FOREST STEWARDSHIP COUNCIL
CANADA WORKING GROUP

NATIONAL BOREAL STANDARD

Accredited by
FSC

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Forest Stewardship Council Canada Working Group
National Boreal Standard

Accredited Regional Standard

Introduction

This Standard was developed by the Forest Stewardship Council Canada Working Group (FSC Canada) and accredited by FSC on August 5, 2004 as a basis for certifying **forests** within the Canadian boreal forest. FSC Canada is an authorized National Initiative of the international FSC organization and, in developing this standard for the Canadian boreal forest, it is providing a regional interpretation of FSC's international **Principles** and **Criteria**. This version of the standard consists of FSC's ten principles and 56 criteria, with many **indicators** and v**erifiers:** that have been customized to reflect conditions in the Canadian boreal forest. This introductory section provides an overview of the FSC, the goals of this standard, the manner in which this standard was developed, and the overall boreal forest context.

Throughout this document, there are many scientific and technical terms and other expressions which require clarity and consistent interpretation. To facilitate this, a glossary is provided in this document. Throughout the text of the document, the first occurrence of all terms which are defined in the glossary will be marked in bold text.

Uses of this Standard

This Standard is intended to identify the practices to be employed in a well-managed Canadian boreal forest. The principles, criteria and indicators are to be met on the forest that is being considered for certification. However, for forests of all sizes, it will be necessary to consider a larger area, such as an **ecoregion**, when determining **benchmarks** and appropriate levels related to some indicators, particularly those that are relevant at a landscape level.

The standard will be of interest to applicants, certifiers, and other **interested** parties. The manner in which the standard is expected to be of use to each of these groups is somewhat varied.

For applicants and potential applicants, the standard should be used to identify the expectations that its forest management system and practices will meet. Prospective applicants can use the standard to assess how well their forest management compares to it, and more importantly, how their management practices may need to change in order to qualify for FSC certification. Applicants can use the standard as a basis for discussion with FSC-accredited certifiers and with the FSC itself in preparation for certification.

Certifiers are expected to use the standard as a basis upon which to assess the practices of applicants. Certification bodies using this standard shall follow the requirements for decision making as specified in section 8 of FSC-STD-20-002 version 1-0) in applying this Standard, and use the benchmarks, management processes, and targets identified in this Standard as the basis upon which to make assessments. In cases where local or regional considerations have not been fully accounted for by this Standard, or where circumstances unique to an applicant's operations are relevant, certifiers are expected to use their best professional judgment in ensuring that the spirit of the FSC principles and criteria is upheld in the management of the applicant’s forest.

For other interested parties (e.g., forest users, non-government organizations, consumer groups), the Standard can be used to provide insight into the concept of a well-managed boreal forest and to understand the way in which management must be undertaken to qualify for FSC certification.

The Standard can be used as a basis for communicating with applicants and potential applicants, for comparing the practices of various forest managers, and for making consumer choices.

What is the Forest Stewardship Council?

The Forest Stewardship Council is an international non-profit organization founded in 1993 to support environmentally appropriate, socially beneficial, and economically viable management of the world's forests. FSC does this by accrediting certifiers to assess individual forest operations against the FSC Principles and Criteria for Forest Stewardship. Forest operations that meet these standards are permitted to affix the FSC logo to their products in the marketplace, thereby enabling consumers to purchase end-products which they know have come from forests managed according to FSC standards.

FSC also supports the development of national and local standards that implement the international Principles and Criteria of Forest Stewardship at the local level. These standards are developed by national working groups, which work to achieve consensus amongst the wide range of people and organizations involved in forest management and conservation in each part of the world. FSC has developed guidelines for developing regional certification standards to guide working groups in this process.

The name, acronym and logo of FSC are registered trademarks whose use is strictly controlled by the International Board of FSC. All activities occurring anywhere in the world under the name of the Forest Stewardship Council must be explicitly authorized by FSC International. The international headquarters of FSC is located in Bonn Germany. Readers will find additional information about FSC on the FSC International website at http://www.fscoax.org.

FSC Canada

The FSC Canada Working Group is an authorized National Initiative of the FSC and is responsible for all FSC activities in Canada. It is composed of eight elected members representing the following sectors: Aboriginal, Environmental, Economic, and Social. The various Regional FSC Initiatives within Canada are recognized by FSC Canada as subsidiary components of the FSC Canadian National Initiative encompassed within its protocol agreement with FSC International. Thus, all Regional Initiatives in Canada are bound by the terms of the protocol agreement between FSC International and FSC Canada. FSC Canada is a not-for-profit organization registered with Industry Canada under the *Canada Corporations Act* in the name "Voluntary Forest Certification Canada".

The FSC Canada Working Group retains a leadership role in the FSC National Boreal Standard process, including:

- Setting expectations;
- Defining the decision-making processes;
- Reconciling opposing views and **dispute** resolution;
- Maintaining accountability for the process and the standards resulting from it; and,
- Endorsing the process to be used and expected outcomes.

The FSC Boreal Coordinating Committee (BCC) receives its mandate from and is accountable to the FSC Canada Working Group. It is responsible for:

- Managing the standard development process;
- Developing consultation drafts;

- Reviewing input;
- Reconciling opposing views;
- Commissioning **expert** advice;
- Managing relationships with provincial/territorial initiatives;
- Forming specific activity groups and sub-committees as required;
- Ensuring effective communications; and
- Meeting timelines and targets for deliverables.

Provincial/territorial initiatives are also accountable to the FSC Canada Working Group. They are responsible for:

- Recommending areas where regional specifications or variations may be required;
- Participating in defining and developing regional variations;
- Participating in soliciting and coordinating input on draft standards;
- Conducting outreach, awareness, education and training; and
- Assessing and evaluating the effectiveness of the standard for future revision.

Provincial initiatives have a balanced representation of different interest groups: Aboriginal, Environmental, Social and Economic. The provincial initiatives of FSC Canada are located in:

- British Columbia;
- Yukon;
- Alberta;
- Ontario;
- Quebec; and
- the Maritimes.

Vision, Mission, and Values

The Intent of all FSC Canada forest standards are governed by the FSC Canada's *VISION, MISSION AND VALUES*, which are:

Vision: Healthy forests providing an equitable sharing of benefits from their use while respecting **natural forest** processes, biodiversity and harmony amongst their inhabitants.

Mission:
To promote environmentally appropriate, socially beneficial, and economically viable management of the forests of Canada through standards and their application.

Values:
FSC Canada values forest management that:

- Is environmentally appropriate - ensuring that the harvest of timber and **non-timber forest products**, and other uses maintains the forest's biodiversity, productivity, and ecological processes.
- Is socially beneficial - helping both **local people** and society at large to enjoy **long term** benefits and also providing strong incentives to local people to sustain the forest resources and adhere to long-term management plans.
- Is economically viable - supporting forest operations and management that are sufficiently profitable yet not at the expense of the forest resource, the **ecosystem**, or

affected communities, balancing the generation of adequate financial returns and principles of responsible forest management through efforts to market **forest products** and other forest uses for their best value.

FSC also values collaborative relationships and consultation in standards development and application that ensures:

- Honesty, integrity, transparency and fairness in all decision-making.
- Respect and recognition for the legal and **customary rights** of **indigenous peoples** to own, use and manage their lands, territories, and resources.
- Economic accessibility of certification for landowners of all sizes.

With this in mind, FSC Canada has identified three goals for the impact that the Boreal Standard should have in Canada:

1. **Promote improvements in "on-the-ground" forest management and practices in the boreal forest.** An FSC boreal standard must involve the implementation of the best and most innovative forestry practices. Understanding that there is an evolving body of knowledge to support forest management and decisions about forestry practices, it will be important that the standard also embody the concept of continual improvement, so that both the standard itself and forestry operations certified to it go through regular processes of monitoring, assessment, review and modification. Ideally, the standard will also be a positive force to influence the policy framework within which forestry operates in Canada, and set a progressive example to influence activities in other sectors.

2. **Develop a feasible and widely adopted certification standard.** If FSC Canada is to be successful in its endeavours then it must develop a standard that is actually implemented. It must be practical for large as well as small-scale operations, and must confer advantages that outweigh the costs of implementation and auditing.

3. **Promote a common understanding of what constitutes good forestry in the boreal forest.** For a common understanding to emerge it will require commitment and acceptance from diverse interests. It will require special efforts to find common ground between diverse interests (or "chambers"), and differing regional interests, bridging scientific and traditional knowledge systems, and linking "big picture" and "grassroots" interests. This goal can only be achieved by embodying the principle of mutual respect and shared acceptance of diverse views on how to achieve environmentally appropriate, socially beneficial and economically viable forestry in the boreal region of Canada.

Appendix 1 expands on these three goals by identifying a vision for their successful achievement.

What is a Standard?

The FSC forest certification system is widely recognized as a global mechanism for identifying and promoting good forest management. Good forest management is defined by standards developed by local **stakeholders** or National Initiatives within the framework of the FSC's international Principles and Criteria. Certification is the process by which an independent organization provides a guarantee that a product or service conforms to a certain standard.

Forest stewardship standards may be developed for a country or for a region. The use of national and regional forest stewardship standards ensures that the certification process is fair, transparent and locally relevant.

National and regional forest stewardship standards must be endorsed by FSC in order to ensure the consistency and integrity of standards used in the FSC certification system in different parts of the world. Endorsement means that the standards meet all the requirements set by FSC to ensure the credibility of the FSC certification process. These requirements refer to both the content of the standards and the process used to develop them. They include:

- Compatibility with the Principles and Criteria;
- A local consultative process for their design;
- Compatibility with local circumstances; and
- Documented efforts to harmonize the standard with FSC standards in neighbouring regions.

Regional forest stewardship standards are the locally applicable and workable versions of the FSC Principles and Criteria developed for use in certification assessments in that region. They must be derived from the global FSC Principles and Criteria, and be in accordance with local ecological, social and economic circumstances. The existence of locally defined forest management standards contributes to a fair, transparent and systematic certification process.

Once a set of regional forest stewardship standards has been endorsed by FSC, all local and international certification bodies must, at a minimum, use those standards in their certification processes. In addition, the standards form the basis for local **grievance** procedures.

Together with the Canadian Boreal Standard, FSC Canada is developing three other national standards that will collectively encompass most forest regions of Canada: the Maritime Standard (covering the Acadian forest type); the Great Lakes-St. Lawrence Standard (covering the temperate mixed-wood forests in Ontario and Québec); and the B.C. Standard (addressing diverse forest types in British Columbia).

Typically, a standard includes a hierarchical structure of its main components, such as that used in this document. Principles are at the highest organizational level. These are the essential rules or elements of forest stewardship. FSC's standards include ten principles as prescribed by FSC International. Each principle contains a series of criteria, which subdivide the principle into a series of logical components. Criteria can be thought of as second-order principles that add meaning and operationality to a principle. Each **criterion** contains one or more (sometimes many) indicators. Indicators are the component of the standard of most interest to **applicants**. Indicators contain the performance direction which applicants must meet or to which they must adhere. A series of **Verifiers:** are provided for each indicator. Verifiers: provide a means of assessing whether the requirements of an indicator have been met. The Verifiers: noted In this standard are

not mandatory; that is, the applicants are not required to follow the direction implied by Verifiers: and auditors need not use the Verifiers: provided for an indicator in assessing an applicant's performance. The performance of applicants will be assessed against indicators; the role of the Verifiers: is to provide advice.

Boreal Forest Context

The boreal forest is by far the most expansive of Canada's forest regions (Figure 1). It encompasses 35% of Canada's total land area and 77% of the country's forested area. The boreal forest is the most northerly forest in Canada; it comprises a band with a latitudinal width of almost 1000 km extending from the Yukon Territory southeast across the country to Newfoundland and Labrador. The boreal forest occupies part of every province and territory in Canada, except Nova Scotia and Prince Edward Island.

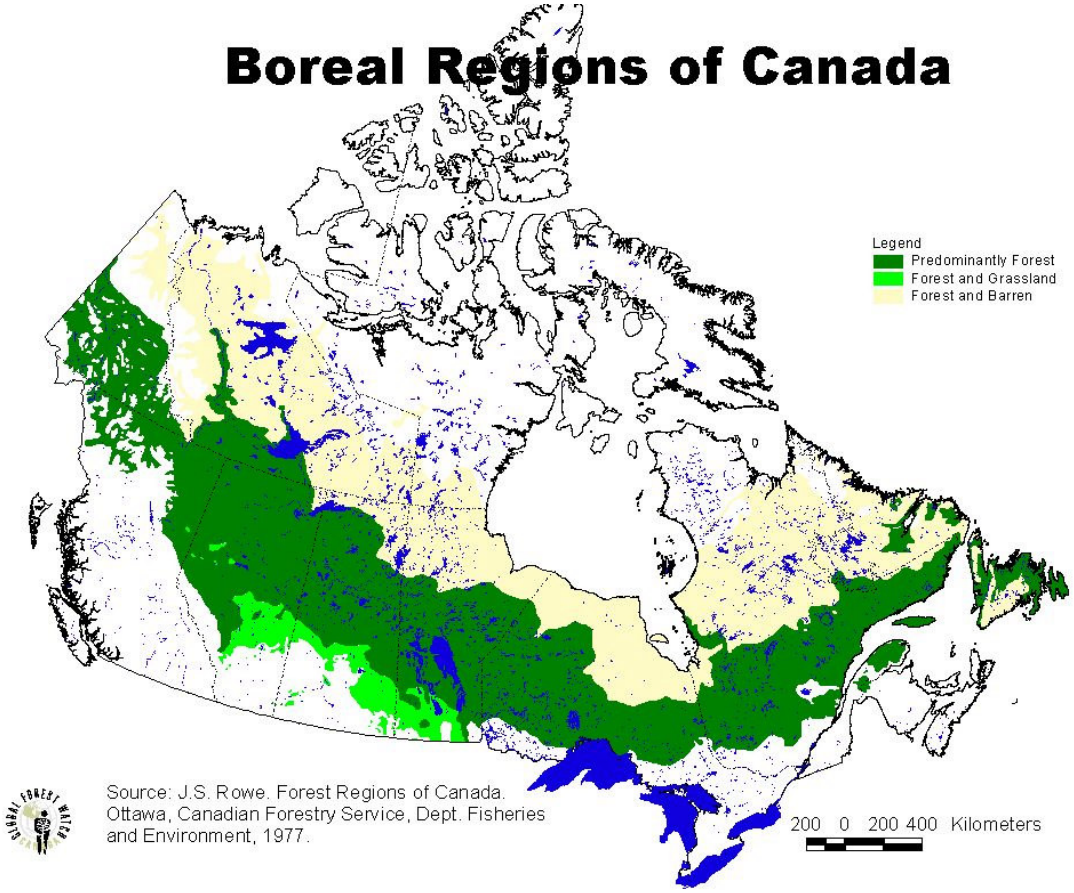

Figure 1. Distribution of the Boreal Forest in Canada.

The forest is typified by its cool climate (and therefore short growing season), and the dominance of a relatively small number of **tree** species across its range. Since the boreal forest covers such a large area and a wide range of climatic and soil conditions, there is substantial variability across the forest. However, there are many common factors. Black spruce, balsam fir, trembling aspen and white birch are found practically throughout the boreal forest, with jack pine, white spruce and larch also being common in large portions. The abundance of the hardwood species tends to be highest in the southern part of the boreal forest, diminishing as one moves northwards. The eastern boreal (Quebec and eastward) tends to be wetter and have a higher proportion of balsam

fir and black spruce than the central and western parts of the forest. Jack pine is most prominent in western Quebec, Ontario and Manitoba whereas white spruce increases in commercial importance as one moves westward, becoming a major commercial species in Saskatchewan, Alberta, the Yukon and northeastern B.C.

The variation of the forest is also reflected in its wildlife **community**. Although many **wildlife** species, such as moose, beaver and ruffed grouse, occur throughout the forest, others such as wood buffalo, raccoon, magpie, and blackburnian warblers have more limited distributions within the boreal forest.

The forest is often characterized as being "**disturbance** driven", although there is tremendous variation across the forest in the nature of its **disturbance regimes**. Forest fires and insects are the main natural agents of change, although wind and disease also can also play significant roles. In the east (Newfoundland, Labrador and eastern Quebec), fire cycles are relatively long (that is, fires occur much less frequently), while there is a general trend of shortening fire cycles as one moves westward through to the Prairie Provinces. In Labrador, fires may naturally occur only once every 500 years, in Northwestern Quebec, every 100-200 years, and in central Saskatchewan, every 40-75 years. Of course, within these broad areas, there are some **sites** which are much more prone to burn than others are, so that old forests occur in every part of the boreal. Insect infestations also vary across the country as different species are more likely to affect some areas than others are. The periodicity of infestations also varies.

The boreal forest is an important source for the livelihood, culture and spirituality of Indigenous Peoples, and provides a critical source of income for many northern communities. Approximately 80% of Indigenous communities in Canada are located within the boreal forest. (See Figure 2.)

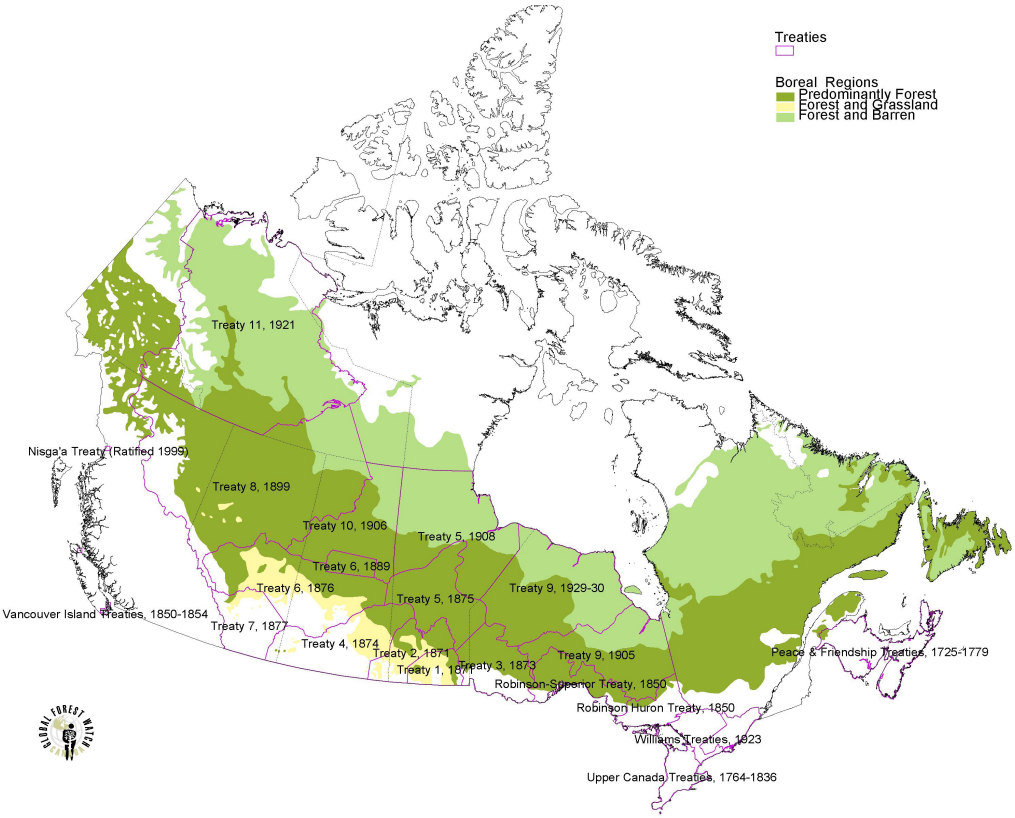

Figure 2 Treaty Areas with Indigenous Peoples in Canada.

The boreal forest supports the largest part of Canada's forest sector. In 1999, Statistics Canada listed roughly 12,400 forestry establishments in Canada. (Note: Specific figures for the boreal forest are not available), which provided 354,000 direct jobs in 2001. This represented 2.9% of all employment in Canada; another 600,000 to 700,000 jobs were indirectly attributed to the forest sector. While 2.9% may appear to be a relatively low proportion, the sector's socio-economic importance is much higher because the forest industry is one of the major employers in many northern Canadian communities. Together with the mineral and petroleum sectors, it often provides the highest wages in many of these communities.

The contribution to the national accounts is more substantial - it accounted for $28.5 billion of the GDP in 2001 (2.9% of the national total) and $39.3 billion in exports (9.5%). There were only $2.9 billion in forest products imports, yielding a net balance of $36.4 billion in the sector, which contributed substantially to the national value of net exports, which was $64.0 billion. Although much of Canada's boreal forest is now subject to commercial management for its wood products, it is relatively **intact** compared to most of Canada's (and the world's) other terrestrial biomes. The boreal forest still has large predators over most of its range in Canada – generally considered to be a sign of a healthy ecosystem. Yet, almost beyond debate, the most critical challenge facing Canada's boreal forest is the sustainability of the regimes and practices used to manage it. While techniques evolve to extract more wood more efficiently from the forest and the world's appetite for forest products grows, the pressures put on the boreal (and other forests) mount. New management paradigms attempt to reconcile growing industrial demands with growing sensitivity towards ecological considerations in attempts to bring balance to the manner in which forests are managed. The development of this standard is an attempt to help ensure that such a balance is achieved.

Challenges in Developing the Standard

Is it practical for a single standard to embrace over three-quarters of the Canada's forests which are managed according to eleven[1] different sets of laws and regulations? In short, the FSC believes the answer is "yes", but these differences and the dynamic and varied nature of the boreal forest itself brought significant challenges to the development of this standard and are reflected in its content. These challenges have been dealt with in several ways:

1. In places, the standard requires that **forest managers** use the input of local or regional experts to set explicit targets. This method has been used when the regional variation in the forest was so great as to make the identification of a single target for the entire boreal forest impractical. Although this approach puts more onus on applicants (to ensure appropriate expertise is used in the development of targets), and certifiers (to ensure that the expertise was appropriate and the targets were reasonable), it seemed a reasonable compromise between relying on process-based direction only and on using a single national or several regional performance targets. This approach should ensure that appropriate targets are set for each forest **management unit** being considered.

2. The process-based elements of the standard transcend provincial or regional laws and regulatory requirements, although some criteria in the standard, primarily in Principle 1, require adherence to local and national laws and administrative requirements. On the other hand, there are several places where the standard requires a level of performance beyond that required by some provincial and/or territorial laws or regulations. Such requirements exist in the standard to be consistent with the FSC's view of a well-managed forest, regardless of provincial or regional requirements.

3. The development of this standard drew on the knowledge and wisdom of balanced multi-stakeholder regional steering committees, coalitions of organizations, single organizations, individuals and experts from many backgrounds and from across Canada. By considering the perspectives and expertise of individuals and groups with both regional and national viewpoints, it is hoped that the standard represents a compromise that most, if not all, contributors can live with. Obviously, there are some fundamental areas where there is considerable disagreement and many groups had to accept a standard that substantially compromised their initial position. As the standard is applied and the results of its application become visible, the standard will be refined, as required, to improve it.

Adaptive Management and the Precautionary Approach

This standard advocates two management approaches related to dealing with uncertainty in forest management. Both the **precautionary approach** and **adaptive management. Both approaches** recognize that resource **managers** are often required to act with incomplete knowledge of cause and effect relationships. The precautionary approach advocates that managers avoid actions that may lead to irreversible change in ecosystem function and that alternative management strategies be considered (including the alternative of no management intervention) to identify those actions which are least likely to impair the viability of species or ecosystems. Adaptive management advocates that when a new management approach is implemented, it be done in a structured scientific manner. Adaptive management is much more than learning by trial and error. It refers to the structured process of adjusting management in response to implementation of a monitoring program to test stated hypotheses, and revision of management based on the monitoring results.

These approaches can be complimentary and this standard advocates such an integration. Putting primacy on prudence and caution in dealing with uncertainty, management action should only proceed when forest managers are confident that severe negative effects will not occur, (as mandated by the precautionary approach.) Once this condition has been satisfied, the management actions which do proceed should be guided by the processes of adaptive management. By using such an integrated approach, severe negative consequences can be avoided and opportunities to learn and improve management in the face of uncertainty will be embraced.

Forest Size and Forest Ownership

Forest management units in the boreal forest are not of a uniform size, nor of a single ownership class. Many management units are very large (up to millions of hectares), but some are quite small in comparison, being hundreds of hectares in size or less. While it is the intention of FSC that forests of any reasonable size should be certifiable, smaller landowners are less able to comply with some indicators because their forest is too small to support the effort and expense required. In addition, some indicators refer to **landscape-level** processes and require **management activities** to be consistent with such a scale, but this can be impractical on small forests. To deal with such issues the FSC has identified a class of forests known as “small and low intensity managed forests” or SLIMFs. A document providing national guidance for the application of SLIMFs in Canada is being prepared. The document will identify and define four types of SLIMF: 1) small forests; 2) low intensity managed forests; 3) small group of managed forests and 4) large group of managed forests. Throughout this standard there are indicators which will require special considerations for applicability to SLIMFs. In some cases, the indicators will not apply to SLIMFs, in others they will apply to some classes of SLIMF, and

others will require some modification or additional auditor discretion in determining whether and how they should apply. The national guidance document will provide detailed instructions in these regards.

The contrast between publicly owned (i.e., forests on Crown lands) and private forests is a similar situation. The private landowner manages to meet his or her objectives, while public forests are managed for the well-being of society. Both the forest manager and the provincial and territorial governments play important roles in balancing the sometimes competing aims of different stakeholders and parties. In Canada's social environment, it is expected that greater public consultation will occur for forest management on Crown lands than for management of private lands. This is evident in some places in the standard, particularly in Principle 4. The issues related to size and ownership are linked moreover because private forests tend to be smaller than public **forest units**.

Overlapping and Shared Tenure

The developers of this standard recognize that the Canadian boreal forest is largely a public resource, and the **tenure** rights granted to forest companies operating on Crown land are rarely exclusive. There are usually parties with overlapping tenure that harvest a component of the forest resource, such as veneer, and other sectors, especially oil and gas and mining, also have rights to alter the forest to pursue the resources in which they are interested and to construct access. In the case of overlapping tenure holders in the forest sector, forest planning is often coordinated among all those who share tenure. Oil and gas and mineral exploration companies have no requirements to be bound by a forest management plan. This creates an issue for a large forest tenure holder who wishes to be certified, since they may not be the only operator on an area and may have minimal influence on other forestry operators in some circumstances. There is also a question of certifying overlapping tenure holders. The lack of leverage on the part of all forest tenure holders to constrain the activities of companies in other sectors, especially oil and gas, raised the issue of control over the landbase where a forest company might lack sufficient control to be certifiable.

Overlapping and shared tenure was one of the most difficult issues in the development of this standard. The approach that was adopted in this standard rests on the following tenets:

- The FSC certification applies to the forest, not to the company, and therefore cumulative impacts on the forest need to be taken into account during certification.

- Where forest **use rights** are shared with other tenure holders, the applicant must be able to demonstrate that sharing these rights does not preclude meeting the FSC principles and criteria.

- While there can be circumstances when an applicant does not have enough control over the forest landbase to warrant certification, it is also the intention of the FSC to encourage innovation in working with other resource users to improve forest management and participation in FSC.

Overlapping and shared tenure enters into the standard under a number of criteria and indicators. Overlapping tenure holders do not necessarily have to meet the same requirements as the

applicant but their activities should not take away from or negate the impacts of the applicant's activities. Auditors are expected to use their judgement to identify, in any specific circumstances, whether the impacts or non-participation of others precludes certification of the applicant. This is especially true when considering the cumulative ecological impacts. However, the onus is on the applicant to demonstrate that the forest and all activities carried out on it meet the conditions in this 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.

Intent, 1[2]
This principle is concerned with the adherence to legal requirements, including legislation, regulations, licenses, planning manuals and forest management guidelines. Indigenous peoples are also permitted to make binding laws on settlement lands, and there are sometimes "agreements in principle" prior to the actual final agreement being ratified. This principle also covers the degree to which an applicant is living up to the terms of other types of agreements, such as memoranda of understanding and agreements with Indigenous peoples and other customary or traditional land users, and administrative requirements for consultation. Support for and adherence to international agreements and treaties is also considered. Finally, the extent to which the applicant endorses and supports the principles of FSC is considered. Throughout this principle, emphasis will be placed on both published statements of intent and actions that have been undertaken.

The criteria in this principle apply not only to the **employees** of the applicant, but also to **contractors** and their staff and any sub-licensees that might be working on the forest. Where another agency is responsible for duties associated with one or more of the indicators, the applicant is expected to provide reasonable assistance to facilitate the activities of the other agency. Where the FSC principles or indicators are inconsistent with legal requirements or other requirements of the types described above, and following this standard would contravene these requirements (as opposed to exceeding standards), the applicant is expected to adhere to the legal or other requirements while such discrepancies are being examined and resolved.

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

1.1.1 Appropriate staff members, contractors, sub-licensees, and others associated with the applicant understand the legal and administrative obligations pertaining to forest management and consultation with affected Indigenous Peoples and stakeholders.

Verifiers:

- Applicant records of such regulations/legislation.
- Accessibility of records to staff, contractors, sub-licensees and others associated with the applicant.
- Knowledge of staff members related to regulations/legislation, and other legal responsibilities.

Note: See Appendix 2 for a list of legislation and regulations applicable to the Boreal Forest of Canada.

1.1.2 A system is in place whereby staff and others are kept up-to-date with new regulations and developments.

Verifiers:

- Knowledge of staff members related to regulations/legislation, and other legal responsibilities.
- Applicant's system for keeping staff members, contractors, and others associated with the applicant abreast of new developments in regulations/legislation and other legal responsibilities.
- Records indicating training related to laws, regulations, etc..

1.1.3 The applicant can demonstrate a good record of compliance with relevant federal, provincial, and municipal laws and regulations.

Verifiers:

- Compliance records.
- Interviews with federal, provincial, and municipal compliance staff regarding the applicant's compliance record.

1.1.4 The applicant undertakes immediate and specific corrective actions when incidences of non-compliance are identified.

Verifiers:

- Records of corrective action taken.
- Interviews with relevant company staff and other personnel.

1.1.5 Relevant employees of the applicant, contractors, and sub-licensees have an understanding of all applicable Indigenous Peoples' agreements, memoranda of understanding, and any requirements for consultation and partnership development.

Verifiers:

- Employee knowledge of native legal context and requirements for consultation and partnership building.

1.1.6 The applicant's performance record demonstrates an appropriate level of consultative and partnership-building activity. (Indicators 3.1.1 and 3.1.2 are complementary to 1.1.6.)

Verifiers:

- Interviews with federal or provincial government staff regarding the applicant's record of involvement with local Indigenous peoples.
- Interviews with local Indigenous people regarding applicant's degree of respect for native legal agreements and consultation/partnership development efforts.

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

1.2.1 All applicable and legally prescribed fees, royalties, taxes and other charges are paid.

Verifier:

- Records showing payment of fees and dues, including, GST, municipal taxes, stumpage, land use permit fees, workplace safety insurance board assessments, etc.

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.

Intent, 1.3
See Appendix 3 of this standard for a list of relevant International Agreements. FSC requires that all certificate holders comply with ILO Conventions that have an impact on forestry operations and practices and ILO Code of Practice on Safety and Health in Forestry Work (also listed in Appendix 3).

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

Verifiers:

- Applicant's copies of relevant international agreements.
- Accessibility of international agreements to forest **workers** and other staff.
- Descriptions of activities carried out by the applicant related to international agreements.
- Interviews with staff at relevant level(s) of government regarding applicant's adherence to terms of international agreements.
- Training records related to 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.

Intent, 1.4
Where there is an inconsistency between an FSC Principle or Criterion and an **applicable law**, regulation, or other requirement, the applicant is expected to obey the legal requirement and note the conflict for FSC to take action on. FSC may chose to take action promptly to initiate negotiations with the appropriate government or other organizations to harmonize the legal system and the FSC standard, or FSC may build up a case file before proceeding. The applicant is expected to participate in harmonization efforts but not to initiate or lead them.

1.4.1 Situations in which the applicant's compliance with the laws or regulations conflicts with compliance with FSC principles, criteria, or indicators are documented and provided to the certification body and the involved or affected parties.

Verifiers:
- Appropriate documentation.
- Records of communication with FSC.
- Interviews with applicant and/or FSC Canada staff.

1.4.2 The applicant works in conjunction with the appropriate regulatory bodies and FSC to resolve discrepancies between laws/regulations and FSC Principles or Criteria.

Verifiers:
- Appropriate documentation.
- Interviews with regulatory agencies.

1.5 Forest management areas should be protected from illegal harvesting, settlement or 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.

Verifiers:

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

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

Verifiers:

- 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 applicant demonstrates a commitment to adhere to this Standard for the life of the current **management plan**, and has declared its intention to protect and maintain **the ecological integrity** of the forest in the long-term.

Verifiers:

- Applicant's written commitment to the Boreal Standard and to long-term wise management.
- Evidence that the applicant has encouraged wise management on private lands encompassed by its forest and on lands abutting the forest.

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

Verifiers:

- A written strategy by the applicant to move towards managing all of its holdings in the region using a management regime that is consistent with the FSC's Principles and Criteria (e.g.,, grounded in similar management philosophies, ecological frameworks, and balancing of values and objectives).
- Membership in FSC.
- Participation in standards development, review and improvement.

Intent, 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, in order to have part of its operations certified, consistent with the FSC requirements on partial certification of large ownerships.

It is the goal of FSC Canada to encourage certificate holders to move towards having all of their holdings FSC certified.

1.6.3 The applicant has informed relevant employees about the requirements and restrictions on the use of the FSC's name and logo in communication and product labeling and is complying with these requirements.

Verifiers:

- Examination of use of FSC name and logo and comparison to date of certification.
- Relevant material in employee education/awareness training and contractor information packages
- Corporate advertising and promotional material.

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.

Intent, 2
This principle requires clear ownership rights if the landowner is the applicant, or, if the forest resource manager is not the owner but is the applicant. The right to manage the forest and use the natural resources must be conveyed unambiguously and in good faith. Where a community or customary user group is involved, its right to participate in management must not be diminished. The principle also includes requirements regarding dispute resolution approaches and their effectiveness.

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.

Verifiers:

- Proof of ownership or title for the area of land for which certification is sought.
- Boundary lines of the property or area under ownership, lease, license or tenure, for which certification is sought.
- The certificate of title for the area of land for which certification is sought.
- A customary use right permits the manager to manage the land and/or utilize the forest resources for which certification is sought.
- The contractual agreement (e.g.,, a lease, tenure or license issued under provincial or territorial legislation) granting the manager rights to manage the lands and/or utilize forest resources for which certification is sought.

Intent, 2.1.1
This indicator can be complicated in circumstances in which the applicant shares tenure related to forest resources with another company. In such circumstances, the applicant is required to demonstrate that it has obtained the legal right for shared resource and land management and also that the sharing of these rights does not preclude meeting the FSC principles and criteria. There might be circumstances when an applicant does not have enough control over the forest land base to warrant certification, however it is the intention of the FSC to encourage innovation in working with other resource users to improve forest management. Cross references include the following indicators: 2.3 (dispute resolution), 6.1.2 (environmental assessments), 6.3.17 (comprehensive access management plan), 6.3.20 (overlapping tenure), 6.10.6 (holders of overlapping tenure outside forest sector).

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 Customary tenure or resource use rights held by communities are identified and documented.

Verifiers:

- Documentation, including oral evidence, of customary tenure or rights of land/resource use held by communities.
- Maps showing areas of customary rights of land/resource use held by communities.

2.2.2 Either:

(A) local communities with legal or customary tenure or use rights retain control over their forest operations, OR,

(B) **free and informed consent** has been given to any portion of the management plan that affects the rights and resources of the community that holds legal or customary tenure or use rights.

Verifiers:

- Where (A) has been agreed to then either:
  - The local communities are the resource manager, or
  - Customary uses of the forest, which may include hunting, trapping, fishing, use of hiking trails, *de facto* access to well known landmarks and features and gathering of berries by the public, are sustained by the owner on a permissive basis, or
  - There is agreement that the manager's activities will protect the rights and resources of local rights holders.

- Where (B), then interview evidence and/or documentation of free and informed consent.

2.3 Appropriate mechanisms shall be employed to resolve disputes over tenure claim and use rights. The circumstances and status of any outstanding disputes shall 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 The applicant has and implements (when required) a process to address disputes.

Verifiers:
- Description of the process to address disputes.
- Evidence of the effectiveness of the process(es) in bringing about dispute resolution.

2.3.2 The manager maintains a record of disputes and the status of their resolution.

Verifiers:
- A register of disputes.
- Documentation of steps taken to resolve the dispute(s).
- Evidence related to parties' positions relative to the dispute(s).

2.3.3 The owner and/or manager is not involved in outstanding disputes of substantial magnitude on the applicant forest involving a significant number of interests.

Verifiers:
- Description of disputes and number of on-going disputes in dispute register.
- Interviews with owner, manager, and if applicable, parties in dispute(s).

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.

Intent, 3 – Terminology

Indigenous rights are collectively held rights, therefore most of the language referring to Indigenous rights in this standard refers to "Indigenous Peoples" (an accepted international term) or communities as a whole, and not to individuals.

In order to make the document more readable, "Indigenous communities" is used to refer to the collective, while "Indigenous individual" is used to refer to a single Indigenous person. "Indigenous Peoples" in the criteria refers to more than one community. It is very important that applicants and auditors understand the complexity of the Indigenous groups in Canada and how terminology reflects what are sometimes confusing political realities.

The term "Indigenous Peoples" in Canada means "Aboriginal Peoples" as defined in the Constitution Act, 1982 to 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. A "First Nation" could refer to one "band" or a group of historically, culturally and linguistically related "bands". "Indians" are recognized in Canada as having "Indian status" and are entitled to be placed on membership rolls in a general "Indian register" in Ottawa, and/or on "band lists" as a "member" of a federally recognized "band". 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".

Through various federal policies over the past 100 years, many "status Indians" lost their federally recognized status and there is therefore a group of "Indians" known as "non-status Indians."

"Métis" are recognized in Canada, although identity and membership criteria are vague bordering on "self-identification" rather than genealogy for Métis individuals. 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 is constantly evolving..

Intent, 3 – Agreements

There are a number of agreements described in this principle. A single agreement may cover the requirements or a framework agreement and subsequent sub-agreements may be negotiated over time, depending on the ability and intent of the parties. Agreements described should preferably be confirmed in writing. However, circumstances will vary across the country. Where an Indigenous community does not want to enter into a written agreement, this requirement is waived. The applicant must demonstrate in

writing that efforts were made to obtain written agreement and that the Indigenous community is satisfied with the management plan. Where written agreements are not obtainable, FSC certification is intended to support progress over time toward reaching written agreement.

Intent, 3 – Consultations

Consultation processes with Indigenous Peoples as described in Principle 3 apply not only to standard elements under Principle 3 but also to elements in other Principles and Criteria.

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.

Intent, 3.1

Indigenous lands and territories in Canada have been defined legally as:

1) Those areas where Aboriginal title still exists, that is where no treaties are in place (such lands may be subject to a formal land claim); and,
2) Those areas subject to historical (pre-Confederation and post-Confederation) or modern-day treaties.

In cases where there are common areas used by Indigenous communities, the interests of all such communities must be assessed.

Treaties do not **delegate control** and do not mean that Indigenous communities no longer have an interest in managing their lands and territories. Treaties are living documents, and the current interpretations of those Treaties must be considered.

The onus is on the applicant to make best efforts to obtain informed consent, understanding that there may be exceptional circumstances that may influence whether or how consent is achieved given that circumstances vary from Indigenous community to Indigenous community. The applicant is expected to make best efforts to obtain a positive acceptance of the management plan based on the Indigenous communities having a clear understanding of the plan.

It is important for the applicant to develop a good understanding of the nature of the communities and their rights, in order to seek consent and build a good relationship with Indigenous communities.

FSC requires from all certificate holders to comply with ILO Conventions including ILO Convention 169 on Indigenous and Tribal Peoples even if the country has not ratified this Convention.

3.1.1 The applicant keeps abreast of and, in the management plan, is able to demonstrate a good working knowledge of the Indigenous communities, their legal and customary rights and their interests related to forest lands within the forest management planning area.

Verifier:

- The following information may contribute to a working knowledge of the legal and customary rights and interests:
    - The number of distinct Indigenous communities having, or claiming rights and interests within the area;
    - The population and demographic profile of these respective Indigenous communities;
    - The political organization and governance structure of each respective Indigenous community;
    - The political mandate provided within that governance structure for consultation and negotiation on behalf of the Indigenous community in

regard to the rights and interests asserted by that community in relation to forest management;
- The **traditional use** areas or lands within the applicant's forest management area asserted by each respective Indigenous community;
- The extent of overlap between these traditional territories;
- The extent to which these traditional use areas have been recognized by the Crown;
- The traditional and historic use patterns of each respective Indigenous community within these areas;
- The contemporary use patterns of each respective Indigenous community;
- The nature, or basis, of the rights and interests asserted by each respective Indigenous community;
- The extent to which there is agreement, or lack of agreement, between the Crown and the respective Indigenous community as to the nature and extent of the rights and interests asserted by each People;
- The existence, and current status of negotiations between the Crown and the Indigenous community regarding rights and interests asserted by each respective Indigenous community; and,
- The existence, and current status, of any legal actions related to the rights and interests of each respective Indigenous community.

3.1.2 The applicant obtains agreement from each affected Indigenous community verifying that their interests and concerns are clearly incorporated into the management plan. Such agreement will also include:
- A description of the roles and responsibilities of the parties;
- The interests of the parties;
- A description of appropriate decision-making authorities for all parties;
- A dispute resolution mechanism; and
- Conditions under which consent has been given and under which it might be withdrawn, if any.

This agreement is not intended to abrogate or derogate from their Aboriginal and Treaty Rights.

Verifier:
- Each Indigenous community indicates that it is satisfied that the applicant has incorporated their interests and concerns within the management plan.

3.1.3 The applicant participates in and/or supports the efforts of the affected Indigenous communities to develop the financial, technical and logistical capacity to enable them to participate in all aspects of forest management and development. This could include (but is not restricted to) activities ranging from planning and decision-making to the establishment of businesses or the pursuit of employment related to forest management.

Verifier:
- The Indigenous communities are satisfied that the applicant is making reasonable effort to support or assist them to achieve their interests in forest development.

Intent, 3.1.3

The applicant's support of capacity building should encourage an increased role for Indigenous communities in forest management. The applicant encourages an environment leading to increasing roles and responsibilities for Indigenous communities leading to **joint management**, where that is the desired objective.

3.1.4 The applicant has jointly established with affected and interested Indigenous communities, opportunities for long-term economic benefits where that is the desired objective.

Verifiers:

The following information can be useful to indicate the provision of long term economic benefits:

- record of jobs filled and employment opportunities provided to Indigenous individuals;
- record of training opportunities provided/available to Indigenous individuals;
- record of partnership arrangements with Indigenous enterprises;
- joint agreements signed by both parties clearly stating the nature of the economic opportunities, evidence of revenue-sharing from forest operations, and timelines; and
- indication of satisfaction from the affected and interested Indigenous community(ies).

3.1.5 A dispute resolution process for addressing and resolving grievances has been jointly developed with the affected Indigenous communities and is being fairly implemented.

Verifiers:

- Knowledge of the dispute resolution mechanism within the Indigenous communities.
- Documentation which supports the dispute resolution mechanism(s).

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

Intent, 3.2
The existence of a Treaty does not mean that Indigenous communities have given up their tenure and use rights. In the absence of a treaty, Aboriginal rights exist. Applicants do not interpret treaties or Aboriginal rights. Their responsibility is to address the impact of forest operations on those tenure and use rights. These use rights apply at a broader scale (for example forest conditions over time which may affect fishing, hunting, trapping, and gathering), as opposed to site-specific issues addressed under 3.3.

3.2.1 The applicant makes use of an existing assessment or, in the absence of an assessment, undertakes a joint assessment of Indigenous resources and tenure rights with the affected Indigenous communities.

Verifier:

- Baseline data on numbers of traditional land users, revenues generated from traditional land-use.

3.2.2 Based on the results of the assessment, the applicant develops management activities outlined in the management plan to ensure that Indigenous resources are not threatened or diminished.

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.

3.3.1 The applicant supports the efforts of the affected Indigenous communities to conduct land use studies and mapping which result in an **Indigenous areas of concern** protection agreement, addressing information sharing, protection, mitigation and/or compensation, and confidentiality measures for Indigenous traditional values and uses.

Verifiers:
Elements that may indicate the applicants support for land use studies include:

- Written plan on Indigenous land use and values and supporting maps;
- Evidence of financial support to conduct land use studies and mapping;
- Evidence of the implementation of the Indigenous areas of concern protection agreement including evidence of change in forestry operations, if pertinent, to protect Indigenous land uses and/or sites;
- Satisfaction of the Indigenous communities or an appropriate body (such as an Elders committee) with plan implementation and values protection;
- Evidence that values and sites outlined in plan are being protected;
- Evidence of negotiations with hunters, trappers and other Indigenous individuals who are land users, that is endorsed by the Indigenous communities;
- Evidence of mediation to the satisfaction of the Indigenous communities; and
- Records of workshops conducted in which mutual learning on cultural perspectives occurs.

3.3.2 The applicant supports the efforts of the affected Indigenous communities to monitor the impacts over time of forestry activities on the values identified in the Indigenous areas of concern protection agreement.

Verifiers:

- Agreement(s) with the affected Indigenous communities on monitoring.
- Regular joint assessments on the effects of **forest management activities** on the Indigenous communities.
- Baseline data on, for example, location and extent of sites of areas of concern.

3.3.3 Where Indigenous communities have indicated that forestry operations on particular blocks or sites are creating a threat of serious environmental, economic, or cultural impact, the applicant suspends or relocates forestry operations or until disputes are resolved. Examples of serious threats could include:

- Destruction of burial sites, spiritual sites, spawning areas, medicinal areas;
- Severe disruption of livelihood;
- Damage to community water supply; and,
- Severe disruption of food chain to the community.

Verifiers:

- Policies in place to suspend or relocate operations pending dispute resolution;
- Record of suspended or relocated operations in response to an identified threat; and,
- Community satisfaction with handling of serious threats.

See also 6.5.1.

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.

3.4.1 The applicant enters into an agreement with the affected Indigenous communities which compensates for the use of traditional knowledge that leads to the:

- Commercial use of a forest species, in particular non-timber forest products;
- Improved management plans; or
- Improved operations.

Verifiers:

- Evidence of satisfaction of Indigenous individuals with the application of the agreement;
- Knowledge in the Indigenous community that such agreements are in place;
- Evidence that compensation has been delivered.

PRINCIPLE #4: Community Relations and Workers' Rights

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

Intent, 4
The applicant should be a responsible corporate citizen and treat their employees fairly, with respect and dignity, and use their influence to persuade contractors, sub-contractors and over-lapping license holders to do the same. Corporate citizenship is interpreted as:

- Supporting both local communities and those affected by the forest and the extraction and processing of forest products: and,
- Listening and responding to the desires of local and affected communities in terms of how they would like the forest to be managed.

Local communities can be interpreted as consisting of those communities that lie either within or adjacent to the forest. If no communities meet this criterion, then the scope of "local" should be expanded to cover communities within a reasonable daily commuting distance from the boundary of the forest being certified.

This Principle applies equally to Indigenous communities and it should take into account issues that are often especially relevant in Indigenous communities, such as a shortage of capacity and resources. In meeting these goals, the applicant is making substantial progress in covering off some of the social aspects of sustainable development.

Under this Principle, some indicators are directed towards the employees of the applicant, whereas others are directed at **forest workers**. Note that "forest worker" is a more comprehensive term than is “employee”. Forest workers include the employees of contractors, overlapping or third-party licensees, as well as employees of the applicant firm. Both union and non-union workers are included. The requirements that can be applied to a contractor or overlapping or third-party license holder are somewhat limited by legal requirements, but in some cases, such as provision of disability and accident insurance, the applicant is required to remedy any deficiencies that may be present in the terms of employment offered by contractors and third-party licensees.

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

4.1.1 The applicant provides employment opportunities to workers and contractors from local and affected communities.

Verifiers

- Evidence of opportunities provided to workers and/or contractors from local communities (newspaper ads, use of local employment services, etc.).
- Written policy regarding local hiring, including locally resident Indigenous people.
- Interviews with employee representatives.
- Interviews with local indigenous peoples, Chambers of Commerce, etc.

4.1.2 Remuneration, including wages and benefits (such as health and retirement provisions), for forest workers is comparable with prevailing regional standards in the industry.

Verifiers:

- Level of worker satisfaction with remuneration as determined through interviews.
- Employee turnover rate.
- Policies related to remuneration.
- Comparability of remuneration to regional forest sector standards.
- History of labour/worker unrest associated with remuneration.

4.1.3 The applicant treats employees in a fair and equitable manner by adhering to labour, employment, workplace, and human rights standards.

Verifiers:

- Cultural appropriateness of policies related to employee treatment.
- Records of employee disputes, confrontations, grievances, etc. and efforts to resolve these disputes.
- History of labour/worker unrest associated with remuneration.
- Interviews or other evidence of discrimination between workers on the basis of gender, age, cultural background, religion, political opinion, sexual preference, membership in a workers' and employers' organization, by family association or ties or other aspects unrelated to competence.
- Employee turnover rate.
- Interviews with employees/employee representatives.
- Inspection of conditions at **remote** camps on the forest unit.

4.1.4 The applicant encourages non-resident forest workers to reside in local communities while working on the forest.

Verifiers:

- Location of any camps used by forest workers.
- Contribution of forest workers to local communities.
- Company policy or support for non-resident forest workers to reside in communities.

Intent, 4.1.4
Non-resident forest workers should support local communities in such things as purchasing supplies and groceries locally, staying in accommodation in town rather than sleeping in the cab of their machines, and otherwise participating in the life of the **local community** during the course of their activities. This is not intended to suggest that a heavy-handed paternalistic approach is required by the applicant.

4.1.5 According to its means, the applicant contributes to local and affected communities in a manner that builds capacity and enhances quality of life.

Verifiers:

- Records of applicant's sponsorship of events.
- Records of applicant's contributions to causes, including to those organizations that support those most in need.
- Records of incentives provided for worker involvement in community causes.

- Contribution to forest stewardship education (e.g., through forest and mill tours, forest management seminars, etc.).
- Contribution to continuing adult education in local and affected communities, including Indigenous communities.

4.1.6 The applicant emphasizes the procurement of goods and services from local suppliers and communities, at reasonable prices to be delivered within a reasonable time frame, using a fair and open process.

Verifiers:

- Policies and processes related to local procurement.
- Tender notices.
- Evidence of local procurement (e.g., contracts with local suppliers, lists of purchases).

Intent, 4.1.6
Companies should make consistent efforts to source goods and services from local communities to the extent that they are available and reasonably cost competitive.

4.1.7 The applicant attempts to minimize and mitigate employment impacts of technology investment on its employees.

Verifiers:

- Availability of/and support for retraining programs for laid-off employees.
- Employment relocation support to displaced employees, including letters of reference.

4.1.8 Training is an integral and proactive part of the operation so employees can continually upgrade their skills.

Verifiers:

- Policies related to training.
- Characteristics of employee training plan.
- On-going training programs for employees emphasizing skill upgrading.
- Evidence of collaboration with local and government training organizations.
- Interviews with employees, employee representatives.
- List of training courses offered and statistics related to participation.

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 applicant has developed and is implementing a program of worker safety. The safety program is periodically reviewed for keeping it up-to-date and completeness. The program includes, but is not limited to:

- A comprehensive safety policy;
- Compliance and safety monitoring schedules and procedures;
- Monitoring the condition and functionality of plant and equipment;
- Regular review of work schedules and hours of work;
- The provision of appropriate safety equipment for forest workers and woodlands staff (e.g., hardhats, eye protection, gloves, hearing protection, suitable footwear, etc.);
- Identification of safety training needs and the provision of safety training; and
- the identification of safety coordinators and specifications of their responsibilities.

Verifiers:

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

4.2.2 All forest workers are covered by mandatory worker's safety insurance, in accordance with provincial laws and regulations. Where regulations do not require such coverage, the applicant provides workers with disability and accident insurance and/or requires all contractors, overlapping licensees etc, to provide comparable disability and accident insurance to their employees.

Verifiers:

- Company policy related to worker safety insurance.
- Records of employment showing insurance coverage.
- Contract clauses requiring such coverage.
- Interviews with contractors and contractor employees.

4.2.3 The applicant makes available to employees a program of supplementary health coverage.

Verifiers:

- Availability of supplementary health coverage.
- Employee interviews.

4.2.4 The applicant holds public liability and employer's liability insurance, and ensures that the contractors and subcontractors do as well.

Verifier:

- Company insurance records.

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 the Canadian Labour Code and/or provincial Labour Codes and at a minimum comply with ILO Conventions 87 and 98.

Verifiers

- No evidence of company interference such as discharging of employees related to organizing drives, coercion of employees, etc.
- Worker interviews.

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

4.4.1 Local communities, community and non-government organizations, forest workers, and the interested public affected by forest management are provided with **meaningful** opportunities to participate in forest management planning.

Verifiers

- Documented process for conducting consultations, including those with Indigenous People and communities.

4.4.2 The applicant demonstrates that all input from participation was considered and responded to.

Verifiers

- Documentation of responses to input received.
- Documentation of how input received was addressed in forest management planning and operations.
- Review of public input.
- Interviews with some or any of those consulted to gauge level of satisfaction with efforts/results.

Intent , 4.4.1 – 4.4.5

The indicators address the need to include meaningful public participation in forest management. Public involvement is important for several distinct reasons:

- People have a right to be meaningfully involved in decisions affecting them, especially when those activities are being carried out on Crown lands;
- Interested and affected parties have knowledge and expertise – especially pertaining to local conditions – that can help improve the plan and resulting forestry operations; and,
- Forest management planning that is adequately informed by the views of affected people is more likely to be politically acceptable and socially beneficial to affected communities.

Public involvement is required in all forests under certification, including providing adequate opportunities (4.4.1), making special provisions for affected Indigenous peoples' interests (4.4.2) and providing adequate and effective information and communications (4.4.5). The requirements laid out in 4.4.3 and 4.4.4 outline the more rigorous **public participation process** required on Crown lands.

4.4.3.The applicant shall demonstrate through documentation that:

- Significant efforts were made to contact Indigenous forest users and communities affected by or interested in forest management in the area under certification;
- Efforts were made to work with Indigenous forest users and communities to become involved in identifying and addressing forest-related issues;
- That Aboriginal and treaty rights were recognized consistent with the requirements of Principle 3; and,
- Agree that Indigenous Peoples' participation will not prejudice those rights.

Verifiers:

- Documentation of efforts made to contact affected Indigenous forest users and communities.
- Documentation of efforts made to work with affected Indigenous forest users and communities to identify and work through forest-related issues.
- Minutes of relevant meetings.
- Statement of recognition of Aboriginal and treaty rights and agreement that Indigenous peoples' participation will not prejudice those rights.

4.4.4. On Crown lands, a public participation process is used to supplement the requirements of 4.4.1. The applicant openly seeks representation from a broad and balanced range of interested parties and invites them to participate.

Verifiers:

- Invitation and mailing list for invitation to participate.

4.4.5 The public participation process uses clearly defined ground rules that contain provisions on:

- Content;
- Goals;
- Timelines;
- Internal and external communication;
- Resources (including human, physical, financial, information and technological, as necessary and reasonable);
- Roles, responsibilities and obligations of participants, including their organizations;
- Conflict of interest;
- Decision-making methods;
- Authority for decisions;
- Mechanism to adjust the process as needed;
- Access to information (including this standard);
- The participation of experts, other interests and government; and,
- A dispute resolution mechanism.

The participants have been involved in the development of, and agreed to, the terms of reference. The applicant establishes and maintains a list of interested and/or contacted parties, including those that chose to participate, those that decided not to participate and those that were unable to participate. The list shall contain names and contact information.

Verifiers:

- Public participation process terms of reference/ ground rules.
- Record of input received from public and responses to that input.
- Minutes of meetings with members of the public.
- Review of incidence of disputes and effectiveness of dispute resolution process
- Interviews with participants in public participation process.

4.4.6 On Crown lands, the public participation process is meaningfully integrated with the forest management planning process. Areas of integration include:

- Participating in the development and assessment of alternative strategies;
- Participating in the development/writing of forest management plans;
- Participating in the review and evaluation of monitoring results;

- Helping with the resolution of resource use conflicts (e.g.,, trapping, remote tourism, etc); and,
- Observing the certification audit.

The forest management plans demonstrate consideration of recommendations from public participation and general agreement with the comments from the public participation process.

Verifiers:

- Documentation of input received from public related to development and selection of management alternatives and responses to that input.
- Minutes of planning team meetings.
- Minutes of any **public advisory group** meetings.
- Interviews with members of any public advisory group.
- Interviews with public participants in planning, monitoring and certification audit.

4.4.7 During the public participation process, the applicant shall:

- Provide access to information in the appropriate format to enable interested parties to provide informed input into the forest management planning process;
- Provide information to a broader public about the progress being made in implementation of this standard;
- Make allowances for different linguistic, cultural, geographic or informational needs of interested parties; and,
- Demonstrate that there was ongoing public communication about the forest being certified, including opportunities for public input and involvement.

Verifiers:

- Location of relevant information and its availability to the public.
- Characteristics of relevant information provided to the public and interested parties.
- Documentation of information provided to the public related to the implementation of this standard.
- Record of input received from public and responses to that input.
- Minutes of any public advisory group meetings.
- Interviews with members of any public advisory group.

4.4.7 Employees and contractors are given opportunities to participate in management decisions and policy formulation that may affect them.

Verifiers:

- Policies regarding employee and contractor participation.
- Documentation of employee and contractor input.
- Employee and contractor awareness of opportunities as revealed through interviews.

4.4.8 Forest management activities within the management unit are planned and implemented in such a way as to protect **sites of special cultural, ecological, economic, or religious significance** to Indigenous Peoples and other affected parties.

Verifiers:

- Field inspection of protective measures for sites of special cultural, ecological economic, or religious significance.
- Existence of relevant SOPs (see Indicator 6.5.1).
- Employee awareness of relevant SOPs.
- Planning processes for cultural value identification and conservation.

4.4.9 Forest workers are encouraged to report any management activities that threaten the environment or cultural values, or any instances of non-compliance with laws and regulations, and are not penalized for reporting.

Verifiers:

- Posters, signs, newsletters etc., encouraging employees and contractors to report management activities that threaten the environment or cultural values, or any instances of non-compliance with laws and regulations,
- Worker awareness of company encouragement as determined by interviews.
- Employee willingness to report as determined through both interviews and reporting records.
- Whistleblower policy.
- Mechanism for anonymous reporting.

4.4.10 The applicant shall complete a socio-economic impact assessment (SEIA) and use it to assist with the selection of the desired management option during forest management planning.

Verifiers:

- SEIA reports.
- List of socio-economic impact assessment tools and procedures used to prepare the SEIA.
- Evidence in the forest management plan (or related documents) that the results of social and economic assessments have been considered in forest management planning and operations.

Intent, 4.4.10
The applicant is expected to be aware of the socio-economic impacts of its forest management activities, as well as the socio-economic impacts associated with processing forest products derived from the forest and the non-consumptive use of the forest. There are two reasons why it is desirable for the applicant to have this awareness. The first is that socio-economic impacts are to be considered when selecting the management alternative to be implemented under the forest management plan, and the second is to provide information that can be used to track these impacts over time. The intent is that the socio-economic impact assessment (SEIA) will be based on the use and analysis of existing data (e.g., Statistics Canada

census data, hunter return data). Because some types of relevant data are not always collected, and the responsibility for collection is not with the applicant, it is recognized that the SEIA may have gaps in it, although in these circumstances the applicant is encouraged to incorporate relevant data that may have been collected at a different scale (e.g., provincial) or for a similar, neighbouring forest area. The applicant is encouraged to use verifiers throughout the standard related to monitoring socio-economic impacts.

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

4.5.1 The applicant exercises due diligence in avoiding circumstances in which damage may be caused to property, rights, resources or livelihoods.

Verifiers:

- Applicant's record of trespassing, causing damage etc.
- Training materials related to avoiding trespasses, etc.
- Applicant's checking and monitoring procedures and related records.

4.5.2 The applicant's operator training courses and materials stress practices which avoid the occurrence of environmental damage (e.g., damage to the site, residual timber, watercourses or sites of cultural significance).

Verifiers:

- Training materials.
- Interviews with operators regarding training in damage avoidance.
- SOPs for operating on **sensitive sites** and/or under poor conditions.

4.5.3 The applicant has a process in place for fairly resolving disputes, including loss or damages, with other resource users and the general public that may result from forest planning and operations.

Verifiers:

- Written documentation regarding the dispute resolution process.
- Documentation regarding the resolution of past disputes.
- Interviews with those with whom the applicant has had a dispute and used the resolution process.

Intent, 4.5.3
The applicant is not expected to develop a new dispute resolution process if a suitable process already exists.

4.5.4 There is a track record of successfully resolving disputes to the satisfaction of both parties in a timely manner.

Verifiers:

- Written documentation regarding resolution of past disputes.
- Interviews with those with whom the applicant has had a dispute.

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.

Intent, 5
Making the most efficient use of harvested resources, and maintaining the capacity of both the forest and the forest operation to provide a sustainable flow of economic and social benefits are the primary areas of focus of this principle. This principle is intended to promote full-cost accounting but does not require it. In this principle, the auditor in effect assesses how the company is able to balance economic profitability with its ability to undertake measures that impose costs that an unconstrained profit-maximizing firm would seek to minimize, such as those costs associated with conserving the resource and enhancing the value of non-timber components of the resource. For smaller firms that are not so dependent on financial resources, the labour and other resources available to remain viable and achieve the forest management plan are considered.

Some criteria under this principle could be interpreted to suggest the need for a financial audit, but this is not the intent here. Instead, the idea is to look at various indicators of financial viability, such a profit (or loss), financial reserves, trends in market share, price per unit of output, and revenue earned. Much of this information will be highly confidential. There are also criteria related to diversification, which also involves the assessment of confidential data. Diversification may be infeasible or economically unattractive in some cases, or require a judgment call in others. One normally assumes that a prudent operation will make reasonable efforts to diversify and support other non-competing companies' efforts while at the same time striving for profitability.

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

5.1.1 The applicant has the resources to implement the management plan(s), and all associated forest management activities (including road building, harvesting, renewal and **tending**, **restoration**, monitoring and mitigation of negative impacts, **habitat** management, etc.).

Verifiers:
- Assessment of available and committed financial and other resources.
- Comparison of budgets with actual expenditures in previous years.
- Comparison of planned versus actual activities in previous years.

5.1.2 The applicant's forest management operations are economically sustainable and capable of supporting a level of reinvestment sufficient to ensure the long-term survival of the organization/company.

Verifiers:
- The self-sufficiency of the forest management enterprise.

- Applicant's involvement in identifying existing or new measures that would help to offset the negative socio-economic impacts associated with land use withdrawals.

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

Intent, 5.2
In this standard forest products refer to wood or timber products. Forest products do not include **non-timber forest products**.

5.2.1 The applicant seeks the **optimal** or "**highest and best**" **value** for forest products.

Verifiers:
- Product sorting at harvest operations or wood yards.
- Records of sales by product.
- Records of fibre sales or swaps with other operations and landowners.
- Documentation of efforts made to determine quality and value of products prior to harvest (e.g., operational cruising).
- Trend over time in value obtained per unit of product.
- Trend over time in **percentage recovery**.
- Trend over time in average **grade recovery**.
- Efforts to find new or better markets for forest products.

5.2.2 Local and/or **value-added processing** of forest products is encouraged and facilitated where economically viable.

Verifiers:
- Records of timber sales and/or deliveries to determine the percent of volume harvested that is processed locally.
- Records of communication between the applicant and local processors related to processing and value-added processing.
- Interviews with local wood processors.
- Number and type of local businesses that process wood.

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 **structural diversity** and wildlife habitat or for **silvicultural** reasons.

Verifiers:

- **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 Harvesting and silvicultural operations are conducted in such a way as to reduce to acceptable levels the damage to the residual **stand**, including non-merchantable/non-marketable trees and trees being left for future harvest.

Verifiers:

- 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.

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

Intent, 5.4
It is expected that the applicant will explore a range of products, or act in cooperation with others pursuing niche markets, if feasible. However, this criterion only requires the applicant to be actively alert for opportunities for diversification - a diversified or value-added operation is not required. Relevant analyses may be done at a divisional or head office level. The applicant is not expected to take onerous steps to meet this criterion.

Also, for the purposes of criterion 5.4, a single forest product is considered to be a relatively narrowly defined product category. Markets for products in each category tend to behave similarly over time and there is a relatively high degree of substitutability between products in each category. Examples relevant to this criterion include newsprint, softwood lumber, and oriented strandboard.

5.4.1 The applicant explores the financial and operational feasibility of producing a range of timber products, with consideration of niche markets.

Verifier:
- An analysis of the practicality of producing a range of timber products, including wood supply modelling and financial analyses.

5.4.2 The applicant encourages and contributes to the production of a range of timber products broad enough so as to contribute to the diversification of the local economy.

Verifier:
- An analysis of the practicality of producing a range of timber products, including wood supply modelling and financial analyses.

5.4.3 The applicant cooperates with **forest-dependent businesses**, forest users, and the local community to strengthen and diversify the forest's contribution to the local economy from environmental amenities, fish and wildlife, and other non-timber resources.

Verifiers:
- Evidence of cooperation (modified harvesting/management practices, schedules, etc.).
- Interviews with other forest businesses to determine level of co-operation.
- Local production of non-timber products.

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

5.5.1 The effectiveness of practices to protect non-timber forest values is assessed on an on-going basis by knowledgeable parties, such as; specialists, local community members, stakeholders, and other interested parties.

Verifiers:

- Records of assessments.
- Interviews with applicant staff and with people who have been asked to serve as assessors.

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

5.6.1 The applicant demonstrates that the analysis and calculation of harvest rates of forest products is based upon:

- A precautionary approach that reflects the presence and quality of information and assumptions;
- Credible growth and yield information;
- A recent inventory;
- Sensitivity analysis of the assumptions that go into the Annual Allowable Cut (AAC) calculation particularly where there is greater uncertainty of the assumptions, where data are weaker, or where the outcome is highly sensitive;
- Areas available for harvest;
- Natural **succession** pathways;
- Success of silvicultural treatments;
- Credible estimates of the rate and extent of natural depletion;
- Operational constraints;
- Forest projection/habitat/wood supply model runs extending considerably (at least 100 years) into the future; and,
- Future forest condition objectives as identified in the forest management plan.

Verifier:

- Documentation related to wood supply calculations including model input and output files.

5.6.2 The applicant demonstrates that the analysis and calculation of harvest rates of forest products accurately reflects the requirements under other indicators.

Verifiers:

- Evidence that areas of forest not available for harvest have been removed from the land available for the harvest calculation (e.g.,, candidate protected areas, long term residual retention at the stand level, riparian reserves).
- Evidence that constraints related to the timing and availability of forests have been incorporated into the analysis (e.g., contiguous core forests, targets for old forests).
- Evidence that constraints related to planning for indigenous peoples' and social values have been incorporated into the analysis (e.g., Principles 3, 4 and 5).

5.6.3 The wood-supply modelling exercise in which sustainable harvest levels are identified has been subjected to **peer review**.

Verifiers

- Documented peer review.
- Applicant response to peer review (including written replies and model re-runs if required).

5.6.4 Actual harvest rates for timber, averaged over the five most recent years, do not exceed the planned average level.

Verifiers:

- Records showing harvest levels.
- Confirmation of harvest levels with regulatory bodies.

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.

Intent, 6
Principle 6 covers topics related to environmental protection including assessment of impacts, protection of **species at risk** protected areas, maintenance of ecological functions, the use of **pesticides**, and **forest conversion**. Principle 6 grapples with issues and concepts about which there remains considerable uncertainty, and so the use of the precautionary principle is present both implicitly and explicitly in several aspects of the Principle. Of the Principle 6 criteria, the most extensive is 6.3, which deals with the maintenance of ecological functions and values.

Ultimately Principle 6 addresses the conservation of biodiversity, one of the cornerstones of sustainable forest management.

A precautionary approach is particularly warranted in areas where non-timber forest products and values are predominant, and areas with slower growth and regeneration, a shorter growing season, sensitive soils, lack of local forest inventory, growth and yield data, lack of silvicultural experience and/or little previous harvesting. This approach calls for a more conservative application of indicators related to harvest levels, rotation length, riparian reserves, pesticides use, plantation, structure retention, and opening sizes. This would include areas for example the Yukon, Ontario (North of 50), and Labrador.

6.1 Assessment of environmental impacts 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.

Intent, 6.1
The term "**assessment of environmental impacts**" as it is used here is not intended to refer to a formal "**Environmental Impact Assessment**" as is conducted under both federal and provincial laws and regulations. As it is used here, it is intended to mean 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).

Although this criterion does not require that environmental impact assessments such as those required under federal and provincial regulations be conducted, if such procedures have taken place, then their results will be helpful in addressing the requirements of the indicators under this criterion.

6.1.1 A methodology for **impact assessment** based on the principles of adaptive management has been identified and is in place.

Verifier:
- Documented procedures based on adaptive management.

6.1.2 Environmental assessments for landscape-scale considerations attempt to take account of the effects of other activities in the forest and the effects of management activities in neighbouring lands.

Verifiers:
- Information for the forest and neighbouring lands related to:
  - **Integrity** of undisturbed areas, and **protected areas**;
  - Habitat for species representative of habitat types naturally occurring in the management unit and species at risk; and
  - Levels of **watershed** disturbance.
- Land use plans for neighbouring lands.

Intent, 6.1.2
See Criterion 6.2 for a discussion of the term "species at risk".

6.1.3 The applicant has assembled relevant and current inventory information to serve as a context for regional and landscape level impact assessment.

Verifier:

- The information may include, but need not be limited to:
  - Ecosystem classification/soil type/forest cover mapping for the forest;
  - Location/description of sensitive **ecosites**;
  - Habitat status for species representative of habitat types naturally occurring in the management unit;
  - The status of habitat for species at risk;
  - Water-body classification;
  - Spawning areas;
  - Locations of known occurrences of species at risk ;
  - **Age class**/forest type/unit distributions for the forest;
  - Maps of High Conservation Value Forests (**HCVFs)** and HCVF attributes;
  - Information regarding management regimes in surrounding forests, particularly related to the areas/sites abutting the forest;
  - Details related to sites and broad areas of special ecological significance to indigenous peoples (consistent with Criterion 3.3);
  - Historical rate and distribution of forest fire at the regional scale;
  - Activities of other industrial operators on the land base; and;
  - Other information provided through **traditional ecological knowledge**.

6.1.4 An inventory exists of site-specific environmental/ecological values sensitive to impacts by forest operations.

Verifiers:

- The inventory information, which may include but need not be limited to:
  - Nest locations of birds of prey;
  - Locations of heronries;
  - Habitat for species at risk;
  - Habitat for species representative of habitat types naturally occurring in the forest;
  - Maps of HCVFs and HCVF attributes;
  - Indigenous peoples' food and medicinal plants; and,
  - Sensitive ecosites (e.g., shallow soils).

6.1.5 Appropriate to the scale of the operation and available information, the **pre-industrial forest** condition and disturbance regime has been characterized, and includes at a minimum:

- A description of major disturbance factors, including discussion of their distribution and frequency; assessment of the size and extent of residual patches within fire boundaries, and description of stand structure types and natural landscape patterns (e.g., **patch sizes** of disturbances as well as forest stands) associated with the various types of disturbance;
- Estimated mean distribution and/or composition of tree species, forest cover types and/or forest units, as appropriate;
- Estimated mean and ranges of stand-replacing disturbance intervals by landscape unit and/or forest zone; and where applicable, by forest unit, forest ecosystem or forest cover type;

- A calculation of average fire return interval determined through fire history mapping and assessment of time since disturbance, including ground truthing; and
- Estimated typical age class distribution, including full characterization of the age range of old forests, by:
    - Landscape units and/or forest zones
    - Forest cover types or forest units, and,
    - Forest ecosystems or generalized landforms.

Verifiers:

- Documentation of methods used to characterize pre-industrial condition, such as:
    - scientific literature and other relevant reports;
    - historical records (e.g.,, inventories, cruises, harvest volume and payment of dues);
    - mill records;
    - burn history;
    - early surveyors' notebooks and maps;
    - current benchmark forests (large parks; unmanaged forests); and
    - computer models to "backcast" the composition of the pre-industrial forest.
- The characterization of the pre-industrial forest.

Intent, 6.1.5

This indicator and others in Criterion 6.3 are linked to the concept of the pre-industrial forest. The overall intent of these indicators is to ensure that an understanding of the character of the pre-industrial forest is used as a basis, but not the sole basis, for setting management objectives related to the future forest.

The pre-industrial forest is understood to be the forest that evolved before large scale harvesting began. This occurred at different times in different areas of the boreal forest. The character of the pre-industrial forest, specifically the proportion of species and age classes, was variable over time, affected by disturbance, succession and minor changes in climate. Accordingly, the current forest should be compared with the forest represented by the "average" or "representative" condition of the pre-industrial forest. This comparison will be used to help guide the determination of the "future forest" that management is trying to create.

- The forest manager is expected to make reasonable efforts to develop a characterization of the pre-industrial forest. How this is done depends partially on the availability of historical data. Relevant sources of data include the items in the list of verifiers for 6.1.5.

The quality of the historical data will affect the reliability of the pre-industrial forest assessment, which in turn will affect, to some extent, the weight that it might be accorded in terms of management goal setting.

6.1.6 The pre-industrial condition (PIC) analysis is subject to peer review and available for public review.

Verifiers:
- Evidence of peer review.

6.1.7 Benchmarks of current forest condition at the landscape level are in place to serve as references for comparison during impact assessment.

Verifiers:
- Benchmarking report or document.
- Benchmarks may include, but need not be limited to:
  - Forest unit/community diversity;
  - Age class distribution;
  - **Old forest** amount (i.e.,, area) and spatial distribution;
  - Habitat levels of species representative of habitat types naturally occurring in the management;
  - Watershed disturbance;
  - Road (and linear disturbance) density;
  - Roadless areas;
  - **Core forest area**; and,
  - Patch size distribution.

Intent, 6.1.7 and 6.1.8
Indicators 6.1.7 and 6.1.8 refer to benchmarks of current forest condition. These benchmarks are intended to provide information regarding the current state of the forest against which its future state (either simulated or actual) can be compared. It is also important to have benchmarks so that goals and objectives for the future forest condition can be appropriately set.

Indicator 3.3.1 addresses sites of special cultural, ecological, or religious significant to Indigenous People(s).

6.1.8 Benchmarks of current forest condition at the stand level are in place to serve as references for comparison during impact assessment.

Verifiers:
- Benchmarking report or document.
- Benchmarks may include, but need not be limited to:
  - **Canopy closure**;
  - **Vertical structure**;
  - Amount and coverage of **coarse woody debris**;
  - **Snag** and live-tree density; and
  - Patch size and species of residuals.

6.1.9 Assessments at the landscape scale are carried out on the same cycle as management planning on the suite of activities designed to occur for the planning period, taking into account their distribution across the forest unit. Assessments consider effects on landscape-scale considerations consistent with the result of the analysis carried out under 6.1.5.

Verifier:

- Completed impact assessments, including:
  - Methods used to gather data;
  - Methods used to analyze results;
  - Assessment of results; and,
  - Discussion regarding modifications to practices/plans which have come about as a result of the impact assessment.

Intent, 6.1.9
This indicator and others in this Criterion refer to the landscape scale. It is not intended that this scale cover any specific size of area. The assessments to which this indicator refers should cover an area appropriate to the scale of the forest being certified and the ecological nature of forest. In general this will likely be an area at least as large as a single watershed and it may encompass an area as large an industrial forest management unit.

6.1.10 Assessments at the stand or site level are carried out prior to implementing field operations and periodically thereafter, on the full suite of management practices, including: harvesting operations, access development and construction, **site preparation**, tending, and protection. Assessments consider site-scale effects consistent with the benchmark variables identified in indicator 6.1.8.

Verifier:

- As above (See 6.1.9).

6.1.11 The results of environmental assessments are incorporated into management planning and implementation such that where an assessment has indicated that environmental impacts of proposed management activities pose significant risk, then:

- Management activities do not occur; or
- The manager reduces the risk to an acceptable level by employing an alternative management approach or mitigative measures; or
- The manager provides a rationale that includes evidence that the chosen option is acceptable based on the conservation of biodiversity and/or other environmental values. This rationale is to be based on the risk of taking no actions.

Results of the assessment are incorporated into the management plan.

Verifier:

- Results of assessment including rationale for decision(s).

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.

Intent, 6.2
This criterion addresses rare, threatened and endangered species. Various terms are used for such species across Canada. This standard refers to "species at risk". Although this term is also used by **COSEWIC**, here 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.

Indicators 6.2.1 through 6.2.5 follow a logical sequence in which applicants are required to develop a list of species at risk relevant for the forest, delineate their habitats on maps, and respect plans for management of the species. Where adequate plans do not exist, applicants are required to participate in a precautionary management approach.

6.2.1 A list of the species at risk, (as identified by federal, provincial, and regional legislation/lists) known or believed to exist within the forest is presented in the plan or associated documents and is updated annually. Where a current regional list does not exist, the applicant consults with appropriate sources of information, experts, or knowledgeable individuals to generate such a list.

Verifier:
- Annually updated lists of species of concern as presented in the plan or associated documents.

6.2.2 Habitats of species at risk (as identified by federal, provincial, and regional legislation/lists) known or believed to exist within the forest are identified by field surveys or other means and delineated on maps.

Verifiers:
- Maps showing habitat of species at risk.
- Documentation of the means by which maps were developed.
- Records of consultations with Indigenous Peoples, local trappers, and others with knowledge of local wildlife.

6.2.3 The applicant identifies whether and how landscape level management is accommodating the habitat needs for regional species at risk identified through indicator 6.2.1.

Verifier:
- Results of analyses related to adequacy of landscape level management in addressing habitat needs of regional species at risk.

6.2.4 Plans exist, or are under development to protect the habitat and populations of species at risk in the forest. These plans cover those species on provincial and federal lists identified through indicator 6.2.1, and those species on regional lists identified indicator 6.2.3 for which landscape level management does not adequately address habitat requirements.

The plans are authored by qualified individuals with expert input. The plans include the establishment and use of conservation zones where appropriate. The applicant is involved in plan implementation, or respects and cooperates with the implementation of the plans.

Verifiers:

- Protection plans for species and habitat or a development schedule for plans.
- Records of activities undertaken under the plans.

Intent, 6.2.4
Plans such as those identified in this Indicator are typically the responsibility of government resource management agencies to develop. Where such plans do not exist, then the applicant is expected to play a lead role in plan development or facilitating the development of plans.

The management of habitats of species at risk is also dealt with in Principle #9 – **High Conservation Value Forests.**

6.2.5 Where plans identified through Indicator 6.2.4 do not exist or are incomplete or inadequate, a precautionary approach is used in management of the habitats of the relevant species at risk.

Verifiers:

- Review of precautionary measures.
- Comparison of approaches and levels of activity in neighbouring, similar forests.
- Results of habitat modelling for relevant species, where it has been undertaken.

6.2.6 The applicant provides training to all relevant forest workers on the identification of species at risk, and on appropriate measures to take when a species at risk, or sign of a species at risk (e.g., a nest) is identified during field operations.

Verifiers:

- Training materials related to species at risk.
- Training records.
- Interviews with employees and contractors.

6.2.7 The applicant cooperates fully with resource management agencies in the efforts to control illegal hunting, trapping, and fishing of all species, and in accordance with the land use planning decisions and strategies in the forest management plan.

Verifiers:

- Evidence of cooperation.
- Field inspection examining for evidence of control measures (e.g., road closures, signage, patrols by conservation officers).
- Interviews with conservation officers to determine the extent of effort to control.
- Comparison of sections in the management plan on assistance to enforcement agencies in plans with actual activities undertaken by applicant.

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Intent, 6.2.7
This indicator is not just intended to apply to controlling illegal activities related to species at risk, but for all species on the forest.
As in Principle 2, where another agency is responsible for enforcement duties, the applicant is expected to provide reasonable assistance to facilitate the activities of the other agency but not assume enforcement responsibility.

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

- **Forest regeneration and succession;**
- **Genetic, species and ecosystem diversity; and,**
- **Natural cycles that affect the productivity of the forest ecosystem.**

6.3.1 Forest condition (forest age, intact habitat, species composition, remoteness) and the results of operational activities are spatially depicted over the long-term planning horizon.

Verifiers:

- Analysis undertaken by the applicant to examine the feasibility of using spatial models.
- Maps of key forest attributes, especially those where spatial distribution is important.
- Spatial models used for planning and assessment of forest activities.

Intent, 6.3.1
The indicator uses the phrase "long-term planning horizon" to indicate that it is not sufficient only to depict the results of operational activities over the plan period, but that the time period covered such maps or depictions should extend considerably into the future. The period for which such maps or depictions should extend will vary depending on the value or resource being considered, but in general the time period should cover 40 – 100 years.

6.3.2 Silvicultural prescriptions are developed and implemented that:

- Are based upon an understanding of vegetation and soil types, and the use of a forest ecosystem classification type system (if available);
- Use natural (or assisted natural) methods over artificial methods where silvicultural objectives and targets are not compromised;
- Maintain stand structural diversity over time;
- Ensure effective and timely regeneration of harvested areas;
- Consider and minimize impacts on wildlife habitat and other resource values;
- Consider and minimize impacts on Indigenous peoples' values and uses of the forest; and,
- Take into account successional pathways on harvested areas on a landscape level.

Verifiers:

- Review of silvicultural prescriptions.
- Interviews with forest managers related to silvicultural knowledge.
- Field inspection of silvicultural prescriptions.
- Review of silvicultural records.
- Evidence showing the planned succession pathways of silvicultural prescriptions.

Intent, 6.3.2
Silvicultural prescriptions include forest management practices regarding harvesting, renewal and tending to achieve a desired condition in the forest stand. Typically in the Boreal Forest, silvicultural systems are clearcutting, shelterwood and partial harvesting. Emerging science is providing more support for silvicultural approaches such as partial harvesting to maintain uneven-aged forests, mixedwood stands, or other values. See also the References section for an example from the literature.

6.3.3 Harvesting, site preparation, and other forest operations should be undertaken in a manner that avoids site and soil damage and encourage the protection of the site.

Verifiers:

- Harvest prescriptions and standard operating procedures.
- Site preparation prescriptions and standard operating procedures.
- Other prescriptions and standard operating procedures.
- Post harvest monitoring.

Intent, 6.3.3
This indicator is broader in scope than the indicators in criterion 6.5 that are concerned with standard operating procedures (SOPs). The intent here is to emphasize the importance of undertaking operations in ways that protect the site and soil. This concern should be carried through the prescription setting and allocation steps in planning, and not merely be present in the standard operating procedures. When harvesting, preparing a site, tending and/or applying protection, the method used should be selected after considering factors that include, but are not limited to, the following: effectiveness of achieving management objectives, minimization of negative environmental impacts, and consistency with site conditions.

Indicator 6.3.4 also refers to site damage. Damage impairs the productivity of a site through effects such as rutting, **compaction**, erosion and/or or other changes in the water table. There may be some site preparation measures which could be considered to cause damage even though they may be effective in the short term.

The certifiers consider the importance of achieving the prescription, the feasibility of alternate measures, the extent of use, and expected short and long-term impacts.

6.3.4 Forest units and communities that are significantly under-represented relative to the pre-industrial composition (as per analysis from 6.1.5) are being increased in abundance over the longer term. In the near term, at a minimum, their abundance is being maintained with the intent to increase it over the longer term.

Verifiers:

- Area of forest units in the projected future forest.
- Management prescriptions for forest units which are significantly underrepresented relative to the pre-industrial composition.

Intent, 6.3.4
This indicator requires that some level of restoration is to be undertaken where industrial and other human activity has changed the character of the forest and reduced its diversity.
There are some constraints on the extent to which the manager is able to shift the current forest in the direction of the pre-industrial forest. For example, in some regions where intolerant hardwoods and mixed woods are presently more abundant than in pre-industrial times, the hardwood component of the forest now supports an important segment of the forest sector in boreal Canada. From an economic perspective, this limits the desirability of shifting the forest back to a higher conifer content. At the very least, it suggests that such a shift in the forest should take place gradually.

While there are exceptions to any generalization, some guidance is provided in the following paragraphs on what is meant by restoration and when it is a priority. It is sometimes suggested that restoration should become an objective when a forest type has fallen to some fixed percentage below the mean composition level in the pre-industrial forest. In the three cases that follow, expressed in terms of species composition, such thinking is implicit:

- A forest type that was not common in the pre-industrial forest (it covered 3 - 4% of the forest area) now comprises 1% or less of the current forest;
- A forest type that comprised roughly 20% of the pre-industrial forest has declined to 10% of today's forest; and
- A forest type that made up roughly 35% of the pre-industrial forest has declined to 30% of today's forest.

In the first case, it is desirable that the forest manager ensure that no further reductions in this forest type take place (due to human activities) and that efforts be made to bring the area of this forest type to a level that is close to or equals its representation in the pre-industrial forest. The reasoning is twofold: such an increase will have little impact on the prevalence of **other forest types** and such an uncommon forest type can be expected to contribute disproportionately to forest diversity. Furthermore, such scarce forest types, which are often species at the edge of their range, may have difficulties with genetic drift or inbreeding.

In the second case, the magnitude of the decrease suggests that management should aim to minimize further losses in the forest type and begin to increase its abundance. Here, however, increasing the presence of this forest type from 10% to, say, 17 or 18% will likely have a significant impact on other forest types and could create some socio-economic disruption if undertaken rapidly. Thus, depending on the precise circumstances, it may be desirable to have a long-term (i.e., 50 years or more) objective of increasing the abundance of this forest unit to 17 or 18%, and consistent demonstrated progress towards this objective.

In the third and final case, the reduction in the forest type is fairly low on a proportional basis and the forest type is still abundant. In this case, there may be little or no effort devoted to increasing the presence of this forest type.

6.3.5 Management strategies maintain average landscape and/or regional distributions or amounts of the full age-range of old forests identified through the PIC analysis consistent with the requirements of 6.1.5, allowing for a 25% departure from the estimated mean of older forests - in recognition of the range of natural variability, practical constraints and competing objectives. In the absence of a credible estimate of the mean, a minimum of 20 % of old forest will be retained. If socio-economic concerns constrain the application of this indicator in regions with exceptionally high natural proportions of older forests (e.g., greater than 60%), there may be up to a maximum of a 50% departure from the mean, provided that the applicant demonstrates broad consensus.

Verifiers:

- Area of old forest, by forest unit, in the present and projected future forest.

- Present and projected area of old forest in comparison to the analysis of the pre-industrial forest.
- Management prescriptions for old forest area in forest units which have significantly old forest area relative to the pre-industrial forest.
- Local community.
- Stakeholders.
- Indigenous Peoples consultation.

Intent, 6.3.5
The target for old forests is for the entire forest under management, including contiguous core forest (which is addressed in indicator 6.3.13), protected areas and candidates, riparian reserves, and reserves established for other purposes.

6.3.6 Targets for landscape patterns (disturbed and undisturbed patches) have been set, based upon the characterization of the pre-industrial forest. Management is returning the forest landscape pattern to one consistent with the pre-industrial forest. This approach is consistent with maintaining natural levels of core habitat and **connectivity** throughout the long-term planning horizon.

Verifiers:

- Key landscape metrics for the forest based on pre-industrial analyses, the present forest, and the desired future forest.
- Management prescriptions for late seral stage area in forest units which have significantly less late seral stage area relative to the pre-industrial forest.

Intent, 6.3.6
As with indicators 6.3.4 and 6.3.5, the manager's understanding of the pre-industrial forest condition is used as a basis for setting patch size targets and moving the forest in that direction. In the boreal forest, **clearcuts** are one mechanism for influencing patch size. Because of the social concerns regarding large clearcuts, the forest manager may be constrained in how fast he or she can move towards the targets. The manager may also used staged harvests to create large patches, if this is required.

Clearcut size is itself not an effective ecological indicator. Although the concept of **natural disturbance** emulation is becoming increasingly popular as a management concept, it is the outcome of a natural disturbance regime, and not the outcome of disturbances that should be the focus of emulation. The amount of concern generated by clearcuts tends to increase with their size. Clearcut size determination should therefore be based on a consideration of size-dependent impacts such as wildlife movement, hydrological impacts, and effects on other forest users.

6.3.7 Management strategies do not attempt to mimic extreme events of low frequency. The size and configuration of harvest blocks is determined after landscape-level objectives have been met and size-dependent impacts mitigated. Examples of size-dependent social and ecological impacts to be considered include, but are not necessarily limited to:

- Public and Indigenous community concerns;
- Concerns of forest users such as recreationalists and trappers;
- Creation of barriers to species dispersal and migration;
- Hydrology and water quality impacts;

- Harvest and road economics;
- Species' silvics; and
- Forest fragmentation.

Verifiers:

- Maps and aerial photographs of planned and actual harvested areas.
- Discussion in the forest management plan related to harvest block size and configuration.
- Field assessment (aerial reconnaissance preferred).

6.3.8 The **genetic diversity** of tree species is maintained during forest management through; the maintenance of species at the limits of their range, use of natural regeneration, local collection of seeds for seedling stock and seed broadcasting, adherence to seed zones, and appropriate selection of seed trees and advanced regeneration.

Verifiers:

- Management prescriptions for ecological communities and tree species at the limits of their ranges within the forest.
- Proportion of natural regeneration by forest unit.
- Seeding procurement records showing origin of seed.
- Seed procurement records showing origin of seed.
- Cone collection and seed processing records.

6.3.9 The viability of any **native species**, **subspecies**, or recognized taxonomic group or species assemblages will be maintained on the forest, and is not knowingly put at risk by the applicant through activities related to forest management.

Verifiers:

- Management prescriptions for forest communities and tree species at the limits of their ranges within the forest.
- Management approaches for species at risk.
- Area occupied by species at risk.

6.3.10 Harvesting during normal and salvage operations (following natural disturbances) and other stand management activities maintain residual **structures** in sufficient quantities and distribution so as to fulfill their ecological functions. Specific ranges for the various structural components are described in the forest management plan, consistent with the requirements below, and are implemented.

- Post harvest residual includes patches or clumps of trees and individual trees and snags, which are representative of the size and species and condition (burned/unburned) of trees in the pre-harvest stand.
- Residual retention includes all standing residual structure in a defined and mapped harvest area (see diagram below), including insular patches, peninsular patches, partial harvest areas and reserves established for other purposes.
- Residual structure consists of a mix of dispersed trees and a range of patch sizes, with a preference for patches, and is well distributed at all scales throughout the harvest area. Where the harvest area is an aggregation of smaller cutblocks,

residual trees and patches must be well distributed within the small cutblocks as well as between or among them.

- All residual retention is long term, meaning it will not be harvested until at least the subsequent rotation.
- The amount of **residual structure** retained in harvest operations is 10-50% by area, approximating levels of expected natural post-disturbance residual identified through the PIC analysis or its equivalent. Where the Principle 6 Intent box applies, residual retention is greater than 25% unless determined otherwise on the basis of broad consensus.

- In small harvest areas, residual structure retained in harvest operations is an average of 5%, not including **harvest block separators**, peninsula, riparian reserves or reserves established for other purposes.

Verifiers:

- Maps and aerial photographs of harvested areas.
- Relevant training material used in courses or by harvest and site preparation equipment operators.
- Field reconnaissance.
- Local community.
- Stakeholders.
- Indigenous Peoples consultation.

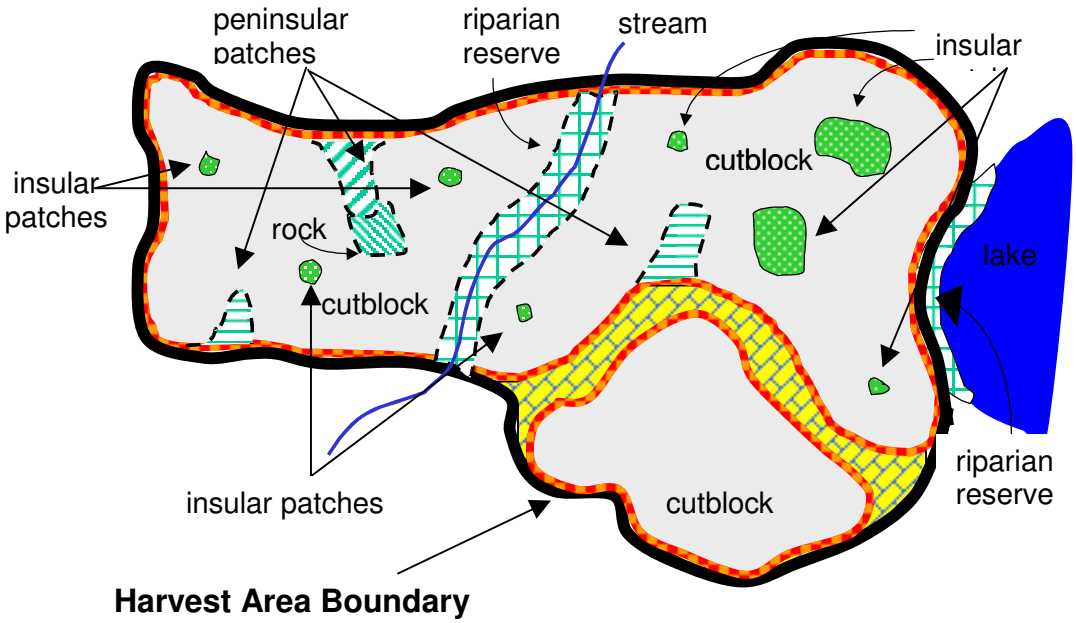
Intent, 6.3.10

This indicator takes the approach that harvest disturbances should be made to approximate some of the important structural characteristics of natural disturbances. These characteristics include irregular boundaries and inclusions of significant levels of standing residual trees - both living and dead. This harvest approach includes a more holistic perception of a **disturbance mosaic**, which includes not only areas that have actually been cut, but also inclusions of uncut forest (insular residual), peninsular residual patches, other cuts in close proximity, and forest separating cuts. This more holistic view calls for a level of retention ranging from 10-50%, based on the PIC analysis.

The exception to this approach for residual retention allowed for small cuts (average of 5% residual) was developed for cuts so small that it was impractical to consider them as a disturbance mosaic. It should be applied where the mosaic approach is impractical, and where it is perceived, (by virtue of the small cut size and large perimeter to area ratio) that the ecological benefits from residual structure will flow largely from the long term presence of adjacent forest in addition to the insular residual (i.e.,, the 5% average), and reserves established for other purposes. This same approach is applied in gap or small disturbance ecosystems where dispersed patch cutting is used.

Regarding quantifying stand structure, it is not possible to predict, ‘’the best or only’’ method. For that purpose, the applicant develops and implements a credible method for planning, operationalizing and quantifying residual structure in such a fashion as to meet the intent outlined here.

Diagram Illustrating Residual Retention in a Defined and Mapped Harvest Area



6.3.11 The applicant avoids salvage harvesting in some proportion of burned habitat, because it provides ecological benefits. Expert input is used in determining the ecologically appropriate proportion.

Verifiers:

- Area salvaged compared to area burned.
- Documented expert input.

Intent, 6.3.10, 6.3.11
These indicators are concerned with maintaining key elements of structure at the stand level for the purposes of maintaining **biological diversity**. Structural aspects such as snags and residual trees and patches contribute to biological diversity by providing key habitat elements for a number of species. With regards to the structural components in Indicator 6.3.10, research has not shown whether residual levels are uniform across the boreal. It may be anticipated that longitudinal and latitudinal variation, as well as differences in forest history, may lead to regional and even forest level variation in appropriate targets for some or all of these elements of structure.

It is recognized that the provincial governments in some provinces require that efforts be made to salvage areas that are burned or have experienced windthrow or pest-induced mortality. However, such highly disturbed areas provide habitat for wildlife species, some of which prefer burned or disturbed forest. In jurisdictions where indicator 6.3.12 is counter to regulation, the FSC and the proponent should work with the jurisdictional government to resolve the inconsistency between FSC direction and provincial regulation (See indicator 1.4.2).

6.3.12 Large areas (thousands of hectares) of contiguous core forest habitat, representative of the habitat types of the landbase, exist and are maintained in the management unit. The proportion of the management unit in large areas of core is guided by the outcome of the pre-industrial forest condition analysis and by a target of maintaining at least 20% of the forest management unit. Large cores consist primarily of mature and old forest, but may also contain inclusions of up to 5% recently disturbed forest. To the greatest extent possible within the current forest condition, large cores do not contain roads and other linear disturbances. In planning future cores, the applicant chooses areas with a high probability of achieving the desired condition (e.g., areas likely to be in a contiguous, roadless condition) and is working within its sphere of influence to achieve this condition (e.g., access management, decommissioning roads, bridge removal, etc.).

Verifiers

- Maps/areal calculations showing core areas.
- Plan describing steps being implemented to work towards targets.

Intent, 6.3.12
Core habitat requirements for sensitive species should be identified in the regional assessments. In the absence of such regional assessments, the benchmarks noted in Indicator 6.3.12 are to be used.

In areas where there are overlapping tenures that result in incursions into areas which are designated as large cores, it is expected that the applicant will take action to influence the activity of other tenure holders.

Achieving future core areas requires harvest layout and scheduling that differ from a traditional approach of small, separated cuts on a short rotation (for example: aggregated cuts; larger cuts; lengthened rotations, etc).

6.3.13 Connectivity is being maintained (or restored) between important wildlife habitats and key landscape features such as HCVFs, late seral stage forests and protected areas.

Verifiers:

- 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.
- Field inspections.
- Discussions with local ecologists and biologists.

6.3.14 Quantitative habitat objectives have been set, using expert input, for species chosen to represent a range of habitat requirements Plans have been developed and are being implemented to achieve the objectives.

Verifiers:

- Expert assessment of species in the forest and determination of which species should be chosen to represent a range of habitat requirements.

- Plans containing habitat objectives for species chosen to represent a range of habitat requirements.
- Field inspections of plan implementation.

6.3.15 The applicant complies with regional fire management policies. Where possible, fire management plans are in place which recognize the ecological value of fire and identify circumstances in which fires may be allowed to burn.

Verifiers:
- Applicant's fire management plans/policies.
- Assessment of circumstances in which fires may be allowed to burn.

6.3.16 A comprehensive access management plan is being implemented that:
- Avoids road building (and construction of other linear disturbances) in or near protected areas or candidate areas;
- Describes abandonment and maintenance strategies for all roads in the forest;
- Maintains remoteness in areas with sensitive biological or cultural values or where required for tourism; and,
- Identifies and maintains level of remoteness based on achieving a fair and equitable balance based on independent expert input between the ecological, social and economic importance of remoteness and the recreational and operational desire for motorized access.

Verifiers:
- Access management plan.
- Records of road construction and maintenance.
- Field inspection of construction and maintenance.

Intent, 6.3.16
This indicator is intended to address the role that access and linear disturbances play in fragmenting forests. Through mechanisms such as providing transportation corridors for predators and **exotic species**, and creating impediments to migration and local movements, the effect of linear disturbances can far exceed their proportional presence in the forest. The management plan advocated in the indicator should have this ecological context as one of its bases.

6.3.17 Forests surrounding or adjoining permanent water bodies are protected by riparian reserves that exclude all forestry activity (harvest, road building except for approved crossings, dumping, etc). The **inner riparian reserves** are a minimum width of 20 metres from the **treed edge** of permanent water bodies Partial harvesting within the inner reserves is permitted subject to public consultation and only to a limited extent based on a conservation or cultural rationale. Additional riparian reserves are applied to maintain fish and wildlife habitat and/or cultural and recreational values, as appropriate. The minimum total area within these additional reserves shall be equivalent to an additional 45 metres, on average, measured from the end of the inner riparian reserve. The applicant may develop and apply an alternative protection prescription that varies from the additional 45m average reserve if it is demonstrable that the ecological rationale has an equal or higher likelihood of achieving the objective to protect riparian values.
In the Yukon, the riparian guidelines outlined in Appendix 6 apply.

Verifiers:

- Harvest ground rules and prescriptions for **riparian areas**.
- Field assessment (aerial reconnaissance preferred).

Intent, 6.3.17
Management prescriptions to maintain identified values are to be developed and applied within the additional riparian reserves described in the Indicator.

6.3.18 The applicant has included appropriate considerations for **ephemeral streams** and **intermittent streams** in operating guidelines and SOPs.

Verifiers:

- Operating guidelines.
- Standard operating procedures.
- Field inspection.

Intent, 6.3.18
This indicator is intended to provide protection for streams that do not flow year round. The direction in the indicator is general, reflecting complexity due to varying definitions of ephemeral streams in different jurisdictions and forest types, and a lack of sufficient experience to propose more specific measures. It is anticipated that some class of stream (sometimes called ephemeral or seasonal) may warrant protection equivalent to that given to permanent waterbodies in some ecosystems. An example of these are large rivers in the Yukon that experience high volumes of waterflow in the spring but have little or no water flow at other times of the year. Other types of streams, also called ephemeral, may require much less protection - for example, small streams in Ontario with no channel that only run in direct response to precipitation. It is anticipated that a subsequent version of this standard will contain more refined direction.

6.3.19 Where there are overlapping tenure holders, the applicant has in place incentives or joint planning programs and is making demonstrable progress towards:

- Encouraging other tenure holders to adhere to the access management plan as described in 6.3.17;
- Minimizing size, intensity, and duration of linear disturbances and other disruptions to ecosystem functions; and,
- Encouraging other forest tenure holders to adhere to the forest structure retention requirements under 6.3.

Verifiers:

- Access management plan.
- Access strategy as provided in the Area Operating Agreement or annual work plans.
- Field inspection of access and linear disturbances.

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.

Intent, 6.4
The indicators and verifiers under this criterion apply to a **protected areas network**, which includes areas set aside to provide for sufficient **ecosystem representation**, to conserve **enduring features**, to maintain locally/regionally rare ecosystems, and to serve as scientific reference areas. It is the intent of this criterion that the protected areas on the applicant's forest should tie into a network established at a landscape level, and that the concentration of protected areas on the applicant's forest should depend on that forest's characteristics. This criterion does not apply to reserves that are routinely created for localized values such as raptor nests, or to standard riparian buffers that are not specifically intended to be part of a protected area network.

6.4.1 The applicant completes (or makes use of) a peer-reviewed scientific **gap analysis** to address the need for protected areas in the eco-region(s) and **ecodistrict(s)** in which the forest is situated. The applicant uses the gap analysis and elements including representation, connectivity, intactness, age of the forest, rare ecosystems and other HCVF attributes to identify the location and extent of additional protected areas.

Verifiers:
- Terms of reference for gap analysis.
- Completed gap analysis subjected to peer review.
- Evidence that the applicant is supportive of and working towards the development of a protected area network at a scale larger than the average sized, individual management unit.

Intent, 6.4.1
This indicator may be achieved using a gap analysis methodology developed by the World Wildlife Fund, or an equivalent methodology.

6.4.2 The applicant designs, identifies and contributes candidate protected areas that make a maximum contribution to filling gaps in the protected areas system (per 6.4.1) based on the relative responsibility of the applicant. The level of the applicant's responsibility is determined by:
- The level of representation of enduring features within the forest; and,
- The regional significance of the conservation values (e.g., quality or rarity).

Verifiers:
- Contributions of protected areas.
- Records and analysis assessing potential contributions of protected areas.
- Gap analysis (as per 6.4.1).

6.4.3 The applicant works cooperatively with interested parties (e.g., Environmental-NGOs, Indigenous People) in the analysis of gaps and candidate protected areas.

Verifiers:
- Gap analysis methodology.

- Interviews with preparers of the gap analysis.
- Interviews with representatives of interested parties.
- Interviews with those involved in protected areas selection process.

6.4.4 Results of the candidate protected area identification process described in indicator 6.4.2 are mapped.

6.4.5 The applicant has documentation demonstrating support by interested parties (e.g. Environmental NGOs and Indigenous Peoples)

Verifiers:
- Letters of support from interested parties
- Minutes of meetings with interested parties

6.4.6 Forest operations including harvesting, silviculture and road building are not undertaken in protected areas or candidate protected areas.

Verifiers:
- Operational plans, including access construction.
- Maps of actual harvest areas, silviculture operations, and access.
- Operations compliance records.
- Field inspection of candidate or designated protected areas.

6.4.7 The applicant is working within their sphere of influence to move candidate protected areas to full regulated protection as soon as possible.

Verifiers:
- Interviews with relevant staff of applicant.
- Interviews with staff of relevant government agency.
- Review of records and files.

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 Ground rules or Standard Operating Procedures (SOPs) describe practices that avoid and minimize:

- Loss of productive land;
- **Soil rutting**, compaction, and **thermokarst**;
- Nutrient loss on sensitive sites;
- Negative hydrological impacts;
- Soil erosion during the construction, use, and maintenance of roads and water crossings, and during harvest operations;
- Harvesting and other forest operations in riparian areas; and
- Damage to sites of cultural significance.

The SOPs have been developed based on literature and/or field research and in consultation with Indigenous Peoples. The management standards required by the SOPs are consistent with high levels of performance and include best management practices.

At a minimum, the SOPs related to minimizing the loss of productive land address:

- Slash pile burning or redistribution such that all slash piles on the unit are managed in one of these ways;
- Prompt regeneration of abandoned roads, landings, and **skid trails**;
- Maximum road corridor widths for different road classes; and
- Minimizing the areal extent of landings.

At a minimum, the SOPs related to minimizing soil rutting, compaction, and thermokarst address:

- Levels of acceptable rutting, compaction, and thermokarst associated with various operating conditions;
- Pre-identification of sites sensitive to compaction and rutting; and,
- Use of alternative harvesting and site preparation equipment and other mitigative measures (e.g., seasonal timing, temporary suspension of activities) to minimize soil rutting and compaction, (i.e., low ground pressure, selective harvest equipment) and mitigation of modifications to surface and sub-surface drainage caused by roads, road embankments and skid trails.

At a minimum, the SOPs related to minimizing nutrient loss on sensitive sites address:

- Identification of sites sensitive to nutrient loss;
- Use of at stump de-limbing or slash redispersal;
- Use of winter harvesting; and,
- Maintenance of diversity of plants and trees on-site.

At a minimum, the SOPs related to preventing negative hydrological impacts address:

- Identification of sites and watersheds sensitive to negative hydrological impacts during the planning process;
- Levels of permissible harvesting in watersheds;
- Use of partial harvest systems on wet sites;
- Use of winter harvesting; and,
- Avoiding most sensitive sites.

At a minimum, the SOPs related to preventing soil erosion during the construction, use, and maintenance of roads and water crossings, and during harvest operations address:

- Identification and avoidance of unstable soils and ground surfaces, including areas underlain by permafrost, during road planning, layout, construction and decommissioning;
- Avoiding haul roads and landings on **steep slopes**;
- No water crossing construction during fish breeding season;
- Minimizing the number of crossings;
- Use of temporary crossings;
- Use of **arch culverts**;
- Proper culvert installation and inspections and, if required, repair or replacement; and,
- Avoiding sensitive sites.

At a minimum, the SOPs related to harvesting and other forest operations in riparian areas address:

- Buffer widths from waterways;
- "Sensitive" practices appropriate for use proximal to waterways;
- Drainage and waterflow from disturbed sites, particularly roads and landings;
- Times of year appropriate for operations;
- Operational concerns and restrictions related to ephemeral streams and waterbodies; and,
- Classifications of waterways and conditions according to sensitivity/likelihood of causing detrimental ecological impacts.

At a minimum, the SOPs related to avoiding damage to sites of cultural significance address:

- Pre-operation identification of sites of cultural, religious or social significance;
- Procedures for dealing with cases where a previously unknown site is discovered during operations;
- Providing appropriate buffers for different types of sites; and,
- Avoiding the public dissemination of information related to the location of such sites.

The above SOPs are in place and are being implemented.

Verifiers:

- Written SOPs relevant for each of the operational situations described above.
- Evidence of SOPs being implemented through field visits.
- Incorporation of SOPs into training materials/courses.
- forest worker familiarity with SOPs as determined through interviews.
- rates and severity of non-compliance with SOPs.

6.5.2 Consistent with Criterion 7.3, forest workers have been provided adequate training regarding the SOPs and receive adequate supervision related to their implementation.

Verifiers:

- SOP-related material in training courses.
- Interviews with field workers to gauge familiarity with SOPs.
- Records showing supervisory schedules/program.
- Rates and severity of non-compliance with SOPs.

6.5.3 Consistent with Criteria 8.1 and 8.2, monitoring is conducted of the effectiveness of the SOPs noted above. Data and results are used in the context of adaptive management, consistent with Criteria 7.1, 8.1, 8.3, and 8.4.

Verifiers:

- Monitoring or compliance inspection plans.
- Monitoring or compliance inspection records.

6.5.4 Where there have been serious instances of non-compliance with the ground rules/SOPs noted above, efforts have been made to rehabilitate the damaged sites/locations.

Verifiers:

- Field inspections of damaged sites.
- Records of rehabilitative efforts.

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 heal and environmental risks.

Intent, 6.6
There are important distinctions between the terms used in this criterion. Pesticides are used to control/kill living organisms which threaten the development of nurtured species. Pesticides include both **herbicides**, which kill plants, and **insecticides**, which kill insects. Another important distinction is between chemical agents and biological ones. Biological control agents are living organisms (such as bacteria) used to eliminate or regulate the population of other living organisms (i.e., pest species). Chemical pesticides are not made from living organisms. Pesticides may be biological or chemical in nature. The term **biocide** also enters the lexicon on this topic. It refers to a substance which is potentially lethal to an organism.

In general, this criterion and its indicators require that an applicant strive to reduce the use of chemical pesticides and biocides and work towards their eventual phase-out in the course of normal forest management, consistent with FSC policy on the use of chemical pesticides. However, their use in exceptional circumstances is still permitted (as noted in Indicator 6.6.3).

Biological control agents are dealt with explicitly in Criterion 6.8.

6.6.1 **Chemicals** prohibited by the FSC under Criterion 6.6 are not used.

Verifiers:
- Company policy identifying prohibited chemicals/pesticides.
- Records of pesticide application.

Intent, 6.6.1
The glossary contains a list of chemicals prohibited under Criterion 6.6.

6.6.2 The applicant has developed and is implementing an **integrated pest management** program, one aspect of which is the avoidance of pesticide use, whenever possible.

Verifier:
- An integrated protection program in the forest management plan.
- Evidence of implementation of the program during field inspection.

6.6.3 The applicant demonstrates continual reduction of chemical pesticide use with an eventual goal to their complete phase-out over time. Chemical pesticides are used only when their use is essential to meet silvicultural objectives and when non-chemical management practices are:

- Not available; or
- Ineffective in achieving silvicultural objectives; or
- Prohibitively expensive, taking into account environmental and social costs, risks and benefits.

Verifiers:

- Records showing amount of pesticide applied on the forest over time.
- Company policy/strategy outlining procedures involved in avoiding the use of pesticides, and circumstances under which pesticide use is and is not permitted.
- Interviews with forest workers, silviculturists, etc.
- Interviews with potentially affected residents, including Indigenous People.

Intent, 6.6.3
This indicator is intended to recognize that the exceptional use of pesticides during insect pest epidemics may be necessary. However, during normal forest management operations pesticide use should show a declining trend. Herbicide use is expected to show this declining trend, however the use of insecticides may show cyclic or periodic peaks, reflecting their use during insect epidemics.

6.6.4 The applicant supports and/or participates in the development and adoption of non-chemical methods of pest management.

Verifiers:

- R&D expenditures related to non-chemical methods of pest management.
- Written description of company activities related to development of alternative pest control mechanisms.
- Company's use of non-chemical pest management methods.

6.6.5 Consistent with Criterion 1.1, the applicant minimizes health and safety risks through compliance with all laws and regulations related to chemical and pesticide use.

Verifiers:

- Pesticide use plans and records of treatment operations.
- SOPs related to pesticide use.
- records of notification and consultation related to pesticide application.
- health and safety incident reports.

6.7 Chemicals, 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 Ground rules or SOPs related to handling of chemicals, liquid and solid non-organic wastes, including fuel and oil, are in place and are being implemented. The management standards required by the SOPs are consistent with high levels of performance and include best management practices. At a minimum, the SOPs address:

- Collection, storage, and disposal of waste in an environmentally appropriate manner and according to applicable regulations;
- Adherence to the waste recycling program;
- Measures to prevent spills;
- Emergency plans for cleanup and treatment of any injuries following spills or other accidents; and
- Prohibition of the littering of any materials.

Verifiers:

- Written SOPs for waste management.
- Field inspections of waste control measures.
- Amount of litter in the forest.
- Incorporation of SOPs into training materials/courses.
- Forest worker familiarity with SOPs as determined through interviews.

6.7.2 Consistent with Criterion 7.3 and Indicator 4.1.8, all forest workers involved in the handling and use of chemicals (including pesticides), and liquid and solid non-organic wastes including fuel and oil, have the appropriate training and accreditation.

Verifiers:

- Health and safety training records.
- Interviews with relevant staff at applicant organization.
- Health and safety incident reports.

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.

6.8.1 Biological control agents (e.g., **Bt**) are used only where other non-chemical pest control methods are, or can reasonably be expected to be, ineffective. The rationale for the use of biological control agents is documented and based on scientific evidence.

Verifiers:
- Records of application of biological control agents.
- Forest protection plans.
- Documented rationale for the use of biological control agents.

6.8.2 Where biological control agents are used, it is done in compliance with relevant provincial laws, national laws and internationally accepted protocols.

Verifiers:
- Records of application of biological control agents.
- Forest protection plans.

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

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

Genetically modified organisms are not used.

6.9 bThe use of exotic species is carefully controlled and actively monitored to avoid adverse ecological impacts.

Intent, 6.9
The use of exotic species in forest management is often associated with **plantations**, although other uses, such as the use of forbs in bank stabilization, also occur. Principle 10 deals exclusively with plantations; see the Intent Box under Principle 10 for a more extensive discussion.

6.9.1 The use of exotic tree species for silvicultural purposes is limited to **non-forested lands** which have been in agricultural production or use for an extended period; or on plantations established in the Province of Quebec consistent with Criterion 6.10.

Verifiers:
- Descriptions and records of lands planted to exotic tree species.
- Field inspections of exotic plantations.

Intent, 6.9.1
As noted in the Intent Box for Principle 10, this standard recognizes plantations in two contexts: 1) circumstances in which natural forest is converted to plantations; and 2) plantations established through **afforestation**. Afforestation occurs when previously non-forested land (e.g., farm land) is converted into forest. Indicator 6.9.1 limits the use of exotic tree species to afforested areas in all provinces except Quebec. This indicator allows for the use of exotics in plantations established in natural forest areas in Quebec. This provision is intended to address a significant regional disparity; namely that managers in the Quebec boreal forest have more limited options than is the case in the rest of Canada, to practise intensive forestry on land that has been converted from non-forest use. This exemption applies to a very limited portion of the forested land base, not to exceed 5 percent of the productive forest, as required by Indicator 6.10.2.

6.9.2 Exotic invasive plant species are not used in forestry operations (e.g., for erosion control or bank stabilization). Where seed mixes of native species are not available, only non-invasive exotic species are used.

Verifiers:
- Use of seed of native species.
- Evidence of efforts to procure native seed mixes.
- Evidence that exotic plants are non-invasive.
- Field inspections of sites where seed mixes have been used.

Intent, 6.9.2
This indicator prohibits the use of exotic invasive plant species. This indicator applies to the use of trees in any plantations – either in natural forests or afforested areas and to the use of all other plant species in forestry operations.
Indicators 6.9.3 and 10.8.1 require monitoring of the invasiveness of exotic species.

6.9.3 The use of any exotic species is monitored for efficacy and invasiveness.

Verifiers:
- Incorporation of the use of exotic species into the monitoring program.
- Monitoring results.

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

Intent, 6.10
This criterion relates to the establishment of plantations on areas of natural forest. The main provisions of this criterion are that plantations can only be established on a very limited portion of the forest (Indicator 6.10.2), and that there should be demonstrable conservation benefits to the forest from plantation establishment (Indicator 6.10.3). In other words, the additional timber yield provided by plantations should reduce the harvest pressure on the natural forest so that some additional areas can be managed for conservation values. The Intent Box under Principle 10 provides a more complete discussion of plantations.

6.10.1 Forest conversion to plantations or non-forest land uses (except roads required for access) will not occur on High Conservation Value Forest (HCVF) areas.

Verifiers:
- Completed assessment of HCVFs as per Principle 9.
- Maps showing locations of plantations and HCVFs.
- Field inspection of HCVFs.
- Rationale and impact of addition of roads

6.10.2 Tital area converted to plantation does not exceed 5% of the productive forest area.

Verifiers:
- Proportion of productive forest area converted to plantations.
- Rationale for forest conversion.

6.10.3 Should any conversions of natural forest to plantations occur, it will only be done if there are demonstrable long-term, sustainable conservation benefits to the forest.

Verifier:
- Completed landscape level assessment of the conservation benefits to accrue to the forest because of the conversion of forest to plantations. The assessment is reviewed by authorities in forest ecology or **conservation biology** and is subject to public review.

6.10.4 The applicant does not convert forest to non-forest land (beyond that permitted in approved plans for roads, trails, landings, gravel pits and camps).

Verifiers:
- No evidence of **deforestation** beyond that permitted in approved plans.
- Field inspection of deforested areas.

6.10.5 Management actions are undertaken to convert all non-forest areas as per indicator 6.10.4 (e.g., landings, gravel pits, etc.) back to forest once the non-forest use has ceased.

Verifiers:

- Documented plans related to re-establishment of forest cover in non-forest areas.
- Field inspection of re-establishment efforts.

Intent, 6.10.5
This indicator refers to non-forest areas. Although non-forest areas include roads, they are not dealt with in this indicator as their management enters into several indicators under Criterion 6.3. Indicator 6.3.16 in particular, requires the implementation of a comprehensive access management plan.

6.10.6 Where there are holders of overlapping tenure outside of the forest sector, the applicant works with other tenure holders to limit conversions of productive forest land to non-productive forest land uses.

Verifiers:

- Efforts to minimize conversion of forest land to non-forest land.
- Interviews with holders of overlapping tenure in non-forestry sectors.

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.

Intent, 7
This Principle is intended to ensure that management of the forest is described in a comprehensive plan which encompasses the biotic and abiotic aspects of the forest. The plan should be developed with appropriate expertise, with appropriate public input, and adhere to the precautionary approach and principles of adaptive management. The management plan, and the process of developing it, will embody many of the principles of this standard.

The management planning process must:

- Involve public consultation (Criterion 4.4);
- Ensure and promote efficient and sustainable use of the timber and non-timber goods produced (Principle 5);
- Incorporate information, objectives and constraints related to elements of Principle 6;
- Include a monitoring plan with attributes consistent with Principle 8; and,
- Recognize and appropriate manage high conservation value forests (Principle 9) and plantations (Principle 10).

The plan need not be a single document. It could be comprised of a number of documents, which, when taken together, provide the full set of required plan elements. Key aspects of the plan, and the plan's supporting documents should be publicly available.

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. Rational for rate of annual harvest and species selection
e. Provisions for monitoring of forest growth and dynamics.
f. Environmental safeguards 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.
i. Description and justification of harvesting techniques and equipment to be used.

Intent, 7.1
It may not be possible in all circumstances to provide a profile of adjacent lands for item (b) above, as expressed primarily in Indicators 7.1.6 and 7.1.7. The expectation is that this will be provided only in cases where the information is publicly available (e.g., in a forest management plan for Crown lands on a neighbouring management unit).

7.1.1 Stakeholders and other interested parties have been provided with opportunities, through a publicized and open consultative process, to provide input into the development of plan objectives and strategies throughout the plan development process. (See also Criterion 4.4, especially indicators 4.4.1 - 4.4.5.)

Verifiers:
- Database of forest users, stakeholders and other interested parties.
- Interviews with forest users, stakeholders and other interested parties.
- Records of public consultation opportunities/open houses.
- Records of public input.
- Records of responses to public input.
- Copies of advertisements/notices related to the consultative process.

7.1.2 The plan was prepared with the input of appropriate expertise, which may include foresters, biologists, landscape ecologists, compliance experts, Indigenous People, etc.

Verifiers:
- List of plan authors/contributors.
- Interviews with planning team members.

7.1.3 The plan's objectives and goal setting, monitoring (consistent with Indicator 7.2.1 and Principle 8), and revision processes adhere to the precautionary approach and principles of adaptive management.

Verifiers
- Documented forest management plan.
- Prediction and modelling activities, and input and output files used to develop plan.
- Documented periodic assessment of the plan's predictions based on monitoring results (Consistent with Criterion 8.2).
- Documented revisions to plan objectives and predictions based on the analysis of monitoring results, consistent with Criteria 7.2 and 8.4.

7.1.4 The applicant has made best efforts to coordinate approaches to landscape-level management, including the setting of objectives and strategies for management of HCVFs (consistent with Indicator 9.3.2), species with large home ranges, STE species, disturbance regime emulation, and landscape dynamics with managers/agencies responsible for managing lands surrounding the management unit. (See Criterion 6.3 for indicators related to landscape level planning and objectives).

Verifiers:
- Interviews with managers of surrounding lands regarding coordination of approaches to management.

- Correspondence, and records of communication with managers of surrounding lands.
- Evidence/documentation related to integrated management with surrounding units.
- Regional or sub-regional plans and/or objectives.

7.1.5 The management plan and supporting documentation contains management objectives, strategies, and performance indicators (that are measurable where possible) for:

- Biodiversity conservation;
- Wood supply;
- Silvicultural objectives including regeneration;
- Social and economic benefits such as recreation and benefits to local communities;
- Protection of the forest environment (e.g., soils, water, hydrology);
- Historical and cultural resources and traditional uses of Indigenous People and others; and,
- Access, road-use and roadless areas.

The objectives are measurable (where possible), address short- term and long-term time frames as applicable, and each one is supported by a rationale, including underlying assumptions. The management objectives are sufficiently specific to provide a basis for developing strategies and practices.

Verifiers:

- Text of forest management plan and supporting documents.
- Interviews with planning team members and plan reviewers.

7.1.6 The management plan and supporting documentation describe terrestrial and aquatic species and habitats, timber, non-timber, water, recreation, cultural and visual resources located within the forest with reference to applicable inventories, and a profile of adjacent lands.

The management plan includes, but is not limited to, discussions/descriptions of:

- The current forest(s') inventory including forest types, tree species and ages classes;
- The forest's geology, soils and eco-sites;
- Wildlife and flora including species at risk;
- Food and medicinal plants;
- Unique environmental features;
- Areas with environmental limitations such as protected areas, **wetlands**, and shallow soils;
- The current forest(s), historical management regime, and significant ecological or social issues related to adjacent forest lands;
- Extent and nature of the road and trails network such as active, inactive and abandoned roads and access controls; and
- Landscape context such as significance of the forest with respect to:
    - Local, regional, and provincial fish and wildlife populations and species of concern;
    - Old forest areas; and,
    - Watersheds and water quantity and quality.

The management plan also describes the ranges of natural variability for timber and non-timber resources used as indicators of the sustainability of forest management consistent with Principle 8.

Verifiers:

- Text of forest management plan and supporting documents.
- Interviews with planning team members and plan reviewers.

7.1.7 The management plan and supporting documentation describe:

- History of ownership and management of the forest;
- The historical land uses within and adjacent to the forest;
- Management regimes and conditions on adjacent lands;
- Mills dependent upon the forest;
- Socio-economic conditions of communities within, adjacent to, and dependent upon the forest, and the forest's contribution to their socio-economies;
- Indigenous Peoples' and treaty interests as consistent with Principle 3;
- Discussion of the harvesting techniques to be used, the circumstances under which they are to be employed, and safeguards to mitigate detrimental environmental effects;
- The silvicultural management strategies and approaches used in operational planning and implementation consistent with the silvicultural-related requirements in Principle 6;
- The rationale and criteria for the rate of annual harvest and species selection consistent with Criterion 5.6;
- A monitoring plan containing provisions for monitoring forest growth and dynamics, yield of products harvested, wildlife populations and habitat, environmental and **social impacts**, costs, productivity and efficiency of management consistent with Principle 8;
- Strategies and procedures to minimize environmental impacts including, but not necessarily limited to: soil compaction, erosion, hydrological and watershed impacts, nutrient loss and damage to other environmental values consistent with the requirements of Principle 6;
- Plans for the identification and protection of species at risk consistent with Criterion 6.2;
- The forest resource base including protected areas, planned management activities and land ownership; and,
- A description of harvesting techniques and equipment to be used.

The management plan, or supporting documentation, will include, but not be limited to, the following maps showing the:

- Legal description, location and tenure status of the forest;
- Forest inventory;
- Lakes, rivers and streams;
- Age-class structure of the forest;
- Planned harvest progression over time;
- Existing and planned roads and trails (in use and abandoned) of all classes and types;
- Legal or customary tenure or use rights of others within the forest;
- Ecological and cultural values (e.g., areas of special ecological significance including habitat of STE species, old forest, large core areas, wildlife habitat and

areas with unusually high **species diversity**, important nesting or feeding sites or concentrations of species having significant cultural value);
- Watersheds, surface water features and ground water recharge areas; and
- Past operating areas and operations for the term of the plan including mapable objectives for harvesting and silviculture.

Verifiers:
- Text of forest management plan and supporting documents (including maps).
- Interviews with planning team members and plan reviewers.

7.1.8 The applicant has made reasonable efforts to make use of traditional ecological knowledge in the plan's descriptions of forest and related resources, consistent with Indicators under Criterion 3.3.

Verifiers:
- Documentation of efforts made to solicit and include traditional ecological knowledge in the plan.
- Identification in the plan of components of resource descriptions based on traditional ecological knowledge.

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.

> **Intent, 7.2**
> Elements of Criterion 7.2 are specified more fully under the related indicators of Principle 8. To avoid repetition, these characteristics are not repeated here.

7.2.1 The management plan contains a detailed monitoring strategy consistent with the principles of adaptive management and Criterion 8.1.

Verifier:

- Breadth and content of monitoring strategy described in the plan.

7.2.2 The monitoring strategy in the management plan is implemented.

Verifiers:

- Monitoring activities consistent with the strategy identified in the plan.
- Analysis of monitoring data.

7.2.3 The management plan is revised periodically and incorporates the results of monitoring and new scientific and technical information (consistent with Criterion 8.4).

Verifiers:

- Evidence in the plan of scientific and technical data collection and knowledge related to the forest.
- Evidence that management objectives and strategies have been periodically reviewed.
- Rationale statements for management objectives, strategies and operational approaches, reviewed and updated
- Interviews whereby the manager and scientific/technical staff demonstrate an awareness of scientific advances relevant to the management of the unit.
- Computer modelling used to simulate the forest environment well into the future, and assumptions used for computer modeling use new, current information.
- Any new or revised local and /or indigenous information incorporated into the plan.
- Evidence that the results of research and data collection activities identified in Criterion 8.2 have been incorporated into the management plan.

> **Intent, 7.2.3**
> The management plan should be updated in accordance with provincial requirements, usually every five or ten years. It is recognized that the monitoring interval for some variables may exceed the plan revision interval. Monitoring cycles are not to be dictated by the plan revision process.

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

7.3.1 A training program, including documentation of implementation, is in place to ensure competency and consistent and reliable implementation of the plan. (See also indicators 4.1.8 and 6.5.2 for examples of other indicators related to aspects of training.)

Verifiers:

- Training requirements specific to jobs/job categories.
- Comparison of employee training records with training goals.
- Training of forest workers employed by overlapping licensees and third parties.
- Awareness and understanding of the operational requirements for implementing the plan shown by the applicant and forest workers.
- Training with respect to standard operating procedures (Indicator 6.5.2).
- Forest workers demonstrate appropriate level of knowledge and skill required for implementation of the plan.
- Forest workers show an understanding that the plan aims to meet a variety of economic, social, and environmental objectives.

7.3.2 A supervisory system is in place to ensure consistent and reliable implementation of the plan. The level of supervision of forest workers is relative to the difficulty and importance of their task.

Verifiers:

- Interviews with **supervisors**.
- Interviews with forest workers.
- Inspection/compliance reports.

7.4 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 The public is provided with a summary of the management plan and is allowed access to the complete management plan. This access is limited only by the following information:

- Confidential information collected and managed by Indigenous communities on traditional land use activities and cultural values;
- Information respecting certain values, that if made available could pose a threat to the existence, conservation, health or integrity of those values;
- Existing confidentiality agreements that may restrict information sharing;
- Proprietary or confidential information in respect of existing Copyright Law, Freedom of Information and Protection of Privacy Act (FIPPA) legislation and the intellectual property rights mechanisms associated with these types of legislation; and,
- Information that would affect the applicant's competitiveness (e.g., costs, revenues, etc.).

Verifiers:

- Location and availability of publicly available plan and plan summary documentation.
- List of recipients of plan summary.
- A copy of the plan summary, plan and related documentation may be available on the internet.

7.4.2 Operational plans, work schedules, annual reports, and other reports or plans which form part of the forest management planning process are publicly available (with limitations on material listed for Indicator 7.4.1).

Verifiers:

- Location and accessibility of relevant documentation.
- Public comments regarding the relevant documentation.

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.

Intent, 8
A key aspect of forest management is monitoring. Monitoring is required to assess the effectiveness of management actions and the social and environmental impacts of management. The principle is concerned with the design and implementation of the monitoring program, ensuring that appropriate aspects of the forest are included in the program. The principle also identifies requirements that the applicant must meet to enable a **chain-of-custody** to operate. It states that monitoring results should be publicly available, while respecting the confidentiality of some types of information.

A key component of this principle is that the monitoring program be **appropriate to the scale and intensity** of forest management. Obviously, small forests and those with little harvesting relative to large industrial operations will require less intensive monitoring programs. Even on large forests, the applicant is to concentrate on monitoring the effectiveness of activities and impacts of activities on key values. The applicant is not expected to monitor everything in the forest or the impact of every activity, however the applicant is expected to be aware of what is happening on the landbase.

In all provinces, some aspects of forest monitoring are the responsibility of the provincial government. Some of the monitoring responsibilities identified under this principle may be carried out by the provincial governments through existing programs. It is not the intent of this Principle that the applicant should duplicate these efforts Even though the wording of the indicators under 8.2 is directed to the applicant, the applicant may rely on other agencies where they have responsibility for relevant monitoring. It is intended that there will be cooperation between agencies, with the applicant assembling the findings relevant to the forest.

Principle 7 requires forest management to adhere to the principles of adaptive management. An important component of adaptive management is the monitoring regime, the concept of adaptive management has been carried forward to this principle in requiring that monitoring be designed to test explicit hypotheses of management effects.

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 The applicant has a comprehensive monitoring plan that outlines the parameters to be monitored (consistent with the requirements of Criterion 8.2), and the frequency, intensity, procedures, rationale, and responsibility for monitoring.

Verifiers
- The monitoring plan defines the program in detail.
- Records of monitoring activities are available to the public.
- Quality assurance/quality control checks are included in monitoring reports.

8.1.2 The monitoring program has been designed to test explicitly stated hypotheses of the effects of forest management, to be consistent with adaptive management, where appropriate to the scale of the forest and specific issues

Verifier:

- Content of monitoring plan.

Intent, 8.1.2
This standard advocates the use of adaptive management, for which monitoring is a critical element. However, the effort required to develop explicit hypotheses to guide all aspects of monitoring may be prohibitive, particularly for small forests, and so this indicator, through the phrase "where appropriate to the scale of the forest and specific issues," provides some flexibility in the use of hypotheses in designing the monitoring program.

8.1.3 The monitoring plan is reviewed and if necessary updated on a schedule consistent with the parameters being monitored and developments in monitoring technologies.

Verifiers:

- Documented review of the monitoring program showing consideration of monitoring results in revisions to monitoring program.
- Comparison of current and previous monitoring plans, where available.

8.1.4 The monitoring plan is readily available to the public.

Verifiers:

- Records of public access to the monitoring plan.
- Evidence of accessibility of the monitoring plan.
- Availability of monitoring plan on the world wide web.

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 changes in the flora and fauna.
d) Environmental and social impacts of harvesting and other operations.
e) Costs, productivity, and efficiency of forest management.

Yield of all forest products harvested

8.2.1 The applicant monitors the yield of timber harvest volumes by species and product.

Verifiers:
- Monitoring data and reports.
- Comparison of monitoring data with field observations.

8.2.2 The applicant has assembled readily available monitoring information about the harvest of timber by other parties.

Verifier:
- Information (i.e.,, volume harvested by species, location of harvest) related to the timber harvests of overlapping licensees, third parties, independent operators, and any others who conduct harvest operations in the forest.

Growth Rates, Regeneration, and Condition of the Forest

8.2.3 The applicant monitors growth rates, regeneration and condition of the forest, including but not limited to forest health, disturbance, and age class structure.

Verifiers:
- Relevant monitoring records.
- Comparison of monitoring data with field observations.

8.2.4 An up-to-date inventory of the forest cover is available. The forest inventory is regularly updated taking depletions into account. The inventory is linked to a forest ecosystem classification system.

Verifiers:
- Forest inventory with reference dates.
- Inclusion of ecological elements in the inventory (e.g., non-tree species, habitat classifications, eco-site or similar ecological classification).

Changes in Flora and Fauna

8.2.5 The applicant gathers data on flora and fauna that will help monitor the efficacy of the management plan.

Verifiers:
- Monitoring records related to the status of habitat for species chosen to represent a range of habitat requirements.
- Monitoring records related to the status of species at risk.

- Evidence that the monitoring program was designed with the input of qualified expertise (e.g., wildlife biologist, plant ecologist, etc.).

Intent, 8.2.5
It is not the intention of Indicator 8.2.5 to require that all wildlife species be monitored, but rather to focus on monitoring of habitat for **focal species**. It is recognized that the provinces bear responsibility for wildlife monitoring and this responsibility should not fall to forest companies.

Environmental Impacts

8.2.6 The applicant monitors environmental impacts of forest management activities assessed in accordance with (but not necessarily limited to) Criterion 6.5.

Verifier:
- Monitoring records:
  - Of compliance with SOPs, including those listed under 6.5.1.
  - Related to effects of forest management on soil (e.g., compaction, structure, fertility).
  - Related to water quality and quantity.
  - Related to maintenance of productive lands (e.g., through slash pile management, roads and landings).
  - Related to effects of forest management on landscape ecology metrics (e.g., fragmentation, connectivity).
  - Related to the effectiveness of protective measures in place (e.g., buffer zones, reserves, access restrictions, etc.).

8.2.7 The applicant monitors the impacts of forest management operations on High Conservation Value Forests as consistent with Criterion 9.4.

Verifiers:
- Monitoring records related to the status of HCVFs and their attributes.
- Analysis of monitoring records sufficient to contribute to an assessment of the effectiveness of measures used to manage HCVFs.
- Evidence that the design of the monitoring program was developed with the input of appropriate expertise (e.g., landscape ecologists, conservation biologists, etc.).

Impacts on Cultural Values and Resources

8.2.8 The applicant monitors the impacts of forest management activities on cultural values and resources (e.g., areas of high recreational use for berry picking, snowmobiling, birdwatching, high aesthetic value areas, etc.).

Verifiers:
- Monitoring records related to the effects of forest management on sites or areas of special cultural, ecological, economic or religious significance to Indigenous People.
- Information related to the effects of forest management on sites or areas of cultural importance.
- Data based on surveys of public opinion on impacts on cultural values and resources.

Economics

8.2.9 The applicant monitors the costs, productivity and efficiency of forest management, consistent with Criterion 5.1.

Verifier:

- Relevant monitoring records.

Intent, 8.2.9
This indicator is closely related to Criterion 5.1, which identifies that **economic viability** should take account of environmental, social and operational costs of production. The intent of this indicator is that the applicant should conduct the monitoring necessary to allow for an assessment of those aspects of forest management identified in Indicators 5.1.1 and 5.1.2.

Additional

8.2.10 he applicant is using (or actively developing or participating in the development of) a system of sample plots, that includes but is not limited to permanent plots, to measure forest condition and trends over time, including the impacts of forest management.

Verifiers:

- Documentation related to the design of sample plot program.
- Monitoring records from the sample plot program.

8.2.11 Information and knowledge related to forest management are regularly assessed and the means to address gaps in them is incorporated into the research and data collection program.

Verifier:

- Monitoring program summary reports showing consideration of knowledge and information gaps in refinement of the program.

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."

Intent, 8.3
Chain-of-custody is an important aspect of FSC standards. Through the "Chain-of-Custody" (COC) process, a forest or non-timber product is tracked from the forest through all the steps of processing and production until it reaches the consumer, whether it is a handcrafted chair, maple syrup or a two by four. Individuals and companies that process FSC certified products need to have an FSC-certified COC.

Product verified as originating from a certified well-managed forest, after the COC certification, is eligible to carry the FSC Trademark. To attain a COC certification, a processor must demonstrate that certified materials are kept separate from non-certified materials, and that they can be accurately tracked throughout the production process.

The indicators here are intended to ensure that there is an appropriate entry path for products into the COC process.

8.3.1 A documented procedure is in place to identify FSC-certified products and the forest of origin of such products leaving the management unit.

Verifiers:
- Documented procedure.
- Evidence of implementation of the procedure, including documentation (e.g., scale records, bills of lading) related to the date, origin, quantity and FSC certification registration code of products leaving the management unit.

8.3.2 Certified forest products, while in the applicant's possession, are clearly identified through marks or labels, and/or are stored separately from non-certified forest products.

Verifiers:
- Marks or labels on certified wood products in the yard.
- Separate storage areas for certified and non-certified wood.

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

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

Verifiers:

- Marks or labels on certified wood products in the yard.
- Separate storage areas for certified and non-certified wood.

Intent, 8.4.1
The intent of this criterion, which is to revise management based on monitoring results (consistent with the adaptive management approach), is also met through indicators associated with Criteria 7.2 and 8.2.

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

Intent, 8.5
Some monitoring data and results may be considered sensitive and therefore need not be made available to the public. Such data include non-publicly available corporate financial information, information regarding the nature and location of culturally sensitive sites, information regarding the location of species at risk, etc.

8.5.1 A summary of the results of monitoring activities is regularly compiled and made available to the public.

Verifiers:
- Regular summary of monitoring efforts.
- Evidence such as newspaper ads or distribution lists that the summary is publicly available.
- Posting of monitoring summaries on the applicant's web site.

8.5.2 The applicant assists the public in the interpretation of monitoring programs and their results.

Verifiers:
- Interpretational material related to the monitoring program and the publicly available summaries of results.
- Lists/copies of correspondence to the public related to monitoring programs/results.

PRINCIPLE #9 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 a precautionary approach.

Intent, 9
The Forest Stewardship Council (FSC) introduced the concept of High Conservation Value Forests (HCVFs) in 1999. HCVFs possess one or more of the following attributes:

a. Forest areas containing globally, regionally, or nationally significant:
   - Concentrations of biodiversity values (e.g.,, endemism, endangered species, refugia); and/or
   - 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); and
d. Forest areas fundamental to meeting basic needs of local communities (e.g.,, subsistence, health) and/or critical to local communities' traditional cultural identity (e.g.,, areas of cultural, economic or religious significance identified in cooperation with such local communities).

The concept focuses on the environmental, social and/or cultural values that make a particular forest area of outstandingly significant. The intent of Principle 9 is to manage those forests in order to maintain or enhance the identified High Conservation Values. By focusing on maintaining or enhancing the environmental or social values that make the forest significant, it is possible to make management decisions consistent with the protection of such values.

Following its publication, the concept of HCVF has become widely used within the FSC system and elsewhere. This rapid uptake reflects the elegance of the concept, which moved the debate away from definitions of particular forest types (e.g., primary, old forest) or methods of timber harvesting to focus instead on the values that make a forest important.

The HCVF approach is increasingly being used for mapping, landscape management and conservation decision-making approaches to forest resources. It is also being used in purchasing policies and recently has begun to appear in discussions and policies of government agencies. The key to the concept of HCVFs is the identification of High Conservation Values (HCVs).

Because of the importance of this Principle to the boreal forests in Canada, the Boreal Coordinating Committee decided to seek specific guidance from the FSC Canada Board on how best to proceed, with the recommendation that an expert working group be formed. The FSC Canada Board decided to assign the task of convening this group to the National Standards Advisory Committee (NSAC), with a mandate to explore ways to address this Principle in a nationally consistent manner (across all of FSC Canada's sub-

national standards), as well as consistent with relevant policies, tools and guidance material being developed at the international level. Working Group members were selected by a subcommittee of NSAC in December 2002, based upon nominations received from interest groups. The Working Group met on January 13-14, 2003. The tasks of the WG were to develop a framework for identifying High Conservation Value attributes in Canada; and to develop draft indicators related to P9 to be used in the boreal standard, considering input received during the first round of national consultations and consistent with the FSC International Principles and Criteria. The proposed indicators of the WG appear below and the framework for identifying HCVF's is presented in Appendix 4. The Principle 9 Working Group report can be downloaded from: http://www.fsccanada.org/boreal/word_doc/P9_report_English.doc.

Because the criteria and indicators under this Principle are based on the process for identifying High Conservation Values and High Conservation Value Forests (described in Appendix 4), the Verification would be based on documentation of the identification process, the results from the identification process and interviews with participants and perhaps selected other stakeholders.

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 The applicant undertakes efforts to, or makes use of existing efforts to, identify and map the presence of HCVs and HCVFs according to the assessment process in the National Framework (Appendix 4). If the process described in Appendix 4 is not used, the process that is used to identify HCVs and HCVFs must meet key characteristics and the intent of the process in Appendix 4.

Verifiers:
- Documented procedures used to identify and map HCVFs and related values.
- Results of assessment processes – documents, maps, etc.
- Interviews with those involved in identification process.

9.1.2 The applicant involves qualified specialists, directly affected people and Indigenous People in the assessment.

Verifiers:
- List of specialists involved in the assessment.
- Interviews with individuals involved in the assessment.

9.1.3 The applicant ensures that a credible outside review is undertaken and makes the assessment document(s), associated maps, and outside review report available to the public.

Verifiers:
- Documentation of external review process.
- Results of external review.
- List of individuals who contributed to the review.
- Documentation of means by which the report was made 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 applicant provides stakeholders and other interested parties with the opportunities, through a publicized and open consultative process, to input into the identification of High Conservation Value Forests and into the development of management objectives that protect those identified values.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 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 without compromising the confidentiality of, or the risk to, environmentally and culturally sensitive features.

9.3.1 The management plan and supporting documents include specific strategies relevant to identified High Conservation Values that:

- Include and support federal/provincial/territorial recovery plans (biodiversity and wildlife habitat);
- Maintain genetic distinctness (endemic species);
- Ensure the protection and maintenance of critical habitat features (breeding sites, wintering sites, migration sites and routes) by managing access including the location of reserves (no cut areas and modified harvesting), roads as well as seasonal operating restrictions;
- Provide for the genetic mixing (infusion) from source populations of species at risk, species chosen to represent a range of habitat requirements, and focal species that are at the edge of the range or are outlier populations, by ensuring habitat connectivity between the local populations;
- Provisionally defer logging in large landscape level forests until a credible conservation plan has been completed, including: conservation design aspects; protected areas gap analysis, and identification of candidate areas to fill gaps (see Principle 6.4); special management areas; and, appropriate stakeholder consultation;
- Are jointly developed with Indigenous Peoples, local communities and affected forest users where forest areas are fundamental to meet their basic needs and are critical to maintain traditional cultural identity; and,
- Provisionally avoid scheduling logging in large landscape-level forests until a conservation strategy has been completed that includes conservation design aspects, protected areas gap analysis and the identification of candidate protected areas. The conservation strategy should prioritize decisions of location, size and extent of protected area candidates that focus on maintaining the HCV attributes. The strategy has a well-documented rationale and incorporates input from experts and stakeholder consultation.

Verifiers:

- Management plan and strategies related to HCVs.
- Evidence that local Indigenous communities and affected forest users were involved in the development process.

9.3.2 Where a specific High Conservation Value Forest straddles a management unit or is potentially affected by existing or proposed activities outside of the management unit, the applicant demonstrates attempts to coordinate activities with adjacent manager(s) and land users to maintain or enhance the applicable conservation attributes.

Verifiers:

- Correspondence with managers (and land users) of adjacent lands.
- Portions of management plan dealing with management of adjacent lands.

9.3.3 The applicant demonstrates that the management strategies and measures selected to maintain or restore High Conservation Values are consistent with a precautionary approach, and with respect to each conservation attribute:

- Will create conditions with a very high probability of securing the long-term maintenance or the restoration of the applicable conservation attribute;
- Are being implemented; and,
- Are proving effective (or are adapted as required) based on the results of monitoring.

Verifiers:

- Documentation of management strategies and those portions addressing the above points.
- Field observations.
- Monitoring data.

9.3.4. Specific measures to maintain or enhance the applicable conservation attributes shall be included in the publicly available management plan summary.

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 The applicant sets up and implements, or participates in, a program to monitor the status of the applicable HCVs, including the effectiveness of the measures employed for their maintenance or restoration. The monitoring program is designed and implemented consistent with the requirements of Principle 8.

Verifiers:
- Documented HCV monitoring program.
- Results of monitoring program.

9.4.2 The monitoring program is capable of alerting the applicant to changes in the status of a conservation attribute, and determining if the conservation measures are effective in maintaining or restoring the conservation attribute. The results of monitoring are assessed consistent with the monitoring requirements of Indicator 8.1.1.

Verifiers:
- Documented HCV monitoring program.
- Results of monitoring program.

9.4.3 When monitoring results indicate increasing risk to a specific conservation attribute, the applicant re-evaluates the measures taken to maintain or enhance that attribute, and adjusts the management measures to reverse the trend.

Verifiers:
- Documented HCV monitoring program.
- Results of monitoring program.

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 needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

Intent, 10

The standard recognizes plantations in two contexts: 1) circumstances in which natural forest is converted to plantations; and 2) plantations established through afforestation. Afforestation occurs 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.) Plantations in natural forest areas occur where high intensity silviculture is practiced. It does not follow that all areas subjected to intensive silvicultural treatments are plantations. In the figure below 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 non-commercial 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.

Figure 3. Diagrammatic representation of plantations. Plantations may occur in the dark-shaded areas.

	Management Area			
	Natural Forest			Previously Unforested
Treatment	No Management	Low Intensity Silviculture	High Intensity Silviculture	Afforestation
Succession	Natural	Assisted	Non-Natural	Non-Natural

There are several important aspects of plantation management that are addressed in this standard. First, the additional timber yield provided by plantations should reduce the pressure on natural forests by providing for trade-offs as certain areas in the natural forest can be designated as either conservation areas, ecological benchmarks, areas of cultural significance, or High Conservation Value Forests. Second, the conversion of natural forests to plantations should be limited. Indicator 6.10.2 limits conversion of natural forest to plantations to 5% of the productive forest area. Third, the use of exotic species should be tightly controlled so that they do not pose ecological risks to natural forests. Although plantations can be comprised of native or exotic tree species, the use of exotics can be more demanding. While exotics can provide extraordinarily high timber yields, their use must be carefully managed to ensure they do not pose any invasive threats to natural forests. Criterion 6.9 deals with the use of exotic species.

In areas where plantations are established through afforestation, this standard focuses on their landscape benefits of providing flexibility so that portions of natural forest areas can be managed for conservation values. ***While plantations established on afforested lands are required to meet the site level provisions of this standard, not all of the indicators of Principles 1-9 are appropriate for the evaluation of these sites and those have been clearly identified.*** Plantations established on natural forest areas are dealt with under Criterion 6.10. For those plantations, all aspects of Principles 1-9 apply.

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.

Intent, 10.1
Criterion 10.1 refers to natural forest conservation and restoration objectives. It is not expected that these objectives will be fulfilled within the plantations. The notion here is that the "offset" areas for plantations can be (and likely will be) elsewhere in the forest. Indicator 10.1 requires that the objectives for natural forest conservation or restoration be spatially explicit, and so, the natural forest areas which will benefit from plantation management elsewhere in the forest must be specifically designated.

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 or restoration objectives.

Verifiers:
- Forest management plan goals, objectives and strategies.
- Discussion with the plan preparer(s).
- Review of consultation records.

10.1.2 When the management plan goals and objectives related to plantations are achieved, the natural forest conservation or restoration objectives must also be achieved according to the schedule proposed in the plan.

Verifiers:
- Forest management plan goals, objectives and strategies.
- Discussion with the plan preparer(s).
- Review of consultation records associated with plan development, monitoring and evaluation process.

10.1.3 The establishment of plantations of exotic species, including hybrids where one or more parent is an exotic species, is subject to 6.9.1 and includes a monitoring plan as described in 6.9.3.

Verifiers:

- Forest management plan goals, objectives and strategies.
- Discussion with the plan preparer(s).
- Review of consultation records.

10.1.4 Measures for the establishment of new plantations and management goals and objectives for existing plantations are highlighted during management plan development.

Verifiers:

- Records of material presented at plan development open houses and consultation meetings.
- Consultation records.

Intent, 10.1.4
It is expected that the requirements of Indicator 10.1.4 will be met by following the requirements of Criterion 4.4, which deals more broadly with consultation with people and groups affected by management operations.

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.

Verifiers:

- Forest management plan goals, objectives and strategies.
- Discussion with the plan author(s).
- Review of consultation records.
- Field verification.

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.

Verifiers:

- Forest management plan goals, objectives and strategies.
- Operational plans.
- Site inspection records.

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 are planned and managed in a manner that contributes to site level and landscape level diversity.

Verifiers:

- Forest management plan goals, objectives and strategies.
- Operational plans.
- Site inspection records.

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 growth and yield performance and the health of all planted species are monitored. (See also 6.9.1 and 10.1.4.)

Verifiers:

- Forest management plan goals, objectives and strategies.
- Review of consultation records.
- Monitoring plan and monitoring records.
- Site inspection records.

10.4.2 When the use of exotic species is found to have harmful ecological effects through the monitoring required by Indicator 10.4.1 or by other means, remediation plans are promptly developed and implemented.

Verifiers:

- Monitoring plan and monitoring records.
- Remediation plans.
- Site inspection records.

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 A proportion of the overall forest management area, appropriate to the scale of the plantation is managed so as to restore the site to a natural forest cover.

Verifiers:

- Forest management plan goals, objectives and strategies (indicating the proportion).
- Discussion with the plan preparer(s).

Intent, 10.5.1
The intent of this indicator is that an area equal to, or greater than, the plantation area within the natural forest is to be restored to natural forest cover. Restoration here refers to damage caused by those other than the applicant. If the forest does not contain such areas then this indicator will not be assessed. If the forest contains damaged areas smaller in size than the plantation area, then the expectation is that they are being restored to natural forest cover. This indicator does not apply to plantations established through conversion of unforested lands to plantations.

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 Access construction and maintenance, and forest management practices within and adjacent to plantation areas are consistent with those applied elsewhere on the management unit.

Intent, 10.6.1
This indicator is similar to those under Criterion 6.5, particularly Indicator 6.5.1 which requires the development and implementation of Standard Operating Procedures to protect the forest environment during management operations. Indicator 10.6.1 notes that the access construction and maintenance practices in plantation areas should be consistent with those undertaken elsewhere on the forest, and therefore, the Verifiers: of Indicator 6.5.1 apply here as well.

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.

10.7.1 Measures are taken to prevent and minimize outbreaks of pests, diseases, fire and invasive plant introductions in plantations. Integrated pest management forms an essential part of the management plan for plantation areas, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers. Plantation management requires progressively less chemical pesticides and fertilizers, including their use in nurseries.

Verifiers:

- Forest management plan goals, objectives and strategies
- Monitoring reports and relevant responses.
- Records of application rates and areas of pesticides and fertilizers.

Intent, 10.7.1
This indicator is intended to apply to both plantations established in natural forests and to those established through afforestation. However, there is a recognition that fertilizers can be an important silvicultural tool in some plantations. While the use of fertilizers is discouraged in all plantations established in natural forest areas, for those established through afforestation, fertilization can be fundamental to their success and consistent with the land use history of the plantation area.

Criterion 6.6 addresses the use of pesticides, and Criterion 6.8 addresses the use biological control agents.

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 Plantation monitoring includes regular assessment of potential on-site and off-site ecological and social and economic impacts (e.g., natural regeneration, invasiveness of exotic species, effects on water resources and soil fertility, and impacts on local welfare and social well-being), consistent with the monitoring requirements described in Principle 8.

Verifiers:

- Forest management plan goals, objectives and strategies.
- Monitoring plan and monitoring records.
- Site inspection reports.
- Social and economic impact assessments.

Intent, 10.8.1
Indicator 6.9.2 prohibits the use of invasive exotic plant species, and therefore it shares a common concern with Indicator 10.8.1.

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 manager/owner 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 present on lands which are now under plantations is documented. The year of conversion is reported.

Verifiers:
- Historic land use records.
- Prior forest inventories.
- Correspondence files.

10.9.2 For plantations established in areas converted from natural forests after November 1994, the manner and reason for conversion is documented.

Verifier:
- Documentation related to conversion.

Glossary

Aboriginal rights: A practice, custom or tradition integral to the distinctive culture of the aboriginal group claiming the right. Aboriginal rights, including site specific rights may exist, even if specific title does not exist.

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. Management processes are based on the following authoritative works: Holling (1978), Baskerville (1985), Walters (1986)[3].

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.

Applicable law: Includes applicable legislation as well as common law principles (e.g., legal principles related to contracts and Aboriginal Rights).

Applicant: The individual, organization or agency seeking certification or recertification.

Appropriate to the scale and intensity: The phrase "appropriate to the scale and intensity" is used in Indicators and Verifiers: to indicate to a certifying body that judgment is required in deciding the level of effort that can reasonably be expected from a manager in addressing a particular element of the FSC Standard. The intent is to relate expectations to the manager's resources, size of the management unit, and potential management impacts related to the specific element. Consideration should also be given to the significance of potential impacts of the management activities addressed, the sensitivity of values potentially affected, the reversibility of the potential effects, and the relative importance of the values.

Arch culvert: A type of culvert generally used for crossing medium-to large-sized streams in which the upper portion is arched, but the bottom is flat (or, if the culvert is anchored at the points where it meets the streambed, it may not have a bottom). Arch culverts are used to maintain natural creek bottoms under the culvert, reduce water velocity, and therefore provide optimum passageways for fish.

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).

Binding international agreements: For the purposes of Criterion 1.3, binding international agreements relevant to forest operations include:

- Convention on Biological Diversity;
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Convention for the Protection of the World Cultural and Natural Heritage;
- Convention on the Protection of Migratory Birds in Canada and the United States;
- Framework Convention on Climate Change, also known as the Kyoto Accord (ratification by Canada is pending);
- North American Agreement on Environmental Cooperation;
- International Labour Organization (ILO) C.100: Equal Remuneration Convention; and
- ILO C.111: Discrimination (Employment and Occupation) Convention.

Biocide: Any substance, biological or chemical that is intended to be potentially lethal to an organism or intended to destroy life.

Biological control agents: Living organisms used to eliminate or regulate the population of other living organisms (i.e.,, pest species).

Biological (bio)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.

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

Clearcut: An area of forest in which all or most of the trees have been harvested; also the harvesting technique that removes all or most of the trees on a site. There is considerable debate within the ecological and forestry communities regarding; how to precisely define a clearcut based on size and configuration of the harvested forest area, proximity to other recently-harvested forest areas, the height or age of the regenerating vegetation both within the harvested area and proximal to the harvested area, etc.

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.

Conservation attributes: For the purpose of this Standard a conservation attribute is an element, structure or process associated with a High Conservation Value, that can be monitored and managed to ensure its persistence over time. For example, if the HCV designation within a management unit is a consumptive watershed, the associated conservation attributes might include water quality and quantity, flow regimes, integrity of water courses and condition of seeps and springs. These conservation attributes would be identified during the HCV assessment and management strategies to maintain and/or enhance them would be developed, implemented, and monitored, as appropriate.

Conservation biology: Conservation biology is the applied science of maintaining the earth's biological diversity. It integrates and applies the principles of ecology, biogeography, population genetics, economics, sociology, anthropology, philosophy, and other theoretically based disciplines to the maintenance of biodiversity. In the context of protected reserve network planning, applicable concepts from conservation biology include: complete ecosystem representation; protection of core habitats to ensure the maintenance of viable populations of all native species in natural patterns of distribution and abundance; sustaining ecological and evolutionary processes; and ,the maintenance of a landscape that is resilient to environmental

change. Many conservation biology practitioners translate these principles into the need for a network of well-distributed protected reserves, combined with adequate buffers and linkage areas to provide for dispersal, seasonal movement, and adaptation to environmental change. The required size and distribution of the reserve network depends on the ecosystems and species present, landscape complexity, and the extent and intensity of human disturbance in the surrounding landscape.

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

Conversion: See forest conversion.

Core forest area: The interior portion of a contiguous forest area, not influenced by edge characteristics or properties.

COSEWIC: Committee on the Status of Endangered Wildlife in Canada. The Committee determines the national status of wild Canadian species, subspecies and separate populations suspected of being at risk. COSEWIC bases its decisions on the best up-to-date scientific information and Aboriginal Traditional Knowledge available. All native mammals, birds, reptiles, amphibians, fish, molluscs, lepidopterans (butterflies and moths), vascular plants, mosses and lichens are included in its current mandate.

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.

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 (FSC-AC, February 2000).

Criterion (pl. Criteria): 1. A means of judging whether or not a Principle (of forest stewardship) has been fulfilled. 2. A distinguishing element or set of conditions by which a forest characteristic or management is judged. 3. A second-order principle that adds meaning and operationality to a principle without itself being a direct measure of performance.

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.

Delegate control: In most cases, Indigenous Peoples are not the primary initiators or actors in forestry. Therefore, there will usually be an element of delegating control of forestry to a forest manager in FSC-certified operations. Implicit in the concept of free and informed consent in this context is the right to set conditions for delegation of control. Conditional delegated control means specific conditions for granting, withholding, or withdrawing consent for delegation of control are set. The conditions could also set benchmarks to be met by the forest manager. Those with authority to delegate control retain the right to revoke the delegation. Indigenous peoples' right to delegate control in the manner of their choosing is one of the "legal and customary rights" referred to in Principle 3.

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.

Disturbance mosaic: The landscape level, spatial pattern of disturbance. The mosaic includes not only areas that have actually been cut, but also inclusions of uncut forest (insular residual), peninsular residual patches, other cuts in close proximity, and forest separating cuts.

Disturbance regime: The characteristic manner in which forests are altered by disturbances. Disturbance regimes are characterized by the nature (e.g., pest, insect, windstorm, etc.), the periodicity, and severity of disturbance events.

Ecodistrict: A part of an ecoregion characterized by a distinctive pattern of relief, geology, geomorphology, vegetation, soils, water and fauna

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.

Ecoregion: A unit of ecological classification characterized by distinctive ecological responses to climate as expressed by vegetation, soils, water, and fauna.

Ecosite: A unit of ecological classification which is characterized primarily by soil and hydrological conditions.

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

Ecosystem diversity: The variety of biomes or habitats occurring with a designated area.

Ecosystem integrity: The diversity of organisms at all levels, including genetic variation, species, populations, ecosystems, landscapes and their physical environments; the ecological patterns, structural attributes, functions and processes that are responsible for that biological diversity and also responsible for ecosystem resilience, allowing for recovery following disturbance.

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

Economic viability: The capability of an entity to be economically self-sustaining. In the long term, this means that the entity must at least break even and, more likely be profitable. In the short term, entities can run at a loss depending on their access to financial backing and the value of cash and assets held.

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.

Enduring feature: A landscape element or unit within a natural region characterized by relatively uniform origin of surficial material, texture of surficial material, and topography.

Environmental impact assessment: see Assessment of environmental impacts.

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.

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.

Exotic species: An introduced species not native or endemic to the area in question.

Focal species: Focal species builds on the concept of umbrella species, whose habitat requirements are believed to encapsulate the needs of other species (Lambeck 1997)[4]. The focal species approach assumes that meeting the requirements of the most demanding species will result in a landscape design encompassing the needs of a wider range of species. See Appendix 4 for a more complete definition and discussion.

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 conversion: The substantial or severe modifications to the 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 a permanently non-forested area.

Forest-dependent business: A business enterprise that derives a significant portion of its revenue directly from either the sale of products harvested from the forest or from the sale of consumptive or non-consumptive forest-based experience.

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 manager: Individual(s) responsible for the operational management of the forest resource and of the forest management enterprise, as well as the management system and structure, and the planning and field operations.

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

Forest unit: An aggregation of forest stands for management purposes which have similar species composition, develop in a similar manner (both naturally and in response to silvicultural treatments), and are managed under the same silvicultural system.

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.).

Fragile ecosystems: Ecosystems (at any scale) which are prone to disruption from even modest management interventions or natural disturbance events.

Free and informed consent: Consent that has two aspects to it: the consent must be freely given, and it must be knowledgeably given. Consent itself means to express willingness; to give permission; to agree. It also means a voluntary agreement; a permission. Freely given consent is consent that is voluntarily given, without manipulation, undue influence or coercion. Key to "freely given consent" is maintaining the essential dignity and individual/community's right to choose. Informed consent requires disclosure, particularly related to the risks involved to the right being protected. It is assumed, but not certain in law, that the disclosure necessary to qualify consent as being "informed" would relate to the scope and content of the right being protected. In the context of Aboriginal title or Indigenous lands, disclosure may have to be more complete since the right is an encompassing right, whereas disclosure with respect to Aboriginal hunting rights may be limited to the affect on that right.

Informed consent involves explicitly and accurately informing a participant in the process, of its potential benefits and risks, the alternatives to participating, and the right to withdraw from the process at any time. Key to "informed consent" is the quality, timeliness and appropriateness of information used to decide consent. Informed consent also requires that the consentor have the capacity to fully understand and integrate the information provided. Implicit in the right of free and informed consent in this context is the right to set specific conditions for granting, withholding, or withdrawing consent. The conditions could also set benchmarks to be met by the forest manager. Indigenous Peoples' right to grant, withhold or withdraw consent is one of the "legal and customary rights" referred to in Principle 3. Principle 3, with its requirement of informed consent, imposes a greater burden on an applicant than present domestic law.

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.

Genetic diversity: Variety within individuals within a species or a population, or more specifically the variety of DNA or alleles within a species or population.

Genetically modified organisms: Biological organisms which have been induced by various human-initiated means to consist of genetic structural changes.

Grade recovery: In the production of lumber, the proportion of lumber yielded from a log or quantity of logs within each lumber grade (quality) category.

Grievance: A situation in which a person or people object to situations which may (or which they perceive may) affect their actual or potential loss or property, resources, livelihoods, or legal or customary rights, resulting from the manager's activities.

Habitat: 1. Those parts of the environment (aquatic, terrestrial, and 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.

Harvest block separators: Areas of unharvested forest, which may consist of strips or other configurations of forest, that separate one harvest block from another. There are often precise provincial definitions of what constitutes a harvest block separator, since this affects the determination of harvest block size.

HCVF: See High Conservation Value Forest.

Herbicide: Chemical or biological agent used to kill plants. In forestry, herbicides are most often used to kill vegetation competing with crop trees.

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).

Home range: The area over which an animal roams during the course of its usual wanderings and spends most of its time. When home ranges are marked and defended they are referred to as territories. In vertebrates, the size of an animal's home range is roughly proportional to its body size.

Impact assessment: see Assessment of environmental impacts.

Inappropriate hunting fishing, trapping and collecting: In the context of Criterion 6.2, this refers to the poaching of any fish or wildlife species, and/or the pursuit of any species without the required legal permits or licenses, or the harvesting by any means of a species beyond a legally set quota.

Indicator: A specific requirement in the FSC National Boreal Standard, subordinate to the principles and criteria.

Indigenous: In this standard, the term "Indigenous" will be understood to be inclusive of those groups constitutionally-recognized as being Aboriginal People, including Indian, Métis and Inuit.

Indigenous area of concern: see **Sites of special cultural, ecological, economic, or religious significance.**

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 Peoples: There are several definitions of Indigenous Peoples that are relevant to this standard, both from the international arena and within the Canadian context (for a background on evolving definitions in the international arena, see the UN Development Program's "About Indigenous Peoples: Definition" at http://www.undp.org/csopp/CSO/NewFiles/ipaboutdef.html). FSC Canada agrees with Daes (1996)[5] that the following factors are relevant to the understanding of the concept of "Indigenous":

a) "priority in time with respect the occupation and use of a specific territory;
b) the voluntary perpetuation of cultural distinctiveness, which may include aspects of language, social organization, religion and spiritual values, modes of production, laws and institutions;
c) self-identification, as well as recognition by other groups, or by State authorities, as a distinct collectivity;
d) and an experience of subjugation, exclusion or discrimination, whether or not these conditions persist."

Another definition of Indigenous Peoples comes from the International Labour Organization's Convention 169 on Indigenous and Tribal Peoples in Independent Countries (to which FSC International prescribes). Article 1.1, which defines the coverage of the Convention, states that it shall apply to:

a. Tribal peoples in independent countries whose social, cultural and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations;
b. Peoples in independent countries who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.

Article 1.2 of the Convention states that "Self-identification as indigenous or tribal shall be regarded as a fundamental criterion for determining the groups to which the provisions of this Convention apply."

FSC International presently uses a definition of Indigenous peoples adopted by the UN Working Group on Indigenous Populations that is out of date. The definition adopted by the UN Working

Group on Indigenous Populations in 1989 reads: "*Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity; as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems."* This definition does not mention self-identification, which is now widely considered to be an essential attribute of Indigenous Peoples.

In Canada, "Indigenous peoples" means Aboriginal peoples, which includes Indian, Métis and Inuit; this is in Part II of the Canadian Charter of Rights and Freedoms in the Constitution Act, 1982, as amended.

The term "Indigenous community" is considered in this standard to be synonymous with Indigenous Peoples, and is included in the text of the standard so that the text is more readable.

Inner riparian reserves: The portion of the riparian buffer zone that borders the treed edge of a water body. The inner reserve, because of its proximity to the water body, frequently has a greater level of constraint on operations than parts of the buffer that are more distant from the treed edge of a water body (i.e., outer reserves).

Insecticide: Chemical or biological agent used to kill insects.

Intact: In the context of Criterion 6.3, intact means the maintenance of (i.e., no readily determinable changes to) ecological functions at a forest or landscape scale.

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.

Integrity: See Forest integrity.

Interested: Having a desire to participate or be consulted.

Intermittent stream: A stream in contact with the groundwater table that flows only at certain times of the year, such as when the groundwater table is high and/or when it receives water from springs or from some surface areas. It ceases to flow above the stream bed when losses from evaporation or seepage exceed the available streamflow. Also known as a seasonal stream.
Joint management: see Joint management agreement.

Joint management agreement: In the context of this Standard, a joint management agreement is an agreement made between a forest manager and an Indigenous people(s) with the purpose of going beyond consultation, and into jointly setting goals, objectives, strategies, implementation, restoration and monitoring of the forest within the management unit. This can range from a relatively few areas of common interest to a thorough integration of industry and Indigenous peoples' ideas throughout the whole management plan. A joint management agreement is not a

substitute for consultation on the management plan for purposes of this Standard. Characteristics of a good joint management agreement include:

- The agreement is written in clear and unambiguous language;
- The joint management agreement is approved by the decision-making body or bodies as set out in the protocol agreement;
- Financial, technical or logistical capacity-building support, in proportion to the scale and intensity of operations, is available to the Indigenous people(s) where required to assist with development of the joint management agreement;
- The agreement contains:
    - Protection measures described in Criteria 3.2, 3.3 and 3.4;
    - Collaboratively developed objectives and strategies related to matters of importance to the Indigenous People(s) (e.g.,, revenue sharing, access to resources, training and employment, habitat restoration, non-timber forest product management strategies);
    - A process for involving Indigenous People(s) in collaborative development of all or part of the management plan;
    - An appropriate consultation process for consulting on any part of the management plan not covered by collaborative development; and,
    - Provisions for reviewing the joint management agreement and its effectiveness, and for renewal of the agreement.

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. If no communities meet this criterion, then the scope of "local" should be expanded to cover communities within a reasonable daily commuting distance from the boundary of the forest being certified.

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 People: are considered local where they permanently reside within daily commuting distance by car or boat from the management unit, or where they are part of the Indigenous people whose lands and territories contain or are contained within the management unit.

Long term: The length of time consistent with sustainability. Ideally, this is 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 activities: See Forest management activities.

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: A geographic area containing a legally defined parcel of forest land associated with a given tenure. Across Canada there exist many different kinds of management units over which industrial forest managers have tenure. Management units also include privately owned forests.

Manager: The individual or legal entity that appears on the title documents for the land being certified, or on the relevant tenure/lease/license document.

Marketable: A product that can be sold (or exchanged) because one or more buyers exists.

Meaningful: In the context of this Standard, meaningful is used to refer to opportunities for non-forest managers to provide significant input into the planning process. Meaningful input will: be thoughtfully considered by the forest manager, will solicit a recorded response from the forest manager; and will be referenced in the forest management plan or related documentation.

Merchantable: A log or tree which meets or exceeds minimum size requirements and contains a proportion of sound wood in excess of minimum requirements, as determined according to applicable scaling (wood measurement) standards.

Native species: A species that occurs naturally in the region; endemic to the area.

Natural cycle: Nutrient and mineral cycling as a result of interactions between soils, water, plants, and animals in forest environments that affect the ecological productivity of a given site.

Natural disturbance: See Disturbance.

Natural forest: A forest area 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-forested land: Land that is classed as being used for a purpose other than supporting forest growth, such as agriculture, roads, trails, landings, gravel pits, and camps. Deforestation is the process of converting forest land to non-forest land; afforestation is the reverse process.

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 produced by the forest. In the boreal forests of Canada, there are many commercial enterprises based on non-timber forest products, such as hunting and fishing lodges, trapping operations, outfitting, remote tourist operations, and youth camps.

Old forest: Later stage(s) in forest development which may be distinctive in composition but are always distinctive in structure from earlier (young and mature) successional stages.

Optimal or highest and best value: In many cases, a log or tree can be used for a variety of purposes, with the sale price of the wood dependent on the use to which it will be put. Optimal (or highest and best) value is obtained when the highest price is obtained, or the wood is used for the purpose which best meets financial or socio-economic objectives.

Other forest types: Forest areas that do not fit the criteria for plantation or natural forests and which are defined more specifically by FSC-approved national and regional standards of forest stewardship.

Overlapping license: A license, also known as a third-party license, which gives the holder the right to harvest timber on either all or a defined portion of an area that is licensed to another entity. An overlapping license is often issued to provide for the harvest of a specific species or group of species, or for specific products such as veneer bolts. The holder of the overlapping license typically has some responsibilities associated with holding the license, but the main licensee often undertakes the bulk of the planning and reporting duties for the forest, and may charge the overlapping licensee a fee for these services. An overlapping licensee may also be a license holder for the exploitation of another resource (e.g., oil and gas) on a land base also occupied by a timber licensee.

Patch size: The area encompassed by a discrete vegetation community or area of wildlife habitat.

Peer review: An independent or external review by experts on the subject being considered.

Percentage recovery: The proportion of a log or load of logs that is converted into product.

Pesticide: In forestry, chemicals used to control insects, fungus, rodents and competing plants. The following list contains prohibited chemicals listed by FSC International in the policy "Chemical Pesticides in Certified Forests: Interpretation of the FSC Principles & Criteria" (FSC International Policy Revised and Approved July 2002).

Name of chemical	**Reason for prohibition (cf. section 4)**
Aluminum phosphide	Toxicity similar to sodium cyanide. WHO Table 7.
aldicarb	WHO Table 1, Class Ia.
aldrin	CHC
benomyl	Persistence: 6 - 12 months. Toxicity: LD50 100 mg/kg. LC50 60 - 140 microg/l. Mutagen.
brodifacoum	WHO Table 1, Class Ia. Permitted for control of rodents in Chile, when they are vectors of Hantavirus transmission, in houses and camps.
bromadialone	WHO Table 1, Class Ia. Permitted for control of rodents in Chile, when they are vectors of Hantavirus transmission, in houses and camps.

carbaryl	Toxicity: LD50 of 100 mg/kg in mice.
chlordane	Organochlorine. Persistence: half-life of 4 years. Toxicity: oral LD50 in rabbits approx. 20-300 mg/kg.
DDT	CHC
diazinon	Toxicity: 0.0009 mg/kg/day. LD50 2.75 - 40.8 mg/kg.
dicofol	Persistence: 60 days. Biomagnification: log Kow 4.28.
dieldrin	CHC
dienochlor	Organochlorine. Toxicity: LC50 of 50 microg/l in aquatic environments.
difethialone	WHO Table 1, Class Ia. Permitted for control of rodents in Chile, when they are vectors of Hantavirus transmission, in houses and camps.
dimethoate	Toxicity: RfD 0.0002 mg/kg/day. LD50: 20 mg/kg in pheasants.
endosulfan	Organochlorine. Toxicity: LD50 much less than 200 mg/kg in several mammals. RfD 0.00005 mg/kg/day.
endrin	Organochlorine. Persistence: half-life >100 days. Toxicity: LD50 <200 mg/kg. Biomagnification high in fish.
gamma-HCH, lindane	CHC
heptachlor	Organochlorine. Persistence: half-life 250 days. Toxicity: LD50 100-220 mg/kg in rats, 30-68 mg/kg in mice. RfD 0.005 mg/kg/day. Biomagnification: Log Kow 5.44.
hexachlorobenzene	WHO Table 1, Class Ia.
mancozeb	Toxicity: RfD 0.003 mg/kg/day.
methoxychlor	Persistence: half-life 60 days. Toxicity: RfD 0.005 mg/kg/day. LC50 <0.020 mg/l for trout.
metolachlor	Biomagnification: log Kow 3.45.
mirex	Organochlorine. Persistence: half-life > 100 days. Toxicity: LD50 50-5000 mg/kg. Carcinogen. Bioaccumulation high.
oryzalin	Persistence: Half-life 20-128 days. Toxicity: LD50 100 mg/kg in birds.
oxaphene (camphechlor)	Organochlorine. Persistence: > 100 days, high. Bioaccumulation high.
oxydemeton-methyl, Metasystox	WHO Table 2, Class Ib.
oxyfluorfen	Toxicity: RfD 0.003 mg/kg/day Log Kow 4.47. (Goal, Koltar)
paraquat	Persistence: > 1000 days. Toxicity: RfD 0.0045 mg/kg/day. Log Kow 4.47.

parathion	WHO Table 1, Class Ia.
pentachlorophenol	WHO Table 2, Class Ib.
permethrin	Toxicity: Log Kow 6.10. LC50 0.0125 mg/litre in rainbow trout. To be prohibited, with a derogation to the end of 2003 for use with seedlings and young planted trees, when used with minimal impacts on insects and aquatic systems. (Permasect)
quintozene	Organochlorine. Persistence: 1 - 18 months. Toxicity: high. Biomagnification: Log Kow 4.46.
simazine	Toxicity: RfD 0.005 mg/kg/day.
sodium cyanide	WHO Table 2, Class Ib.
sodium fluoroacetate,	1080 WHO Table 1, Class Ia. Permitted for control of exotic mammals in Australia and New Zealand, where they cause damage to native plants or animals.
2,4,5-T	Organochlorine. Toxicity: medium to high in mammals. Often contaminated with dioxin.
rifluralin	Toxicity: RfD 0.0075 mg/kg/day. Log Kow 5.07. LC50 0.02 mg/litre. (under review, to be clarified)
warfarin	WHO Table 2, Class Ib. Permitted for use against exotic mammal pests of native forests, including grey squirrels in UK, by approved operators with approved traps.

Pesticides containing lead (Pb), cadmium (Cd), arsenic (As), or mercury (Hg).

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 referred to in **Intent, 10**, 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 non-commercial 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.

Plantations exist for timber production purposes and are not managed to provide other values or amenities on the planted sites.

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:

- The manager avoids actions that may lead to irreversible changes to ecosystem function and resilience;
- 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;
- The onus is on the manager to demonstrate that proposed management activities are not likely to impair ecosystem function and resilience;
- 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,
- The manager remains mindful of the needs of future generations.

Pre-industrial forest: 1. A native forest which has not been subjected to large scale harvesting or other forms of human management. 2. A forest area such as existed prior to human settlement in the region occupied by the forest. Indicator 6.1.5 spells out what parameters are required to operationally define the character of a pre-industrial forest.

Principles of conservation biology: See conservation biology.

Protected area: 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. See Appendix 3 for definitions of the IUCN protected area categories.

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.

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

Public Advisory Group (PAG): A committee with a diversity of interests that represents the public's views during forest management planning and implementation.

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. A public participation process is recommended on all forest lands, and is required on Crown lands.

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: The process of returning depauperate ecosystems or habitats to a structure and species composition that would have been present before degradation took place. Restoration requires a detailed knowledge of the (original) species, ecosystem functions, and interacting processes involved.

Remote: Areas without motorized access because roads to the area are either non-existent, seasonal, closed, abandoned or re-vegetated.

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.

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.

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.
Site preparation can be:

- Mechanical, by which the suitable planting spots or soil conditions are created by disturbance of the ground using machinery;
- Chemical by which planting spots are created by eliminating potential competition through the use of herbicides, or through the use of prescribed burns; or,
- Through which a controlled burn is used to eliminate slash and vegetative competition and expose mineral soil.

Sites of special cultural, ecological, economic, or religious significance: Include, but are not limited to, sites relating to or associated with the following:

- Ceremonial/Spiritual/Religious (e.g., vision/spirit quest area, repository for the dead, gathering place, sacred places);
- Traditional Oral History (e.g., origin of a story, legend);
- Cultural Landforms (e.g., named places, marker sites, legendary landforms);
- Supernatural Beings (e.g., supernatural areas);
- Transportation (e.g., grease trail, trading route, water route, portage area);
- Habitation (e.g., permanent village, seasonal residence, storage area);
- Recreational (e.g., gathering place, games or competition place);
- Cross-Cultural Interaction (e.g., first contact, trade with Europeans, or other Indigenous People(s); and,

- Education and Training (e.g., where traditional skills, values or knowledge are conveyed).

Skid trails: Trails or paths created by the repeated passage of skidding equipment to drag felled trees to the roadside.

Snag: A standing dead tree or a standing section of a tree stem.

Social impacts: The consequences to society as a whole, communities, or individuals of the manager's decisions and activities that alter the ways in which people organize to meet their needs, live, work, play, or interact.

Soil rutting: The creation of ruts in the forest floor and soils, caused by the use of forest management operations machinery, of sufficient magnitude so as to alter surface drainage and infiltration, and soil water-to-air ratios.

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.

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

Stakeholder: An individual or organization with an interest in the state and/or management of a forest as a result of economic, social, spiritual or conservation-oriented ties to the forest.

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

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.

Steep slopes: Slopes with an incline such that normal forest operations would result, or would have the potential to result in moderate or severe erosion.

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.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).

Subspecies: A taxonomic designation below the level of species. For some species there is considerable uncertainty between the distinctions between species, subspecies, genus and populations.

Succession: Progressive changes in the species composition and structure of a forest community caused by non-catastrophic natural processes (nonhuman) over time.

Supervisor: An individual with responsibility for overseeing the work of others.

Surrounding lands: Lands which abut the management unit.

Tending: Forest management operations that are conducted to improve the growth or quality of a forest or stand. Tending may involve cleaning (removing undesirable or competing vegetation using herbicides or manual treatments), thinning, stand improvement, or pruning.

Tenure: Socially defined agreements held by individuals or groups, recognized by legal statutes or customary practice, regarding the "bundle of rights and duties" of ownership, holding, access and/or usage of a particular land unit or the associated resources there within (such as individual trees, plant species, water, minerals, etc).

Thermokarst: The process by which characteristic landforms result from the thawing of ice-rich permafrost or the melting of ice masses. Thermokarst is caused by the selective thaw of ground ice associated with thermal erosion by stream and lake water and may reflect climatic changes or human activity.

Traditional Ecological Knowledge (TEK): An accumulated body of knowledge that is rooted in the spiritual health, culture, and experiences of those who are close to the lands. It is based on an intimate knowledge of the land, its physiographic and natural features, climate, and wildlife, and the relationships between all aspects of the environment. Although in many uses it refers to knowledge of Indigenous peoples, others with intimate knowledge and experience of the land also have developed traditional ecological knowledge.

Traditional use: (Related to P3). The use of land or the pursuit of activities on a forest.

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

Treed edge: The line where tree growth is sufficiently continuous so as to constitute a different ecosystem from the non-forest ecosystems that may border a water body. Where the forest extends to the edge of a water body, the treed edge is usually along the normal high water mark but it may be set back from this where the water body is bordered by non-tree growth or scattered trees among other types of vegetation. The treed edge is where the inner riparian reserve begins.

Unique ecosystems: Rare or uncommon ecosystems of any scale within the management unit or forest being considered for certification. For example, these may include disjunct ecological communities, breeding grounds of uncommon species, etc.

Use rights: Rights for the use of forest resources that can be defined by local custom, mutual agreements, or prescribed by other entities holding access rights. These rights may restrict the use of particular resources to specific levels of consumption or particular harvesting techniques.

Utilization: The amount of potentially merchantable timber on a site that is actually used.

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.

Verifier: Data or information which provides specific details or measures which enhance the ease, specificity or precision of assessment of an indicator. In this Standard the Verifiers: noted are not mandatory means by which to assess indicators, but suggested or useful means.

Vertical structure: The amount and orientation of above-ground biomass in a stand or forest area.

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 hydrophilic or water tolerant vegetation.

Wildlife: Any species of amphibian, bird, fish, mammal and reptile found in the wild, living unrestrained or free roaming and not domesticated.

Worker: See Forest workers.

Appendix 1: Expanded Information on FSC Goals

The introduction to this standard describes the goals of FSC Canada, to:

- Promote improvements in "on-the-ground" forest management and practices in the boreal forest.
- Develop a feasible and widely adopted certification standard.
- Promote a common understanding of what constitutes good forestry in the boreal forest.

Successful achievement of the Goals would be envisioned as:

1. Uptake by Forest Companies and Managers

A "practical and widely adopted" standard would be taken up by the most innovative and progressive forest companies, woodlot owners with tenure holdings, and Indigenous Peoples on their lands and territories. Accordingly, by June 2005:

a) 3 or 4 medium to large scale industrial operations will become certified;
b) 3 or 4 other operations – woodlot groups, tourism landowners, or Indigenous Peoples – will become certified; and,
c) Further uptake of the standard by companies and organizations in all sectors will have begun and will continue beyond June 2005.

2. Impact on Existing Practices

Application of the Boreal Standard will result in improvement to existing forest management practices, even for the most innovative. While the impact will vary according to the situation and the current state of forest management, the standard should be applied:

a) Equitably in all regions recognizing, and potentially influencing, existing provincial policies and regulations; and,
b) Achieve maximum additional environmental and social benefit with the minimum wood supply and workforce adjustment impacts.

3. Environmental Characteristics

While indicators of environmental change may be difficult to measure directly in the short term, it is expected that application of the standard will result in:

a) Measurable improvements in the protection and maintenance of biodiversity, and water and soil quality;
b) Reduced dependence on chemicals (herbicides, pesticides, and biocides) to the point of eventual phase out; and,
c) Visible landscape changes in the forest moving toward baseline pre-industrial conditions.

4. Social Advances

People living in, and dependent on, the forest must measurably benefit from the application of the standard. By example its application should:

a) Provide increased stability and security for forest workers;
b) Result in increased and diversified economic benefits for forest-based communities; and,
c) Lead to partnerships and written agreements with Indigenous Peoples as evidence of respect and informed consent, which contributes to greater recognition of and respect for Indigenous Peoples' Aboriginal and Treaty rights over their lands and territories.

5. Market Recognition

In order to confer advantages that outweigh the costs of implementation, certificate-holders should enjoy global public support and recognition for their efforts in the community through:

a) Promotion of preferential procurement policies for FSC certified products;
b) Leadership and cooperation in the raising of public awareness regarding the environmental and social value of the FSC mark from environmental organizations, industry, community economic development efforts, other stakeholders and Indigenous Peoples; and,
c) Increased public awareness and acceptance of the FSC label as an indicator of environmental and social responsibility.

Appendix 2 Applicable Legislation and Regulations in the Boreal Forest of Canada

Note: The following cites website references for the legal authority by jurisdiction for the management of the boreal forest in Canada.

Federal Forest Related Laws

This list includes selected federal statutes that govern aspects of forest management.

***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* and Ontario Fisheries Regulations**
Delivery Agent: Department of Fisheries and Oceans (DFO)
Ontario Ministry of Natural Resources Individual Conservation Authorities
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

Newfoundland and Labrador

The following legislation that affects the management of the Boreal forest in Newfoundland and Labrador.

Management of the province's forests is carried out under the auspices of the:
Forestry Act (1990).

Other legislation that impacts our management includes:
Environmental Protection Act (2002)
Endangered Species Act (2001)
Historic Resources Act
Water Resources Act
Wildlife Act
Wilderness and Ecological Reserves Act
All of these, and their associated Regulations, are available on the Government of Newfoundland and Labrador website at http://www.gov.nf.ca/hoa/sr/

New Brunswick

Key forest legislation - **Crown Lands and Forests Act, 1982**
http://www.gnb.ca/acts/acts/c-38-1.htm

Other relevant forestry legislation can be found at:
http://www.gnb.ca/0062/deplinks/ENG/Nre.htm

A complete listing of all NB legislation can be found at: http://www.gnb.ca/0062/acts/acts-e.asp

Quebec

Key forest legislation for Quebec/Document de base: **Loi sur les forêts (L.R.Q., c. F-4.1)**
http://publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/F_4_1/F4_1.htm

Other relevant documents/Autres documents pertinents de la législation forestière québécoise:
Consult/Consulter: http://www.mrnfp.gouv.qc.ca/lois/lois-forets.jsp

Ontario

Key forest legislation for Ontario:
Crown Forest Sustainability Act, 1994 - applies to Crown land

Other relevant forest legislation may be found at:
http://ontariosforests.mnr.gov.on.ca/forestrelatedlaws.cfm

Northwestern Territories

Forest Management Act, 1990

and the following regulations:
Forest Management Regulations
Forest Management Areas Regulation
Forest Management Unit Regulations
Forest Management Zones Regulations

Forest Protection Act, 1988

Manitoba

The Forest Act. It can be found at: http://web2.gov.mb.ca/laws/statutes/ccsm/f150e.php

Other relevant Acts (e.g. The Environment Act) at:
http://web2.gov.mb.ca/laws/statutes/ccsm/index.php#F

Saskatchewan

The Forest Resources Management Act and
Regulations:
http://www.qp.gov.sk.ca/documents/english/statutes/statutes/f19-1.pdf
http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/F19-1R1.
pdf

The Environmental Assessment Act
http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/E10-1.pdf

The link to all of Saskatchewan's Legislation is
http://www.qp.gov.sk.ca/

Alberta

British Columbia

Key Forest legislation
Forest Act
http://www.for.gov.bc.ca/tasb/legsregs/forest/foract/contfa.htm

Website address for a more complete list of applicable regulations
http://www.for.gov.bc.ca/tasb/legsregs/comptoc.htm

Yukon

Key Legislation
Territorial Lands Act (http://www.emr.gov.yk.ca/Forestry/Forest_Legislation.htm)
Yukon Timber Regulations (http://www.gov.yk.ca/Legislation/regs/oic2003_052.pdf)

Note:
Devolution of the forest management responsibilities from Canada to Yukon occurred on April 1, 2003. Relevant legislation and regulations were mirrored by the Government of Yukon immediately following the devolution transfer.

Related Legislation
Yukon Environmental and Socio-Economic Assessment Act (Canada)
http://laws.justice.gc.ca/en/Y-2.2/
Environmental Assessment Act http://www.emr.gov.yk.ca/Forestry/Forest_Legislation.htm
Forest Protection Act http://www.emr.gov.yk.ca/Forestry/Forest_Legislation.htm

For a complete listing of Yukon Legislation:
http://www.canlii.org/yk/sta/index.html
http://www.emr.gov.yk.ca/Forestry/Forest_Legislation.htm

Appendix 3: International Agreements Ratified by Canada

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 International Labour Organization is the UN specialized agency which seeks the promotion of social justice and internationally recognized human and labour rights. It was founded in 1919 and is the only surviving major creation of the Treaty of Versailles which brought the League of Nations into being and it became the first specialized agency of the UN in 1946.

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 for P4 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

The international wildlife trade, worth billions of dollars annually, has caused massive declines in the numbers of many species of animals and plants. The scale of over-exploitation for trade aroused such concern for the survival of species that an international treaty was drawn up in 1973 to protect wildlife against such over-exploitation and to prevent international trade from threatening species with extinction.

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

Canada is one of over 100 countries that signed the Convention on Biological Diversity at the United Nations Conference on the Environment and Development (UNCED) in Rio de Janeiro in June 1992. In December 1992 Canada became one of the first industrialized countries to ratify the Convention, which subsequently entered into force on December 29, 1993.

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 4: Protected Area Designations by IUCN

Category I: Strict Nature Reserve/Wilderness Area is a protected area managed mainly for science or wilderness protection.

Category Ia: Strict Nature Reserve is a protected area managed mainly for science. It is an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring. Management objectives include: to preserve habitats, ecosystems, and species in as undisturbed a state as possible; to maintain genetic resources in a dynamic and evolutionary state; to maintain established ecological processes; to safeguard structural landscape features or rock exposures; to secure examples of the natural environment for scientific studies, environmental monitoring and education, including baseline areas from which all avoidable access is excluded; to minimize disturbance by careful planning and execution of research and other approved activities; and, to limit public access. Guidelines for selection include: the area should be large enough to ensure the integrity of ecosystems and to accomplish the management objectives for which it is protected; the area should be significantly free of direct human intervention and capable of remaining so; the conservation of the area's biodiversity should be achievable through protection and not require substantial active management or habitat manipulation. Ownership should be by a national or other level of government, acting through a professionally qualified agency, or by a private foundation, university or institution which has an established research or conservation function, or be owners working in cooperation with any of the foregoing government or private institutions. Adequate safeguards and controls relating to long-term protection should be secured before designation.

Category Ib: Wilderness Area is a protected area managed mainly for wilderness protection. Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition. Objectives of management include: to ensure that future generations have the opportunity to experience understanding and enjoyment of areas that have been largely undisturbed by human activity over a long period of time; to maintain the essential natural attributes and qualities of the environment over the long term; to provide for public access at levels and of a type that which will best serve the physical and spiritual well-being of visitors and maintain the wilderness qualities of the area for present and future generation,; and to enable indigenous human communities living at low density and in balance with the available resources to maintain their lifestyle. Guidelines for selection include: the area should possess high natural quality, be governed primarily by the forces of nature, with human disturbance substantially absent, and be likely to continue to display those attributes if managed as proposed; the area should contain significant ecological, geological, physiographic, or other features of scientific, educational, scenic or historic value; the area should offer outstanding opportunities for solitude, enjoyed once the area has been reached, by simple, quiet, non-polluting and non-intrusive means of travel (i.e. non-motorised). Ownership is as in sub-category 1a.

Category II: National Park is a protected area managed mainly for ecosystem protection and recreation. It is a natural area of land and/or sea designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible. Objectives of management include: to protect natural and scenic areas of national and international significance for spiritual, scientific, educational,

recreational tourist purposes; to perpetuate, in as natural a state as possible, representative examples of physiographic
regions, biotic communities, genetic resources, and species, to provide ecological stability and diversity; to manage visitor use for inspirational, educational, cultural and recreational purposes at a level which will maintain the area in a natural or near natural state; to eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation; to maintain respect for the ecological, geomorphological, sacred or aesthetic attributes which warranted designation; and to take into account the needs of indigenous people, including sustenance resource use in so far as these will not adversely affect the other objectives of management. Guidelines for selection include: the area should contain a representative sample of major natural regions, features or scenery, where plant and animal species, species, habitats and geomorphological sites are of special spiritual, scientific, educational, recreational and tourist significance; and the area should be large enough to contain one or more entire ecosystems not materially altered by current human occupation or exploitation. Ownership and management should normally be by the highest competent authority of the nation having jurisdiction over it. However, they may also be vested in another level of government, council of indigenous people, foundation, or other legally established
body which has dedicated the area to long-term conservation.

Category III: Natural Monument is a protected area managed mainly for conservation of specific natural features.

Category IV: Habitat/Species Management Area is a protected area managed mainly for conservation through management intervention.

Category V: Protected Landscape/Seascape is a protected area managed mainly for landscape/seascape conservation and recreation.

Category VI: Managed Resource Protected Area is a protected area managed mainly for the sustainable use of natural ecosystems. Categories I to III have legally recognized protection prohibiting activities such as mining, commercial logging or hydroelectric projects.

Appendix 5: High Conservation Value Forest National Framework

1. Background

The Forest Stewardship Council (FSC) introduced the concept of High Conservation Value Forests (HCVFs) in 1999 when Principle 9 was revised. The concept focuses on the environmental, social and/or cultural values that make a particular forest area of outstanding significance. The intent of Principle 9 is to manage those forests in order to maintain or enhance the identified High Conservation Values. By focusing on maintaining or enhancing the environmental or social values that make the forest significant, it is possible to make management decisions consistent with the protection of such values.

The FSC provides the following definition of HCVFs:

From the Glossary in this document:
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).

By identifying these key values, it is possible to make rational management decisions that are consistent with the protection of a forest area's important environmental and social values.

Principle 9 requires that management activities in HCVFs "maintain and enhance the attributes which define such forests". Principle 9 contains four criteria:

- 9.1 requires an assessment to determine the presence of attributes consistent with HCVFs (as presented in the definition above).
- 9.2 is guidance to certifiers on the consultative portion of the certification process (does not normally requires further interpretation, indicators or verifiers).
- 9.3 requires a precautionary level of management and activities that ensure the maintenance or enhancement of High Conservation Values
- 9.4 requires monitoring the effectiveness of the management and activities implemented.

2. Purpose of the National Framework

The purpose of this framework is to assist applicants for FSC certification in determining whether the forest area under their management is a High Conservation Value Forest. The framework is organized as a series of questions that will guide the applicant into making that assessment. This

assessment will be verified and validated by the certification body during the certification assessment process. Although the framework specifically follows the HCVF definition provided by the FSC, it can also be used as a guide outside of the certification process to supplement conservation planning in forest ecosystems.

3. Using the Framework

The framework is organized as a table covering 6 categories derived from the definition above of High Conservation Value Forest attributes. The 6 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 then contains a series of question aiming at the identification of whether the forest operation contains any of the values identified in the category. Negative answers to these questions mean that the forest operation does not include High Conservation Values (HCV). Positive answers lead to further investigation and to answer more detailed questions. The first column (Item) contains a number of questions aiming at the identification of whether the HCVs are present in the forest area. The second column (Rationale) explains the rationale for the conservation of the particular value. 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 (Guidance on Assessing HCVs) is used if the response to any of the first series of questions (Item column) is positive. It includes a series of questions to assist the applicant in determining whether the evidence supports a HCV Forest designation. These questions have been structured as Yes/No answers. Furthermore, the significance of the question in determining HCV status is indicated by the words DEFINITIVE or GUIDANCE.

A positive response to any question that is labelled DEFINITIVE means that the elements under consideration are HCVs. However, a negative response to a question labelled DEFINITIVE should not be interpreted to mean that the HCV threshold has not been reached. Rather, the applicant should then answer the questions labelled GUIDANCE. Positive answers indicate the potential presence of HCVs. If a number of questions labelled GUIDANCE are answered positively, it strengthens the potential for the presence of HCVs. It is then expected that the applicant will provide a summary substantiating why the forest area was identified as an HCVF or not. In the case that most/all answers are negative it is a clear indication that the forest area

does not contain HCVs. This is verified and validated by the certification body during the certification assessment process.

The framework is not intended to be a prescriptive approach. Guidance in interpreting the six components of the HCVF definition leads the investigation to develop the evidence and thresholds for making an HCV designation. Whether or not an HCV designation is determined, the applicant should provide a rationale for the decision.

4. The Issue of Scale

- Criterion 9.1 of Principle 9 states that assessments for the presence of HCV attributes will be appropriate to scale and intensity of forest management. This implies that the expectations for smaller or less intensively managed forest operations would be lower than for larger or more intensively managed operations.
- The FSC definition implies that there are multiple scales at which HCVFs and their attributes are identified. For example, "globally or nationally significant" would be applied to broad landscapes or ecoregional scale forests that are significant on a global, continental or Canadian level, while "regionally significant" might apply to a watershed or a particular ecosystem that is significant at the provincial or regional level.
- The FSC definition also seems to imply differing scales between the various HCVs. For example, 'large landscape level forest' (Category 2) will tend to be large in geographic scale (e.g. > 500,000 ha) and so the thresholds used to describe them and related conservation attributes must be relevant to that large scale. Identification of an HCV Forest based on "concentrations of biodiversity values" (Category 1) may be large, medium or small (e.g. <1000 ha) in geographic scale, and should be appropriate to the biology of the species or groups of species in question. Forest areas identified as HCV Forests on the basis of "being in or containing rare, threatened or endangered ecosystems" (Category 3) might encompass a range of scales, from large areas to single stands or ecosites. Forests identified as providing "basic services of nature" (Category 4), and "basic needs of communities" (Category 5) might be medium to large in scale and their values and related conservation attributes should be relevant to those scales.
- Selection of a particular scale at which to assess a HCV will directly impact the identification of values, and will have implications for designing appropriate management and monitoring systems. For example, assessment at too small a scale will likely increase the risk of management in that ecosystem, and will potentially compromise a precautionary approach. The draft checklist included in this document suggests a hierarchical approach to defining HCVs that starts with a broad scale and works down to a finer scale assessment.
- As HCVs are environmental, ecological and socio-economic in nature and thus they do not necessarily follow administrative boundaries. The HCV and the HCVF within which it is located may be smaller or larger than the actual forest being audited for certification. That being said, the forest manager's responsibility is generally limited to the forest over which she/he controls.

5. The Precautionary Approach

An important component to the management of HCVFs is the application of a "precautionary approach." There are numerous interpretations of a precautionary approach. In general, they all describe an approach where a manager should demonstrate a low risk of negative impact from management activities when outcomes are not clearly understood. As HCVs are values that are

deemed to be the "most important" and thus require the highest "duty of care", the application of a precautionary approach is one way of helping to ensure that we maintain these values.

FSC Principle 9 Advisory Panel defined a precautionary approach in the context of Principle 9 as: "Planning, management activities and monitoring of the attributes that make a forest management unit a HCVF should be designed, based on existing scientific and indigenous/traditional knowledge, to ensure that these attributes do not come under threat of significant reduction or loss of the attribute and that any threat of reduction or loss is detected long before the reduction becomes irreversible. Where a threat has been identified, early preventive action, including halting any potentially detrimental action, should be taken to avoid or minimize such a threat despite lack of full scientific certainty as to causes and effects of the threat".

6. Glossary of Terms used in this Appendix

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. Habitat protection and management focuses efforts on maintaining or restoring suitability of the highest capability areas, while also ensuring an adequate supply of suitable habitat from other areas, when high capability areas are not in a suitable state.

Focal species: Focal species builds on the concept of umbrella species, whose habitat requirements are believed to encapsulate the needs of other species (Lambeck 1997)[6]. The focal species approach assumes that meeting the requirements of the most demanding species will result in a landscape design encompassing the needs of a wider range of species. This approach is under considerable debate in the conservation science literature mainly around whether any single species can in fact act as a surrogate for a functional group. Cavity-nesting birds are one example. Some cavity nesters prefer deciduous species over conifers, near-shore versus upland habitats, or standing dead rather than live trees.

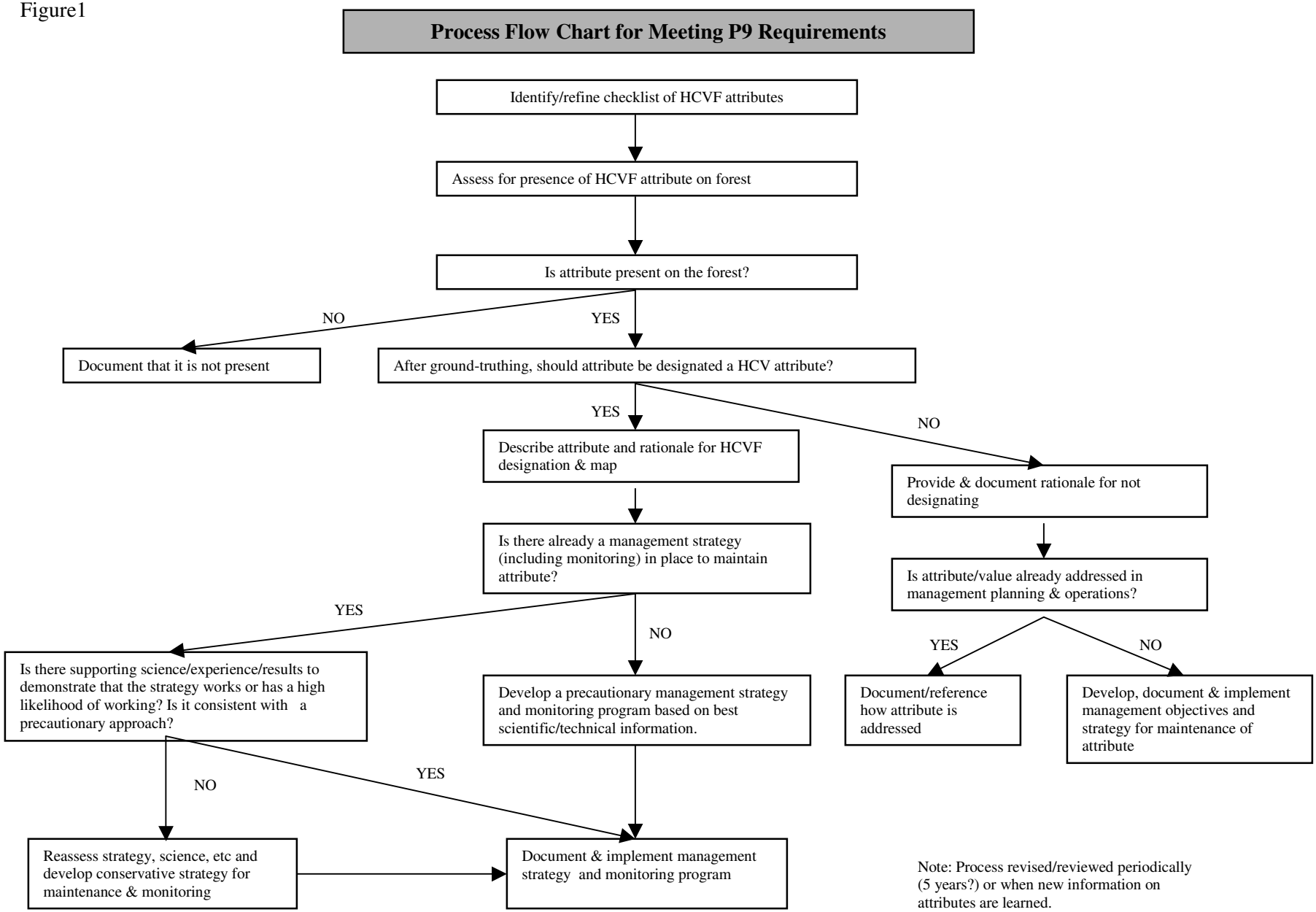
Focal species in this document will be species of significant ecological concern because of known habitat requirements that are limited or under threat from human activities. Where it can be proved that the selected species also encompass the habitat requirements of a functional group, then the focal species can also be considered to be an umbrella species.

Lambeck (1997) suggests four main selection criteria to identify focal species based on species requirements for persistence that may be limited (area, dispersal, resource, and/or process). Here are some examples of limiting factors in forest landscapes:

- Area-limited. Forest harvesting tends to fragment landscapes such that persistence of species requiring large continuous forests may be affected (e.g. fisher, woodland caribou).
- Dispersal-limited. Species that require multiple ecosystems may be restricted by movement between these ecosystems (e.g. wood turtle).
- Resource-limited. Forest harvesting of mature and old forests causes a reduction in late seral forests that may affect persistence of late-seral dependent species (e.g. woodland caribou, marten).
- Process-limited. Riparian and shoreline forests may provide more significant ecological services (hydrological regime, wildlife movement and dispersal) such that species dependent on these forest ecosystems require particular attention (e.g. hooded merganser, wood duck).

Local People: Individuals are considered local where they permanently reside within daily commuting distance by car or boat from the management unit, or where they are part of the First Nation whose lands and territories contain or are contained within the management unit.

Figure1


Process Flow Chart for Meeting P9 Requirements
Identify/refine checklist of HCVF attributes
Assess for presence of HCVF attribute on forest
Is attribute present on the forest?
NO
YES
Document that it is not present
After ground-truthing, should attribute be designated a HCV attribute?
YES
NO
Describe attribute and rationale for HCVF designation & map
Provide & document rationale for not designating
Is there already a management strategy (including monitoring) in place to maintain attribute?
Is attribute/value already addressed in management planning & operations?
YES
NO
YES
NO
Is there supporting science/experience/results to demonstrate that the strategy works or has a high likelihood of working? Is it consistent with a precautionary approach?
Develop a precautionary management strategy and monitoring program based on best scientific/technical information.
Document/reference how attribute is addressed
Develop, document & implement management objectives and strategy for maintenance of attribute
NO
YES
Reassess strategy, science, etc and develop conservative strategy for maintenance & monitoring
Document & implement management strategy and monitoring program
Note: Process revised/reviewed periodically (5 years?) or when new information on attributes are learned.

DRAFT HCV Checklist (March 6, 2003)
Developed at an FSC Canada Workshop On Principle 9 January 13-14 2003. This table is based on an interim tool kit developed by WWF-Canada and Tembec Inc., and an international working group (convened by ProForest UK).

Item	Rationale	Possible Sources	Guidance on assessing HCV
Category 1) Forest areas containing globally, nationally or regionally significant concentrations of biodiversity values.			
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. This indicator allows for a single species or a concentration of species to meet HCV thresholds.	*Global*: CITES (Appendix I and II AND III)[7], IUCN red data list[8], Conservation Date Centre[9] G1 and G2 element occurrences. *Regional/national*: Species designated as rare, threatened or endangered by provincial, territorial or national legislation (e.g., provincial red lists and COSEWIC[10] list in Canada). Information is managed in each province by Conservation Data Centres. The list of focal and species representative of habitat types naturally occurring in the management unit is determined or reviewed by qualified ecologists (specialists). Background information: WWF Ecoregion Conservation Assessment[11].	- Are any of the rare, threatened or endangered species in the forest a species representative of habitat types naturally occurring in the management unit? (DEFINITIVE) - Are any of the rare, threatened or endangered species in the forest a focal species? (GUIDANCE) - Are there any ecological or taxonomic groups of rare species that would together constitute a HCV? (GUIDANCE) *For example, the presence of a complete assemblage of species with critical ecological functions or taxonomic or evolutionary status (e.g., top predators, a suite of closely related rare species) which included a given number of threatened or endangered species might be considered more important than the same (or a higher) number of threatened species from a wide range of ecological or taxonomic groupings.* - Do any of the identified rare, threatened or endangered species (individually or concentration of species) have a demonstrated sensitivity to forest operations? (GUIDANCE) - Does the forest contain critical habitat for any individual species or concentration of species identified in the above questions? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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. Endemic species are more likely to be addressed under Principle 6 because their range/extent is geographically restricted. Hence, meeting the threshold of "critical and/or outstanding" likely requires a concentration of endemic species.	Range and population estimates from national or local authorities and local experts for a) red listed species (see sources above), b) species representative of habitat types naturally occurring in the management unit and focal species, and c) species identified as ecologically significant through consultation. The list of focal species is determined or reviewed by qualified ecologists. Background information: WWF Ecoregion Conservation Assessment (www.panda.org). Conservation International 'hotspot' areas [12] (www.conservation.org)	- Does the forest include or lie within a globally significant centre of endemism? (DEFINITIVE – Sources include WWF Global 200 Ecoregions and Conservation International Hot Spots.) - Is there a concentration of endemic species in the forest that includes species representative of habitat types naturally occurring in the management unit species? (DEFINITIVE) - Is there a concentration of endemic species in the forest that includes a focal species? (GUIDANCE) - Are there any ecological or taxonomic groups of endemic species or sub-species that would together constitute a globally or nationally significant concentration? (GUIDANCE) *For example, refugia during glacial periods (Yukon interior plateau, portions of Vancouver Island), Pleistocene relics (shores of Lake Superior) and geographically isolated areas that may have promoted genetic drift in certain species (e.g., wolves on mainland coastal (Central Coast) British Columbia) may fall into this category.* - Do any of the identified endemic species have a demonstrated sensitivity to forest operations? (GUIDANCE) - Does the forest contain critical habitat of species identified in the above questions? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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)?	Addresses wildlife habitat requirements critical to maintaining population viability (regional "hot spots").	*Global*: BirdLife International[13], Audubon Society.[14] Conservation International *Regional/national*: National and local agencies with responsibility for wildlife conservation; Results from habitat models Local experts, traditional knowledge Bird Studies Canada.[15] Ducks Unlimited Canada[16]	- Is there an IBA (Important Bird Area) in the forest? (DEFINITIVE) - What proportion of the global, national or regional population (i.e., > 1% is the threshold used in the RAMSAR Convention) uses the wildlife concentration area (i.e., to determine importance for species persistence)? (GUIDANCE) - How protected are similar wildlife concentration areas within the region? (GUIDANCE) - Is it a wildlife concentration area for more than one species? (GUIDANCE) - Are there any landscape features or habitat characteristics that tend to correlate with significant temporal concentrations of species (e.g., where species occurrence data is limited)? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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)?	Meta-population viability	Regionally significant species are determined using the sources below. 1. Conservation Data Centre G3, S1-S3 species and communities 2. Range and population estimates from national or local authorities and local experts for: a) red listed species (see sources above); b) species at risk (in existing legislation and/or policy); c) results from habitat models, d) species representative of habitat types naturally occurring in the management unit or focal species; and, e) species identified as ecologically significant through consultation. The list of focal and species representative of habitat types naturally occurring in the management unit is determined or reviewed by qualified ecologists (specialists).	- Is the regionally significant species in significant decline as a result of forest management? (DEFINITIVE) - Is the population of regionally significant species locally at risk (e.g., continuing trend is declining rather than stable or improving)? (GUIDANCE) - Does the forest contain limiting habitat for regionally significant species? (GUIDANCE) - Are there any ecological or taxonomic groups of species or sub-species that would together constitute a regionally significant concentration? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
5. Does the forest support concentrations of species at the edge of their natural ranges or outlier populations?[17]	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.	Range and population estimates from national or local authorities and local experts for a) red listed species (see sources above), b) focal species, c) major forest (tree species) types, and d) species identified as ecologically significant through consultation. The list of focal and species representative of habitat types naturally occurring in the management unit is determined or reviewed by qualified ecologists (specialists).	- Are there naturally occurring outlier populations of commercial tree species? (DEFINITIVE) Are any of the range edge or outlier species a species representative of habitat types naturally occurring in the management unit ? (DEFINITIVE) Are any of the range edge or outlier species a focal species? (GUIDANCE) - Are there any ecological or taxonomic groups of range edge and/or outlier species/sub-species that would together constitute a globally, nationally or regionally significant concentration? (GUIDANCE) - Are the species potentially negatively impacted by forest management? (GUIDANCE) - Is the population of ranged edge and /or outlier species? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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. (Note: Conservation areas that are withdrawn from industrial activity do not constitute HCV for management purposes, but their values may need to be maintained or enhanced in adjacent or buffer areas.	International designations include: UNESCO World Heritage Sites[18] RAMSAR sites[19] International Biological Program sites Legally designated sites in Canada: CCAD (available from GeoGratis) WWF Designated Areas Data Base Areas under deferral pending completion of land use planning and-or completion of protected areas system. Local government land use plans. Other conservation planning exercises (e.g., WWF-Canada conservation suitability analysis). Where there is conflicting information regarding the location and/or conservation status of a conservation area designated by an international authority, then the forest manager should assume that the forest contains HCVs.	- Are the values for which the conservation area has been identified consistent with the assessment of HCVs in this framework? (DEFINITIVE) - Do permitted uses in the conservation area include industrial activities (i.e., not legally withdrawn from industrial activity; e.g., not IUCN category I or II)? (GUIDANCE) - Are there forest areas important to connect conservation areas in order to maintain the values for which the conservation areas were identified? (GUIDANCE) - Are there forest areas important to buffer conservation areas in order to maintain the values for which the conservation areas were identified? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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).	Permanent infrastructure data from government sources or forest companies; Global sources include: Digital Chart of the World Global Forest Watch for selected forest regions. Appropriate scale (stand level) of vegetation inventories; Habitat suitability models. Forest inventories of harvests or other depletions; Non-permanent roads; Exploration activity (e.g., seismic, drilling).	Are there forest landscapes unfragmented by permanent infrastructure and of a size (depending on scale) to maintain viable populations of most species? (DEFINITIVE) *Example thresholds for boreal forests:* - *Globally significant threshold > 500,000 ha and free of permanent infrastructures/roads and < 1% non-permanent human disturbances;* - *Nationally significant threshold 200,000 to 500,000 ha free of permanent infrastructures/road and < 5% of non-permanent human disturbances;* - *Regionally significant threshold 50,000 to 200,000 ha and free of permanent infrastructures and < 5% non-permanent human disturbances;* To assist in the development of management prescriptions, the description of the high conservation value should go beyond size and also include measures of forest quality to be maintained or enhanced for the persistence of native species. Aspects of forest quality may include, but need not be limited to, the two sets of guidance questions below. If unfragmented forest landscapes do not meet the size thresholds above, then there are no large landscape level forest HCVs. In this situation, remnant intact forest landscapes may be identified as part of Item #10. - Do the unfragmented forest landscapes include suitable habitat for native species (e.g., range of habitats and ecosystems) or more natural forests in terms of structure and function? (GUIDANCE) - *Do the unfragmented forest landscapes include*

Item	Rationale	Possible Sources	Guidance on assessing HCV
			*known populations of significant species (*species representative of habitat types naturally occurring in the management unit*, focal) and/or suitable habitat to maintain long-term persistence (i.e., > 100 years) of significant species?* - *Do the unfragmented forest landscapes include an appropriate proportion of climax species (i.e. not dominated by pioneer species)?* - *Do the unfragmented forest landscapes include an appropriate proportion of late seral stands (i.e., not dominated by early seral stands; 30% late seral is considered the 'natural' expected proportion of old forest in the Boreal)?* - *Do the unfragmented forest landscapes include an appropriate proportion of structural features such as woody debris and standing dead trees (i.e., structurally complex)?* - Is the level of dissection and perforation in large unfragmented forest landscapes below levels that will permit the persistence of most native species? (GUIDANCE) - *Are densities of non-permanent (e.g., tertiary) roads below levels cited in the scientific literature for a naturally functioning landscape?* - *Are levels of early seral forest from human disturbances below levels appropriate for a naturally functioning landscape?* - *Are levels of habitat modification from human activity below levels appropriate for a naturally functioning landscape?*

Item	Rationale	Possible Sources	Guidance on assessing HCV
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.	Conservation Data Centre G1-G3 community types; WWF Ecoregion Conservation Assessments; Conservation International National vegetation surveys and maps; Local Research institutions Authorities on Biodiversity (e.g., NatureServe, Infonatura)	- Are there ecosystems that have been officially classified as being rare, threatened or endangered by a relevant national or international organization? (DEFINITIVE) - Is a significant amount of the global extent of these ecosystems present in the country and/or ecoregion? (GUIDANCE) - Are these ecosystems heavily modified? (GUIDANCE) - Are these ecosystems potentially negatively impacted by forest management? (GUIDANCE)
9. Are there ecosystem types within the forest or ecoregion that have significantly declined?	Vulnerability and meta-population viability. This indicator includes anthropogenically rare forest ecosystem types (e.g., late seral red and white pine in eastern Canada).	Relevant government authorities; WWF Ecoregion Conservation Assessments; Suitable forest or vegetation inventories; Potential vegetation mapping; Regional and local experts; Conservation Data Centre S1-S3 community types.	- Is the forest within an ecoregion with little remaining original forest type? (GUIDANCE) - Have these ecosystems significantly declined (e.g., > 50% loss)? (GUIDANCE) - Is there a significant proportion of the declining ecosystem type within the management unit in comparison to the broader ecoregion? (GUIDANCE) - Does potential vegetation mapping identify areas within the management unit that can support the declining ecosystem type (i.e., regeneration potential)? (GUIDANCE) - How well is each ecosystem effectively secured by the protected area network and the national/regional legislation? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
10. 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). Identifies remnant forest patches/blocks where unfragmented (by permanent infrastructure) landscapes do not exceed size thresholds.	Global Forest Watch intactness mapping: Forest cover data provided by companies/government.	- Are large remnant patches (thousands of hectares) the best examples of intact forest for their community and landform types? (GUIDANCE) - Do the largest remnant forest patches include a significant proportion of climax species (i.e., not dominated by pioneer species)? (GUIDANCE) - Do the largest remnant forest patches include a significant proportion of late seral stands (i.e., not dominated by early seral stands; 30% late seral is considered the "natural" expected proportion of old forest in the boreal)? (GUIDANCE) - Do the largest remnant forest patches include a significant proportion of structural features such as woody debris and standing dead trees (i.e., structurally complex)? (GUIDANCE) - Do the largest remnant forest patches include known populations of significant species (species representative of habitat types naturally occurring in the management unit, focal) and/or suitable habitat to maintain short-term persistence (i.e., 25- 50 years) of significant species? (GUIDANCE)
11. Are there nationally /regionally significant diverse or unique forest ecosystems?	Vulnerability; species diversity; significant ecological processes.	Relevant government authorities; WWF Ecoregion Conservation Assessments; Regional environmental background studies.	- Are there important and/or unique geological areas that strongly influence vegetation cover (e.g., serpentine soils, marble outcrops)? (GUIDANCE) - Are there important and/or unique microclimatic conditions that strongly influence vegetation cover (e.g., high rainfall, protected valleys)? (GUIDANCE) - Do these ecosystems possess any exceptional characteristics (including exceptional species richness, critical species, etc.)? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
Category 4) Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).			
12. Does the forest provide a significant source of drinking water?	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.	The forest manager should obtain the information from the relevant authorities (resource management studies, relevant economic development studies, traditional occupancy studies, regional land use plans, etc.) to determine if the wrong actions or management could cause serious cumulative or catastrophic impacts on these basic services.	- Is there a sole available and accessible source of drinking water? (DEFINITIVE) - Are there watershed or catchment management studies that identify significant recharge areas that have a high likelihood of affecting drinking water supplies? (GUIDANCE)
13. 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.	Hydrological maps; Hydrologists in government departments or local research institutions.	- Are there high risk areas for flooding or drought? (DEFINITIVE) - Are there particular forest areas (i.e., a critical sub-watershed) that potentially affect a significant or major portion of the water flow (e.g., 75% of water in a larger watershed is funneled through a specific catchment area or river channel)? (GUIDANCE) - Does the forest occur within a sub-watershed that is critically important to the overall catchment basin? (GUIDANCE) - Are there particular forest areas (i.e., a critical sub-watershed) that potentially affect water supplies for other services such as reservoirs, irrigation, river recharge or hydroelectric schemes? (GUIDANCE)
14. Are there forests critical to erosion control?	Soil, terrain or snow stability, including control of erosion, sedimentation, landslides, or avalanches.	Maps, remote sensing data, aerial photos, Governmental departments, Consultation with relevant experts.	- Are there forest areas where the degree of slope carries high risk of erosion, landslides and avalanches? (DEFINITIVE) - Are there soil and geology site types that are particularly prone to erosion and terrain instability? (GUIDANCE) - Is the spatial extent of erosion-prone or unstable terrain such that the forest is at high risk (also of cumulative impacts)? (GUIDANCE)
15. Are there forests that provide a critical barrier	Not relevant to forest ecosystems in Canada.		- Are there forest areas where there is a high risk of uncontrolled, destructive fire and in which forest areas or

Item	Rationale	Possible Sources	Guidance on assessing HCV
to destructive fire (in areas where fire is not a common natural agent of disturbance)?	This issue was raised by tropical forest ecologists and the writing team cannot identify any forest ecosystems in Canada where this basic service can be provided. However, we are leaving this item until consultation and/or application confirms its relevance.		forest types can act as a barrier to the spread of these fires? - Do these forest areas contain or are adjacent to human settlements or communities that would be at risk from uncontrolled, destructive forest fire? - Do these forest areas contain or are adjacent to places of important cultural value that would be severely damaged or destroyed by uncontrolled fire (e.g., sacred places, archaeological sites)? - Do these forest areas contain or are adjacent to protected areas that contain threatened or endangered species or ecosystems?

Item	Rationale	Possible Sources	Guidance on assessing HCV
16. Are there forest landscapes (or regional landscapes) that have a critical impact on agriculture or fisheries?	Mediating wind and microclimate at the scale of ecoregions affecting agricultural or fisheries production. Riparian forests play a critical role in maintaining fisheries by providing bank stability, sediment control, nutrient inputs, and microhabitats. More local effects of forest areas (e.g., adjacency of forests to agriculture and fisheries production) may be more relevant in the HCV component regarding meeting basic needs of local communities.	Agricultural and Fisheries scientists in university and research institutions; Governmental Departments (e.g., Department of Fisheries and Oceans, Agriculture and Agri-food Canada); Local and provincial departments.	- Are there agricultural or fisheries production areas in the forest that are potentially severely negatively affected by changes in wind and microclimate and microhabitat (i.e., woody debris from riparian vegetation)? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
Category 5) Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health).			
17. Are there local communities? (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). If it is not possible to say that it is NOT fundamentally important, then assume that it is.) (Look at members or subgroups rather than treating the community as homogeneous.)	There is a distinction being made between the use by individuals (i.e., traplines) and where use of the forest is fundamental for local communities.	Sources of information 1. Consultation with the communities themselves is the most important way of collecting information. 2. Literature sources such as reports and papers, where available, can be very useful sources of information. 3. Knowledgeable people and organizations such as local community organizations, NGOs, or academic institutions. This type of group can often provide a quick introduction to the issues and provide support for further work. 4. Review of studies of traditional land use and non-timber use of the forest. 5. Review of socio-economic profiles of communities.	Having established that the community uses the forest to fulfill some needs it is now necessary to assess whether it is fundamental to meeting any basic needs. The way that this will be done will be enormously variable, depending on the socio-economic context and the need. However, it will always involve consultation with the community itself. The following are general guidance questions to assess whether the value meets HCV thresholds. - Is this the sole source of the value(s) for the local communities? (GUIDANCE) - Is there a significant impact to the local communities as a result of a reduced supply of these values? (GUIDANCE) - Are there values that, although they may be a small proportion of the basic needs, are nevertheless critical? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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?	In this context of this standard Local is defined as: People are considered local where they permanently reside within commuting distance by car or boat from the management unit, or where they are part of the First nation whose lands and territories contain or are contained within the management unit (BC definition); or Local community: any (human) community that is on or adjacent to the forest that is being audited for certification (definition in Draft 1 Boreal)	Sources of information 1. Consultation with the communities themselves is the most important way of collecting information. This is also a difficult thing to do and may require professional help in the planning or implementation. 2. Knowledgeable people and organizations such as local community organizations or academic institutions. This type of group can often provide a quick introduction to the issues and provide support for further work. 3. Literature sources such as reports and papers, where available, can be very useful sources of information. 4. Review studies of traditional land use and non-timber use of the forest. 5. Review of socio-economic profiles of communities. 6. Review of websites, community promotional material, brochures, etc.	- Do the communities consider that the forest is culturally significant? - (This can only be identified in co-operation with local communities. This requires the forest manager to consult with local communities. Where consultation is not possible then you must assume it is culturally significant). Possible indicators for cultural importance include: 1. Names for landscape features; 2. Stories about the forest; 3. Sacred or religious sites; 4. Historical associations; and, 5. amenity or aesthetic value. The difference between having some significance to cultural identity and being critical will often be a difficult line to draw and as with meeting basic needs, the way in which it is established will be very variable. However, some key points to consider are: • To be an HCV, the forest must be **critical** to the culture. • For FSC certification **all** identified values must be addressed even if they are not critical, but will be dealt with under other principles. Two potential indicators for critical: 1. Will changes to the forest potentially cause an irreversible change to the culture? (GUIDANCE) 2. Is the particular forest in question more valuable than other forests? (GUIDANCE)

Item	Rationale	Possible Sources	Guidance on assessing HCV
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. Individual values that do not meet the threshold for critical and/or outstanding may collectively meet the threshold.	Neighbourhood analysis can be used to summarize point values (e.g., species occurrences, feeding areas, mineral licks, spawning areas) within a spatial window of a size that is relevant for the ecosystem type and values under consideration. If concentration of single values was not undertaken in any of the previous steps (e.g., S1-S3 species occurrences) then include this in the analysis. Overlays of multiple values to assess spatial coincidence.	- Are there several overlapping conservation values? (GUIDANCE) - Do the overlapping values represent multiple themes (e.g., species distribution, significant habitat, concentration area, relatively unfragmented landscape)? (GUIDANCE) - Are the overlapping values within, adjacent to, or in close proximity to an identified HCV or existing conservation area? (GUIDANCE) - Are the overlapping values adjacent or in close proximity to an existing protected area or candidate for permanent protection? (GUIDANCE) - Do the overlapping values provide an option to meet protected areas representation requirements (i.e., overlap an under-represented landscape as assessed using a protected areas gap analysis)? (GUIDANCE)

Appendix 6, Yukon Riparian Guidelines

Minimum Riparian Management Area Slope Distances for Streams

Stream Class	Stream Width (m)	Reserve Zone (m)	Management Zone (m)	Total Riparian Management Area (m)
1	>20	80	120	200
2	5-20	60	80	140
3	1.5-5	40	60	100
4	<1.5	30	70	100
5		20	30	50

Minimum Riparian Management Area Slope Distances for Wetlands

Wetland Class	Size (Ha)	Reserve Zone Width (m)	Management Zone Width (m)	Total Riparian Management Area (m)
1	< 1	0	60	60
2 *	1-5	60	40	100
3 *	> 5	60	140	200

* Includes wetland complexes.

Minimum Riparian Management Area Slope Distances for Lakes

Lake Class	Size (Ha)	Reserve Zone Width (m)	Management Zone Width (m)	Total Riparian Management Area (m)
1	1-5	60	40	100
2 *	> 5	60	140	200

* Any lake that has high recreation or aesthetic value will receive a minimum 200 metre total Riparian Management Area.

References

[1] Distinct regulatory requirements exist for New Brunswick, Newfoundland and Labrador, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, Nunavut, the Yukon and Northwest Territories.
[2] "Intent Boxes" are used throughout this document. These are interpretational notes intended to provide additional insight and clarity into the text related to the principles, criteria and indicators. These boxes will hopefully help applicants, auditors, and others to understand the intention of the standard's elements and help interpret the standard's requirements. The title of each intent box refers to the item that it explains.
[3] Baskerville, G. 1985. "Adaptive management: wood availability and habitat availability." *Forestry Chronicle 61*: 171-175.
Holling, C.S., ed. 1978. *Adaptive Environmental Assessment and Management* New York: John Wiley and Sons.
Walters, C. 1986. *Adaptive Management of Renewable Resources*. New York: Macmillan.
[4] Lambeck, R.J. (1997): "Focal species: a multi-species umbrella for nature conservation." *Conservation Biology 11*: 849-856
[5] Daes, Irene. 1996. Standard-Setting Activities: Evolution of Standards Concerning the Rights of Indigenous People. E/CN.4/Sub.2/AC.4//1996/2. United Nations, Commission on Human Rights. http://www.unhchr.ch/Huridocda/Huridoca.nsf/e06a5300f90fa0238025668700518ca4/2b6e0fb1e9d7db0fc1256b3a003eb999/$FILE/G9612980.pdf.

[6] Lambeck, R.J. (1997): "Focal species: a multi-species umbrella for nature conservation." *Conservation Biology 11*: 849-856
[7] CITES (Convention on International Trade in Endangered Species). All species that are listed on Appendix I and II can be found at: http://www.cites.org/eng/append/index.shtml
[8] IUCN Red Data Lists of Threatened Species can be found at: http://www.iucn.org/themes/ssc/red-lists.htm
[9] Most provinces run Conservation Data Centres (CDCs) which maintain records of occurrences of internationally, federally and provincially listed species. The information is usually stored in a central repository containing a computerized database, map files and an information library, which are accessible for conservation applications, land use planning, park management, etc. Information on Ontario's CDC is available at: http://www.mnr.gov.on.ca/MNR/nhic/nhic.html*)*
[10] Information on Canadian federally listed species can be obtained at: http://www.cosewic.gc.ca/index.htm
[11] WWF Global 200 Ecoregions. Globally important ecoregions defined on the basis of species richness; endemism; higher taxonomic uniqueness; extraordinary ecological or evolutionary phenomena and global rarity of the major habitat type. Information can be found at http://www.panda.org/resources/programmes/global200/pages/mainmap.htm
[12] Conservation International 'hotspots' are areas that contain outstanding levels of endemism and that have suffered high levels of habitat loss. Information available at www.conservation.org/xp/CIWEB/strategies/hotspots/hotspots.xm
[13] BirdLife International provides maps and lists of Important Bird Areas. Current level of coverage varies between regions and in countries within regions. Information (including data sources), can be found at http://www.birdlife.net/sites/index.cfm
[14] Audubon Society. Information on Important Bird Areas in America can be found at: http://www.audubon.org/bird/iba/index.html
[15] Bird Studies Canada maintains information on identified Important Bird Areas at: http://www.bsc-eoc.org/iba/IBAsites.html
Integrating Indigenous Knowledge in Project Planning and Implementation.
PDF format:
http://www.acdi-cida.gc.ca/cida_ind.nsf/852562900065549a85256250006cbb1a/57ed1d990f2ac9be85256b21004b12de/$FILE/IndiKnow-NP-e.pdf

Indigenous Peoples' Secretariat (Canada) on the Convention on Biological Diversity, Place Vincent

Massey, 9th Floor, 351 St. Joseph Blvd., Hull, PQ K1A 0H3 Canada. Tel: 819.953.5819, Fax: 819.953.1765, tamara.dionnestout@ec.gc.ca

[16] Ducks Unlimited Canada: http://www.ducks.ca/

[17] NatureServe provides searchable databases and other information on species and ecosystem distribution in North America (www.natureserve.org) and distribution of birds and mammals in Latin America at www.infonatura.org

[18] UNESCO World Heritage Sites. Information can be obtained from: http://www.unesco.org/whc/nwhc/pages/sites/main.htm

[19] RAMSAR sites. Maps of wetlands of international importance in Canada can be obtained from: http://www.wetlands.org/profiles_canada.htm

Additional References:

http://www.geogratis.cgdi.gc.ca/frames.html - Canada Watershed Maps

http://www.eman-rese.ca/ - Ecological Monitoring and Assessment Network

http://www.cws-scf.ec.gc.ca/index_e.cfm – Canadian Wildlife Service

http://www.on.ec.gc.ca/green-lane/wildlife/wildspace/intro-e.html – Wildspace Ontario

http://toporama.cits.rncan.gc.ca/ - Toporama (graphics files)

http://earthtrends.wri.org/ - World Resources International

http://www.cnf.ca/ - Canadian Nature Federation