests are evaluated for consistency with the conservation intent.
Category 2) Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of	

most if not all naturally occurring species exist in natural patterns of distribution and abundance	
7. Does the forest constitute or form part of a globally, nationally or regionally significant forest landscape that includes populations of most native species and sufficient habitat such that there is a high likelihood of long-term species persistence?	The forest must not only be large enough to potentially support most or all native species, but long-term, large-scale natural disturbances can take place without losing their resilience to maintain the full range of ecosystem processes and functions (i.e., naturally functioning landscape).
Category 3) Forest areas that are in or contain rare, threatened or endangered ecosystems	
8. Does the forest contain naturally rare ecosystem types?	These forests contain many unique species and communities that are adapted only to the conditions found in these rare forest types.
9. Are there ecosystem types or ecosystem type conditions within the forest or ecoregion that have significantly declined, or under sufficient present and/or future development pressures that they will likely become rare in the future (e.g., old seral stages)?	Vulnerability and meta-population viability. Naturally occurring seral stage distributions are an essential element of habitat management This indicator includes anthropogenically rare forest ecosystem types (e.g., late seral forests).
10. Are there ecosystems, that are poorly represented in protected areas, and likely to become rare in an intact state due to ongoing human activities?	Maintenance of benchmarks or controls are essential to responsible management
11. Are large landscape level forests (i.e., large unfragmented forests) rare or absent in the forest or ecoregion?	In regions or forests where large functioning landscape level forests are rare or do not exist (highly fragmented forest), many of the remnant forest patches require consideration as potential HCVs (i.e., best of the rest).
12. Are there nationally /regionally significant diverse or unique forest ecosystems, forests associated with unique aquatic ecosystems?	Vulnerability; species diversity; significant ecological processes.
Category 4) Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control)	
13. Does the forest contribute to maintaining the quality, quantity and seasonal timing for water flows that are a source of drinking water, irrigation water or water for a critical economic activity?	The potential impact to human communities is so significant as to be 'catastrophic' leading to significant loss of productivity, or sickness and death, and there are no alternative sources of drinking water.
14. Are there forests that provide a significant ecological service in mediating flooding and/or drought, controlling stream flow regulation, and water quality?	Forest areas play a critical role in maintaining water quantity and quality and the service breakdown has catastrophic impacts or is irreplaceable.
15. Are there forests critical to erosion control?	Soil, terrain or snow stability, including control of erosion, sedimentation, landslides, or avalanches.
16. Are there "interface" forests that play a significant role determining the potential spread of wildfires into developed areas, or other areas where fire would be harmful?	Management of interface forests can significantly affect the potential spread of wildfires
Category 5) Forest areas fundamental to meeting basic needs of local communities (e.g.,	

subsistence, health)	
17. Are there local communities that use the forest? (This should include both people living inside the forest area and those living adjacent to it as well as any group that regularly visits the forest.) Is anyone within the community making use of the forest for basic needs/ livelihoods? (Consider food, medicine, fodder, fuel, building and craft materials, water, income).	There is a distinction being made between the use by individuals (e.g.., traplines) and where use of the forest is fundamental for local communities.
Category 6) Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities)	
18. Is the traditional cultural identity of the local community particularly tied to a specific forest area?	
19. Is there a significant overlap of values (ecological and/or cultural) that individually did not meet HCV thresholds, but collectively constitute HCVs?	Consideration of several spatially overlapping values is important in optimizing conservation management.

Appendix G: Glossary

Aboriginal peoples: as defined in the Constitution Act of 1982 Aboriginal Peoples include "Indians, Inuit and Métis". "Indians" are recognized in Canada as "Bands" with a "Chief and Council". There are two types of "band councils" recognized in Canada; "elected councils" (according to rules laid out in the Indian Act) and "custom councils". "Indian bands" are also referred to as "First Nations" in Canada. "Métis" are recognized in Canada, although identity and membership criteria are vague.

Aboriginal rights: A practice, custom or tradition integral to the distinctive culture of the aboriginal group claiming the right. Often aboriginal rights, including site specific rights, can be made out even if title cannot. Aboriginal rights are collectively held rights. The federal government has primary treaty and fiduciary duties, responsibilities and obligations for "Indians and lands reserved for the Indians", but the provinces are also Crown governments and as such, also have some derivative duties, responsibilities and obligations towards "Indians and lands reserved for Indians". The courts in Canada have recognized the Métis as having some limited Aboriginal rights to site specific activities such as hunting rights. The legal framework related to Indigenous Peoples in Canada, including the roles and responsibilities with respect to Aboriginal rights of non-governmental bodies such as private corporations, is constantly evolving.

adaptive management: An approach to organizing management so that explicit hypotheses are tested as management activities proceed. A monitoring program tracks outcomes and, depending on how and why actual outcomes differ from expected outcomes, the management approach is reviewed and adjusted.

affected community: A human community that is affected by the activities on the forest being considered for certification. This will likely include all local communities as well as communities with forest product processing facilities that obtain a high proportion of their furnish from the forest.

afforestation: The action of converting non-forest land to forest land, which may occur by natural regeneration, seeding, or planting.

age-class: A distinct group of trees or portion of the growing stock of a forest recognized on the basis of being of similar age.

assessment of environmental impacts: Technical assessments of the manner and extent to which proposed or undertaken management activities affect the environment directly and indirectly. The assessment methodologies used must be scientifically sound. The scope of an assessment is typically outlined at the start of the project so that the project has some well-defined boundaries.

These may include physical, temporal, political, cultural and financial limits within the project mandate. Aspects of the environment typically included in assessments are site impacts (on soil, and site attributes), community impacts (on local wildlife and ecological communities), and landscape impacts (on the broader forest ecosystem).

benchmark: Reference points or data regarding the state or condition of a value of interest at a specific point in time. Benchmarks in this standard often refer to the state of the forest and provide a basis for comparing its future state (either simulated or actual).

biological control agents: Living organisms used to eliminate or regulate the population of other living organisms.

biological diversity values: The intrinsic, ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components. (See Convention on Biological Diversity, 1992)

biological diversity: The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. (See Convention on Biological Diversity, 1992)

Bt: Bacillus thuringiensis – a live microorganism that is used as an insecticide to kill unwanted insects. In forestry it is used to kill members of the lepidopteran (butterfly and moth) family, especially spruce budworm whose larval and caterpillar stages can cause significant damage and mortality to trees.

buffer: A strip or area of vegetation that is left (often unharvested) or managed to reduce the impact of a treatment or action on neighbouring areas.

canopy closure: The extent to which the upper layer of foliage in a stand or forested area prohibits the passage of sunlight to lower levels, or screens the view of the sky. Also used as an index of competition between adjacent dominant and co-dominant trees.

chain of custody: The channel through which products are distributed from their origin in the forest to their end-use.

chemical pesticide: A synthetic chemical pesticide produced by a manufacturing process.

chemicals: The range of fertilizers, insecticides, herbicides, fungicides and hormones which are used in forest management.

clearcutting: a silvicultural system in which an entire stand of trees is cleared from an area at one time. Clearcutting results in the establishment of a new even-aged stand of trees which can be naturally or artificially created.

coarse woody debris: Logs, stumps, and tree limbs on the forest floor in various states of decomposition. Coarse woody debris provides habitat for many wildlife species.

community: 1. A body of persons or nations having a common history or common social or economic or political interests. 2. An assemblage of plants, animals (including humans) and other organisms that live and interact with each other within a particular environment ultimately depending upon each other for existence.

compaction: An increase in the bulk density (mass per unit volume) and a decrease in soil porosity resulting from applied loads, vibration or pressure. It is undesirable for plant growth since the compacted soil has insufficient pore space to allow effective diffusion of gases and liquids necessary to permit or maintain root development and nutrient uptake in plants.

compliance: Adherence to laws, regulations, policies, or treaties of Canada, one of Canada's provinces or territories, regional jurisdictions and municipalities. Also used with respect to adherence to a forest management plan or operating plan.

connectivity: The degree to which different habitat patches or environments are linked by single or multiple corridors of vegetation that provide habitat suitable for dispersal or seasonal movement of particular species, or the migration between ecosystems in response to long-term environmental change. Conditions necessary for connectivity and its effectiveness will depend on the specific purpose of the connectivity and the requirements of species or ecosystems considered.

contractor: An individual other than an employee or company retained, to perform specific tasks, by the entity seeking certification.

conversion: the substantial or severe modifications of the physiognomy, structure and dynamics of a forest, as a result of management activities, resulting in a significant reduction in the complexity of the forest system; or the transformation of a forest into permanently non-forested area.

COSEWIC: Committee on the Status of Endangered Wildlife in Canada.

critical habitat: An ecosystem or particular ecosystem element occupied or used by a species, or local population, that is necessary for their maintenance

and/or long-term persistence, and where appropriate, recovery of a species or population.

Criterion (pl. criteria): A means of judging whether or not a Principle (of forest stewardship) has been fulfilled.

culturally sensitive areas: areas of traditional use such as trapping, fishing, hunting, or berry picking; or areas of outstanding scenic value, recreational or wilderness potential; or areas from which ceremonial materials such as sweet grass and medicinals are gathered.

culturally significant areas: areas that include, but are not restricted to, areas of spiritual or religious value such as burial sites, spirit caves, vision quest areas, ceremonial grounds; lands containing unique historical, archaeological and architectural sites; and areas of specific claim or comprehensive claim.

customary rights: Rights which result from a long series of habitual or customary actions, constantly repeated, which have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

deforestation - The action of converting forest land to non-forest land. Deforestation implies a permanent conversion of land use; an area of mature forest that is harvested and will be renewed back to forest is not considered to be deforested.

degraded forest stand: a forest stand that has suffered damage to natural composition, structures, and functions to such an extent that population levels and diversity of organisms have been changed in an unnatural manner, or where structures required for ecological processes and populations in later temporal phases have been removed and/or will not be regenerated due to human disturbance.

directly affected persons: groups or people (both men and women) who consider themselves directly affected by the proposed and current operations, who reside in communities within or adjacent to the management unit, or have legal or customary rights in the management unit.

dispute: A dispute exists when the parties have exhausted consultative avenues to resolve their differences and the following occurs: a person or persons whose rights or interests are directly affected by the forest manager's activities gives written notice to the manager, indicating that they wish to pursue a dispute resolution process and specifying which rights or interests are affected, by which management activities, in which location, and what modifications are considered appropriate to avoid or mitigate impacts on the rights or interests; OR, the manager gives written notice to the disputant, in

order to trigger the dispute resolution process and bring closure to the disagreement.

disturbance: A disruption in the growth and development of an individual, population or community due to natural or anthropogenic factors such as herbivory, forest fires, road building, disease infestation, or tree harvesting.

ecological integrity: the quality of a natural, unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species, and ecosystem diversity assured for the future.

ecological land classification: a classification scheme used to delineate differing scales of landscape, or ecosystems, based on factors such as climate, physiography, and vegetation. See the definition of "eco-site" for references to ecological land classification systems in use in each province.

ecoregion: unit of ecological classification characterized by macroclimate conferred by elevation, broad-scale aspect, and proximity to oceans as these affect solar radiation and degree of maritime climatic influence.

eco-site: a unit of ecological classification which is characterized primarily by soil conditions. Interpretations to be used in this standard should be consistent with current definitions in use in that particular province.

New Brunswick: New Brunswick's ecological land classification system is currently in final draft and will soon be available on the web. Until then, contact the Ecological Land Classification Program, Policy and Planning Branch, Department of Natural Resources, P.O. Box 6000, Fredericton, NB, 506-453-2684.

Nova Scotia: At the website maintained by the Nova Scotia Department of Natural Resources (http://www.gov.ns.ca/natr/forestry/ecosystem/elcpg1.htm) one can zoom into ecological land classifications at three scales: Ecoregion, Ecodistrict and Ecosection.

Prince Edward Island: General geographical information is available at http://www.peilandonline.com. Finer forest community classifications have been done by Dr. Sobey and published in a series of reports available from the Forests, Fish and Wildlife Division, PEI Department of Environment, Energy and Forestry, P.O. Box 2000, Charlottetown PEI, C1A-7N8, phone 902-368-4700.

ecosystem: A community of all plants and animals and their physical environment, functioning together as an interdependent unit.

ecosystem functions: the many and varied biotic and abiotic processes that make an ecosystem functional, changing, and interactive (e.g., biogeochemical processes, nutrient cycling, decomposition, regeneration, and succession).

employee: An individual for whom any of the following apply:

- a staff member of the entity seeking certification;
- one who draws a salary from the entity seeking certification;
- one who is on the payroll of the entity, either in a full-time, part-time, or seasonal capacity; and/or,
- one for whom the entity withholds and remits income taxes in accordance with national and provincial laws.

endangered species : any species which is in danger of extinction throughout all or a significant portion of its range.

ephemeral stream: A stream that flows briefly only in direct response to precipitation in the immediate locality and whose channel is at all times above the water table.

environmental impact assessment: the actual technical assessment work that leads to the production of an environmental impact statement. The technical methodologies used must be scientifically sound, and explainable and defensible in a court of law. The scope of the assessment is typically outlined at the start of the project so that the project has some well-defined boundaries. These may include physical, temporal, political, cultural and financial limits within the project mandate.

even-aged stand: a stand of trees in which the age differences among trees are small, usually less than 10 to 20 years, or 30 percent of the rotation age in stands more than 100 years old. Even-aged stands result from disturbances occurring at one point in time, such as wildfires, a clearcut, a seed tree cut, a shelterwood cut or coppicing.

exotic species: an introduced species not native or endemic to the area in question.

expert: 1. An individual whose knowledge or skill is specialized and profound as the result of much practical or academic experience. 2. A recognized authority on a topic by virtue of the body of relevant material published on the topic, their stature within the professional community, and the broadly-recognized accumulated related experience. 3. An individual who posses a wealth of experience on a topic such as may be accumulated through practical means including the accumulation of traditional knowledge.

First Nations: See "Aboriginal peoples"

forest: 1. A plant community dominated by trees and other woody vegetation, growing more or less closely together. 2. An area managed for the production of timber and other forest products or maintained under woody vegetation for

such indirect benefits as protection of site or recreation. 3. An aggregate of stands.

forest management activities: Any or all of the operations, processes or procedures associated with managing a forest, including, but not limited to: planning, consultation, harvesting, access construction and maintenance, silvicultural activities (i.e., planting, site preparation, tending), monitoring, assessment, and reporting.

forest management unit (FMU): a clearly defined forest area with mapped boundaries, managed by a single managerial body to a set of explicit objectives which are expressed in a self-contained multiyear management plan.

forest product: A product made from wood or timber. The terms "forest product" and "non-timber forest product" are mutually exclusive.

forest structures: physical aspects of the forest, including tree size, canopy composition, quantity and quality of deadwood, ephemeral herbaceous species, corticulous bryophyte species, density of wildlife trees, fungi, avian community, age structure, forest height, etc.

forest workers: All employees of the forest manager's firm and those of contractors, subcontractors, and overlapping or third-party license holders that work on forest management activities (e.g., planning, road-building, on-site processing, hauling, etc.).

gap analysis: an assessment of the protection status of biodiversity in a specified region, which looks for gaps in the representation of species or ecosystems in protected areas.

genetically modified organisms: biological organisms which have been induced by various means to consist of genetic structural changes.

Golet: a scoring system that rates wetlands potential for waterfowl production. Wetlands greater than or equal to 0.25 ha are given scores ranging from 60-118. The highest scores are given to wetlands that are large in size, productive, in proximity to other wetlands, and interspersed with open water.

habitat: 1. those parts of the environment (aquatic, terrestrial, atmospheric) often typified by a dominant plant form or physical characteristic, on which an organism depends, directly or indirectly, in order to carry out its life processes. 2. the specific environmental conditions in which organisms thrive in the wild.

High Conservation Value Forest (HCVF): High Conservation Value Forests are those that that possess one or more of the following attributes:

a. Forest areas containing globally, regionally or nationally significant :

i. Concentrations of biodiversity values (e.g., endemism, endangered species, refugia); and/or
ii. Large landscape level forests, contained within, or containing the management unit, where viable populations of most (if not all) naturally occurring species exist in natural patterns of distribution and abundance.

b. Forest areas that are in or contain rare, threatened or endangered ecosystems.
c. Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).
d. Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Indicator: a quantitative or qualitative variable which can be measured or descried, and which provides a means of judging whether a forest management unit complies with the requirements of an FSC Criterion. Indicators and the associated thresholds thereby define the requirements for responsible forest management at the level of the forest management unit and are the primary basis of forest evaluation.

Indigenous lands and territories: The total environment of the lands, air, water, sea, sea-ice, flora and fauna, and other resources which Indigenous Peoples have traditionally owned or otherwise occupied or used. (U.N. Draft Declaration on the Rights of Indigenous Populations: Part VI). In Canada, Indigenous lands and territories are broader than Indian reserves and Métis settlements. For Indians, "lands and territories" means "Aboriginal title and treaty territories".

Indigenous people: "The existing descendants of the peoples who inhabited the present territory of a country wholly or partially at the time when persons of a different culture or ethnic origin arrived there from other parts of the world, overcame them and by conquest, settlement, or other means reduced them to a non-dominant or colonial situation; who today live more in conformity with their particular social, economic and cultural customs and traditions than with the institutions of the country of which they now form a part, under State structure which incorporates mainly the national, social and cultural characteristics of other segments of the population which are predominant." (Working definition adopted by the UN Working Group on Indigenous Peoples). In the context of the Maritimes standard the term "Aboriginal people" is used; see the specifically Canadian definition of that term.

insecticide: Chemical or biological agent used to kill insects.

integrated pest management (IPM): An ecological method of pest control that relies on a combination of operational approaches, including direct and indirect methods, to reduce damage to the forest rather than relying on direct spraying of pesticides to eliminate the pests. An important goal of IPM is to minimize environmental impacts of pest management activities. IPM techniques may include the use of natural predators and parasites, genetically resistant hosts, environmental modifications, and when necessary and appropriate, chemical pesticides.

interior forest species: species of plants or animals that are adapted to and depend upon the conditions associated with a closed-canopy forest ecosystem unaffected by edge conditions. Forest interior birds tend to require large tracts of forest habitat for nesting and foraging.

landscape: A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climactic, biotic and human interactions in a given area.

landscape level: At a spatial scale above a single plant community or forest stand and below a region (See also definition of Landscape).

late seral stage: A late stage in succession (the process of community development after disturbance) where the forest canopy starts to open up, and the amount of vertical and horizontal structural diversity increases. The time since disturbance at which a late seral stage could be said to exist varies from forest unit to forest unit.

local community: Any (human) community that is on or adjacent to the forest that is being audited for certification.

local laws: Includes all legal norms given by bodies of government whose jurisdiction is less than the national level, such as provincial and municipal norms.

local seed source: A source of seed for planting which is adapted to the environmental conditions of the area in question; for well-studied species, a local seed source would be in the same ecoregion as the planting site, with seed zones established by common garden and genetic testing. For other tree species for which testing has not been carried out, a local seed source is from an area having similar climatic conditions and elevation as the area to be planted.

long term: The time-scale of the forest owner or manager as manifested by the objectives of the management plan, the rate of harvesting, and the commitment to maintain permanent forest cover. The length of time involved will vary according to the context and ecological conditions, and will be a

function of how long it takes a given ecosystem to recover its natural structure and composition following harvesting or disturbance, or to produce mature or primary conditions.

management plan: 1. The management plan as required under Principle 7 of this Standard. 2. The document or integrated series of documents which set out the strategic and operational direction for a forest. Management plans for industrial forests typically lay out management direction for periods of up to 20 years, but are renewed generally at 5 to 10 year intervals. Annual plans identify the nature of operations to be conducted within a single year. For smaller or private forests there is considerable variation in the temporal extent of management plans.

management unit: See "forest management unit".

means of verification: A potential source of information or evidence that allows an auditor to evaluate compliance with an indicator. Means of verification noted in this standard are suggested or useful means by which to assess indicators, but are not mandatory.

Native values: The First Nations way of harvesting resources without jeopardizing the integrity, diversity, or productivity of the environment. Native values generate from the knowledge passed from generation to generation incorporating a circular thought process demonstrating interconnectivity and respect for all life forms. Native values are developed from the following principles:
1. The Earth is Mother.
2. Knowledge is powerful only if shared.
3. The spiritual world is not distant from the earth.
4. Responsibility is the best practice.
5. Everything is connected to everything.
6. There is harmony.

natural forest: forest areas where many of the principal characteristics and key elements of native ecosystems such as complexity, structure and diversity are present as defined by FSC-approved national and regional standards of forest management.

non-commercial species: tree species that within a stand whose yields, if harvested, would be too small to include in volume assessments. Such species may yield commercial volumes for specialized end uses, such as furniture-grade wood or firewood.

non-timber forest products: All forest products except timber, including other materials obtained from trees, such as resins and leaves, as well as any other plant and animal products.

owner/manager: the people responsible for the operational management of the forest resource and of the enterprise, as well as the management system and structure, and the planning and field operations.

pest: Organisms which are harmful or perceived as harmful and as prejudicing the achievement of management goals or the desired yields or profite. Some pests, especially introduced exotics, may also pose serious ecological threats, and suppression may be recommended. They include animal pests, plant weeds, pathogenic fungi and other micro-organisms (FSC-POL-30-601 FSC Chemical Pesticides Policy July 2002-07).

pesticide: Any substance, preparation or organism (including insecticides, herbicides and fungicides) prepared or used in protecting plants or wood or other plant products from harmful organisms; in rendering such organisms harmless; and controlling organisms with harmful or unwanted effects. (The term pesticide is used here (instead of e.g. biocide) because 1) it is used in the FSC P&C and 2) the term biocide has other legal definitions and restrictions, and includes some household cleansing products).

plantation: Forest areas lacking most of the principal characteristics and key elements of native ecosystems, as defined by FSC approved national and regional standards of forest stewardship, which result from the human activities of planting, sowing or intensive silvicultural treatments. As the term is used in this standard in the Maritimes, plantations exist when some or all of the following stand characteristics are maintained in a highly altered state or even eliminated:

a) tree species diversity (especially deciduous species and/or other noncommercial species);
b) stand diversity (e.g., patchiness, presence of small openings, variability in tree species diversity, density and/or canopy layers);
c) stand structures and associated habitats resulting from pathogens or physical damage (e.g., forked stems, hollow boles, dead tops);
d) early successional habitats (e.g., berry patches, areas dominated by brush and herbaceous species)
e) presence of mature and old trees; and
f) coarse woody debris.

precautionary approach: An approach that tends to refrain from actions where the outcome is not known. In a forest management context it refers to situations in which a forest manager will often be required to act with incomplete knowledge of cause and effect relationships, and therefore a precautionary approach includes the following:

a) The manager avoids actions that may lead to irreversible changes to ecosystem function and resilience;

b) Alternative management strategies are developed and evaluated, including the alternative of no management intervention, to identify alternatives that are least likely to impair the viability of the species or ecosystem;
c) The onus is on the manager to demonstrate that proposed management activities are not likely to impair ecosystem function and resilience;
d) When previously unanticipated threats to ecosystem integrity are identified or knowledge of ecosystem processes increases, the manager takes timely, efficient and effective corrective actions; and,
e) The manager remains mindful of the needs of future generations.

primary forest: an ecosystem characterized by an abundance of mature trees, relatively undisturbed by human activity. Human impacts in such forest areas have normally been limited to low levels of hunting, fishing and harvesting of forest products, and in some cases, to low density, shifting agriculture with prolonged fallow periods.

primordial forest: forest having the following structural characteristics:
a) an abundance of old trees, recognizable by the asymmetrical shapes, relatively long trunks free of low branches (i.e., in-forest as opposed to open-grown shapes), deeply furrowed or plated bark, signs of heartwood decay, large prominent root structures, flattened crowns with protruding dead limbs, large thick limbs, and trunks often showing a twist that develops with age;
b) fallen logs in all stages of decomposition, crisscrossing the forest floor and lying in and across stream beds, covered by moss and lichens;
c) plentiful snags (standing dead trees);
d) canopy gaps, large and small, formed from trees that have fallen;
e) undulating forest floor, expressed in randomly scattered pits and mounds where trees have fallen over and decomposed;
f) majority of tree species that fall into the late succession class and a conspicuous absence of multiple-stemmed trees; and
g) minimal of signs of human disturbance.

Principle: An essential rule or element; in FSC's case, of forest stewardship.

protected area: generally an area protected by legislation, regulation, or land-use policy to control human occupancy or activity. Protection can be of many different forms. The International Union for the Conservation of Nature (IUCN) identified six main categories of protected areas.

protected area network: The total network of places and locations protected by various means within a forest or an area, including riparian reserves, habitat reserves, parks, and all other protected areas.

protected reserves: Mapped areas designated by the manager for long-term protection from development. Harvesting and road building are generally prohibited in reserves, except where used as part of a restoration plan (e.g. fuel reduction in association with controlled burning in fire-maintained ecosystems), or to meet the objectives for specific reserves (e.g. fire control, removal of invasive species).

public participation process: A formal process of public involvement. A public participation process ordinarily involves a defined membership, established ground rules, opportunities for interaction among participants and the provision for ongoing involvement. It may involve establishing a new process, building on an existing process or reviving and adapting a previously existing process.

representation: inclusion within a reserve network of the full spectrum of biological and environmental variation, including genotypes, species, ecosystems, habitats and landscapes.

residual structure: Elements such as living trees (individuals or patches), snags, cavity trees, downed woody debris and plants, that are left behind following a harvest operation to maintain the biological legacies of the stand.

restoration: a process of returning ecosystems or habitats to their original structure and species composition. Restoration requires a detailed knowledge of the (original) species, ecosystem functions, and interacting processes involved.

riparian area: 1. The area related to the bank or shore of a water body. 2. The area of forest having qualities influenced by proximity to a water body.

secondary forest: the ecosystems that regenerate from a substantial disturbance due to natural (flood, fire, windstorm, severe insect or disease infestation) or anthropogenic (land clearing, or extensive or intensive logging) causes, characterized by a scarcity of mature trees and an abundance of pioneer species and a dense understory of saplings and herbaceous plants. Although secondary forests frequently peak in terms of biomass accumulation well-within one felling cycle, the transition to primary forests usually requires several rotation lengths, depending upon the severity of the original disturbance. Irreversible transformation of the underlying soil and nutrient cycle brought about by chronic or intense use may render it impossible for the original, primary forest type to return.

secondary species: species that are not dominant in a forest canopy.

semi-natural forest: forest areas where some of the principal characteristics and key elements of native ecosystems, such as complexity, structure and

diversity are present, given the physical parameters of climate, geology, hydrology and successional patterns.

sensitive sites: sites with soils prone to erosion and/or nutrient loss as a result of normal management activities or natural disturbances. Sensitivity may be linked to human activity, disruption of water flow, alteration of stand structure or composition, or some other factor. For conducting forest operations, sensitive sites often include areas with steep slopes, shallow soils, or easily rutted soils.

shade tolerant species: plant species that have evolved to grow well in shade. Typically, these species grow in the understory, thus shade-tolerant species often dominate a climax forest type (e.g., hemlock, beech, sugar maple)

silviculture: the technique of producing and tending a forest by manipulating its establishment, composition and growth to best fulfill the objectives of the owner. This may, or may not, include timber production.

site: an area of land, especially with reference to its capacity to produce vegetation as a function of environmental factors (climate, soil, biology, etc.).

site preparation: the disturbance of the forest floor and topsoil to create suitable conditions for artificial of natural regeneration.

snag: a standing dead tree or a standing section of a tree stem.

species at risk: although this term is also used by COSEWIC, in this standard it is used in a more generic sense to refer to all species about which concern exists regarding their viability at regional, provincial, or a national scale and/or which were formerly referred to as rare, threatened or endangered. For further information on current listings of species at risk please refer to Appendix C.

species diversity: the variety of different organisms at the species taxonomic level.

stand: a community of trees possessing sufficient uniformity in composition, constitution, age, arrangement or condition to be distinguishable from adjacent communities.

stand level considerations: management considerations appropriately addressed at the stand level, including disturbance regime, tree size, deadwood quality and quantity, species composition, species abundance, age structure.

standard operating procedure: a standardized and codified manner of conducting a particular management operation or activity. Within the practice of forest management, standard operating procedures may exist for such operations as road construction, culvert installation, chain-saw use, skidder operations, aerial application of herbicides, etc.
structural diversity: the diversity of forest structure, both vertical and horizontal, that provides for a variety of forest habitats for plants and animals. The variety results from layering or tiering of the canopy and die-back, death, and ultimate decay of trees. In aquatic habitats, structural diversity results from the presence of a variety of structural features such as logs and boulders, that create a variety of habitats.

structure: 1 in forestry generally, the various horizontal and vertical physical elements of the forest 2. In landscape ecology, the spatial inter-relationships between ecosystems including energy fluxes, distribution of materials and species relative to the sizes, shapes, numbers, kinds and configurations of the ecosystems. 3. The distribution of trees in a stand or group by age, size or crown classes (e.g. all even-aged, uneven-aged, regular, and irregular structures).

succession: a series of dynamic changes in ecosystem structure, function and species composition over time as a result of which one group of organisms succeeds another through stages leading to a potential natural community or climax stage.

threatened species - any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

traditional access - open to non-commercial use by people from local communities where there is a history of such use. Examples of uses would include berry picking, fiddle-heading, fishing, hunting, hiking, and bird watching.

traditional ecological knowledge: knowledge that Aboriginal people have accumulated over countless generations of intimate contact with all aspects of local ecosystems, including plants, animals and other natural phenomena. (National Aboriginal Forestry Association)

tree: a tree is considered to be a woody perennial plant that grows to a height of at least 4.5m.

under-represented species: species which would be expected to be present at higher frequency under natural conditions than is the case today.

uneven-aged stand: a stand in which intermingling trees differ markedly in age. The differences in age permitted in an uneven-aged stand are usually greater than 10-20 years. Usually form more than three distinct age classes.

value-added processing: A manufacturing process which increases the value of the product above a normal or basic level; a manufacturing process which converts a commodity product, including logs, into a non-commodity product that requires some specialization to produce.

watershed: An area of land through which water drains into other streams or waterways via underground or surface streams and rivers.

wetland: lands transitional between terrestrial and aquatic systems where the water table is at or near the surface , or the land is covered by shallow water at some time during the growing season. Wetlands are characterized by poorly drained soils and predominantly hydrophytic or water tolerant vegetation (Watercourse Buffer Zone Guidelines for Crown Forestry Activities, NBDNRE)

wildlife: any species of amphibian, bird, fish, mammal, reptile, or plant found in the wild, living unrestrained or free-roaming and not domesticated.

wildlife travel corridors: a physical linkage, connecting two areas of habitat and differing from the habitat on either side. Corridors are used by organisms to move around without having to leave the preferred habitat. A linear habitat patch through which a species must travel to reach habitat more suitable for reproduction and other life-sustaining needs. Many corridors, linking several patches of habitat, form a network of habitats. The functional effectiveness of corridors depends on the type of species, the type of movement, the strength of edge effects, and its shape.

worker: See forest workers