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# **High Conservation Value Forest in the Nipissing Forest SFL**

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An assessment of forest values and  
their conservation in the Nipissing SFL  
from a global, regional and local  
perspective based on the Forest  
Stewardship Council's Principle 9

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## Executive Summary

A 'High Conservation Value Forest' assessment undertaken for the Nipissing Forest in accordance with Principle 9 of the FSC principles and criteria and the National Boreal HCVF Framework for Canada resulted in the following HCV designations:

**Table 1. Identified High Conservation Values on Nipissing Forest.**

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<b>Category 1</b>	
1.	<b>HCV:</b> Red-shouldered Hawk; Bald Eagle; Wood Turtle <b>Possible HCV:</b> Peregrine Falcon; Least Bittern; Black Tern; Short-eared Owl; Lake Sturgeon; Shortjaw Cisco; Eastern Massasauga; Eastern Hog-nosed Snake; Blanding's Turtle; Northern; Brook Lamprey; Southern Flying Squirrel; Engelmann's Quillwort and associated spp.
2.	<b>None.</b>
3.	<b>HCV:</b> White-tailed deer wintering areas Moose aquatic feeding areas Heronries
4.	<b>HCV:</b> Bald eagle
5.	<b>HCV:</b> Outlier red spruce stands
6.	<b>Possible HCV:</b> Candidate protected areas identified through provincial Room to Grow process
<b>Category 2</b>	
7.	<b>None.</b>
<b>Category 3</b>	
8.	<b>Possible HCV:</b> Atlantic Coastal Plain Shallow Marsh Type
9.	<b>HCV:</b> Late seral stage red and white pine (Assess Old growth characteristics ) Undisturbed late seral stage tolerant hardwood forest <b>Assessment required.</b> Late seral stage Hemlock
10.	<b>None.</b>
11.	<b>None.</b>
<b>Category 4</b>	
12.	<b>HCV:</b> Trout Lake and Sturgeon River, <b>and dispersed water sources</b> <sup>1</sup>
13.	<b>None.</b>
14.	<b>None.</b>
15.	<b>None.</b>
16.	<b>None.</b>
<b>Category 5</b>	
17.	<b>None.</b>
<b>Category 6</b>	
18.	<b>HCV:</b> Ottawa, French and Mattawa Rivers; <b>West end Lake Nipissing.</b> <b>Possible HCVF:</b> First Nation Values, as identified

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<sup>1</sup> Bold text is new addition

## Overview of HCVF Assessment on the Nipissing Forest

Nipissing Resource Management Inc. manages the Nipissing Forest (NF) under the authority of a Sustainable Forest License (SFL) granted by the Government of Ontario. The NF was certified by the Forest Stewardship Council (FSC) on May 16, 2003. Part of the certification process was an audit by Scientific Certification Systems in October of 2002, which identified the requirement for the managers to complete an assessment of High Conservation Value Forest (HCVF) using the definition of the Forest Stewardship Council's Principle 9. According to the definition, High Conservation Value Forests are those that possess one or more of the following attributes:

- 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.
- Forest areas that are in or contain rare, threatened or endangered ecosystems.
- Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).
- 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).

This assessment of HCV on the NFs is guided by the "High Conservation Value Forest National Framework", which is Appendix 5 of the FSC Canadian National Boreal Standard<sup>2</sup>.

Understanding HCVF on public land in Ontario requires an understanding of the Ontario's current approach to non-timber forest values. The NF is a large forest, publicly owned and, by Canadian standards, fairly intensively used by the forest residents and the large urban populations mainly to the south. The scale of the forest alone pushes the requirements for HCVF analysis to a high level as described by the HCV National Framework (Section 4 - The issue of scale "...from large areas to single stands or ecosites...").

Current provincial forest policy addresses a wide range of values using policy documents, or resource guides for special values (Appendix 2 - List of Resource Management Guides for Ontario). The role of the FSC HCVF process in the NF is to ensure that the regulated provincial planning and forest management system meet a global standard. There is no intention of revising the current values lexicon, which is quite mature in Ontario. The public consultation process will be based on the use of local terminology rather than the FSC terminology. It is the responsibility of the managers to ensure that the full FSC meaning of HCVF is conveyed to the forest management planning (FMP) process. Although this report will be public, it is not intended for wide distribution to the public.

NFRM regards all of the NF forest to have conservation value. Environmental values are often prominent in conservation, and they figure prominently in this HCV analysis. But also, by definition, a forest has "high" conservation value when "local communities use the forest for their basic needs or livelihoods." This is no doubt the case for most of the NF. This forest has been the mainstay of loggers, trappers, tourism establishments, outfitters, resort owners for over a century. For some native communities, this has been so for much longer. The questions in the HCV Toolkit, focused at the international level, cautiously suggest that if indeed people do depend on the forest for livelihood, then some consultation may be required. This is never an issue in the NF – extensive ongoing consultation is required, by law and common sense, even though compromise and

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<sup>2</sup> Forest Stewardship Council Canada Working Group. 2004. National Boreal Standard, Version August 6, 2004. URL: <http://www.fsccanada.org>

difference of opinion are routine. To this end, the Proforest<sup>3</sup> HCVF Toolkit makes an important point on the often difficult process of distinguishing between HCVs and non-HCVs:

*“Although some values may have simple yes/no alternatives, many will be measured on a continuum of gradually increasing importance. This means that, although defining HCVF should always be based on the best available scientific information, the decision on the threshold level at which a ‘value’ becomes a ‘High Conservation Value’ is inevitably a value judgment”.*

In assessing HCV for the Nipissing Forest, NFRM managers have been quite inclusive in their approach in keeping with the FSC P&Cs and the precautionary principle. Because of the sensitivity around HCVs, “netting down” of HCVs was the main challenge of this report. NFRM and the OMNR biologists and planners and foresters responsible for HCVF do not claim the prescriptions and approaches are perfect, but they have been thoughtfully prepared, and are operationally sound. The managers are always open to reconsidering any of the approaches to HCVs.

## Purpose

The purpose of this report is to fill out the review of HCV for the Nipissing Forest following the initial work by Johnson (2002). Johnson’s report was a preliminary assessment of the current state of information about HCVF in the NF as part of the requirements for an FSC certification assessment in the fall of 2002.

In order to provide HCVF management prescriptions, NFRM has collected part of the resource information that will be required in order to prepare a framework for HCVF management.

### 2007 update

This report builds upon the earlier reports, and on the ongoing development of appropriate management techniques for sensitive values on the forest. Comments and suggestions about any of the prescriptions are welcome at any time and should be directed to VFM.

In the near future the accreditation of the Great Lakes St. Lawrence FSC standard may occur. Although there is a review of the HCVF methodology occurring at the same time, that is not yet public information.

A new FMP was approved for SF in 2005. Current HCV prescriptions are up to date with current FMP guides. As is discussed later, due to the regulatory framework in Ontario, it is necessary that the FMP be the defining document for implementation of values. This allows government compliance program to legally enforce these activities. This report is consistent with the FMP approved in 2005.

Recently the SF HCVF report was part of a regional evaluation (Clark and Hayes 2007) conducted by WWF-Canada. There are some CV designations that may change as a result of this review (Notably protected areas), however these will be resolved with stakeholders in the future, and are not reflected in the current report.

## Methodology

### ***HCVF National Framework (Canada)***

The National Framework provides a description of the approach used and guidance for assessing HCVF. There are four parts outlined that follow the FSC P9 requirements, which require that management activities in HCVFs “maintain and enhance the attributes which define such forests”. The four criteria are:

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<sup>3</sup> Proforest. 2004. HCVF Toolkit: Part 2, Defining High Conservation Values at a national level: a practical guide. URL: <http://www.proforest.net/publication/pubcat.2007-01-19.4709481979> (current 2007aug14)

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 require 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.

### **Assessment for HCVF Attributes**

Within the first phase a list of questions are provided to determine whether individual attributes are HCVs. The following sections answer these questions, or come to a conclusion that a species is HCV. For each value the NF managers, with some expert consultation, have when possible defined thresholds for designating a High Conservation Value. Thresholds are levels, numbers, types or locations. The Proforest toolkit suggests that thresholds can relate to the number of species from a particular taxonomic group, a minimum size of a forest type, or the presence of a particularly important species.

During assessment, values are designated as either HCV, not HCV, or possible HCV as follows:

- HCV – follow guidance of P9 for management and monitoring
- Not HCV – follows guidance of P1 to P8 for management and monitoring
- Possible HCV – no locations are known to the manager although the value likely occurs on the forest.

### **Consultation**

There are four components to the HCVF consultation consisting of:

- Broad review, based on the FMP process, to determine forest values generally in the NF which will include as a minimum individuals, local stakeholder representatives including the Local Citizen's Committee, communities
- Consultation with technical experts about species, ecosystems or values that are HCVF
- Focused review by regional and provincial stakeholders of the values and the management approach  
(<http://www.wwf.ca/AboutWWF/WhatWeDo/ConservationPrograms/ForestsAndTrade/HCVF/Default.asp>)
- Open door policy – new HCVs and new management approaches will be considered at any time,

OMNR public consultation (first bullet point), is documented in detail as part of the FMP process, as part of the public record, in the Appendices to the plan. This will also serve as part of the HCVF documentation process.

We consulted with technical experts (second bullet) at OMNR, particularly the biologist in North Bay District, for range distributions etc.

There was an opportunity to obtain reviews from environmental stakeholders (bullet three) in 2007. The NF HCVF report was part of a regional review for Ontario conducted by WWF Canada (Clark, T. and A. Hayes 2007). The results of this were presented to a workshop sponsored by The Nature Conservancy (U.S.) in Toronto, which brought together a number of ENGOs to review the progress and problems with HCVF reporting in Ontario. In addition to TNC and WWF, participants included Forest Ethics, Nature Conservancy of Canada, and Ontario Nature. Specific comments were not received from the latter groups. As well, individual consultation is done with interested ENGOs who respond when copies of the report are sent to them (Ducks Unlimited, Wildlands League).

The open door policy (bullet 4) did not turn up any new values that qualified as HCVs.

**Thresholds: Categorization as HCV, not HCV or Possible HCV**

The concept of threshold for HCV is important. In practice, during preparation of this report there were certain factors which became critical in deciding whether a value required HCV designation. Ultimately, as directed by the standard, the forest manager must decide, based on the HCVF definition and consultation, what is included. In Appendix 1 is a review of the basic framework to guide decisions about what is and is not HCVF. It is not comprehensive, but may illustrate the problem of threshold.

**Keeping HCVs up to date – Process**

Part of the HCV methodology must be a process for keeping records and prescriptions up to date. As described above, the primary driver for this must be the FMP process, which is the open public record of how and why the forest is managed as it is. It is a public record of forest management process and decision-making. The Crown Forest Sustainability Act mandates this process (Government of Ontario, 1994). The process for keeping that system up to date is part of the FMP system.

As well, the contents of this HCVF report needs to be reviewed periodically to ensure that it is up to date with FMP, and is in keeping with FSC P9. NFRM will ensure, as part of the responsibilities of the designated staff member for certification (currently the General Manager), that HCV is regularly (annually) updated. Annual maintenance audits by the certifier will ensure that this is fulfilled.

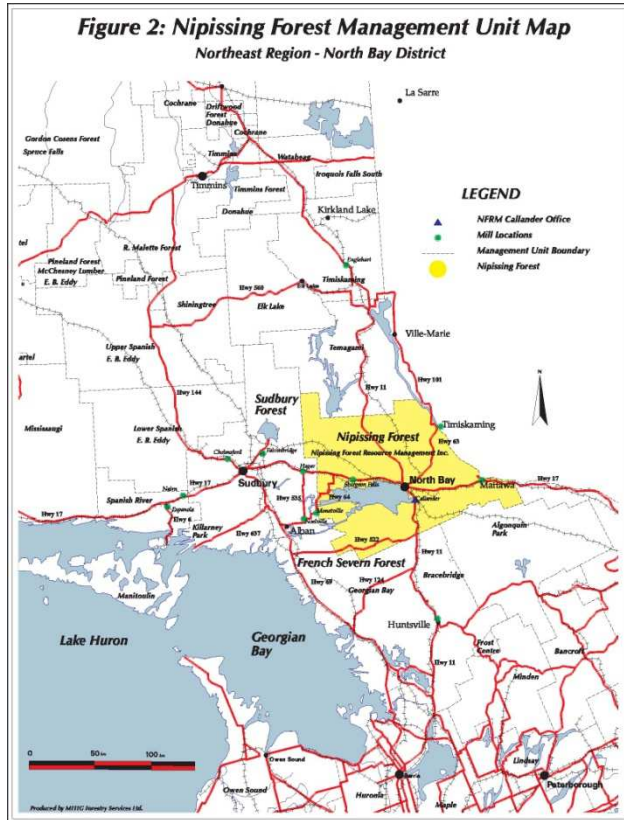
**Forest Description**

The Nipissing Forest is a Forest of approximately 1.1 million ha located near the city of North Bay, Ontario. The Forest is located in two of Hill's site regions (4E and 5E) and encompasses 5 of Hill's site districts (4E-4, 4E-5, 5E-5, 5E-6, and 5E-8). It comprises a transitional forest type that straddles the Boreal forest to the north and the Great Lakes-St. Lawrence mixed-wood forests and agricultural areas to the south. According to the WWF Ecoregion Conservation Assessment, the Forest is located within the Eastern Forest-Boreal Transition zone. Wildlife habitat is diverse and rich; fisheries are a significant resource and wetlands contribute to both fish and wildlife habitat and to recreational activities such as birding, hunting and fishing.

The Great Lakes-St. Lawrence forest region commonly includes such species as sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), American beech (*Fagus grandifolia*), basswood (*Tilia americana*), white pine, (*Pinus strobus*) red pine (*Pinus resinosa*), hemlock (*Tsuga canadensis*) and mid-tolerant hardwoods such as yellow birch (*Betula alleghaniensis*), black cherry (*Prunus serotina*) and ash (*Fraxinus* spp.). Predominant species found in the Boreal forest include conifers such as black spruce (*Picea mariana*) and white spruce (*Picea glauca*), jack pine (*Pinus banksiana*), larch (*Larix laricina*), balsam fir (*Abies balsamea*) and eastern white cedar (*Thuja occidentalis*). The rest is comprised of shade-intolerant hardwoods, which include trembling aspen (*Populus tremuloides*) and white birch (*Betula papyrifera*). Because the Forest is transitional, many species are at the northern or southern limits of their range.

Provincial parks and Natural Heritage Areas provide a significant contribution to the protection of other forest resources. In those parts of the forest where timber operations are permitted, the effects of timber operations on non-timber resources are mitigated through planning for 'Areas of Concern' (AOC). AOCs are applied around sensitive values, providing a zone of protection for the value through a required set of operational restrictions including timing and modifications to the actual operations within the AOC. Operational restrictions can include no harvesting within the AOC.

Figure 1. Location of Nipissing Forest in Ontario.



## Phase 1: Process for assessing for the presence of HCV attributes

The following assessment of the presence of HCV attributes is based on questions posed by the National HCVF framework, and suggested avenues for collecting information. The questions are divided into six separate categories related to the definition of HCVF above. The questions are numbered sequentially to 18, but are in six groups (Table 2).

**Table 2. National Framework process for assessing the presence of HCV attributes.**

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**Category 1: "...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?
2. Does the forest contain a globally, nationally or regionally significant concentration of endemic species?
3. Does the forest include critical habitat containing globally, nationally or regionally significant seasonal concentrations 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)?
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)?
5. Does the forest support concentrations of species at the edge of their natural ranges or outlier populations?
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 legislation; or c) identified in regional land use or conservation plans?

**Category 2. "...large landscape level forests..."**

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?

**Category 3 "...rare threatened or endangered ecosystems."**

8. Does the forest contain naturally rare ecosystem types?
9. Are there ecosystem types within the forest or ecoregion that have significantly declined?
10. Are large landscape level forests (i.e. large unfragmented forests) rare or absent in the forest or ecoregion?
11. Are there nationally/regionally significant diverse or unique forest ecosystems?

**Category 4 "...basic services... watershed protection"**

12. Does the forest provide a significant source of drinking water?
13. Are there forests that provide a significant ecological service in mediating flooding and/or drought, controlling stream flow regulation, and water quality?
14. Are there forests critical to erosion control?
15. Are there forests that provide a critical barrier to destructive fire (in areas where fire is not a common natural agent of disturbance)?
16. Are there forest landscapes (or regional landscapes) that have a critical impact on agriculture or fisheries?

**Category 5 "...meeting basic needs of local communities."**

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 which regularly visits the forest).  
Question 17 further asks: Is any one in the community making use of the forest? Is the use for their basic needs/livelihoods?

**Category 6 "...communities' local cultural identity..."**

18. Is the traditional cultural identity of the local community particularly tied to a specific forest area?
  19. Is there significant overlap of values (ecological / cultural) that collectively constitute HCV?
- 

The National Boreal HCVF Framework further provides what are described as 'definitive' or 'guidance' questions as well as suggested sources of information on the different values.

## Category 1) Forest areas containing globally, nationally or regionally significant concentrations of biodiversity values.

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### ***1) Does the forest contain species at risk or potential habitat of species at risk as listed by international, national or territorial/provincial authorities?***

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#### **Rationale:**

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.

#### **Assessment Methodology:**

- NHIC Conservation Data Centre ([http://nhic.mnr.gov.on.ca/nhic\\_cfm](http://nhic.mnr.gov.on.ca/nhic_cfm))
- Ontario Breeding Bird Atlas (<http://www.birdsontario.org/atlas/map.jsp>)
- IUCN Red List
- COSEWIC
- Supplementary Literature Review (FishBase, Environment Canada Species at Risk & other)

#### **NOTE:**

Ontario has recently replaced the old Endangered Species Act with a new one. This comes into effect in 2008, when the Act is automatically becomes law. This can potentially change species that are listed in this report. There have been some recent changes to listings in the province in any case, and these are described in the tables below.

#### **Assessment Results:**

##### ***Global Rankings***

The NHIC database was used as the primary data source for the occurrence of globally rare species on the Nipissing Forest. At a global scale, the presence of G1 (globally extremely rare) and G2 (globally very rare) occurrences are the relevant NHIC designations. There are no G1/G2 species identified on the Nipissing Forest.

##### ***National Rankings***

Lists species on the Nipissing Forest that a) are identified by NHIC and have been assigned a national rank by COSEWIC; and/or b) are included on the IUCN red list for Canada. HCV designations are also shown in Table 3; an explanation follows below (see Assessment results by species).

##### ***Provincial Rankings***

Provincial species status and Srank as identified by NHIC are discussed in Question 4 and they are listed in Table 3.

**Table 3. NHIC, COSEWIC and IUCN listed species on the Nipissing Forest.**

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<b>Mammals</b>				
<i>Glaucomys volans</i>	Southern Flying Squirrel	NHIC SARO SC		1. Vulnerable (S3) in Ontario; few documented occurrences on NF. In 2003 the Living Legacy Trust (LLT) funded a project to examine Multi-Scale Habitat Selection by Flying Squirrels in the Great Lakes-St. Lawrence Region of Ontario. The project was conceived in response to a discovery of a population in Algonquin Park, just south of NF.
		COSEWIC SC G5		2. Inhabits hardwood forests, using dead hollow trees as den sites. LLT research is examining the ecological sustainability of harvesting practices in the Park, for two key indicator species (northern and southern flying squirrel). Some risk from forest operations. They are managed as coarse-filter through retention of snags. 3. Likely occurs on NF. Research will assist in setting future management direction.
				<b>Possible HCV</b>
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	NHIC S3 G4 Sensitive		1. Species is considered relatively secure; historic occurrences on NF. 2. Known threats include extermination, human disturbance (entrance to caves), pesticide poisoning and habitat loss. Risk of significant impact from forest operations low. 3. Habitat requirements addressed through the Habitat Management Guidelines for Bats of Ontario - managed as a coarse-filter species through prescriptions for leaving a range of cavity trees/snags in harvest areas. Not listed.
				<b>Not HCV</b>
<i>Canis lupus lycaon</i>	Eastern Wolf	COSEWIC SC G4		1. Secure (S4) in Ontario; range overlaps with NF and near location of highest population density to the south. 2. Mortality caused by human activity, such as hunting and trapping; roadkills; industrial, agricultural and residential developments; as well as the abundance of prey, are the main limiting factors for Eastern Wolves. Forest operations not a significant limiting factor for wolves. 3. Widespread.
				<b>Not HCV</b>
<b>Birds</b>				

Scientific Name	Common Name	Status Grank NHIC COSSARO COSEWIC or IUCN	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale) 1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<i>Dendroica cerulea</i>	Cerulean Warbler	NHIC S3B SZN Sensitive VUL  COSEWIC SC G4	<ol style="list-style-type: none"> <li>Vulnerable (S3B,SZN) in Ontario; NF is out of typical breeding range. However, circumstantial evidence suggests that species may have expanded its range north and eastward in Canada since turn of century. If true, it may be that loss of core habitat has induced the birds to move into new areas. As much as 50% of the habitat presently occupied by Cerulean Warblers in Ontario occurs in "protected" or Crown land.</li> <li>Some risk from forest operations in deciduous forest although warbler may tolerate low levels of selective logging. Preferred habitat mesic and wet late successional deciduous forest.</li> <li>Currently no known occurrences on NF. Canadian populations thought to be stable. <b>Not HCV</b></li> </ol>
<i>Lanius ludovicianus</i>	Loggerhead Shrike	NHIC S2B SZN  COSEWIC END G4T3Q	<ol style="list-style-type: none"> <li>Present Canadian population very low; at most 100 pairs in three main widely separated areas. 2 reported occurrences on the Nipissing Forest, but reports are old (last reported 1990). No recent sightings. Investigated by local MNR.</li> <li>Primary threats are habitat losses resulting from intensive agricultural practices and a shift from pasturing. Shrike is found mainly in open areas and is at the northern limit of its typical range on the NF. Risk from forestry operations low. No prescription.</li> <li>Recovery plan in place, species is closely monitored. <b>Not HCV</b></li> </ol>
<i>Falco peregrinus anatum</i>	Peregrine Falcon	NHIC Sensitive  COSEWIC THR G4T3	<ol style="list-style-type: none"> <li>(Map 21) Considered endangered (S2S3B, SZN) in Ontario; occasionally seen as a migrant through the NF but no current or historical records of nesting sites.</li> <li>Precipitous declines in populations associated with the widespread, intensive use of persistent organochlorine compounds, particularly DDT. Typical nest sites on steep cliffs and uses open hunting areas. Preferred habitat at low risk from forestry operations but a guide exists. AOC prescription in new plan.</li> <li>Growing population around the forest. Recent Atlas reports two nearby nests. It is a listed species, hence possible HCV. <b>Possible HCV</b></li> </ol>
<i>Txobrychus exilis</i>	Least Bittern	NHIC S3B Sensitive  COSEWIC THR G5	<ol style="list-style-type: none"> <li>Considered vulnerable (S3B, SZN) in Ontario; single report of a possible nest of the Least bittern in the Atlas of Breeding Birds of Ontario in the mid 1980s and again the 2007 Current Atlas shows one record of a least bittern seen in the West Nipissing area.</li> <li>Main factor for decline is loss of habitat due to the drainage of wetlands. Human disturbance in riparian habitat (e.g. boats) during the nesting period is a second important limiting factor. Area of Concern prescriptions for wetlands protect important breeding habitat – low risk from forestry operations. There will be a prescription in the new plan</li> <li>COSEWIC Status Justification states: A very small and declining population that depends on high quality marsh habitats that are being lost and degraded across</li> </ol>

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
				the species' range. Occurrence triggers PSW designation which is HCV, and more appropriate.
<i>Chlidonias niger</i>	Black Tern	NHIC		<b>Possible HCV</b> 1. Once common in Ontario, declining since the 1980s; one known occurrence on the NF. 2. Threats to populations include wetland drainage and alteration, water pollution and human disturbance at nesting colonies (particularly boat traffic which can swamp the floating nests). Proposed AOC included in the Heronry prescription for the new plan. Risk from forest operations is low. 3. Prescriptions will be applied when nest are found and prescriptions are appropriate. Given their preference for aquatic habitats,
		S3B G4		
		Sensitive		
<i>Haliaeetus leucocephalus</i>	Bald Eagle	NHIC		<b>Possible HCV</b> 1. Common in northern Ontario (particularly NW) and recovering in southern Ontario but remaining concern about long-term population viability. There are several bald eagle nests in the NF, on islands and along the shorelines of Lake Nipissing and the Ottawa River. 2. Eagle populations in eastern North America declined as a result of the widespread application of organochlorine pesticides. Today Bald Eagles remain susceptible to illegal shooting, accidental trapping, poisoning and electrocution. There are known nesting pairs on the Nipissing Forest; these may be at risk if forest operations occur in the nesting area. 3. Nesting pairs in southern and central Ontario are still relatively rare but the new Atlas data shows an increase in NF.
		END		
		At risk (under revision Aug 2007		
<i>Buteo lineatus</i>	Red-shouldered Hawk	NHIC		<b>HCV</b> 1. (Map 20) Vulnerable (S4B, SZN) in Ontario; common to the NF. 2. Prefers deciduous or mixed-wood forests containing shade-tolerant hardwood trees close to wetland areas Forest cutting and filling in of wetlands has diminished the numbers of available prey. Nest sites and preferred habitat locations at direct risk from forest operations. 3. This is referred to as a sensitive species by NHIC. And COSSARO calls it vulnerable.
		VUL (2004)		
		COSEWIC SC G5		
<i>Asio flammeus</i>	Short-eared Owl	NHIC	G4	<b>HCV</b> 1. Special concern in Canada and Ontario. 2. This owl nests in marshes and grassy areas, and possibly also on clearcuts. No nests have been found within the SF but the OBBA identified four 10 km by 10 km squares as areas where nesting is probable (1 square), or possible (3 squares). These appear to be on private land. 3. If an occurrence is found the species will be designated as HCV and appropriate prescription and monitoring developed.
		S3		
				<b>Possible HCV</b>

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<b>Reptiles</b>				
<i>Strix nebulosa</i>	Great Grey Owl			<ol style="list-style-type: none"> <li>1. Rare nesting occurs during southern invasion</li> <li>2. In with Goshawk prescription, and in the event of a nesting, this would be applied...</li> <li>3. Not listed</li> </ol> <p><b>Not HCV</b></p>
<i>Glyptemys insculpta</i>	Wood Turtle	NHIC END		<ol style="list-style-type: none"> <li>1. (Map 19) Sensitive (S2) in Ontario; both Ontario populations have been relatively stable over the past few years. NF is within range but no populations have been identified to date.</li> <li>2. Canadian populations probably limited by two major factors: temperature, and habitat requirements, particularly clear, sandy or gravel-bottomed streams. Turtles venture to and from more upland forested areas to feed; are very rarely found more than 300 m from sandy or gravelly streams or clear ponds. Because turtles are terrestrial and known to travel from riparian to upland forest areas they may be at risk from forest operations.</li> <li>3. Listed. This species has received a great deal of attention in the last few years, and a prescription has been developed. Extensive monitoring is occurring. Possible pending identification of locations.</li> </ol> <p><b>Possible HCV</b></p>
<i>Emydoidea blandingii</i>	Blanding's Turtle	NHIC S3 G4		<ol style="list-style-type: none"> <li>1. Ontario populations are considered secure at this time; five recordings of this species on the NF, most recently in 1990, and lots of anecdotal reports.</li> <li>2. Major threats are likely loss of wetlands in southern parts of the province and mortality through roadkill in spring. New prescription being prepared for this species in new FMP ( 3 m AOC from watercourse. Hibernacula follows most restrictive fisheries prescription) Once mapped hibernacula, this will become an HCV. Direct risk from forest operations is low.</li> <li>3. Area of Concern prescription in the 2004-2024 FMP for the protection of riparian habitats/wetlands should ensure that habitat quality is maintained;</li> </ol> <p><b>Possible HCV</b></p>

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	NHIC THR S3		<ol style="list-style-type: none"> <li>Vulnerable (S3) in Ontario; seen with some frequency near the waterfront in the City of North Bay and near the villages of Commanda, Nipissing and Restoule. Population trends in this area unknown – is thought to be declining in southern range (Map 19).</li> <li>Insufficient habitat, too few connecting corridors, too little food and competition from other snakes are probable limiting factors for this species. Impacts from harvesting operations possible, but of moderate risk since species is found mainly in open wooded areas, brushland and forest edge. COSEWIC Status Justification: The Eastern Hog-nosed Snake is rare and decreasing in abundance and area of occurrence. It suffers from loss of habitat and is unusually susceptible to persecution by people because it is a large snake that has a threatening, though harmless, defensive display. Also, it is unusually vulnerable to road traffic because it moves slowly. Gestation and Hibernacula sites 20 m radius, 100 around hibernacula. Likely to be HCV by 2008 when mapping is available.</li> <li>Evaluations ongoing. Identification of critical habitat would move this to HCV.</li> </ol> <p><b>Possible HCV</b></p>
<i>Lampropeltis triangulum</i>	Milk Snake	NHIC G5 S4		<ol style="list-style-type: none"> <li>The milk snake is globally very common and provincially common but is listed as “special concern” in Canada. This snake has been observed near Espanola, Elliot Lake, Algoma Mills, and North Bay and is therefore very likely to occur in the NF although there are no specific records of its occurrence in the forest.</li> <li>AOC prescription is the same as other snakes. can be applied for the milk snake because there are no known hibernacula, and it is nocturnal and remains underground much of the time. However, milk snakes could occur in riparian zones (Harding 1997), and these are protected with riparian buffers (see notes under wood turtle). They also use farmlands, meadows, and forest edges (OMNR 2000).</li> <li>Not listed. Monitor NHIC website.</li> </ol> <p><b>Not HCV</b></p>
<i>Sistrurus catenatus</i>	Eastern Massasauga	COSEWIC THR G3G4		<ol style="list-style-type: none"> <li>Threatened (S3) in Ontario; one recorded sighting of the rattlesnake on the Nipissing Forest in 1978, it is generally considered to be outside of its common range.</li> <li>Found in wet prairies, sedge meadows, early successional fields and marshes. Human fear of snakes, caused primarily by lack of knowledge and destruction of habitat are major causes in the decline of this species.</li> <li>Listed. Species is out of its typical range and is an old sighting.</li> </ol> <p><b>Possible HCV</b></p>

## Fish

Scientific Name	Common Name	Status NHIC COSSARO COSEWIC or IUCN	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale) 1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<i>Acipenser fulvescens</i>	Lake Sturgeon	G3G4		<ol style="list-style-type: none"> <li>Known in the area in a number of water bodies (Sturgeon River). Spawning sites have been identified and are well known, and accessible.</li> <li>Although aquatic, this species is slow growing and sensitive to disturbance of its spawning areas, so any operations requiring roads must be careful not to introduce additional risk. Spawning sites are accessible (eg Sturgeon Falls). New plan may have increased protection. May be upgraded to threatened by NHIC COSEWIC in near future..</li> <li>General status is sensitive. With regard to reports of future upgrading of status.</li> </ol> <p><b>Possible HCV</b></p>
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey	NHIC G4 S3  COSEWIC SC G4		<ol style="list-style-type: none"> <li>(Map 19) Vulnerable (S3) in Ontario; known to inhabit some streams flowing into Lake Nipissing. Low water levels are a threat to immature Northern Brook Lampreys. Changes in average water temperature can adversely affect this species. Programs to destroy Sea Lampreys inadvertently reduced Northern Brook Lamprey populations as well, where the two species coexisted in target habitats. Work being done in North bay.</li> <li>Given preference for gravel-bottomed streams, water crossings could potentially impact spawning habitat.</li> <li>Threshold undefined. Referred to as sensitive by NHIC (2007)</li> </ol> <p><b>Possible HCV</b></p>
<i>Coregonus zenithicus</i>	Shortjaw Cisco	IUCN VU A1bc  COSEWIC THR G3		<ol style="list-style-type: none"> <li>Threatened (S2) in Ontario; although not reported on NF, Scott and Crossman suggest that researchers should be vigilant for it appears that the dwarf populations may be more common in the area around Algonquin Park. The disappearance of Shortjaw Ciscoes from lakes Michigan and Huron probably due to the intensive fishery. Possible limiting factors to present populations include habitat loss, environmental degradation and hybridization with other Cisco species.</li> <li>Because species inhabits the deep waters (55 to 144 m) of large lakes and usually spawns in areas where the water is approximately half the depth of the waters they usually inhabit, low direct risk from forest operations; shoreline reserves contribute to maintenance of critical habitat.</li> <li>Threshold undefined.</li> </ol> <p><b>Possible HCV</b></p>
<i>Myoxocephalus thompsoni</i>	Great Lakes Deep Water Sculpin	COSEWIC THR G5  Not listed by NHIC		<ol style="list-style-type: none"> <li>(Map 19) Secure (S4) in Ontario; extirpated from parts of Great Lakes range</li> <li>Available information suggests that this species was extirpated from Lake Ontario because of exposure to DDT and is susceptible to contaminants. Given its preference for cold, deep lakes, the risk of direct impacts from forest operations is minimal.</li> <li>Coarse filter management. Shoreline reserves assist in maintaining suitable habitat conditions.</li> </ol> <p><b>Not HCV</b></p>

## INSECTS

Scientific Name	Common Name	Status Grank NHIC COSSARO COSEWIC or IUCN	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale) 1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<i>Amblyscirtes hegon</i>	Pepper and Salt Skipper	NHIC S3 G5  Sensitive	<ol style="list-style-type: none"> <li>1. Considered sensitive in Ontario.</li> <li>2. Possible causes for its decline are undetermined; one sighting on the NF in 1996, well outside what is considered former species range. Based on available information, direct risk from forest operations is low.</li> <li>3. Coarse filter species</li> </ol> <p><b>Not HCV</b></p>
<i>Danaus plexippus</i>	Monarch Butterfly	NHIC SARO S4 COSEWIC SC G4 S4	<ol style="list-style-type: none"> <li>1. (Map 20) Secure (S4) in Ontario, range includes the NF</li> <li>2. Eastern population limited by loss of habitat to logging, human disturbance, and predation, especially while wintering in Mexico. Widespread use of herbicides is another significant threat, which kills milkweed needed by caterpillars and nectar-producing wildflowers needed by adults. Survival of the Monarch is dependent on protection of the overwintering sites in California and Mexico, and the availability of breeding areas rich in milkweed plants, in Canada. Forest operations on NF not among significant threats to monarch butterflies at the present time,</li> <li>3. Status in Ontario secure.</li> </ol> <p><b>Not HCV</b></p>
<i>Pieris virginiensis</i>	Virginia White Butterfly	NHIC-- COSSARO VUL ('04) SC	<ol style="list-style-type: none"> <li>1. Referred to as capricious, it is possible that this butterfly has a population in the NF. To be confirmed by local OMNR.</li> <li>2. Occurs in rich deciduous woodlands with Toothwort the host species. Prescription (new Stand and Site guide) optimal habitat timing restrictions.</li> <li>3. No threshold defined.</li> </ol> <p><b>Possible HCV</b></p>
<b>Odonata</b>			<ol style="list-style-type: none"> <li>1) Two species extremely rare, one listed as very rare and remainder are S3.</li> </ol>
<b>Overview</b>			<ol style="list-style-type: none"> <li>2) Species listed by NHIC are found primarily in wetlands, rivers, and streams. Threats include degradation of water quality, changes in riparian vegetation due to forest management practices, and sedimentation and pollution of streams from agricultural inputs into watersheds.</li> <li>3) Coarse filter management including maintenance of shoreline vegetation through the requirement for riparian reserves will maintain streamside and aquatic habitat conditions for Odonata on the Nipissing Forest</li> </ol>
<i>Ophiogomphus mainensis</i>	Maine Snaketail	S1 G4	<b>Not HCV Coarse filter species</b>
<i>Ophiogomphus rupinsulensis</i>	Rusty Snaketail	S3 G5	<b>Not HCV Coarse filter species</b>

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<i>Gomphus borealis</i>	Beaverpond Clubtail	S2	G4	<b>Not HCV Coarse filter species</b>
<i>Gomphus adelphus</i>	Moustached Clubtail	S3	G4	<b>Not HCV Coarse filter species</b>
<i>Gomphus descriptus</i>	Harpoon Clubtail	S3	G4	<b>Not HCV Coarse filter species</b>
<i>Stylogomphus albistylus</i>	Least Clubtail	S3	G5	<b>Not HCV Coarse filter species</b>
<i>Stylurus scudderi</i>	Zebra Clubtail	S3	G4	<b>Not HCV Coarse filter species</b>
<i>Somatochlora incurvata</i>	Incurvate Emerald	S1	G4	<b>Not HCV Coarse filter species</b>
<i>Somatochlora minor</i>	Ocellated Emerald	S3	G5	<b>Not HCV Coarse filter species</b>
<i>Somatochlora elongata</i>	Ski-tailed Emerald	S3?	G5	<b>Not HCV Coarse filter species</b>
<i>Somatochlora walshii</i>	Brush-tipped Emerald	S3	G5	<b>Not HCV Coarse filter species</b>
<i>Boyeria grafiana</i>	Ocellated Darner	S3	G5	<b>Not HCV Coarse filter species</b>
<i>Nehalennia gracilis</i>	Sphagnum Sprite	S3	G5	<b>Not HCV Coarse filter species</b>
<b>Vascular Plants</b>				

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
<i>Juglans cinerea</i>	Butternut	COSEWIC END G3G4		<ol style="list-style-type: none"> <li>Secure (S3?) in Ontario; kept on the NHIC list because of rangewide concern (G3/G4), but there is no evidence of major decline in Ontario and probably should be an S4.</li> <li>NF north of the species range in Ontario (occurs primarily throughout southwestern Ontario north to the Bruce Peninsula and the edge of the precambrian shield)</li> <li>Little risk since butternut out of typical range.</li> </ol> <p><b>Not HCV</b></p>
<i>Isoetes Engelmanni</i> Plus other Atlantic Coastal Plain spp.	Engelmann's Quillwort	NHIC S1 END May be at Risk  COSEWIC END G4		<ol style="list-style-type: none"> <li>OMNR locally confirming the occurrence. Endangered part of a rare emergent marsh plant community called Atlantic Coastal Plain community. In Ontario, community is comprised of 14 species typically associated with the eastern seaboard and gulf coast of the US. Two members are species at risk (branched bartonia, Engelmann's quillwort) and 6 others are provincially rare (algae-like pondweed, carolina yellow-eyed-grass, hidden-fruited bladderwort, panic grass, ridged yellow flax, Tuckerman's quillwort). (<a href="http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=178">http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=178</a>). Not ground truthed occurrences.</li> <li>Aquatic so little direct risk. May be benefits to disturbance by harvest through renewal of beaver habitat</li> <li>Possible HCV because management of adjacent forest may have benefits. No active management at this time.</li> </ol> <p><b>Possible HCV</b></p>
<i>Botrychium oneidense</i>	Blunt-lobe Grapefern	NHIC S3  G4  Sensitive		<ol style="list-style-type: none"> <li>The species is considered sensitive in Ontario but globally secure; few known occurrences on the NF.</li> <li>Threats include impacts from suburban development and alteration of the water regime.</li> <li>Plants are tolerant of disturbances including harvesting as long as some trees are left to provide shade – under selective harvesting system, risk from forest operations is low.</li> </ol> <p><b>Not HCV</b></p>
<i>Carex novae-angliae</i>	New England Sedge	S3 G5  Sensitive		<ol style="list-style-type: none"> <li>Has a global rank of G5 and is considered sensitive in Ontario; only 2 reported occurrences on the NF.</li> <li>Logging may be the greatest threat to <i>C. novae-angliae</i> in Wisconsin and Michigan where extensive forest clearing occurs (e.g. under clearcut system).</li> <li>Species is not common to the NF; area is outside its primary range and few occurrences are known. Given the extent of selection harvest that occurs, risk on the Nipissing Forest is considered low</li> </ol> <p><b>Not HCV</b></p>
<i>Schoenoplectus heterochaetus</i>	Pale Great Club-rush	NHIC		<ol style="list-style-type: none"> <li>Ranked globally secure (G5) and considered possibly at risk in Ontario; one known occurrence on NF.</li> <li>Threats include wetland development that has resulted in the loss of aquatic</li> </ol>

Scientific Name	Common Name	Status	Grank	HCV DECISION (refer to Appendix 1. Thresholds for HCV non-HCV and possible HCV. for reference to detailed rationale)
		NHIC COSSARO COSEWIC or IUCN		1) Stable & Sustainable 2) Risk 3) Quantifiable Threshold
		S3 G5		species like the slender bulrush.
		May be at risk		3. Given the species shoreline habitat location and few known occurrences, there is little overlap with forestry operations and minimal anticipated impact. Riparian reserves will protect shoreline habitat.
				<b>Not HCV</b>
<i>Bulbostylis capillaris</i>	Bulbostylis	NHIC		1. Ranked globally secure and sensitive in Ontario; three known occurrences on NF.
		S3 G5		2. Little information available but main threat seems to be habitat destruction in southern Ontario. Given its habitat preferences (i.e. rocky openings, sandy shorelines, prairie) direct risk from forest operations would be low.
		Sensitive		3. Coarse filter prescriptions for the protection of shoreline/riparian habitats should ensure the maintenance of this species on the Forest.
				<b>Not HCV</b>
<i>Carex novae-angliae</i>	New England Sedge	S3 G5		1. Has a global rank of G5 and is considered sensitive in Ontario; only 2 reported occurrences on the NF.
		Sensitive		2. Logging may be the greatest threat to <i>C. novae-angliae</i> in Wisconsin and Michigan where extensive forest clearing occurs (e.g. under clearcut system).
				3. Species is not common to the NF; area is outside its primary range and few occurrences are known. Coarse filter.
				<b>Not HCV</b>
<i>Subularia aquatica</i>	Water Awlwort	NHIC		1. Ranked globally secure, sensitive in Ontario; one known occurrence on NF.
		S3 G5		2. Based on available information, the direct impacts from forest operations would be deemed minimal; awlwort is a submerged aquatic plant.
		Sensitive		3. Coarse filter prescriptions for the protection of shoreline/riparian habitats should ensure the maintenance of this species on the Forest.
				<b>Not HCV</b>
<i>Polygonella articulata</i>	Coast Jointweed	NHIC		1. Status is globally secure, little information on regional variances is available; five known occurrences on the NF.
		S3 G5		2. Information on threats to the species is scarce, with the exception of development and disturbance to dune habitats in the Great Lakes Region through cottage development, high controlled water levels and invasive species. Not found in forested habitats, no direct impacts from forest operations anticipated.
		Sensitive		3. Coarse filter prescriptions for the protection of shoreline/riparian habitats should ensure the maintenance of this species on the Forest.
				<b>Not HCV</b>

\*T denotes that the rank applies to a subspecies or variety. Q Denotes that the taxonomic status of the species, subspecies, or variety is questionable. THR means threatened SC means Special Concern. Vul means Vulnerable

**HCV Designation Decision:**

Based on a review of habitat requirements, current threats, range maps and known occurrence on the Nipissing Forest, potential impacts from forest operations, the status of populations and a supplementary literature review, findings are as follows:

**Species Designated HCV:**

- Red-shouldered Hawk
- Bald Eagle
- Wood Turtle

**Species Designated Possible HCV:**

- Peregrine Falcon
- Least Bittern
- Short-eared Owl
- Lake Sturgeon
- Eastern Hog-nosed Snake
- Northern Brook Lamprey
- Southern Flying Squirrel
- Engelmann's Quillwort

The rest of the species are not HCV.

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**2) Does the forest contain a globally, nationally or regionally significant concentration of endemic species?**


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**Rationale:**

Ensure 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.

**Assessment Methodology:**

- COSEWIC ([http://www.cosewic.gc.ca/eng/sct5/index\\_e.cfm](http://www.cosewic.gc.ca/eng/sct5/index_e.cfm))
- WWF Ecoregion Conservation Assessment
- Conservation International Biodiversity "Hotspots"
- Terrestrial Ecosystems of North America (Ricketts et al.1999)
- Birdlife International

**Assessment Results:**

Conservation International does not show any biodiversity "hotspots" in Ontario and Birdlife International does not identify any Endemic Bird Areas (EBAs) in Canada.

Endemism is rare with northern temperate forests, which have evolved with short-term disturbance (fire and wind) and long term disturbance (continental glaciers). Species tend to be spread across large areas. Terrestrial Ecosystems of North America (Ricketts et al.1999) was also used to provide an analysis and maps of geographic patterns of species endemism by ecoregion. This document uses a 50,000 km<sup>2</sup> threshold to identify restricted-range species consistent with the threshold used by Birdlife International's classification of endemic species. The presence of any endemic species identified by an appropriate agency (e.g. NHIC, COSEWIC) would meet the threshold of this criterion.

Ricketts et al. provides an analysis of the geographic patterns of species richness and endemism and a series of maps to illustrate. According to Ricketts et al. (1999), the Eastern Forest-Boreal Transition ecoregion may contain some species of endemic snail. According to this assessment, there does not appear to be any other endemic plant or animal species on the Nipissing Forest. Table 4 provides a summary of richness and endemism (See Category A.1 - 2) within the Nipissing Forest management unit boundary.

**Table 4. Summary of richness and endemism on Nipissing Forest (Ricketts et al. 1999)**

Eastern Forest / Boreal Transition - #8	Richness	Endemism
Birds	204-228	0
Mammals	55-65	0
Butterfly	114-139	0
Reptiles	114-139	0
Amphibians	20-26	0
Snails	53-78	1-22
Tiger Beetle	11-13	0
Vascular Plants	1088-1412	0
Trees	39-58	0
Conifer	11-12	0
<b>TOTAL</b>	<b>1601-2011</b>	<b>1-25</b>

According to the assessment by Ricketts et al. (1999), the Nipissing Forest is not considered to contain a concentration of endemic species. While there may be a number of possible endemic species of snails, these would not be considered a focal or keystone species on the Nipissing Forest. As a result, endemic species have not been designated an HCV attribute on the Nipissing Forest.

However, the potential for endemic snails to occur on the Nipissing Forest will be further investigated and, if necessary, handled under FSC Principle 6.

#### **HCVF Designation Decision:**

Possible endemic snails are not considered focal or keystone species on Nipissing Forest and do not represent a concentration of species to meet the threshold of “critical and/or outstanding” therefore snails are designated not HCV at this time.

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### ***3) Does the forest include critical habitat containing globally, nationally or regionally significant seasonal concentrations 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)?***

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#### **Rationale:**

Addresses wildlife habitat requirements critical to maintaining population viability (regional “hotspots”).

#### **Assessment Methodology:**

- BirdLife International
- Conservation International
- Important Bird Areas
- Bird Studies Canada
- Ducks Unlimited Canada
- Natural Resource Values Information System for Ontario (NRVIS)
- 2004-2024 Nipissing Forest Management Plan
- Interviews with local experts<sup>4</sup>

#### **Assessment Results:**

Various databases, including the OMNR NRVIS data set, document wildlife concentration areas such as critical breeding or winter habitat for a single species or concentration areas for a diversity of taxa as they are identified in the field.

Identified values and their corresponding HCV designations are summarized in Table 4. Below is a discussion of the findings from a review of available data sets as indicated above.

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<sup>4</sup> Includes interviews with district and regional OMNR biologists.

### ***Important Bird Areas***

According to Bird Studies Canada, an Important Bird Area (IBA) is a site providing essential habitat for one or more species of breeding or non-breeding birds. These sites may contain threatened species, endemic species, species representative of a biome, or highly exceptional concentrations of birds. There were no IBAs identified on the Nipissing Forest.

### ***White-tailed Deer Winter Yarding Areas***

A review of the NRVIS data on the maps indicates that there are numerous wildlife values on the forest that have been identified. One of the regionally significant values that stands out is the Loring Deer Yard located in the southeast portion of the license. This deer yard provides winter habitat to the largest white-tailed deer herd in Ontario (estimated at 12,000 – 15,000 animals). The Loring Deer Yard is not only an important area for sheltering deer during the winter, but also the hub of many migratory routes. Other “yarding” areas exist in the forest. Although deer populations are stable, their socio-economic importance to hunters and outfitters puts them in a special category. Deer wintering areas are mapped fairly precisely by MNR. There is a generic prescription for harvesting in deer wintering areas. It is not logical for all of the yards to be HCV since many of the small ones are ephemeral. The logical division point is to assign HCV status for yards that require specific attention during the FMP, either due to their size, or their social importance (i.e. juxtaposition to hunt camps). This is determined by MNR.

### ***Moose Aquatic Feeding Areas***

Moose aquatic feeding areas also fit into this category as seasonal concentration area and are documented in MNR's NRVIS. Feeding areas are particularly important in the spring when aquatic roots etc. may be available earlier than upland vegetation. Currently, good inventories to confirm the quality and location of aquatic feeding areas on the Nipissing Forest are lacking although data shows moose populations in the region to be stable or even increasing (2004-2024 Nipissing Forest Management Plan).

### ***Critical Fish Spawning Areas***

Currently, NFRM takes a conservative approach to the protection of fisheries values by applying the more stringent guidelines for the protection of coldwater fisheries where information is lacking. Spawning areas are at potential risk from impacts of water crossings and some forest operations. The findings of the most recent Independent Forest Audit highlight the current lack of quantitative fisheries data. The auditors recommend that MNR should commit to conducting fish and wildlife surveys in support of forest management in the Terms of Reference for the 2004 FMP and by including a strategy and objectives for fish and wildlife surveys in the 2004 FMP. However on balance, there are abundant spawning areas. Sturgeon Spawning areas are possible HCVs as determined in Question 1.

### ***Heronries***

Hérons are colonial nesters, especially vulnerable to human disturbance and habitat destruction during the breeding season when large numbers of birds are concentrated in a relatively confined area. There are numerous heronries on the Nipissing Forest, many near beaver ponds

Established heronries, which can consist of hundreds of nesting pairs, may be occupied for decades or even centuries. Disturbance can lead to relocation of colonies, with consequences that can include fragmentation of breeding populations, total reproductive failure in colonies that have relocated, or reduced numbers of nesting pairs and reduced reproductive output per pair in relocated colonies. Desertion of large colonies that are responsible for the major portion of a population's reproductive output can affect the stability of the entire regional population of herons, even if the desertion is followed by relocation<sup>5</sup>.

### ***Waterfowl Staging Areas***

Staging areas are generally shoreline/aquatic habitats where waterfowl is known to rest during migration. Ducks Unlimited Canada works closely with provincial government agencies to ensure that critical habitats for migrating and breeding waterfowl are conserved. In Ontario, the organization notes that areas of special importance for waterfowl are the Richelieu, Ottawa and St. Lawrence rivers. It is in these locations that the province's most important waterfowl staging areas coincide with the greatest population densities. According to the Pembroke Field Naturalists, the Ottawa River is used as a flyway in spring and fall migration. From Lake Timiskaming to the St. Lawrence River, there are a number of hydro-electric dams. The river water levels can vary, being usually

<sup>5</sup> OMNR. 1984. Management Guidelines for the Protection of Heronries in Ontario.

URL: [www.mnr.gov.on.ca](http://www.mnr.gov.on.ca)

lower in August, just in time for the southward passage of shorebirds and higher in the spring and fall, good for finding grebes, cormorants, ducks, gulls and terns<sup>6</sup>. Part of the Ottawa River passes through the Nipissing Forest, but reports suggest that the most important areas are found south of the Forest boundaries; Westmeath Provincial Park (Bellows Bay) is a known staging location located near Pembroke, Ontario<sup>7</sup>.

Local MNR reports scattered staging areas throughout the forest.

A literature search of available Internet sources suggests that other critical staging areas for waterfowl in Ontario are generally located either to the south (around the southern Great Lakes) or to the north (into the Boreal and Taiga landscapes) of the Nipissing Forest. This is not HCV.

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<sup>6</sup> Pembroke Area Field Naturalists. URL: <http://www.renc.igs.net/~cmichener/pafn.index.html>

<sup>7</sup> Ontario Nature. URL: [www.ontarionature.org](http://www.ontarionature.org)



Table 5. Significant breeding sites or seasonal concentration areas for various taxa on the Nipissing Forest.

GENERAL DESCRIPTION/ SOURCE	VALUE	SUMMARY OF HCV ATTRIBUTES	HCV DECISION
		<ol style="list-style-type: none"> <li>Habitat Description</li> <li>NF Occurrence</li> <li>Status Information</li> <li>Risk from Forest Operations</li> <li>Current Management</li> </ol>	<ol style="list-style-type: none"> <li>Stable &amp; Sustainable</li> <li>Risk</li> <li>Quantifiable Threshold</li> </ol>
<b>Featured Species/ MNR District</b>	White-tailed Deer  <i>Wintering Areas</i>	<ol style="list-style-type: none"> <li>High conifer component; He, Ce; (OMNR guide 2000)</li> <li>Very common spp; good distribution info; wintering areas are widely distributed; large ones are uncommon and sensitive</li> <li>Hunted; Economically valuable species; long social cultural involvement with the species</li> <li>Logging impacts if conifer diminished significantly</li> <li>Detailed prescription; monitoring for large yards</li> </ol>	<ol style="list-style-type: none"> <li>Deer are stable or increasing in area; wintering areas are key.</li> <li>Inappropriate timber harvest could impair quality of yards. Deer are an importance game species. There value is more economic than for biodiversity.</li> <li>High profile and commercial pressure mean that there is a precautionary element to deer management consistent with HCV designation.</li> </ol> <p><i>HCV</i></p> <ol style="list-style-type: none"> <li>Stable, distribution known</li> <li>Appropriate harvest with selection protects value; Moose are an importance game species;</li> <li>Benefit from a precautionary approach</li> </ol> <p><i>HCV</i></p> <ol style="list-style-type: none"> <li>Current fisheries management under provincial guidelines and monitoring by MNR (e.g. quota system for species of commercial interest) should ensure long-term sustainability of fisheries resources on NF</li> <li>Some level of risk from forest operations and access infrastructure when sites are not identified before operations. Most of the prominent sites are known and mapped by MNR, preventing impact. Commercial species monitored and level of exploitation adjusted by MNR – detailed fisheries information is lacking. Some sites may not be identified. Not HCV because of the attention it receives, and value is peripheral to forests.</li> <li>BMPs address these values. The species are widespread. Note Sturgeon may be exception</li> </ol> <p><i>Not HCV</i></p>
<b>Featured Species/ MNR District</b>	Moose  <i>Aquatic Feeding Areas</i>	<ol style="list-style-type: none"> <li>Aquatic feeding areas surrounded by woodlands</li> <li>Very common; good distribution info</li> <li>Moose are hunted; economically valuable</li> <li>Logging impacts possible if cutting is too heavy adjacent to feeding area</li> <li>Detailed prescription exists</li> </ol>	
<b>Fisheries Values/ MNR District</b>	Various cold- and warm-water fish species <sup>8</sup>  <i>Fish Spawning Areas</i>	<ol style="list-style-type: none"> <li>Cold- and warm-water fish critical spawning areas</li> <li>Abundant on NF</li> <li>Critical habitats considered sustainable under current provincial fisheries management guidelines; status of RTE fish species discussed in Questions 1 and 4</li> <li>Potential impacts from water crossing construction and maintenance on NF and possible impacts from forest operations</li> <li>Federal Fisheries Act prohibits harmful alteration of fish habitat; provincial fisheries guidelines provide management direction for operations adjacent to riparian areas; Area of Concern prescriptions for known fisheries values</li> </ol>	

<sup>8</sup> Coldwater species include: brook trout, lake trout, rainbow trout, splake, Atlantic salmon, and lake whitefish. Warmwater species include: walleye, northern pike, smallmouth and largemouth bass, yellow perch and muskellunge.

GENERAL DESCRIPTION/ SOURCE	VALUE	SUMMARY OF HCV ATTRIBUTES	HCV DECISION
Heronries/MNR District	Great Blue Heron <i>Nesting Sites</i>	<ol style="list-style-type: none"> <li>1. Habitat Description</li> <li>2. NF Occurrence</li> <li>3. Status Information</li> <li>4. Risk from Forest Operations</li> <li>5. Current Management</li> </ol>	<ol style="list-style-type: none"> <li>1) Stable &amp; Sustainable</li> <li>2) Risk</li> <li>3) Quantifiable Threshold</li> </ol>
Waterfowl/MNR District	Waterfowl <i>Staging Areas</i>	<ol style="list-style-type: none"> <li>1. Nest sites often riparian, sometimes upland</li> <li>2. Common in NF</li> <li>3. Locations quite well known</li> <li>4. Disturbance from operations;</li> <li>5. Prescription includes buffers (MNR guide)</li> </ol> <p>There are no significant waterfowl staging areas identified on the Nipissing Forest</p>	<ol style="list-style-type: none"> <li>1. Common, stable</li> <li>2. Direct risk</li> <li>3. High profile, well know nest locations, public sympathetic</li> </ol> <p><b>HCV</b></p> <p><b>Not HCV</b></p>

## HCV Designation Decision:

In accordance with the rationale provided in Table 5 and preceding discussion, the following values are designated **HCV** under this category:

- Deer Wintering Areas
- Moose Aquatic Feeding Areas
- Heron Nest Sites

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## ***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)?***

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### Rationale:

Meta-population viability.

### Assessment Methodology:

- NHIC G3, S1-S3 species and communities
- Results from FMP habitat models
- Species representative of naturally-occurring habitat types or focal species
- Species identified as ecologically significant through consultation
- Northern Ontario Plant Database (<http://www.northernontarioflora.ca>)
- Ontario Herpetofaunal Atlas (<http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html>)
- Ontario Tree Atlas Project (<http://www.uoguelph.ca/arboretum/SpProjects/TreeAtlas1.htm>)
- Supplementary Literature Review

**NOTE:** Species identified in the NHIC database and ranked nationally at risk by COSEWIC were discussed in Question 1. The listings for Question 4 are included in Table 3 (listed species) for simplicity.

### Assessment Results:

#### ***Focal/Keystone Species***

The HCV toolkit asks if any of the rare, threatened or endangered species found in the forest is a keystone or focal species. A keystone species is defined by Paine (1966) as a species that plays a disproportionately large role (relative to numerical abundance or biomass) in ecosystem function. Focal species (Lambeck 1997) are a group of species whose requirements for persistence define the attributes that must be present if a landscape is to meet the requirements of the species that occur there. Practical definitions of keystone and focal species can be fairly difficult.

We note that there is some redundancy between this question and question 1. For that reason the listings for Question 4 are included in Table 3 (listed species).

Ontario officially uses two related concepts. Featured species (Thomas et al 1979) are species whose habitat and sometimes populations are managed for their importance to society – either as game species or species chosen for the habitat they represent or for other reasons. Regional indicator species are selected for a wide range of attributes that are similar in purpose to the description of focal species. Selections are made by biologists with input from various experts. No direct habitat or population management occurs for these species but their habitat is monitored to determine the long-term regional effect of forest management. Modifications to allocations may occur in some cases.

Top predator or focal species that are previously identified include the eastern hog-nosed snake, the red-shouldered hawk and the eastern wolf (see Question 1). Of these, the wolf could be considered a keystone species because it is a significant population control on deer and beaver.

The wolf is currently listed as secure in Ontario. A current revision of the Taxonomy of the *Canis* species may affect the status of wolf populations in Ontario, as a separate population has been identified (*Canis lupus lycaon*) and designated a species of special concern by COSEWIC in May 2001<sup>9</sup>. However, forest operations are not

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<sup>9</sup> OMNR. 2004. Natural Heritage Information Centre.

considered a primary threat to the population (see Question 1). The status and management of the hog-nosed snake and red-shouldered hawk are also discussed previously in Question 1.

Table 3 includes information on species that are related to this question. It provides a summary of NHIC S1-S3 species and communities on the Nipissing Forest and their HCV designations.

#### **HCV Designation Decision:**

The Bald Eagle is recovering in Ontario, and the listing has been changed, but occurrences are rare and a nest site in the NF is significant. It is designated HCV (Table 3).

No other species was designated in this question, although all of the species in Table 3 were reviewed. Further information about the HCV designated species can be found in the references in Appendix 4. Ontario status of rare and uncommon species, including vulnerable, threatened and endangered species on the Nipissing Forest – detailed descriptions.

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### ***5) Does the forest support concentrations of species at the edge of their natural ranges or outlier populations?***

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#### **Rationale:**

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.

#### **Assessment Methodology:**

- Range and population estimates from national or local authorities and local experts for:
  - Red listed species
  - Focal species
  - Major forest tree species
  - Species identified as ecologically significant through consultation
  - List of selected species for the region identified by the OMNR biologists compared to natural range maps to see if there are concentrations of species at edge of the natural ranges

#### **Assessment Results:**

##### ***Edge of Range Species***

The NF straddles the transitional area between the Great Lakes-St. Lawrence and Boreal forest regions in Ontario. Tree cover reflects this shift in dominant species; it is even reflected in the different natural disturbance patterns of the forests. The net result is that a number of species can be identified that are either at the northern or southern limit of their range. This is biologically interesting, but most of these species are secure according to national and provincial agencies (COSEWIC, NHIC). Most animal species that may be HCVs are already listed in Table 3.

The Nipissing Forest includes some tree species that are less common, at the edge of their range and not listed. These are of some concern because they are harvested or have declined regionally as a result of active fire suppression. These include:

- white oak
- red oak
- white ash
- yellow birch
- black cherry
- basswood.

Map 25 shows the distribution of significant patches of these species. The range of black cherry ends within the NF while the beech-white ash-hemlock and hard maple-yellow birch-red oak communities end north of Lake Nipissing.

The forest also contains a very limited number of occurrences of burr oak and silver maple. Due to their small size, these could not really be considered to be true populations or stands and they are more common further to the south.

#### **HCV Designation Decision:**

Nipissing Forest Resource Management Inc. has developed and implemented an active program for maintaining and increasing the relative abundance of the above-noted hardwood species on the Forest. They are all relatively common throughout the Great Lakes-St. Lawrence forest region and throughout the northern edge of their range. Hemlock is discussed separately in Question 9. These species have not been designated HCV.

#### ***Outlier Populations***

In terms of outlier populations, the forest contains one natural red spruce stand. Red spruce is an Acadian species common to Eastern Quebec, Maine and the Atlantic Provinces. The occurrence of red spruce on the Nipissing Forest is unique and part of a regional population of the species that has larger concentrations on adjacent licenses to the southeast. Discussions with the MNR Regional Biologist also indicate that the species may have historically been more common. The species, while rare, also provides critical habitat for many species (winter shelter for deer, marten habitat, songbirds such as Blackburnian Warbler, etc).

The forest also contains isolated occurrences of white elm, a species that been decimated since the introduction of Dutch Elm Disease in North America. Individual large trees have resisted the disease and are still found growing in rural and urban landscapes. These elms have trunks as large as 478 cm (15.7 ft) in circumference. Individuals of this size have been found as far-ranging as Hamilton to Sault St. Marie, Ontario.

There is an Elm Recovery Project based at The Arboretum, University of Guelph in co-operation from the Forest Gene Conservation Association of Ontario and the Faculty of Forestry, Forest Pathology, University of Toronto. The primary objective of the project is to initiate a recovery program that utilizes non-clonal seed production from Ontario's climate-adapted, resistant elms.

While there are numerous cold and warm water fish species known to occur on the Nipissing Forest, the only significant outlier known is the population of land-locked Atlantic Salmon (Ouananiche) in Trout Lake, introduced into the lake in 1935.

#### **HCVF Designation Decision:**

The red spruce stand is a regional outlier population that is outside of its natural range – all identified red spruce stands are designated HCV.

Remaining large-diameter elm may be of genetic significance in re-establishing resistant elm populations in Ontario but are self sustaining at this time, although they do not grow to the same diameter as they once did. They are not designated HCV.

Lake Nipissing's land-locked salmon population is considered an outlier population. These fish do not require management that is different from other fish populations. Their habitat is relatively well accessed already. The fish are introduced and do not constitute an HCV.

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#### ***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 legislative body;***

***c) identified in regional land use plans or conservation plans.***

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#### **Rationale:**

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).

**Assessment Methodology:**

- UNESCO World Heritage sites
- RAMSAR sites
- International Biological Program sites
- Canadian Conservation Areas Database
- WWF/MNR Lands for Life Conservation Assessment (protected areas “gap analysis”)
- Areas under deferral pending completion of land use planning and/or completion of protected areas system

**Assessment Results:*****International Designations***

The Canadian Conservation Database does not show any protected or candidate UNESCO World Heritage Sites, Biosphere Reserves or RAMSAR Wetland Sites on the Nipissing Forest.

***Proposed Provincial Conservation Areas***

As part of the FSC certification assessment process, a Corrective Action Request (CAR 2003.8) was issued as a condition of certification that requires NFRM to move toward completing the protected areas system on the Nipissing Forest (Box 1).

**BOX 1: NF Certification Assessment Report Protected Areas CAR**

**CAR 2003.8:** In the absence of the province completing its network of representative protected areas, NFRM must, within one year from award of certification, take necessary steps to engage in the candidate selection process. It is recommended that the process uses the Room to Grow report as a reference and includes: identification of candidate areas; delineation of candidate areas on maps; strategies and timelines; and, removal of the candidate protected areas from the landbase for the 2009 Plan. It is not necessary for NFRM to recalculate the AHA for the 2004 Plan, however, the 2009 Plan must be adjusted accordingly.

The framework for proceeding with the selection of candidate protected areas is laid out in the provincial Room to Grow policy<sup>10</sup>. Since 2003, OMNR and forest industry and ENGO partners have worked toward completion of the promised land use plan for the province. A process call “Disentanglement” is still underway. This involves some swapping of protected parcels that were designated in areas that were previously committed, primarily to the mining industry. This is still progressing.

In 1998, WWF and the Canadian Council on Ecological Areas developed “a coarse-filter conservation assessment of protected areas based on a landscape approach using ‘enduring features’ (essentially landforms or physical habitats) as geographic units that are surrogates for the distribution of species assemblages.” These units were derived from the Soil Landscapes of Canada provided by Agriculture and Agri-Food Canada (1995) compiled at a scale of 1:1 million. The enduring features were identified and mapped according to their corresponding natural region in order to recognise broad-scale climate and terrain patterns. A gap analysis conducted using these spatial units, results in a map depicting the varying degrees of representation based on existing protected areas on the landscape. The coding system consists of four possible classes of representation: adequate, moderate, partial, or little or no representation.

Five main elements of ecological integrity are considered when assessing each enduring feature:

- Representing environmental gradients (i.e. elevation ranges and soil development types),
- Capturing important physical habitat types (i.e. headwater areas and shoreline habitats),
- Meeting size guidelines (determined by ecological processes typical of the natural region),
- Ensuring connectivity/adjacency, and
- Incorporating habitat requirements for umbrella species and habitat quality “naturalness”

<sup>10</sup> Room to Grow. Final Report of the Ontario Forest Accord Advisory Board on Implementation of the Accord. <http://ontarioslivinglegacy.com/spectrasites/internet/oll/media/documents/ofaab/room2grow.pdf>  
And the approved strategy: <http://crownlanduseatlas.mnr.gov.on.ca/supportingdocs/alus/contents.htm>

As seen on Map 2, Map 3, Map 4, Map 5 (Appendix 3) there are a large number of existing and proposed provincial parks and conservation reserves on the Nipissing Forest. These were the result of a combined analysis that merged WWF's enduring features approach with the MNR's life science gap analysis to capture many of the regionally significant landscape features across the province. Following the approval of Ontario's Living Legacy Land Use Strategy, a number of new provincial parks and conservation reserves were established, several of which were candidates put forward by NFRM. While some areas are yet to be regulated, all been withdrawn from the operable landbase of the Nipissing Forest and are now protected.

Many of the significant features on the Nipissing Forest identified through the protected areas "gap analysis" undertaken for Lands for Life were encompassed in the new protected areas designated under the Ontario Living Legacy Land Use Strategy. However, according to the post-Ontario's Living Legacy representation assessment provided by the World Wildlife Fund summarized in the **Error! Reference source not found.** below, there remain gaps in the protected areas network within the ecodistrict encompassing the Nipissing Forest. As decisions are forthcoming, NFRM will determine the status of the new lands. Any identified areas will be considered HCVF in the interim.

NOTE: The 'gap analysis' methodology continues to evolve: new information can be obtained by contacting WWF Canada and/or MNR)

**Table 6 WWF enduring features by eco-district sorted by proportion within Nipissing Forest (August 2002).**

Enduring Feature Code	Eco-district	Total Area (ha)	Area (ha) on NF	Proportion (%) on NF	Representation Status <sup>1</sup>
84348	5E-6	32,804	32,804	100%	A
84260	5E-5	38,009	38,009	100%	P
84340	5E-6	114,149	114,149	100%	P
84328	5E-6	44,075	43,466	99%	M
84298	5E-5	66,120	61,223	93%	P
83926	5E-10	50,158	44,307	88%	P
84324	5E-6	307,817	266,044	86%	P
84312	5E-5	2,662	2,291	86%	N
84234	5E-5	273,879	218,039	80%	P
83930	5E-10	25,208	16,428	65%	N
84252	5E-5	33,352	14,045	42%	N
83304	4E-4	145,901	21,172	15%	P
83278	4E-4	692,910	85,445	12%	A
83284	4E-4	29,679	2,359	8%	N
83924	5E-10	643,534	26,618	4%	M
84368	5E-7	340,674	13,357	4%	A
84404	5E-8	717,664	25,955	4%	M
84452	5E-9	790,639	11,205	1%	M
84206	5E-4	151,883	1,402	1%	P

NOTES:

Results of WWF's Gap Analysis based on end of the Spaces Campaign (2001) protected areas status and the automated routine version 1.1.2. A=Adequate, M=Moderate, P=Partial, N=None.

Depending on the size of the enduring feature and the ecoregion within which it's found, the protected areas size guidelines may vary. Refer to the Spatial Analysis AoR Brief May 2001.doc for a breakdown of enduring feature size classes. These size classes were defined prior to the development of the automated gap analysis routine. The routine is currently being calibrated and further defined. As part of this calibration, these size classes may change slightly.

In the interim between the identification of candidate areas and their eventual protection from commercial activities (e.g. forestry, mining, hydro) these sites remain susceptible to impacts from forestry operations.

#### **HCFV Designation Decision:**

There are no protected or candidate UNESCO World Heritage Sites, Biosphere Reserves or RAMSAR Wetland Sites on the Nipissing Forest – not HCV.

OLL-designated provincial parks and conservation reserves on the Nipissing Forest have already been withdrawn from the operable land base and are protected from logging and other resource extraction activities – not HCV.

We note that the recent regional evaluation has indicated that there is inconsistency across SFLs about whether protected areas are designated or not (Clark<sup>11</sup> and Hayes 2007). Candidate protected areas as identified through Room to Grow process are designated 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.**

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***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?***

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#### **Rationale:**

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 landscapes).

#### **Assessment Methodology:**

- OMNR Lands for Life Assessment
- Ontario Living Legacy Land Use Strategy
- Landscape Ecology Analysis Program results for 2004-2024 Nipissing FMP
- Global Forest Watch
- Roads layer for Nipissing Forest

#### **Assessment Results:**

In order to provide guidance in assessing this question, the HCVF Canadian National Framework<sup>12</sup> sets example thresholds for unfragmented forest landscapes in the boreal as follows:

- Globally significant threshold > 500,000 ha and free of permanent infrastructures/roads and <1% non-permanent human disturbance
- Nationally significant threshold 200,000 to 500,000 ha free of permanent infrastructures/roads and <5% of non-permanent human disturbance
- Regionally significant threshold 50,000 to 200,000 ha and free of permanent infrastructures and <5% non-permanent human disturbances.

A review of the Ontario Living Legacy Land Use Strategy<sup>13</sup> provides a summary of the existing protected areas (including provincial parks and conservation reserves) and their total areas in North Bay District (Table 7Table 8).

<sup>11</sup> Clark, T and A. Hayes (2007) provide the pros and cons of including or not including protected areas as designated HCVs.

<sup>12</sup> Appendix 4 of the FSC Canada National Boreal Standard, Version 3.0. 2004.

<sup>13</sup> <http://crownlanduseatlas.mnr.gov.on.ca/supportingdocs/alus/contents.htm>

Table 7. Conservation Reserves in Nipissing Forest (NHIC 2004).

Area Name	Size (ha)
Blue Lake End Moraine	1,326
Boom Creek	599
Boulter-Depot Creek	2,170
Bray Lake	265
Cache Bay Wetland	3,393
Callander Bay Wetland	142
Dana Township Jack Pine Forest	214
Field Township	191
Fish Bay	121
God's Lake Old Growth White Pine Forest	243
Gooderham Old Growth White Pine Forest	82
Holdridge Creek	1,372
Mclaren Forest	369
Mudcat Lake Forest	214
Ottertail Creek Conservation Reserve	1,650
Sausage Lake Forest	664
Smoky River Headwaters	847
Spring/Cut Lake Esker	542
Swan Lake	212
<b>Total Area</b>	<b>17,031 ha</b>

Table 8. Provincial Parks, or proposed parks in North Bay District (NHIC 2004).

Area Name	Size (ha)
<b>Park Additions</b>	
Mashkinonje Addition	822
Mattawa River Additions	10,687
Restoule Addition	822
Sturgeon River Additions	4,653
<b>Natural Environment</b>	
Alexander Lake Forest	2,118
Kenny Forest Provincial Park	2,200
Restoule Provincial Park	1,200
Samuel De Champlain Provincial Park	2,550
Widdifield Forest	1,827
<b>Recreation</b>	
Finlayson Point Provincial Park	37
Marten River Provincial Park	400
South Bay Provincial Park	1,525
<b>Wildlife Area</b>	
Amable Du Fond River	606
Jocko River	9,178
Mattawa River Provincial Park	3,257
Ottawa River	2,376
Temagami River	2,836
<b>Total Park Area</b>	<b>47,094 ha</b>

As described by the WWF Ecoregion Conservation Assessment reports, the Nipissing Forest lies within the highly fragmented Eastern Forest-Boreal Transition ecoregion. It is estimated that only 10 percent of the ecoregion remains as intact habitat. Much of the area has been highly fragmented by forestry activities, settlements, summer homes and cottages, ski facilities and agriculture. The extent of existing primary road infrastructure and permanent settlements in the region can be seen in Map 9.

Near the Nipissing Forest, there are some areas that meet the size threshold values for significant unfragmented forests, including Lady Evelyn Smoothwater Wilderness Park to the north of the Nipissing Forest (72,400 ha) and Algonquin Park to the southeast (765,200 ha). However, even these areas fail to meet the standard for unfragmented forests because they both host significant permanent road and/or commercial forestry or tourism infrastructure within their boundaries.

In its Ecoregion Conservation Assessment, WWF identifies a number of areas that are considered remaining intact habitat in the Ontario portion of the Eastern Forest-Boreal Transition zone<sup>14</sup>, including:

- Algoma Highlands (Sault Ste. Marie District)
- Algonquin Provincial Park (highly roaded - southern Ontario)
- Bark Lake, E53a (Remote Access EMA - Bancroft, Pembroke Districts)
- Missassagi Uplands (Sault Ste. Marie District)
- Quirke-Whiskey Lakes, E232a (Remote Access EMA – Sault Ste. Marie, Sudbury Districts)
- South Ranger Lake (Sault Ste. Marie, Wawa Districts)

None of these areas are found within the Nipissing Forest.

#### **HCV Designation Decision:**

Based on a review of available data and conservation assessments, there are no forest areas meeting the criteria for unfragmented forests on the Nipissing Forest – not HCV. See also discussion Category 3, Question 10.

### **Category 3) Forest areas that are in or contain rare, threatened or endangered ecosystems.**

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#### ***8) Does the forest contain naturally rare ecosystem types?***

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##### **Rationale:**

These forests contain many unique species and communities that are adapted only to the conditions found in these rare forest types.

##### **Assessment Methodology:**

- NatureServe
- Natural Heritage Information Centre
- WWF Ecoregion Assessment
- Conservation International (<http://web.conservation.org/xp/CIWEB/regions/priorityareas/wilderness/>)

##### **Assessment Results:**

Conservation International does not identify any biodiversity hotspots within Canada.

The available NHIC community data is limited to Site Regions 6E and 7E of Ontario, both of which are outside the boundaries of the Forest. A search of the database for North Bay District reveals one vegetation community that is ranked globally imperilled (G2?) and regionally rare to uncommon (S3) in Ontario (Table 9). This is consistent with the species definitions in Table 3.

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<sup>14</sup> WWF Terrestrial Ecoregions of North America: a conservation assessment.

**Table 9. Ranked vegetation communities identified in North Bay District (NHIC 2004).**

Community	Provincial Rank	Global Rank	Description
Atlantic Coastal Plain Shallow Marsh Type	S3	G2?	Peatland forests of Larch, Black Spruce and White Cedar dominate organic deposits at the north and south of the lake, with deciduous and mixed early successional forest on higher, sandy soil on the eastern and western shores. The aquatic communities found in shallow water here and on the wide, peaty beaches which emerge in late summer and early fall, support an exceptionally rich assemblage of relict flora. These vascular plant species have strong affinities with the flora of the Atlantic Coastal Plain of North American and several of the species here are disjunct [Brunton 1993].

A review of the NatureServe database (results of query G1-G3<sup>15</sup> rankings for Ontario) reveals that most of the highest ranked communities (G1 and G2) are generally found in association with: 1) alvar habitats; 2) the developed border region of the northern Great Lakes; or, 3) toward the southern part of the Great Lakes-St. Lawrence forest region where it transitions into Carolinian species assemblages. This would be consistent with the higher levels of urban development, wetland degradation and forest fragmentation in these areas of the province and across the border into the US.

However, the NatureServe database does identify a number of associations with G2 or G3 rankings that may be found on the Nipissing Forest. For descriptive purposes these are listed in Appendix 5. We have included the two most likely occurrences in Table 10. At this time they are included for completeness. No local evaluation of these communities have been done using equivalent methodology. Natureserve does not use Canadian Ecological Units, so classification and identification is difficult.

**Table 10. Two communities identified on the Natureserve website that may occur in the Nipissing Forest.**

Great Lakes White Pine - Hemlock Forest	G3	This white pine - hemlock forest type is <b>found in the Great Lakes region of the United States and Canada</b> , where it currently occupies limited portions of its former range. It is floristically similar to hemlock stands without extensive white pine, and this type is not always distinguished from that type. It was far more extensive as a canopy or supercanopy dominant in presettlement forests than it is today. In Wisconsin and Michigan, white pine is often a supercanopy relict only and has been logged out of most stands. As a result, old-growth stands that belong to this type are not known to be very extensive. This type may represent a long-lived transitional phase from a pine type to a hemlock type in the absence of further disturbance. It is perhaps the combination of substrate and disturbance dynamics that create a somewhat specific set of environmental factors. Further documentation of this type is needed.
Red Pine / Blueberry Dry Forest	G3	There are probably over 100 occurrences of this community rangewide. Currently there are 77 occurrences documented from <b>Michigan (where it is ranked S3), Minnesota (S3), and Wisconsin (S3); it is also reported from Manitoba (S3) and</b>

<sup>15</sup> G1 (critically imperiled); G2 (imperiled); G3 (vulnerable); G4 (apparently secure); G5 (secure); G? and GU (not yet ranked or considered unrankable); G2G3 (range rank, indicates even higher degree of uncertainty); Q (taxonomy of type in question, if resolved, may result in a less imperiled rank).

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**Ontario (S?).** There are probably over 10,000 acres of this community rangewide. Currently 5545 acres have been documented from 45 occurrences in Michigan, Minnesota, and Wisconsin. Many sites have been degraded by logging, but there are also many mature to old-growth stands remaining.

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Forest Ecosystem Classification surveys have been completed for the Nipissing Forest. This classification system built on Hill's previous work, which delineated site regions and site districts for the area. The Nipissing Forest contains two of Hill's site regions – 4E and 5E and 5 of Hill's site districts: 4E-4, 4E-5, 5E-5, 5E-6, and 5E-8. Results of the Forest Ecosystem Classification surveys have been used, together with Forest Resource Inventory data, to assign an ecosite to each stand in the Nipissing Forest. "Ecosites are mapping units which represent a consistent set of vegetation and site conditions. They may range from several hectares to tens of hectares in size" (Field Guide to Forest Ecosystems of Central Ontario, 1997). Ecosites are an integral component of forest management planning - the silviculture guides used to develop stand-level prescriptions are based on ecosites.

Map 1 shows that there are 25 ecosites in the Nipissing Forest – ecosites # 11 through to # 35. The forest is dominated by the tolerant hardwood ecosites (# 23 to # 30) and the intolerant hardwood ecosites (# 17, 18, 19), both groupings being quite similar in size. The tolerant hardwood ecosites occur mainly in the southwest corner and stretch along the southern border of the forest. These ecosites are also found along the Ottawa River from Mattawa north and in a triangle formed by the Mattawa River, the Ottawa River and the city of North Bay on Lake Nipissing.

#### **HCV Designation Decision:**

The occurrences of the Atlantic Coastal Plain community is designated HCV.

The communities identified by Natureserve database are of potential interest as rare community types. However the focus is northern U.S. and if any of the communities extend to the Nipissing Forest they are not clearly identified. These are not considered HCVs at this time.

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### ***9) Are there ecosystem types within the forest or ecoregion that have significantly declined?***

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#### **Rationale:**

Vulnerability and meta-population viability. This indicator includes rare forest ecosystem types that are rare due to historic harvest practices (e.g. late seral red and white pine in eastern Canada).

#### **Assessment Methodology:**

- NatureServe
- Natural Heritage Information Centre
- WWF Ecoregion Conservation Assessment
- Conservation International
- Nipissing Forest 2004-2024 FMP (Historic Forest Condition and Trends)

#### **Assessment Results:**

The NF is within the Eastern Forest-Boreal Transition Ecoregion<sup>16</sup>. This ecoregion includes most of the southern Canadian Shield in Ontario and Quebec. The shield, in fact, principally defines the southern boundaries of this ecoregion. The characteristic mixed forests of this ecoregion are distinct from the predominantly deciduous forests

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<sup>16</sup> World Wildlife Fund. 2001. Terrestrial ecoregions of North America: a conservation assessment. Island Press.

to the south and the cooler boreal forests to the north. In the northern reaches and in the Lac Temiscamingue area, the forests transition into a more predominantly boreal forest characteristic of ecoregions to the north, although on warmer, better-drained sites, deciduous species dominate.

In terms of its relationship to other classification schemes, this mixedwood forest region is composed of the Lake Temiskaming lowland, the southern Laurentians, and the Algonquin-Lake Nipissing area (TEC ecoregions 97, 98, and 99). Because this ecoregion is a transition zone, it is characterized by a variety of forest types, including the Laurentide-Onatchiway (1a), Chibougamau-Natashquan (1b), Gouin (3) and Missinaibi-Cabonga (7) within the Boreal forest region. In the Great Lakes-St. Lawrence forest region, sections include the Laurentian, Algonquin-Pontiac, Middle Ottawa, Georgian Bay, Sudbury-North Bay, Saguenay, Haileybury Clay, Temagami, and Algoma (4a, 4b, 4c, 4d, 4e, 7-10)<sup>17</sup>.

Forest species assemblages in this area are highly influenced by drainage characteristics and topography, which are diverse on the Nipissing Forest. Fire was an important disturbance regime in the ecoregion on spatial scales of up to 1,000 km<sup>2</sup>, particularly in the northern parts of the ecoregion. Elsewhere, smaller fires were more common.

The most widespread old-growth red and white pine stands remaining in the world and are found in this ecoregion. A large percentage of the Great Lakes watershed headwaters remain as relatively intact (rare on a continental scale).

### **Changes in Forest Composition and Community Associations**

Intervention by humans has caused a change in the species composition of and distribution on the Nipissing Forest. For example, before human intervention, it is estimated that there were natural fire intervals, for stand replacing fire, of about 75 years in most stands in the Great Lakes-St. Lawrence Forest Region. This interval has now grown to nearly 600 years due to the advent of modern fire suppression programs (Source: 1994-1999 North Bay FMP). Studies of Ontario Land Survey (OLS) data<sup>18</sup> for the Nipissing Forest have provided information about the forest on this unit prior to widespread European settlement. In the late 1800's and early 1900's surveyors established township lines and other legal boundaries as part of the settlement process. Surveyors followed pre-determined bearings through the forest, marking township boundaries, road allowances and lot corners. When doing this, they recorded information on land type, landform, soil productivity, and forest cover. Detailed descriptions of forest cover included species (in order of abundance), relative ages, health and diameter at breast height of the trees they encountered. This 1890 (circa) forest condition is the basis of comparison to the present forest condition.

Leadbitter (2000) used OLS data from the boundary lines of 10 townships in the Nipissing Forest and compared it to the 1989 FRI data from these same 10 townships. Pinto (2003) compared historic data to the 2004 FRI. He expanded the study and looked at data from all 63 townships for which data were available – only partial coverage was available for the remaining 21 Townships, so they were not used. Pinto also did an analysis to determine if FRI data along the township boundary was representative of the FRI of the entire township – he found that the FRI along the boundary line was representative for most species, but not for balsam fir or red pine at the 99% confidence level.

**Table 11. Proportion of forest cover by working group in OLS data and in 2004 FRI**

Working Group	OLS (1856-1958) % of representation	FRI (2004) % of representation	Change
Pine	17.66**	9.37	Decreased
White Birch	14.19*	16.90	Increased
Spruce	11.39	11.85	Increased
Balsam Fir	11.17**	5.31	Decreased
Poplar	8.88**	18.48	Increased
Maple	6.30**	21.15	Increased

<sup>17</sup> Rowe, 1972

<sup>18</sup> Leadbitter, 2000; Leadbitter, Naylor and Euler, 2002; and Pinto unpublished, 2003; another similar study is Jackson et al., 2000 for a survey transect going from SSM to Sudbury.

Larch	5.92**	0.19	Decreased
Cedar	4.74	5.08	Increased
Yellow Birch	4.54	4.89	Increased
Hemlock	4.50	2.44	Decreased
Hardwoods <sup>1</sup>	4.34	N/A	
Jack Pine	2.41**	3.48	Increased
Alder	2.35	N/A	
OTHER	1.62	0.87	Decreased
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	

Significant difference between 1856-1958 OLS data and 2004 FRI township lines at the 95% confidence interval.

\*\* Significant difference between 1856-1958 OLS data and 2004 FRI township lines at the 99% confidence interval.

<sup>1</sup> Hardwoods: "hardwoods" were not well defined in the surveyors notes, so we cannot say if they were tolerant hardwoods, or a mix of hardwood species including poplar and white birch.

Leadbitter's sample was much smaller than Pinto's, and their results vary somewhat, but they are consistent for maple and white birch. Both analyses showed the most significant differences between the pre-settlement forest condition and the current forest condition occurs in maple. Pinto showed more than three times the amount of maple now than in the past and more than twice as much poplar now than in the past. Red pine and white pine have decreased by almost half, and there is about 50% less hemlock and balsam fir now. The decline of eastern hemlock from 15.6% occurrence in the late 19<sup>th</sup> Century to 4.4% in 1990 (Leadbitter 2000) supports the concern about this species. It is important to note that these comparisons are not based on the actual amount of area covered by each species, but on the proportional representation of the different species.

This historic information has been used to develop objectives for desired forest composition but it should be cautioned that not enough information is available to establish specific targets for each forest unit. For example, it is not known how much of the maple increase should be attributed to hard maple or soft maple. The large decrease in balsam fir may be due to a spruce budworm epidemic or a general overestimate of this species by the surveyors relative to the FRI. Balsam fir often exists as an understorey species and would have been noted in a ground-based survey. The FRI is based on interpretations of the overstorey from aerial photographs, which tends to hide a balsam fir understorey. This will most likely result in an overestimate of the true change in balsam fir composition since historic times. No targets were established to increase the amount of these species, as they are addressed by normal forest planning.

### **Late Seral Stage Forests**

With the historical focus on harvesting of mature stands across the region, old growth forests and associated ecosystems have certainly declined across the region. Six old growth sites have been identified in the Nipissing Forest. Five of these sites are old growth red and white pine. The sixth site, the Widdifield Forest, is a 2,200 hectare forest containing large yellow birch and hard maple. The Widdifield Forest is within the city limits of North Bay. Table 12 provides a summary of these sites. As a result of the OLL decision, all of the above sites have been protected as either parks or conservation reserves.

**Table 12. Ontario Living Legacy parks and conservation reserves containing late seral stage communities.**

<b>Name</b>	<b>Area (ha)</b>	<b>Land Use</b>	<b>Class</b>	<b>ID #</b>
Widdifield Forest	1,827	Prov. Park	Natural Environment	P146
Gooderham Old Growth White Pine Forest	68	Cons. Res.		C137
Mattawa River Addition -Talon Lake Old Growth Stand	10,687	Prov. Park	Natural Heritage Area	P148
McLaren Forest	369	Cons. Res.		C159
Gods Lake	243	Cons. Res.		C134
Boom Creek	599	Cons. Res.		C124
<b>Total Area:</b>	<b>13,793</b>			

The total area of late seral stage forests in these identified parks and conservation reserves represents approximately 2.5% of the Crown productive forest (549,320 ha) or 1.4% of the entire Nipissing Forest landscape (all ownerships, approximately 1.1 million hectares).

At this time, there is limited information about the natural age class distributions for the Nipissing Forest. As part of its on-going work to get a better understanding of the pre-European settlement forest, MNR is developing methodologies to estimate natural age class distributions. Some information on relative age was collected by Ontario Land Surveyors and once this information is analysed it may add to the knowledge of historic age class distribution. It is known that a previous harvesting policy of cutting the “oldest first” has reduced the amount of area in the older ages but that fire control practices may have counteracted this to some extent. It is estimated that over half of the forest is now in the 61-90 age class with only 6% in the 121+ age classes<sup>19</sup>.

Under the direction of MNR’s Old Growth Definitions for Ontario (2003), and Old Growth Conservation Requirements for Forest Management Planning (Forest Management Planning Note) (Draft March, 2003), the 2004-2024 FMP also sets an objective to identify and maintain a limited number of tolerant hardwood stands that could be managed for more old growth features and functions. With on-going development of MNR’s old growth policy, it is expected that more standards and specifications will become available on defining old growth conditions for tolerant hardwood stands. With this type of information, it will be possible for NFRM to:

- Determine how much area in the tolerant hardwood forest units are currently in an old growth condition, in both parks and on the managed forest;
- Determine how much area in the tolerant hardwood forest units should be managed for old growth on the managed forest; and
- Determine how much area in the tolerant hardwood forest units should be managed using normal selection harvest practices.

In the meantime, using local knowledge, FRI stand age and OBM clues such as lack of roads, lack of river access and difficult terrain, managers will identify stands that have historically remained undisturbed. If there are any such stands, managers will determine if they have old growth physical features or characteristics and if there are inherent reasons that make them poor harvest candidates, harvesting in these areas will be avoided.

In the development of Forest Operations Prescriptions (FOPs) that are conducted prior to harvesting, some additional areas may be discovered that contain old growth white and red pine. Where the stocking to white/red pine is adequate (as defined by the Silviculture Guides for Conifer Forests in the Great Lakes St. Lawrence) these areas will be managed under the shelterwood system to perpetuate these species. The Strategic Direction section of the 2004-2024 FMP also lays out objectives, strategies and targets for old growth on the Nipissing Forest.

As part of the planning process NFRM consulted with the MNR technology development unit to determine the best age and stocking definition for “old growth”. The forest is managed by working group, which contain a mixture of species. For the shelterwood working group, even relatively pure pine stands have some component of other species. The managers consulted with MNR to determine the actual composition of stands, and determination of age. The procedure is described in the 2004 FMP (NFRM 2004).

MNR is also assisting with definition of frequency distribution of old growth patch sizes. NFRM hopes to establish spatial distribution and size estimates for the historical “natural” old pine stands. One consideration is that larger patch or stand size is generally considered better for retaining genetic reproductive fitness and for certain types of wildlife habitat. This work is ongoing, and involves Landscape planning expertise from MNR, as well as interaction with stakeholders. Discussions have centred on “form versus function”; can a stand that has had some trees removed still function as old growth? Work by MNR is ongoing to examine ways to collect more information on stand structure for old growth, old growth features in natural versus managed stands and to identify more old growth stand conditions. Stand level strategies for retaining old growth conditions will be updated in subsequent forest management plans to meet any new requirements for managing old growth. Developments in old growth policy and management shall be reflected in the HCV designation for late seral stage forests. This work is ongoing, and will inform future FMPs.

### **HCV Designation Decision:**

<sup>19</sup> 2004-2024 Nipissing Forest Management Plan.

Late Seral Stage Red and White Pine: The FRI for the Nipissing Forest identifies about 5800 ha of Pw forest unit presently defined as >120 yrs (Appendix 7). The working definition of old Pine for Boreal East Forests (OMNR 2002 Table 3) is  $\geq 150$  years. In the NF there is about 2600 ha of White Pine stands in that age class. The FMP targets a doubling of Pw forest units in old growth condition over next 30-50 years to achieve old growth objectives. For this reason, late seral stage Red and White Pine are designated HCV.

Hemlock: The FRI for the Nipissing Forest identifies approximately 2500 hectares in He forest unit presently defined as old growth. The FMP targets a doubling of He forest units in old growth condition over next 40 years to achieve old growth objectives. Estimates suggest that hemlock in general has declined up to 50% from historic levels. For these reasons, hemlock forest units and late-seral stage hemlock are designated HCV.

Undisturbed late seral stage tolerant hardwood forests: New provincial Old Growth policies may begin to address this type but there has been little focus to date on managing old growth in tolerant hardwood forest associations and the FMP objectives remain vague, therefore remaining late seral stage hardwood forests are designated HCV.

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### ***10) Are large landscape level forests (i.e. large unfragmented forests) rare or absent in the forest or ecoregion?***

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#### **Rationale:**

In regions 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.

#### **Assessment Methodology:**

- WWF Ecoregional assessment
- Global Forest Watch Intactness mapping
- Roads layer for Nipissing Forest
- OMNR Lands for Life assessment
- Landscape Ecology Analysis Program results for 2004-2024 Nipissing FMP

#### **Assessment Results:**

According to WWF's Terrestrial ecoregions of North America: a conservation assessment, the Eastern Forests – Boreal Transition ecoregion containing the Nipissing Forest is highly fragmented by public roads, logging roads, large scale logging, and settlement patterns. WWF estimates that only 10% of the broader ecoregion remains as intact habitat.

As seen in Map 7, Global Forest Watch (Global Forest Watch large remaining forest areas map GFW 2002). identified a number of intact areas on the Nipissing forest of various sizes. The GFW assessment provides a good initial coarse level analysis of forest intactness at a global level.

To regionalize the GFW assessment, more detailed roads information on the Nipissing Forest was added to the GFW (Map 8 Global Forest Watch converted and accessed forests). While the recalculation of resulting intact forest categories used by GFW has not been done, the occurrence of roads within these areas would likely reduce the amount in each intact category.

Map 9 (OMNR Lands for Life roadless areas analysis) presents an analysis of remoteness (i.e. distance from roads) prepared by the OMNR during the Lands For Life land use planning exercise. Not surprisingly, this analysis identifies similar "remote" or "intact" areas to the GFW analysis.

While the Nipissing Forest does contain areas that remain relatively intact, as seen from the roads information and according to the WWF representation, it is within an ecoregion that is considered highly fragmented. On a regional basis, as shown in both the OMNR analysis (Map 9) and the GFW analysis (Map 7), the Nipissing Forest has relatively less "intact" area compared to adjacent areas to the southeast, southwest, northeast and northwest.

The degree of landscape intactness or remoteness, however, was used as a major criterion in the identification and designation of parks, conservation reserves and enhanced management areas during Ontario Living Legacy land use planning exercise. Many of the areas on both the OMNR map and the GFW map now contain or are encompassed by one of the three OLL designations. Some of the GFW/OMNR intact areas now include protected areas or conservation reserves in their cores and several more are designated Enhanced Management Areas that will be managed for remoteness<sup>20</sup>. With respect to the latter, NFRM has already signed a number of Resource Stewardship Agreements (RSA) with Remote Tourism Operators on a number of these intact areas. The RSA lay out ways in which the critical remote features of importance to these businesses will be maintained.

#### **HCV Designation Decision:**

Due to its long history of use and relatively extensive road network, the Nipissing Forest cannot be classified as a forest that is unfragmented or little fragmented by human impact.

According to the WWF conservation assessment of the ecoregion, the Nipissing Forest is within an ecoregion that has been heavily altered and fragmented.

Several of the most intact areas on the forest were included in or encompassed by either parks, conservation reserves or enhanced management areas during the recent OLL

The forest is not significantly less fragmented than what is usual in the region as forests adjacent to the NE, NW, SE and SW contain large intact areas.

No HCV designation under Question 10.

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### **11) Are there nationally/regionally significant diverse or unique forest ecosystems?**

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#### **Rationale:**

Vulnerability; species diversity; significant ecological processes.

#### **Assessment Methodology:**

- NHIC Natural Areas
- NatureServe Communities
- Ontario Areas of Natural and Scientific Interest
- WWF/MNR L4L Conservation Assessment (protected areas “gap analysis”)
- WWF Ecoregion Conservation Assessment

#### **Assessment Results:**

NHIC identifies three Earth Science Areas in the North Bay District, two of which are identified as provincially significant (Table 13).

**Table 13. Earth Science Areas in North Bay District (NHIC 2004).**

Area Name	Size (ha)	Description
Dana Township Ice Margin Complex (ES)	1131.0	Provincial significance; represent ice margin features - end moraine, outwash plain, eskers; formed about 10,000 years B.P. Provides representation of a series of related surficial deposits and features identified in the earth science framework for representation: the moraine, eskers, kettle features, and outwash plain. The surficial deposits are undisturbed under the forest canopy.
Devil Rock Exposure Nipissing	30.0	Bedrock: 85 m vertical exposure of Nipissing Diabase

<sup>20</sup> East Mills (E74A), McCallum Peninsula/Thistle Township (E162a), Ottetail Creek (E132a) Enhanced Management Areas – Remote Access. See Ontario Crown Land Use Atlas for land use direction. URL: <http://crownlanduseatlas.mnr.gov.on.ca/policylists/nb.html>

Diabase (ES)		with talus at base in some locations. Locally significant exposure of Nipissing Diabase, primarily of interest due to scenic value and life science importance. [Jones 1989]
Friday Lake Moraine (ES)	240.0	Compact fissile non-calcareous till plastered on southwest side of northwest-southeast fault controlled valley in which Friday Lake has formed. <u>Provincial significance</u> representing an undisturbed stoss moraine in a fault valley, associated regional ablation till, vegetated boulder talus, dissected tills. Northern stand of mature tolerant hardwoods. [Kershaw 1989]

### **Other Significant Earth Science Features**

**Table 14. Other identified earth science features.**

Area Name	Description
McConnell Lakes Interlobate Moraine(E133n)	The McConnell Moraine is classified as an EMA (Natural Heritage) under the Ontario Living Legacy LUS. This seemingly random jumble of sand and gravel deposits that lie under the forested hills of this area is part of an interlobate moraine that extended south to Huntsville and northeast into Quebec. This spectacular collection of glacial features is part of the most extensive landscape of its kind in eastern Canada. This site of earth science significance is in site district 5E-6 and consists of two core areas; referred to as the northern and southern sections. The northern section is located south of Green Lake and abuts the northeast side of the Spring/Cut Lake Esker Conservation Reserve. The southern section includes the area between Threetrails, Wyse and Little McDougal lakes. Sure Catch Lake sustains one of the rare lacustrine brook trout populations.

#### **HCV Designation Decision:**

All of the earth science features are classified under special land use designations (Earth Science feature in NHIC and Enhanced Management Area in the OLL LUS) and there are provisions to manage these areas accordingly. These sites are unusual but do not have features that make them HCV.

#### **Life Science ANSIs**

NHIC identifies 16 Life Science ANSIs and 36 Candidate Life Science ANSIs in North Bay District (Map 13). Based on discussions with OMNR planners and biologists, virtually all of the provincially significant ANSIs on the Nipissing Forest that have been identified by the OMNR were included in either parks or protected areas designated during OLL.

#### **HCV Designation Decision:**

Life Science ANSIs: Provincially significant Life Science ANSIs are encompassed by OLL Land Use Strategy new protected areas designations therefore they are designated not HCV.

#### **WWF/MNR L4L Conservation Assessment**

A description of outstanding e.g. incompletely represented features that characterize regionally significant enduring features or unique landform/vegetation types as per the WWF/MNR Lands for Life conservation assessment is provided in Category 1, Question 6.

#### **HCV Designation Decision:**

Outstanding gaps in landscape representation as per WWF/MNR conservation assessment (gap analyses): See Category 1, Question 6 for HCV designation decision.

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

### Context:

Much of the Nipissing Forest is encompassed by the Sturgeon-Nipissing-French Watershed (Figure 2). Public Works and Government Services Canada (PWGSC)<sup>21</sup> is the federal department responsible for managing water levels for Lake Nipissing and the French River. Water management is directed by long-established operational guidelines, the Canadian Environmental Protection Act, the Navigable Waters Protection Act and the Fisheries Act. In addition, provincial flood rights and limits, and local building by-law restrictions are considered.

The following questions, 12 to 16, in category 3, are especially important in a working forest, which NF certainly is.

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### **12) Does the forest provide a significant source of drinking water?**

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#### Rationale

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.

#### Assessment Methodology

Conservation Authority Mandate & Watershed Plans (North Bay-Mattawa CA)<sup>22</sup>  
Municipal Websites (North Bay, Mattawa, Sturgeon Falls, Powassan)

- Known usage of water by local communities
- OBM base maps showing topography
- Local terrain mapping
- Provincially Significant Wetlands

#### Assessment Results

<sup>21</sup> Public Works and Government Services Canada. <http://www.pwgsc.gc.ca/ontario>

<sup>22</sup> North Bay-Mattawa Conservation Authority. URL: <http://www.nbmca.on.ca/>



**Figure 2. Sturgeon-Nipissing-French Watershed (Public Works and Government Services Canada, 2002).**

During the spring melt and in the unusual weather conditions, PWGSC relies upon an integrated water management approach, which is directed by the lead agency, the Ontario Ministry of Natural Resources. This approach is carried out in co-operation with local private and municipal watershed representatives, including the City of North Bay, the North Bay-Mattawa Conservative Authority, Ontario Hydro, provincial agencies, and federal watershed management partners.

Through a process of consultation, information sharing and exchange of expertise, these partners strive to balance the varying needs and watershed considerations throughout the Lake Nipissing, French River and Sturgeon River Watershed. Important considerations for these water management partners include: public safety, early warning of potential flood conditions, low and high water levels, sport fishery habitats and spawning beds, year-round tourist operations, cottager and boating needs, waterfowl nesting, water quality and oxygen levels, ice and water damage, water intake and sewage outfalls, and Ontario Hydro operations.

The main source of drinking water for the city of North Bay (home to much of the population in the NF) is Trout Lake, the headwater of the Mattawa River. Trout Lake has a depth of up to 60 meters, supports a coldwater fishery and has the distinction of supplying some of the best quality drinking water in the province of Ontario. The town of Sturgeon Falls sources its drinking water from the nearby Sturgeon River. Other communities within the Forest rely on ground- or surface-water as a source of drinking water for residents. There are a number of agencies (see above) that have input to the protection of safe drinking water quality for local communities. Other factors (e.g. hydro dams) also affect water flow, regulation and quality in the watershed area.

The Forest Management Planning process has a number of provisions for the protection of water quality. In accordance with provincial regulations, forest managers must establish reserves, whose widths correspond with ground slope adjacent to the aquatic feature (e.g. stream, lake, wetland). Prescriptions for reserves also vary

according to the ecology of a given body of water e.g. coldwater trout streams and lakes, critical fish habitat and headwaters will have more significant and continuous treed reserves than a warm water lake or stream.

The 2004-2034 FMP for the Nipissing Forest identifies an Area of Concern for MWS (Municipal Water Supply), which is designated to protect private wells and known springs as identified by landowners adjacent to planned operations. Prescriptions for these areas are defined in Table FMP-17 of the Forest Management Plan.

There are also guidelines that control the construction of water crossings and forest companies can face fines if damage, including fuel spills, siltation or erosion, occurs during construction. The following are some of the policies and guidelines that regulate the protection of water quality during access development and harvesting operations:

- Environmental Guidelines for Access Roads and Water Crossings
- Code of Practice for Timber Management Operations in Riparian Areas
- Timber Management Guidelines for the Protection of Fish Habitat
- North Bay District Fisheries Management Plan
- Manual of Implementation Guidelines for the Wetlands Policy Statement
- Area of Concern prescription for Municipal Water Supply.

Furthermore, much of the logging on the NF is carried out using partial harvest systems, which means that in most areas, a minimum level of forest cover is maintained on the managed forest landscape at all times. This helps to reduce the potential impacts of harvesting on water flow regulation and quality.

In 2007, during the development of the new FMP, the issues referred to as “Other dispersed water sources” arose. These may be impacted as a result of management activities, and of course they are a valuable resource. These will be designated, and a prescription is being included in the new plan. As operations occur, NFRMC will apply this prescription, even if prior to the implementation of the new plan.

#### **HCV Designation Decision:**

Trout Lake and the Sturgeon River are designated HCV as critical sources of drinking water supplies to communities on the Nipissing Forest. Other dispersed water sources will also be designated as HCV.

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### ***13) Are there forests that provide a significant ecological service in mediating flooding and/or drought, controlling stream flow regulation, and water quality?***

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#### **Rationale:**

Forest areas play a critical role in maintaining water quantity and quality and the service breakdown has catastrophic impacts or is irreplaceable.

#### **Assessment Methodology:**

- Government policy, monitoring & response programs (Ontario Low Water Response, Surface Water Monitoring Centre)
- Conservation Authority Mandate & Watershed Plans (North Bay-Mattawa CA)<sup>23</sup>
- Provincially Significant Wetlands
- Literature Review – Effects of forest disturbance on water yield

#### **Assessment Results:**

It can be said that all of the NF provides significant ecological services in mediating flooding, controlling stream flow regulation and water quality. As a whole, the Forest contributes positively to these natural processes as a result of the fact that continuous forest cover is maintained across a significant proportion of the managed landscape.

<sup>23</sup> North Bay-Mattawa Conservation Authority. URL: <http://www.nbmca.on.ca/>

Historically, periods of dry weather and low water levels or drought have been relatively uncommon in Ontario (about every 10-15 years). However, recent studies on changing weather patterns indicate low water levels may become more common, potentially compounded by the province's steadily increasing demands for water<sup>24</sup>.

Research shows that forest cover changes must meet or exceed a 20–25% threshold to detect a measurable response in flow (i.e. annual runoff) to forest disturbance (Bosch and Hewlett 1982<sup>25</sup>; Hornbeck et al. 1993)<sup>26</sup>. Paterson et al. (1998) further suggest that hydrological changes induced by climatic variations in the boreal forest may override those due to forest disturbance such as harvesting or fire for small basins. However, this should be examined in future work at larger spatial scales.

In the 2004-2024 FMP, water yield is used as an indicator for the forest sustainability criteria of Soil and Water Conservation<sup>27</sup>. Water yield is calculated as a percentage of productive forest area in second order stream watersheds that has been disturbed (clearcut or fire) over the last ten years. Due to the extensive amount of selection and shelterwood harvesting in the Nipissing Forest, only 3.5% of the area within the second order stream watersheds has been disturbed by clearcut or fire<sup>28</sup> within the last ten years. An increase of 0.7% is noted from the previous FMP figure of 2.8%, but it is difficult to attribute the increase to forestry operations since this estimate includes yield from all land ownerships within the second order watersheds that were measured.

There are also a number of wetlands on the forest that provide critical ecosystem service functions such as: ground water recharge and discharge; flood damage reduction; shoreline stabilization; sediment trapping; and nutrient retention and removal.

These wetlands also provide critical habitat for many bird, amphibian, reptile and mammal species, including many of the furbearers. Wetland areas of various sizes and types are scattered throughout the Nipissing Forest, and are often associated with lake, river and stream systems. These aquatic systems often serve as important travel corridors and feeding areas for many wildlife species. Wetlands are also important for fisheries habitat. Some species of fish, such as northern pike and muskellunge rely on wetlands as spawning areas. For other species, wetlands can be valuable feeding or food-producing areas, providing frogs, insects, bait fish and other food.

Area of Concern prescriptions on the Nipissing Forest that are used to protect wetlands are consistent with the Provincial Policy Statement. According to prescriptions, an approved Environmental Impact Statement is required prior to any operations within 120 metres of Provincially Significant Wetlands (see AOC Supplementary Documentation, 2004-2024 FMP). An approved protocol for evaluating wetlands as to their level of provincial significance exists but, in fact, very few wetlands have been evaluated. It is virtually certain that more provincially significant wetlands could be found, if they were evaluated. Provincially significant wetlands identified to date are listed in Table 15.

**Table 15. Known provincially significant wetlands in the Nipissing Forest.**

Wetland Name	Township(s)
Cache Bay	Caldwell, Springer
Callander Bay	North Himsforth, West Ferris
Chippewa Creek	Widdifield
Duchesnay Creek	Merrick, Widdifield
Fish Bay	Nipissing

<sup>24</sup> OMNR, Lands and Waters. Low Water Response. URL: <http://www.mnr.gov.on.ca/MNR/water/p774.html>

<sup>25</sup> Bosch, J. N. & Hewlett, J. D. 1982. A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. *J. Hydrol.* **55**, 3–23.

<sup>26</sup> Hornbeck, J. W., M. B. Adams, et al. 1993. Longterm impacts of forest treatments on water yield: a summary for northeastern USA. *J. Hydrol.* **150**: 323-344.

<sup>27</sup> Section 2.2.3.5 - Landscape Processes. 2004-2024 Forest Management Plan. Nipissing Forest.

<sup>28</sup> This figure was calculated by dividing the net disturbed area originating within the past 10 years into the total area within the boundaries of the second order watersheds regardless of ownership type. An increase of 0.7% is noted from the previous FMP figure of 2.8%.

Gauthier Creek	West Ferris
Jessup's Creek	West Ferris
LaVase River/Dreany	East Ferris, West Ferris
Loudon Basin Peatland	Loudon
Parks Creek	Widdifield
Rice Bay	Bonfield, Phelps
Upper Wasi River	Chisholm

While relatively few wetlands have been evaluated, there is some promising work involving the Municipality of Muskoka to use remote sensing imagery in order to identify high priority wetlands for evaluation. NFRM staff will contact those parties involved to see if there is a possibility of future test-pilot application of this approach on the Nipissing Forest.

In addition to NF managed Crown lands, there are other properties owned and managed by the North Bay-Mattawa Conservation Authority that represent floodplain lands, wetlands or sites containing unique natural, historic or scenic features within the Nipissing Forest. These also contribute to the maintenance of water quality and flood control within the Sturgeon-Nipissing-French watershed.

Public Works and Government Services Canada (PWGSC) is the federal department responsible for managing water levels for Lake Nipissing and the French River. The most significant fluctuations in water levels and stream flow on the forest occur as a result of climate effects as well as use levels and flow regulation required for hydro generation. Forest managers have no direct control over water level fluctuations and flow regulation associated with the hydroelectric industry, climate effects or other water users but must ensure that forest operations have no significant negative impacts.

#### **HCV Designation Decision:**

Because of the relatively limited nature of the local or landscape effects of forest management on water flow regulation and flooding on the Nipissing Forest and existing prescriptions to protect significant wetlands, no HCV is designated in this category. The HCV designation decision is similar to the Protected areas decision in question 6. Regulated protected areas are NOT HCV. Designation as HCV will not change the level of protection or the prescription for either. NFRM will include these or not following a consensus of opinion on the appropriate action with regard to HCV designation..

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#### **14) Are there forests critical to erosion control?**

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##### **Rationale:**

Soil, terrain or snow stability, including control of erosion, sedimentation, landslides, or avalanches.

##### **Assessment Methodology:**

- Review of OBM base maps showing topography
- Review of local terrain mapping

##### **Assessment Results:**

There is little extremely steep topography or highly unstable terrain that would indicate obvious candidates for designating HCV under this question on the Nipissing Forest. The primary concerns for erosion would be associated with forest clearing on steep terrain and/or areas comprising fine-textured soils prone to erosion through mechanized harvest operations. Operational guidelines<sup>29</sup> direct how operations on sensitive sites should occur.

##### **HCV Designation Decision:**

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<sup>29</sup> OMNR. 1997. Forest Management Guidelines for the Protection of the Physical Environment.

There is no evidence of high risk areas for compromised soil stability, sedimentation or erosion through forest operations on the Nipissing Forest. Existing risk is managed through provincial guidelines to protect the physical environment from negative impact – therefore there is no HCV designation under this category.

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**15) Are there forests that provide a critical barrier to destructive fire (in areas where fire is not a common natural agent of disturbance)?**

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This question is deemed not relevant to forest ecosystems in Canada (see Appendix 4 in FSC Canada National Boreal Standard, Version 3.0).

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**16) Are there forest landscapes (or regional landscapes) that have a critical impact on agriculture or fisheries?**

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**Rationale:**

Mediating wind and microclimate at the scale of ecoregions affecting agriculture 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.

**Assessment Methodology:**

- Review Literature
- Search Ontario Ministry of Agriculture and Food
- Search Ontario Ministry of Northern Development and Mines
- Review 2004-2034 FMP AOC Prescriptions
- Discussions with local MNR fisheries managers

**Assessment Results:**

***Agriculture***

The Nipissing Forest is in the transitional area between the boreal forests to the north and the hardwood forests and agricultural lands to the south. The local topography in the North Bay District is influenced by underlying Precambrian bedrock of the Canadian Shield, making much of the area unsuitable for intensive agricultural activity.

The North's agricultural sector is small compared to other parts of Ontario; dairy and beef farming account for 80% of commercial activity. Presently, only about 1/3 of the North's agricultural land (Class 1 through 4) is in production. Forestry, tourism and mining still comprise the main economic sectors in the region.

Within the Nipissing Forest, the communities of Verner (54 km west of North Bay) and Powassan (33 km south of North Bay) are identified as agriculturally significant areas by the Ministry of Northern Development and Mines<sup>30</sup>.

A 2003 report by The Corporation of the Municipality of West Nipissing (West Nipissing)<sup>31</sup> suggests that established sectors of the regional economy are largely anchored in the exploitation of the region's natural resources through mining and forestry. Over the last decades, trends also show increased consolidation of the area's farms and a significant reduction in the overall acreage being exploited in West Nipissing.

Although the forest in the eastern part of the management unit was cleared in the past for agricultural activities it was subsequently abandoned when found to be of marginal productivity for agricultural purposes. This has resulted in hundreds of hectares of idle marginal agricultural land that could make a significant contribution to the district's future wood supply with proper management<sup>32</sup>.

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<sup>30</sup> Ministry of Northern Development and Mines. URL:

[http://www.mndm.gov.on.ca/mndm/nordev/redb/sector\\_profiles/agriculture\\_e.pdf](http://www.mndm.gov.on.ca/mndm/nordev/redb/sector_profiles/agriculture_e.pdf)

<sup>31</sup> The Corporation of the Municipality of West Nipissing. URL:

[http://www.westnipissingouest.ca/images/es\\_june18.pdf](http://www.westnipissingouest.ca/images/es_june18.pdf)

<sup>32</sup> 2004-2024 Nipissing FMP. Section 2.0.

Most agricultural activities are carried out on patent (private) lands interspersed amongst the Crown land portion of the Nipissing Forest. Given the relatively low sensitivity of the type of farming activities in the region (e.g. beef and dairy production) and the high degree of forest cover maintained on the Nipissing Forest, no significant impacts to the primary agricultural production areas are anticipated.

### **Fisheries**

There are 1453 lakes located within the Nipissing Forest. Lake Nipissing accounts for 65 percent of the surface area of unit's waters, with an area of 85,470 ha, while the remaining lakes cover 44,873 ha for a total of 130,343 ha (this figure does not include area of other small water bodies).

Approximately 12.8 percent of the surface area of water in the management unit is made up of coldwater lakes, rivers, and streams. A large percentage of these water bodies occur in the easternmost portion of the unit, including McConnell, Timber, and Guilmette Lakes, while the majority of the remaining coldwater sites are located in the north-west corner (Emerald, Manitou and Red Cedar Lakes). Trout Lake's land-locked Atlantic salmon (ouananiche) population is a unique resource since the species exists here outside of its normal range. Coldwater fish species tend to be quite sensitive to disturbances to water quality and to shoreline habitat. The prescription for brook trout areas of concern is one mechanism used in this plan to further enhance or protect existing coldwater fisheries (see Table FMP-17, 2004-2024 Nipissing Forest Management Plan).

Located centrally, Lake Nipissing is the largest body of water in the Nipissing Forest. It accounts for two-thirds of the fishing pressure and 81 percent of the total harvest, by weight, in the management unit. Other heavily fished warm water lakes in the district include Lake Nosbonsing, Wasi Lake, and Commanda Lake. These lakes, located in the southern portion of the management unit, draw both tourists and locals in search of walleye and other game fish.

Forest management activities in riparian areas on the NF are implemented in a way to minimize harmful alteration or disruption of fish habitat. On the Nipissing Forest as in many areas of the province, collection of fisheries data by MNR is limited. A 2001 Independent Forest Audit Report recommends that the MNR undertake fish surveys in support of improved forest management.

Because the HCVF approach operates under the paradigm of the precautionary principle, a lack of information on HCV must result in a conservative approach. To this end, those waters for which data is lacking are classified as cold water fisheries. A more restrictive prescription is used in light of the known sensitivity of coldwater fish habitat.

While the current lack of fisheries data for the Nipissing forest limits the identification of critical production areas, an ongoing research project titled "The Forest Fish: Linking Topographic Models of Forested Sub-watersheds to the Conservation of Brook Trout"<sup>33</sup> funded by the Ontario Living Legacy Fund may in future assist managers in identifying ecologically sensitive areas and developing appropriate site-specific prescriptions.

### **HCV Designation Decision:**

**Agriculture:** Although agriculture is of localized importance in some areas within the Nipissing Forest, it is unlikely that the beef and dairy industries that comprise a majority of the agricultural sector face any significant impact or risk from forest management on Crown lands (e.g. changes in wind and microclimate/microhabitat) - not HCV.  
**Fisheries:** A conservative approach to the protection of fish habitat on the Nipissing Forest is taken – at this time, there are no identified important production areas that warrant increased protection from forest operations that are not already addressed in the current planning approach - not HCV.

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<sup>33</sup> Trent University Watershed Science Centre, Centre for Northern Forest Ecosystem Research.

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

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**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 which regularly visits the forest).**

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Question 17 further asks:

- Is anyone within the community making use of the forest? (Look at members or subgroups rather than treating the community as homogenous.)
- Is the use for their 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.

### Rationale:

This attribute looks at level of dependence of local communities on the forest to meet their basic needs.

### Assessment Methodology:

- NRVIS data
- Socioeconomic Description in 2004-2024 FMP
- Discussions and correspondence with First Nations during forest management planning consultation sessions
- Discussions and correspondence with non-native communities and stakeholders during forest management planning consultation process

### ***Subsistence/Health***

The Nipissing Forest and surrounding areas are used extensively by local native and non-native communities alike. Access to Crown lands for recreational and non-commercial consumptive use is generally unrestricted. Areas such as hunting grounds, berry-picking areas, medicinal plant areas etc have been identified and are subject to prescriptions developed during the forest management planning process. For both native and non-native communities, the use of the forest for food and materials is generally supplementary and not the primary source. Important sources of drinking water are discussed previously in Question 12.

### ***Timber Values***<sup>34</sup>

Wood from the Nipissing Forest goes to almost 30 different communities in the region to be processed. These include the following communities and MNR Districts:

- Cochrane District: Cochrane and Iroquois Falls.
- Hearst District: Hearst
- Kirkland Lake District: James Township, Englehart, Larder Lake, Kirkland Lake, and Timiskaming.
- Nipigon District: Nipigon and Longlac.
- North Bay District: Calvin Township, Mattawa, North Bay, Powassan, Sturgeon Falls.
- Parry Sound District: Huntsville
- Pembroke District: Killaloe, Pembroke, Petawawa, and Raglan.
- Sault Ste. Marie District: Sault Ste. Marie and Thessalon.
- Sudbury District: Blind River, Cosby/Mason/Martland Townships, Espanola, Hagar, Nairn Center, and Rayside-Balfour.
- Timmins District: Timmins
- Wawa District: Michipicoten

Locally, North Bay, Sault Ste Marie and Pembroke Districts have less than 4% of their labour force dependent of the forest industry, however, the above list illustrates the importance of forestry to many other northern communities.

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<sup>34</sup> Section 2.0, Management Unit Description. 2004-2024 Nipissing Forest Management Plan.

**Other Forest Values**

Other commercially and culturally important values such as bear management areas, traplines, cottage lakes, recreation trails and tourism areas are comprehensively documented through the public consultation and values mapping portion of the forest management planning process. Ontario has many policies in place to ensure that multiple uses on the forest are recognized and accommodated, both within and in parallel processes to forest management planning.

**HCV Designation Decision:**

There are no HCV designations under Category 5.

## **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).**

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### **18) Is the traditional cultural identity of the local community particularly tied to a specific forest area?**

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**Rationale:**

In the context of this standard, 'local' is defined as in the national Boreal Standard. People are considered local when 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.

**Assessment Methodology:**

- NRVIS data on cultural values
- Heritage River Parks on the Forest
- Canadian Heritage River Program
- Background Native Information Report
- Discussions and correspondence with First Nations during forest management planning consultation sessions
- Discussions and correspondence with non-native communities and stakeholders during forest management planning consultation process

**Assessment Results:****Native Values**

Two First Nations, Dokis and Nipissing, are located in the western and central parts of the forest respectively. Another Aboriginal community (Mattawa-North Bay Algonquins of Golden Lake) is located in the Mattawa area and the Temagami First Nation, though located outside the Forest boundaries identifies the northern portion of the Forest as part of its traditional territory. The Antoine First Nation has also more recently been granted community status and although it does not have a land base, is involved in forest management on the Nipissing Forest.

At present, there are a total of 101 known archaeological sites identified on the Nipissing Forest. Given the extensive history of aboriginal land use in this area and the geographic extent of the Forest, this number is low. This is in contrast to the Temagami area to the north of the Forest, which has been subject to more extensive study and has a much higher proportion of known sites (over 400).

NFRM uses a predictive tool to identify areas of high archaeological potential. While it is a coarse filter approach, it does serve to flag those areas that have a high probability of having some archaeological significance. NFRM has made a commitment to the local First Nations to use the services of an archaeologist before entering or crossing any of the high potential areas identified by the model. One of the Corrective Actions Requests identified during the FSC assessment for the Nipissing Forest requires managers to develop improved processes for identifying areas of high cultural or spiritual value as follows:

### **Box 2: Corrective Action Request to Identify Native Values on the Nipissing Forest**

**CAR 2003.2:** Within 1 year of award of certification, NFRM, in full co-operation and consultation with interested First Nations communities, must develop and implement a program that contributes to the improved identification and documentation of Native values in areas where forest operations are scheduled to occur. The intent of such a program is: 1) to add to the existing body of knowledge with respect to Native values on the Nipissing Forest; 2) to contribute to improvements and refinements in the current modeling approach; and 3) to ensure that Native values on the Forest receive appropriate protection.

At present, four of the five Aboriginal Communities have “relatively” up-to-date Native Value collection exercises which are used during the development of forest management plans to identify areas for protection or modified harvest. Recognizing that the Forest contains many values that are not just of an archaeological nature, Native Values as identified in the FMP can include:

- cemeteries
- old villages and spiritual sites
- pictographs, archeological sites
- fur trading post
- traditional gathering sites of medicinal plants and berries
- traditional fishing areas
- traditional habitation sites
- hunting camps
- old mines
- logging camps and sawmills
- winter trails
- old wagon roads
- winter horse trails
- portages

Due to the confidential nature of Native Values, the FMP process will be used as a surrogate for the protection of important cultural and spiritual sites. Sites identified through further research will be protected through Area of Concern prescriptions documented in the Nipissing Forest Management Plan. We acknowledge that these values are possible HCVF, if the FNs determine that special prescriptions are required, and a monitoring system will be implemented.

#### ***Heritage Rivers and Lakes***

There are a number of rivers that either originate in or flow through the Nipissing Forest that are recognized locally, provincially and nationally as having significant cultural and historical significance. In particular, the Ottawa, Mattawa and French Rivers have been used for centuries as travel corridors and trade routes by First Nations and the early European explorers and voyageurs. The West end of Lake Nipissing has also been extensively used. While exhaustive archaeological surveys of these water bodies have never been conducted, without a doubt they contain a large number of significant archaeological sites. In recognition of this, the French and Ottawa Rivers have been designated Canadian Heritage Rivers by Parks Canada. The objective of the Canadian Heritage River System (CHRS) are to give national recognition to Canada’s outstanding rivers and to ensure long-term management and conservation of their natural, cultural historical and recreational values.

While not a designated under the CHRS, the Mattawa River also has high local/regional cultural and historical significance.

#### **HCV Designation Decision:**

Due to their high cultural and historical significance to both native and non-native communities, the Ottawa, French and Mattawa Rivers and the West end of Lake Nipissing are designated HCVs.

FN values are given a “possible HCV” designation, in respect of their current confidential approach to their own values. If the values are designated by the FNs, they will receive HCV status.

## Phase 2: Managing HCVF attributes

The overall goal of managing HCVF in keeping with the FSC criterion 9.3 is

“The management plan shall include specific and implemented measures that ensure the maintenance and or enhancement of the applicable conservation attributes consistent with the precautionary approach.”

Several points from this criterion have guided our approach to managing HCVs:

- The Forest Management Plan (NFRM 2004) provides the direction for HCV management; there is no separate list of prescriptions or objectives for HCVs.
- “Specific and implemented measures” – detailed prescriptions are written for the values during the planning process
- “Maintenance or enhancement” – based on the concept of no net loss, managers must aim at ensuring the value is sustained.
- “Precautionary approach” – the precautionary approach sets a high standard for management because it requires a demonstration that no impact is occurring.

It is worth repeating that the FMP and the planning exercise drive NFRM’s approach to HCVs. The planning process contains a significant amount of public consultation, which has also been verified to meet FSC standards through the certification assessment process.

Table 16 provides an overview of the HCV values that were identified in Phase 1 of this study. It also describes the responsibility of MNR for inventory and monitoring. NFRM is responsible for implementation of the detailed management prescription. There is a shared responsibility between MNR and NFRM for evaluating the effectiveness of management prescriptions. As HCVF values, in the Ontario context, to meet the HCVF precautionary principle, prescriptions must be shown to be effective.

**Table 16. Overview of HCV identified on Nipissing, responsibilities for inventory and monitoring, detailed management prescriptions and procedures for evaluating the effectiveness of management prescriptions.**

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Red-shouldered hawk	Nesting sites - 1) Active 2) Inactive	OMNR biologists are required to determine presence of nests and whether inactive or active. Tree markers, other technical staff, and loggers report observed nest sites.  OMNR has responsibility for monitoring effectiveness of prescription, and protection measures.	1) ACTIVE NESTS: <b>Reserve</b> -- 150 m <b>Modified management area</b> -- (MMA). Boundary of AOC is measured from the nest tree. Selection harvesting that retains at least 70 percent canopy closure is permitted in the MMA. MMA should be located so as to encompass suitable habitat and satellite nests, if present. Satellite nests should be protected with a 20 m reserve. No harvesting permitted from March 1 until July 31.  2) INACTIVE NESTS: AOC consists of a 20 m reserve. It is suggested that the status of the nest be confirmed before harvest. Description from Page 29 in Chapter 3.8, Habitat Management Considerations by Brian J. Naylor in <i>Silvicultural Guidelines for the Tolerant Hardwoods</i> , A. Corlett, eds. OMNR	Compliance: MNR and NFRM compliance staff routinely ensure prescription is applied appropriately.  Effects Effectiveness: Brian Naylor (OMNR) Phone: 705-475-5564 Fax: 705-475-5570 Email: <a href="mailto:brian.naylor@ontario.ca">brian.naylor@ontario.ca</a> Address: Brian Naylor Forest Habitat Program Leader - NORTH BAY 3301 Trout Lake Rd North Bay ON P1A4L7  <b>Organization Hierarchy:</b> NATURAL RESOURCES SCIENCE AND INFORMATION RESOURCES DIVISION SCIENCE AND INFORMATION BRANCH SOUTHERN SCIENCE AND INFORMATION SECTION NORTH BAY  Status: appears stable

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Bald Eagle	Nesting Sites	<p>OMNR biologists are required to determine presence of nests and whether inactive or active. Tree markers, other technical staff, and loggers report observed nest sites.</p> <p>OMNR has responsibility for monitoring effectiveness of prescription, and protection measures.</p>	<p><b>Reserve:</b> 100 m  <b>Modified Management Area (MMA):</b>  MMA1 - 100 m - 200 m  MMA2 - 200 m up to 600 m maximum (based on line of site)</p> <p>When available, leave 3 supercanopy trees within 400 m of nest  protect nests not used in the last 5 years with 100 m reserve and 0 m modified area  within 400 m of lakes associated with eagle nesting sites, retain one supercanopy tree (if existing) for every 650 m of shoreline</p> <p>Timing restrictions also apply in the areas of modified operations.</p> <p>Location of roads and landings in AOC also controlled.</p>	<p>Compliance: MNR and NFRM compliance staff routinely ensure prescription is applied appropriately. Reported through Forest Operations Inspections Program</p> <p>Effects Effectiveness:  Brian Naylor (OMNR)  <b>Phone:</b> 705-475-5564 <b>Fax:</b> 705-475-5570  <b>Email:</b> <a href="mailto:brian.naylor@ontario.ca">brian.naylor@ontario.ca</a>  <b>Address:</b>  Brian Naylor  Forest Habitat Program Leader - NORTH BAY  3301 Trout Lake Rd  North Bay ON P1A4L7</p> <p><b>Organization Hierarchy:</b>  NATURAL RESOURCES  SCIENCE AND INFORMATION  RESOURCES DIVISION  SCIENCE AND INFORMATION BRANCH  SOUTHERN SCIENCE AND  INFORMATION SECTION  NORTH BAY</p> <p>Status: Endangered in Ontario though northern populations appear to be stabilizing. New designation in north.</p>

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Outlier Red Spruce Stands	Red spruce stands are outliers on the Forest but provide important wildlife habitat e.g. Red spruce provides good thermal cover for deer and it is not a preferred browse species.	Inventory and effectiveness of prescriptions responsibility of NFRM.	Collect local red spruce seed; increase the amount of red spruce by planting, especially in and around the Loring and other deer yards  Train staff and tree markers to identify red spruce and to retain it in the stand.	Compliance monitoring: occurs as part of the routine silvicultural monitoring, during harvest if it occurs.  Effects Effectiveness:  Status: Based on silvicultural records appears stable.
Heronries	Nest Sites	OMNR biologists are required to determine presence of nests and whether inactive or active. Tree markers, other technical staff, and loggers report observed nest sites.  OMNR has responsibility for monitoring effectiveness of prescription, and protection measures.	A 150 m reserve, with a 150 m modified harvest reserve from edge of colony. Selection and shelterwood can be scheduled in modified portion.  No disturbance from April 1 to August 15.	Colonies are checked periodically, and always prior to harvest in vicinity.  Effects Effectiveness:  Status: MNR is currently reviewing prescription. Routine compliance monitoring of reserve during operations. Appears stable

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Moose Aquatic Feeding Areas (MAFAs) Mineral licks Calving sites	Class 3 or 4 MAFAs  Moose aquatic feeding areas are used by moose in the late spring and early summer (late May until late July) as important feeding areas. Maintaining reserves around these areas provides hiding cover for moose calves which their cows are feeding and bedding sites with good thermal cover (particularly in dense conifer thickets) for adult moose.	OMNR responsible for inventory  OMNR responsible for monitoring effectiveness	Summary – see FMP Supplementary Documentation for complete prescription  For all three values a 120 m AOC is recommended. The following guidelines (slightly modified from Page 24 in Chapter 3.8, Habitat Management Considerations by Brian J. Naylor in <u>Silvicultural Guidelines for the Tolerant Hardwoods, A. Corlett, eds.</u> ) apply to moose aquatic feeding areas and mineral licks:  30 m reserve/90 m modified area with normal selection or shelterwood harvest  60 m reserve/60 m modified area with normal selection or shelterwood harvest  Calving sites receive a 120 m AOC, with a 20 m reserve and a 100 m modified area.	Compliance MNR Nipissing compliance staff routinely ensure prescription applies appropriately  Effects Effectiveness: The prescription is being modified currently and monitoring is occurring directed by MNR region.  Status: Based on expert opinion, this value appears stable.

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
White-tailed Deer Wintering Areas / MNR District	Featured game species of social, cultural and economic significance; wintering areas are a critical life requirement;  Large yards provide: (1) Coniferous Shelter - general (2) Coniferous Shelter - migration/travel routes (3) Browse Supply (4) Mast Production Areas	OMNR responsible for inventory and assessment of good winter habitat  OMNR responsible for monitoring effectiveness of prescriptions 1) Deer are stable or increasing in area; wintering areas are key. 2) Inappropriate harvest could impair quality of yards 3) Deer are an importance game species; benefit of precaution	Maintain conifer component, in particular Hemlock  Use shelterwood, group selection and small clearcuts to create 0.5 to 2.0 hectare openings within 30m of hemlock shelter  Larger cuts are acceptable as long as all portions of the cut are within 30m of shelter  Harvest operations preferred during winter months  Preferably plant red spruce, white spruce, black spruce, red and white pine in appropriate areas or allow natural regeneration of coniferous trees.  Normal maintenance operations Conifer canopy (Hemlock preferred) closure must be maintained at 60% where possible unless canopy removal is required to maintain or release conifer understory to assist in the development of future deer wintering area.  Retain adequate mast producing trees in the deer wintering area (eg. red oak, beech, ironwood) Operations should avoid conifer shelter patches.	Monitoring: occurs periodically for large wintering areas, though not annually (depending on operations).  Effects Effectiveness: Significant yard in the south of the district called Loring; other large yards exist; recent warm winters have driven up deer populations. This may increase pressure on yards during cold winters. Brian Naylor (OMNR) Phone: 705-475-5564 Fax: 705-475-5570 Email: <a href="mailto:brian.naylor@ontario.ca">brian.naylor@ontario.ca</a> Forest Habitat Program Leader - NORTH BAY 3301 Trout Lake Rd North Bay ON P1A4L7  NATURAL RESOURCES SCIENCE AND INFORMATION RESOURCES DIVISION SCIENCE AND INFORMATION BRANCH SOUTHERN SCIENCE AND INFORMATION SECTION NORTH BAY  Status: Yarding areas appear stable.

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Late Seral Stage Pw and Pr	<p>Age Class &gt;150 yrs for White pine.</p> <p>Working group (Uniform Shelterwood) age definition &gt;130 yrs.</p> <p>In addition to Pw in protected areas, riparian and other buffers, managers need to ensure that old white pine stands exists on the landscape in keeping with the stated objective of the FMP and OMNR (2003) draft provincial policy requirements.</p>	<p>Inventory and effectiveness of prescriptions responsibility of NFRM.</p> <p>MNR has the responsibility to ensure the plan is followed.</p> <p>Inventory of old stands is a problem because of high variability within stands, and lack of information.</p>	<p>As part of the 2004 plan, NFRM prepared a strategy for addressing the old growth values on the forest (NFRM 2004 b). This is likely to remain similar for the next plan (2009). This report presents the old growth definitions, and landscape and stand strategies for increasing old growth over the long term, and forecasts of the anticipated attainment. As the report is 48 pages, it cannot be condensed into a short table. In Appendix 8 Excerpts from Old Growth Strategy for Nipissing Forest (NFRM, 2004). are the highlights and most relevant sections of the report. The complete report is provided on the HCVF CD.</p> <p>Elements of the strategy may be updated in the 2007 plan, but no major revisions are expected.</p> <p>The prescription for pine stands that are less than the defined ages for old growth in the draft Old Growth Definitions (OMNR 2002) are stipulated by the FMP.</p> <p>For the uniform shelterwood forest unit the definition follows the Old Growth Definitions (OMNR 2002) paper.</p> <p>Age of onset and duration are reported in Appendix 8. Old growth ages based on weighted average by ecosite of what actually currently on the forest – eg 4000 ha on forest then weighted average. This includes stands that were not pure pine. This was done in cooperation with MNR Regional Staff.</p> <p>For pine in the &gt;150 age class, the approach follows the direction of the draft Old Growth policy (OMNR 2003) and the draft Old Growth Definitions (OMNR 2002)</p> <p>In brief, stands designated in the &gt;150 yr category that are in the production forest, and not in a reserve, are included in the SFMM land base for possible harvest. The draft Old Growth Policy requires: “Where special objectives for old growth are required, age class constraints are used to maintain a natural age range of forest structure and composition at all scales of ecosystem management to ensure the continued presence of old growth”.</p>	<p>Compliance monitoring occurs as part of the routine silvicultural monitoring, during harvest if it occurs.</p> <p>Effects Effectiveness: Current monitoring is occurring for effectiveness of past silviculture approach.</p> <p>OMNR responsible contact: Fred Pinto Phone: 705-475-5563 Fax: 705-475-5570 Email: fred.pinto@ontario.ca Forestry Specialist - NORTH BAY Ontario 3301 Trout Lake Rd North Bay ON P1A4L7 NATURAL RESOURCES SCIENCE AND INFORMATION RESOURCES DIVISION SCIENCE AND INFORMATION BRANCH SOUTHERN SCIENCE AND INFORMATION SECTION NORTH BAY</p> <p>Status: A significant portion of the old pine stands are in protected areas. Stands on the production forest are being inventoried as part of the new plan. Old growth characteristics in the production forest will be an important part of future monitoring plans. OG characteristics will be worked out with MNR providing the lead.</p>

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Late Seral Stage Tolerant Hardwood Forest	<p>Hardwood selection is the only uneven aged forest unit on the Nipissing Forest.</p> <p>For old growth management, it is grouped with the yellow birch and the hardwood uniform shelterwood forest units.</p>	<p>Inventory and effectiveness of prescriptions responsibility of NFRM.</p> <p>With the on-going development of MNR's old growth policy, it is expected that more standards and specifications will become available on defining old growth conditions for tolerant hardwood stands.</p>	<p>As part of the 2004 plan, NFRM prepared a strategy for addressing the old growth values on the forest (NFRM 2004 b). This report presents the old growth definitions, and landscape and stand strategies for increasing old growth over the long term. As the report is 48 pages, it cannot be condensed into a short table. In Appendix 8 Excerpts from Old Growth Strategy for Nipissing Forest (NFRM, 2004). Is the highlights and most relevant sections of the report. The complete report is provided on the HCVF CD.</p> <p>NFRM will identify a limited number of tolerant hardwood stands that could be managed for old growth and will use the relevant prescriptions proposed by the Southcentral Science and Information section for this purpose (see Appendix 3 in the strategy, Proposed prescriptions for maintaining more old growth features and functions in tolerant hardwood stands in the Nipissing Forest).</p>	<p>Compliance monitoring occurs as part of the routine silvicultural monitoring, during harvest if it occurs.</p> <p>Effects Effectiveness: Current monitoring is occurring for effectiveness of past silviculture approach.</p> <p>OMNR responsible contact: Fred Pinto Phone: 705-475-5563 Fax: 705-475-5570 Email: fred.pinto@ontario.ca Forestry Specialist - NORTH BAY Ontario 3301 Trout Lake Rd North Bay ON P1A4L7</p> <p>Status: Assessment required. Managers will confirm status during normal FMP implementation, and development of Forest Operations Prescriptions.</p>

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Hemlock	Tree species showed historic decline /MNR district	Inventory and effectiveness of prescriptions responsibility of NFRM.	<p>As in previous two HCVs see the strategy for addressing the old growth values on the forest (NFRM 2004 b) and Appendix 8.</p> <p>Currently, 9,485 ha of hemlock forest unit is identified in FMP.</p> <p>FMP target stipulates that amount will increase gradually to 11,500 by 2104</p> <p>Detailed FMP prescription states:</p> <ul style="list-style-type: none"> <li>■ Where hemlock makes up 20-30% of a stand in the hardwood uniform shelterwood forest unit, increase the proportion of hemlock so that the stand would move into the hemlock forest unit.</li> <li>■ Conduct group selection harvesting in the hardwood selection forest unit to favour the retention of hemlock.</li> <li>■ Plant hemlock on suitable sites away from deer yards, to avoid mortality by deer browsing.</li> <li>■ Maintain current existing stands in the hemlock forest unit.</li> <li>■ Manage the tolerant hardwood / hemlock stand interface to promote natural regeneration of hemlock.</li> </ul>	<p>Compliance by MNR and Nipissing</p> <p>Effectiveness: Conventional silvicultural prescriptions appear to be effective.; this will be confirmed during normal silvicultural assessment during FMP.</p> <p>OMNR responsible contact: Fred Pinto Phone: 705-475-5563 Fax: 705-475-5570 Email: fred.pinto@ontario.ca Forestry Specialist - NORTH BAY Ontario 3301 Trout Lake Rd North Bay ON P1A4L7</p> <p>Status: Plan will cause recovery to higher levels. Often old high quality white pine are mixed with hemlock. This species is slowly increasing in abundance. Managers will confirm status during normal FMP implementation. Impacts due to deer depredation of He seedlings is main problem.</p>

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)			Current Monitoring for compliance, effects, effectiveness, status
Critical Sources of Drinking Water	Trout Lake and Sturgeon River; other dispersed sources	1) OMNR responsible for waterway protection. 2) Cross NF. 3) Biological significance; aesthetic importance. 4) Marginal timber impact since normally excluded from operations. 5) Reserve designation.	Prescription follows normal waterway:  Shoreline Slope (%)	Reserve 30m 50m 70m 90m	Modified 90m 70m 50m 30m	Compliance: already significant protection around the Mattawa, French and Ottawa River. In event of forest operations, normal compliance monitoring will occur.  Effects effectiveness: NFRM does very little forestry in the area of the large Rivers. It is dependent on outside agencies for the reporting of effectiveness. There is not much likelihood of a problem.  Status: No extraordinary risk to the values is expected. Precautionary approach is taken due to sensitivity in Ontario at this time.
			AOC-MWS page 10-76 of FMP For municipal water supplies, private wells and known springs - 15-45 m reserve (slope dependent) and 15-45 modified zone (also slope dependent ) - no harvest or roads in reserve - selection or shelterwood harvesting in modified , no chemical tending in modified. Adjacent land owners to be contacted prior to harvest and asked to identify any wells near the property boundary. Monitoring through normal compliance inspections.  See FMP for further information on details of prescription.			

HCV	Attribute	Responsibility -- Inventory and Monitoring	Prescription (detailed management)	Current Monitoring for compliance, effects, effectiveness, status
Major water bodies with cultural and historic significance	Ottawa River, West end Lake Nipissing, French and Mattawa.	1) OMNR responsible for waterway protection. 2) Cross NF. 3) Biological significance; aesthetic importance. 4) Marginal timber impact since normally excluded from operations. 5) Reserve designation.	<p>Ottawa River: Protection of shoreline and viewscape along the Ottawa River page 10-74 of FMP - modified operations up to 1 km from Ottawa River - maintain esthetics through partial cutting or by leaving strategic patches in clear cut forest units.</p> <p>West end Lake Nipissing: RSA prescription for the protection of aesthetics along the west end of Lake Nipissing page 10-118 of FMP. 200m to 1 km modified - partial cutting only.</p> <p>French and Mattawa Rivers are protected by means of parks and conservation reserves.</p> <p>See FMP for further information on details and locations of prescription.</p>	<p>Compliance: already significant protection around the Mattawa, French and Ottawa River. In event of operations, normal compliance monitoring will occur. Tourist outfitters will be invited to check boundaries and tree marking within the modified zone.</p> <p>Effects/Effectiveness: Prescription follows precautionary approach; approach does not need effectiveness monitoring because there does not appear to be a likelihood of a problem.</p> <p>Status: No extraordinary risk to the values is expected due to the extensive reserves.</p>

### Phase 3: Process for Monitoring

Monitoring for HCV attributes are described in Table 16 (see preceding section, Management Prescriptions and Monitoring for the selected HCV on the Nipissing Forest).

Only monitoring for designated HCV attributes are listed in this table. The information provided covers only who is responsible and basic information reviewing the monitoring process. It is beyond the scope of this report to review all of the monitoring procedures. As this document is refined more precise description of the location of monitoring procedures will be referenced.

### Conclusion

Just as the commitment to the FSC principles and criteria is long term, understanding and fulfilling the requirements of assessing, managing and monitoring High Conservation Value Forest is an ongoing effort. This report is the third update to the report. We encourage comments, reviews, new element occurrences or general interest. This report is publicly available, and can be requested from NRFM. We will provide electronic copies free of charge.

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## Appendix 1. Thresholds for HCV non-HCV and possible HCV.

This is a précis of NFRM's interpretation of the National HCV Framework questions for the NF. This is a discussion of the general thresholds. Thresholds for individual values are described more specifically in the Tables in the Phase 1 assessment. Most importantly, there is no overall rule for HCVs; managers must use the advice given to them to establish the true HCVs. The table below is generic, and a number of the final HCV decisions do not follow these.

		<b>Threshold</b>	<b>Quantifiable -- Frequency of Occurrence and Location</b>	<b>Management and Monitoring</b>
<b>Not HCV</b>	1.	Common values - addressed in day to day operations as Areas of Concern. There is low or no risk that a management error will cause long term loss or harm to this type of value on the forest. The importance of these values means they are addressed by the manager and OMNR as a standard practice.	Frequent occurrences with fair predictability. Values are either listed in FMP documentation in advance or staff are trained to observe, record and adjust for unrecorded occurrences.	Management is by an accepted FMP prescription consistent with P1 to P8; that is well tested and does not need monitoring (FOCIS, ISO SOP for verification)
	2	Rare - Although value occurs, all known sites are recorded and protected.	Usually less than 10 occurrences in the NF. Biological values that are rare and maybe unpredictable, but small likelihood of an impact	All known locations of these values in NF are protected. Therefore, the management approach is as a "fine filter" occurrence consistent with P1-P8.
	3	RSAs – A socially and economically important designation, with negotiated requirements for any forestry activities.	More than 30 on the forest, particularly on L Nipissing.	Management is negotiated; monitoring is by operators directly.
	4	Parks and Protected areas – already are protected, no active prescriptions are required, no monitoring.	Approx 7% of total landscape, Lake Nipissing not included.	Not part of HCV because of land use designation
<b>Possible HCV</b>	1	Common – but known to be particularly sensitive from past history. Value provides multiple benefits – especially if there is a commercial value.	Occurs in a particular forest type. If it is wildlife, the niche is well documented. E.G. MNR featured species; some commercial trees (pine)	Special consideration as HCV managed under P9; consistent with P1 to P8. Monitoring (not every site every year)

	2	Uncommon – and at risk either listed or identified by toolkit filter. Past history indicates risk of harm. The precautionary principle requires HCV designation if there is poor information and a significant risk	When occurrence is uncommon but somewhat predictable. (e.g. Red Shouldered Hawks; Massasauga Rattlesnake Hibernacula) (When occurrence is unpredictable and forestry impact likely, designation as possible HCV below)	Training requirement for vigilance from field staff. (e.g. Key's provided to tree markers)
	3	Uncommon – and at risk, listed species. Precautionary principle applies	Occurrence is uncommon but partly predictable as red oak, black cherry, silver maple.	Training requirement vigilance of field staff (key's provided) for spp
	4	Historic/ cultural	Examples include waterways or FN values.	Management often by reserve, or discussion with effected parties.
<b>Not HCV</b>	1.	“Possible” designation means that the forest managers will not be expected to be aware of these values unless they are brought to their attention, and there is a case for designation as HCV. E.g. rare plants in upland sites at risk from operations; or areas of significant cultural or social importance.	Likely only one or a few occurrences. This designation is intended for distinctive values. Possible examples are tourism values that are used as a source of livelihood – possibly trails or water bodies. For example some Resource Stewardship Agreements will be HCV. First Nations values; Very rare plants.	As a one of a kind designation, there is a range of possibilities for management that could be negotiated with non-timber commercial interests, First Nations, or other parties. When designated HCV, a monitoring program will be designed that may use affected parties to ensure compliance. Info tracked in NRVIS when available, monitoring designed as needed.

## Appendix 2 Explanations of the COSEWIC ranking system.

Ranking – The following text is from the Natural Heritage Information Centre (NHIC) website (FAQs)

### How are species ranked by NHIC?

A feature that appears on our web page is the "Element Report" for many species. These reports contain basic information on the species (taxonomic, bibliographic) including information justifying a particular SRANK (this part of the form is termed the "ESR" or Element Subnational Ranking form). These Element Reports will help the user understand why a particular species has been assigned a certain rank. SRANKS are not solely based on the number of occurrences, but also take into account factors such as threat, population size, population trend, EO quality, etc.

Ranking is a qualitative process: it takes into account several factors, which function as guidelines rather than arithmetic rules. The ranker's overall knowledge of the element allows him or her to weigh each factor in relation to the others and to consider all pertinent information for a particular element. The factors considered in ranking species and communities are similar, but the relative weight given to the factors differs.

For species elements, the following factors are considered in assigning a rank:

- total number and condition of element occurrences
- population size
- range extent and area of occupancy
- short- and long-term trends in the foregoing factors
- threats
- environmental specificity
- fragility

For ecological community elements, the association is generally the classification level treated as an element and ranked (see Classification of Ecological Communities for an explanation of the hierarchical classification levels). The primary ranking factors are:

- total number of occurrences
- total acreage occupied by the element.

Secondary factors include the geographic range over which the element occurs, threats to occurrences, and viability of the occurrences. However, it is often necessary to establish preliminary ranks for communities when information on these factors is not complete. This is particularly true for communities that have not been well described. In practice, a preliminary assessment of a community's range-wide global rank is often based on the following:

- geographic range over which the element occurs
- long-term trend of the element across this range
- short-term trend (i.e., threats)
- degree of site/environmental specificity exhibited by the element
- rarity across the range as indicated by subnational ranks assigned by Heritage data centers

### **Global Rank (GRANK)**

Global ranks are assigned by a consensus of the network of natural heritage programs (conservation data centres), scientific experts, and [The Nature Conservancy](#) to designate a rarity rank based on the range-wide status of a species, subspecies or variety. The most important factors considered in assigning global (and provincial) ranks are the total number of known, extant sites world-wide, and the degree to which they are potentially or actively threatened with destruction. Other criteria include the number of known populations considered to be securely protected, the size of the various populations, and the ability of the taxon to persist at its known sites. The taxonomic distinctness of each taxon has also been considered. Hybrids, introduced species, and taxonomically dubious species, subspecies and varieties have not been included.

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**G1 Extremely rare;** usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

**G2 Very rare;** usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.

**G3 Rare to uncommon**; usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.

**G4 Common**; usually more than 100 occurrences; usually not susceptible to immediate threats.

**G5 Very common**; demonstrably secure under present conditions.

**GH**; Historic, no records in the past 20 years.

**GX**; Globally extinct. No recent records despite specific searches .

**GU Status uncertain**, often because of low search effort or cryptic nature of the species; more data needed.

**G? Unranked**, or, if following a ranking, rank tentatively assigned (e.g. G3?).

**G** A "G" (or "T") followed by a blank space means that the NHIC has not yet obtained the Global Rank from The Nature Conservancy.

**Q** Denotes that the taxonomic status of the species, subspecies, or variety is **questionable**.

**T** Denotes that the rank applies to a subspecies or variety.

**?** Denotes inexact numeric rank (i.e. G4?).

[Updated: 2007 Aug]

### **Provincial Rank (SRANK):**

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually. The NHIC welcomes information which will assist in assigning accurate provincial ranks.

**S1 Extremely rare** in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.

**S2 Very rare** in Ontario; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.

**S3 Rare to uncommon** in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.

**S4 Common** and apparently secure in Ontario; usually with more than 100 occurrences in the province.

**S5 Very common** and demonstrably secure in Ontario.

**SH Historically** known from Ontario, but not verified recently (typically not recorded in the province in the last 20 years); however suitable habitat is thought to be still present in the province and there is reasonable expectation that the species may be rediscovered.

**SR Reported** for Ontario, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.

**SRF** Reported falsely from Ontario.

**SX** Apparently **extirpated** from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.

**SE Exotic**; not believed to be a native component of Ontario's flora.

**SZ** Not of practical conservation concern inasmuch as there are no clearly definable occurrences; applies to long distance migrants, winter vagrants, and eruptive species, which are too transitory and/or dispersed in their occurrence(s) to be reliably mapped; most such species are non-breeders, however, some may occasionally breed.

**SZB** Breeding migrants/vagrants.

**SZN** Non-breeding migrants/vagrants.

**SA Accidental**; of accidental or casual occurrence in the province; far outside its normal range; some species may occasionally breed in the province.

**SAB** Breeding accidental.

**SAN** Non-breeding accidental.

**C Captive/Cultivated**; existing in the province only in a cultivated state; introduced population not yet fully established and self-sustaining.

**S?** Not Ranked Yet, or if following a ranking, Rank Uncertain (e.g. S3?). S? species have not had a rank assigned.

**SU** Unrankable, often because of low search effort or cryptic nature of the species, there is insufficient information available to assign a more accurate rank; more data is needed.

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[Updated: 2007 Aug]

### **Appendix 3. Map locations for the HCVF report.**

- Map 1** Ecosites of Nipissing Forest (file: ecosite)
- Map 2.** Enduring Features - #83284 (file: end\_feat 83284)
- Map 3** Enduring Features - #83930 (file: end\_feat 83930)
- Map 4** Enduring Features - #84252 (file: end\_feat 84252)
- Map 5** Enduring Features - #84312 (file: end\_feat 84312)
- Map 6** Fire Disturbance Patterns (file: fire\_dist)
- Map 7** Global Forest Watch – Large remaining forest areas (file: gfw\_cafbloc)
- Map 8** Global Forest Watch Converted and Accessed Forests (file: gfw\_conv)
- Map 9** Roadless areas: MNR analysis for Living Legacy (file: mnr\_roadless)
- Map 10** Ecoregions Map (file: NFRM ecoregions\_map)
- Map 11** Forest Management Plan 1999-2019 (file:Nip\_FMP)
- Map 12** Ownership (file: owner)
- Map 13** Parks and Enhanced management areas (file: parks)
- Map 14** Pine thinning (file: plant)
- Map 15** Rare species locations (file: rarespecies)
- Map 16** Report on Past Forest Operations harvest (file: rpfo\_harv)
- Map 17** Report on Past Forest Operations silviculture (file: rpfo\_silv)
- Map 18** Silviculture seed zones of Ontario (file: seed\_ont)
- Map 19** Distribution of Eastern Hognose Snake, Wood Turtle, Northern Brook Lamprey, Great Lakes Deep Water Sculpin, Least Bittern (file:she\_map1)
- Map 20** Distribution of Red-Shouldered Hawk, Monarch Butterfly (file:she\_map2)
- Map 21** Redheaded Woodpecker, Anatum Peregrine Falcon (file:she\_map3)
- Map 22** Mechanical Site Preparation (file: Sip)
- Map 23** Slope (file: slope)
- Map 24** Stand Improvement (file: stand\_impr)
- Map 25** Unique trees on the Nipissing Forest (file: unique\_tree)
- Map 26** Wetlands (file: wetland)

**Appendix 4. Ontario status of rare and uncommon species, including vulnerable, threatened and endangered species on the Nipissing Forest – detailed descriptions.**

See File Appendix A in CD.

See File Appendix B in CD.

## Appendix 5. Naturereserve identified communities in northern U.S. and southern Ontario that potentially exist on Nipissing Forest.

(Note these are unverified by NatureServe, For information only)

Association Common Name	Global Status	Reasons for Global Rank and/or Available Community Information
Open Schlenke Bog	G2?	Stands occur only in areas that are genuinely ombrotrophic, that is, receiving minerals only from precipitation and having a pH less than 4.1. This is a raised bog in which pool formations have developed near bog crests. This graminoid bog crest community type is <b>found in northern Minnesota and adjacent Canada</b> . In Minnesota it is known from only three sites, at North Black River, Myrtle Lake, and Sturgeon River, where they range in size from 15-40 ha (40-100 acres). The type may never have been more extensive than in those three sites.
Central Tamarack - Red Maple Rich Swamp	G2G3	This community occurs in isolated patches across the central Great Lakes region, from <b>southern Minnesota east to south-central Michigan and southern Ontario</b> . It is nowhere extensive in this range, requiring a fairly restricted set of conditions under which it thrives; namely, moderately minerotrophic conditions in wetland depressions on a variety of glacial landscapes. This type may have been more extensive historically, and then converted to other land use by draining the wetlands, but more information is needed to document the extent of such conversion on this specific type. Present day stresses include ongoing alteration of drainage patterns of wetlands in which the type occurs.
Highbush Blueberry Poor Fen	G2G3	This community is a weakly minerotrophic or perhaps ombrotrophic peatland dominated by tall, deciduous, ericaceous shrubs and peat mosses. The water is usually nutrient poor and acidic. Status is dependent on how the community is defined. The highbush blueberry ( <i>Vaccinium corymbosum</i> L.) grows wild in Southwestern and Eastern Ontario, usually in the peat bogs around the edges of swamps or ponds. The geographical area in <b>Southern Ontario</b> where these shrubs can be grown is limited by one factor: winter hardiness. Plants will be killed to the snow level by temperatures of about -30°C. This restricts the areas in which highbush blueberries can be grown and cropped to those within hardiness zones 5 to 7. If this community is restricted to the eastern parts of the Great Lakes basin, then it has fewer than 50 occurrences in Indiana, Ohio, Ontario, Pennsylvania, New York, and possibly Michigan. If this is the same community as in the ECS classification ( <i>Vaccinium corymbosum</i> / <i>Sphagnum</i> spp. shrubland), then it is more widespread and there are probably over 100 occurrences.
Northern White-cedar – Yellow Birch Forest	G2Q	There are probably fewer than 100 occurrences of this community rangewide. It is reported from <b>Minnesota (where it is ranked S2), Wisconsin (S1), Michigan (S?), and Ontario (S?)</b> . Currently there is only one occurrence documented from Minnesota. Minimal data on current acreage are available; the one occurrence documented from Minnesota has 14 acres. It is likely that many stands have been degraded by logging. This community is reported from two ecoregion subsections in the western Lake Superior basin. Several old growth stands have been documented on the Apostle Islands, with the 120 ha stands on Raspberry Island the best developed (E. Epstein pers. comm. 1999)

Association Common Name	Global Status	Reasons for Global Rank and/or Available Community Information
Boreal Extremely Rich Seepage Fen	G2Q	This calcareous seepage fen is found in <b>northern Minnesota and adjacent boreal regions in Canada</b> , and possibly elsewhere in the northern Great Lakes region, ranging from Minnesota to Ontario and Manitoba, and probably adjacent areas. Stands occur on shallow or deep peaty soils in areas of calcareous discharge. The surface water may be circumneutral (pH 6.8-8.0), with high concentrations of dissolved salts that often form a marl precipitate. The vegetation is dominated by open sedge, rush, and moss species. There are probably fewer than 100 occurrences, and there may be fewer than 20 occurrences of this community rangewide. Currently there are two occurrences documented from Minnesota. This community is reported from Minnesota (where it is ranked S2), Manitoba (S?), and Ontario (S?). It is reported from two ecoregion subsections: the Lake Agassiz Lowlands subsection, and the Border Lakes subsection.
Great Lakes White Pine - Hemlock Forest	G3	This white pine - hemlock forest type is <b>found in the Great Lakes region of the United States and Canada</b> , where it currently occupies limited portions of its former range. It is floristically similar to hemlock stands without extensive white pine, and this type is not always distinguished from that type. It was far more extensive as a canopy or supercanopy dominant in presettlement forests than it is today. In Wisconsin and Michigan, white pine is often a supercanopy relict only and has been logged out of most stands. As a result, old-growth stands that belong to this type are not known to be very extensive. This type may represent a long-lived transitional phase from a pine type to a hemlock type in the absence of further disturbance. It is perhaps the combination of substrate and disturbance dynamics that create a somewhat specific set of environmental factors. Further documentation of this type is needed.
Red Pine / Blueberry Dry Forest	G3	There are probably over 100 occurrences of this community rangewide. Currently there are 77 occurrences documented from <b>Michigan (where it is ranked S3), Minnesota (S3), and Wisconsin (S3); it is also reported from Manitoba (S3) and Ontario (S?)</b> . There are probably over 10,000 acres of this community rangewide. Currently 5545 acres have been documented from 45 occurrences in Michigan, Minnesota, and Wisconsin. Many sites have been degraded by logging, but there are also many mature to old-growth stands remaining.
Hemlock - Yellow Birch Swamp Wet-Mesic Forest	G3	This type is fairly widespread in, e.g., Wisconsin, but few good occurrences have been recorded (E. Epstein pers. comm. 1999).
Western Allegheny Cinquefoil - Sedge Rich Fen	G3	This type is found as small patches with somewhat restricted environmental conditions, although it can range from <b>Canada to Ohio</b> . Stands occur on level to sloping seepage areas. Sites are minerotrophic and alkaline to circumneutral in character, with groundwater flowing through shallow peats and marls on glacial deposits. In New York, the specific environmental conditions restrict this type to the Central Appalachian and Finger Lake Highlands where it is characterized by cold water fed by small springs or groundwater that is constantly flowing through the community (Reschke 1990). In Ohio, it is primarily found on seepage areas associated with minerotrophic springs atop glacial deposits (Anderson 1996). Few Element Occurrences have been attributed to this type; however, it may be considered a zone within a state type thus making it difficult to document as an independent type.
White-cedar - (Hemlock) Mesic Forest	G3?	This cedar-hemlock evergreen forest type occupies a narrow portion of the environmental gradient in the <b>Upper Great Lakes region of the United States and Canada</b> . It does not require specific environmental factors for its persistence, but is typically found on moist to fresh sites that are fire-protected. Little is known about its historic distribution or current status.
White Pine / Mountain	G3G4	There are fewer than 100 occurrences of this community rangewide, but Ontario ranks are unknown. Currently

Association Common Name	Global Status	Reasons for Global Rank and/or Available Community Information
Maple Mesic Forest		there are 45 occurrences documented from <b>Minnesota (where it is ranked S3), Michigan (S?), and Wisconsin (S?); it is also reported from Ontario (S?).</b> There are probably fewer than 10,000 acres of this community rangewide. Currently 2075 acres have been documented from 32 occurrences in Minnesota, Michigan, and Wisconsin. Many stands are reported to be of post-fire origin; infrequent catastrophic fires may be important for maintenance of this community. Many, perhaps, most sites have been degraded by logging. Some sites may be disturbed by fire suppression, and they may be succeeding to other forest types.
White Pine / Blueberry Dry-Mesic Forest	G3G4	There are well over 100 occurrences rangewide, but the occurrences tend to be fairly small stands (under 100 acres) because of the somewhat restricted environmental requirements. Few old-growth remnants remain, but several are protected. This community may be dependent on occasional catastrophic fires (with a very long fire-return interval) to allow regeneration of pines instead of gradual succession to other forest types. Fire suppression, grazing, and logging in the last 100 years have substantially reduced the acreage of this forest type.
White-cedar Seepage Swamp	G3G4	The total number of occurrences is unknown. Four have been documented: 2 in Wisconsin (where the community is ranked S2), 1 in Indiana (S1), and 1 in Illinois (S1S2). Although no other occurrences have been documented, the community is <b>also reported in Michigan (S4), Minnesota (S2?), Ohio (S2), and Ontario (S?).</b> It is usually found on organic soils where moderately to highly mineralized water seeps from the ground.
Hemlock Mesic Forest	G3G4	This mesic hemlock evergreen forest has a moderately wide range, being found fairly commonly in the <b>Great Lakes region of the United States and Canada.</b> It does not require particularly specific environmental factors, and there may be a large number of Element Occurrences. Under natural conditions many stands would be expected to be in a variety of old-growth conditions, but, at this time, the area occupied by such stands is a relatively small percentage of their former area (Frelich 1995).
Maple - Yellow Birch Northern Hardwoods Forest	G3G4	This northern hardwoods community type occurs in the <b>western and central Great Lakes area of the United States and Canada.</b> There are probably over 100 occurrences rangewide. Ninety have been documented: 77 in Minnesota (where the community is ranked S2), 10 in Wisconsin (S4), and 3 in Michigan (S4). Although no other occurrences have been documented, the community is also <b>reported from Ontario (S?).</b> The 90 occurrences total 13,401 acres.
Northern Sedge Poor Fen	G3G4	Stands are found in peatlands with low exposure to mineral-rich groundwater, including basin fens, shores above the level of seasonal flooding and larger peatlands. Water hydrology is saturated, and surface water is slightly acidic and nutrient poor. The type has a moderately wide distribution, but is not common anywhere in its range within the United States. It is ranked between S1 and S3 by individual state Heritage programs. The global rank remains somewhat uncertain because the distribution and conservation status <b>of the type in Canada is not known.</b>
White Pine - Oak Acid Bedrock Glade	G3G4	This type has a moderately wide range, occurring across the northern hardwoods region of the midwestern and northeastern United States. This <b>acid bedrock glade type occurs in the Upper Great Lakes region of the United States and Canada and in New England.</b> In the Great Lakes, these glades occupy upper portions above the granitic bedrock shorelines; elsewhere in the Great Lakes and New England they are found on rocky openings. It occupies fairly limited acreage, occurring where severe conditions on bedrock outcrops prevent trees from establishing. Apart from impacts from logging adjacent areas, the extent of this type has probably not decreased substantially. Little occurrence data are available from the Midwestern states, review has not been completed for the Northeast, and condition and protection status are not known. The type is expected to be fairly resilient to impacts from natural or anthropogenic disturbances.

Association Common Name	Global Status	Reasons for Global Rank and/or Available Community Information
Cinquefoil - Sedge Prairie Fen	G3G4	This rich fen community is found in a moderately wide range in the <b>upper midwestern United States and adjacent Canada</b> . Stands have fairly specific habitat features, occurring on glacial deposits in level to sloping seepage areas, with minerotrophic and alkaline groundwater flowing through shallow peats and marls. Over 200 occurrences and over 3500 acres have been documented across the range of the type. At least 100 occurrences are known to be of A or B rank, and many of these have protected status focused on their maintenance. Many of the fens are small, and may be affected by hydrological alterations, nutrient inputs from adjacent agricultural land use, or contain exotics.
Wild Rice Marsh	G3G4	This wild rice marsh community is found in the <b>upper midwestern and northeastern United States and adjacent Canada, ranging from Vermont and New York to Minnesota and Manitoba</b> , south to Iowa and Indiana. Stands are found in deeper, sheltered waters of slow-moving streams, protected bays, and flowage lakes, particularly at stream mouths. In southern Wisconsin, this type has been greatly reduced by drainage of wetlands. Augmentation of the type through planting makes it difficult to distinguish natural stands from cultural stands.
Bog Birch - Shrubby-cinquefoil Rich Boreal Fen	G3G5	This extremely rich boreal shrub fen community is found in the <b>northern Great Lakes region of the United States and Canada, and probably elsewhere in central Canada</b> , ranging from Minnesota and possibly Maine, northward to Manitoba, Ontario, and possibly Quebec. This type is uncommon in the United States, but its status in Canada should be determined before refining the rank.
Mixed Pine - (Oak) Igneous - Metamorphic Rock Outcrop	G3G5	This lichen and moss dominated rock outcrop community type is found <b>on and near the Canadian Shield in the northern Great Lakes region</b> and in rocky openings of Northern New England in the United States and elsewhere in Canada. Stands are typically comprised of granite or metamorphic rock, and possibly basalt. They occur on relatively level or rounded areas of exposed bedrock, sometimes along lake shorelines, including the Great Lakes shorelines. Soil development is minimal, and pH is typically acid.
Great Lakes Leatherleaf Intermittent Wetland	G3Q	This intermittent wetland shrub community is found near the western and central Great Lakes along lakeshores or in depressions. It usually occurs on sandy glacial lakeplains and outwash plains. There are probably fewer than 100 occurrences of this community rangewide in the Great Lakes basin. Currently 18 occurrences are documented from Michigan (where it is ranked S2?); this community also <b>occurs in Wisconsin, Ontario, and New York</b> . There are probably fewer than 10,000 acres rangewide. Currently there are 1151 acres documented from 18 occurrences in Michigan.

## Appendix 6 Description of Forest Units (FMP 8, 2004 plan).

<b>NIPISSING FOREST</b>							
<b>2004 FOREST MANAGEMENT PLAN</b>							
<b>FMP-8 DESCRIPTION OF FOREST UNITS</b>							
<b>Forest Unit</b>		<b>Forest</b>	<b>Main</b>	<b>Site</b>	<b>Silvicultural</b>	<b>FRI Parameters &amp; Criteria</b>	<b>Additional</b>
<b>Code</b>	<b>Name</b>	<b>Type</b>	<b>Working Group</b>	<b>Type(s)</b>	<b>System</b>		<b>Information</b>
BW	White Birch, Poplar Mix	Intolerant Hardwood	BW/PO	17, 18, 27, 21	Clearcut		
BY	Yellow Birch	Tolerant Hardwood	UH	29, 28, 30	Uniform Shelterwood 2C		
HDSEL	Tolerant Hardwood Selection	Tolerant Hardwood	MH	29, 28	Selection		
HDUS	Tolerant Hardwood Uniform Shelterwood	Tolerant Hardwood	MH	27, 28, 29	Uniform Shelterwood 2C		
HE	Hemlock	Conifer	HE	30, 28	Uniform Shelterwood 3C		
LWMX	Lowland Mixedwood	Tolerant Hardwood/Conifer	LH	17, 35, 33, 34	Uniform Shelterwood 2C		
MCL	Mixed Conifer Lowland	Conifer	SB	33, 16, 31, 32	Clearcut		
MW	Mixedwood	Mixedwood	PO/BF	18, 21, 22	Clearcut		
PJ	Jack Pine	Conifer	PJ	15	Clearcut		
PJSB	Jack Pine Upland Black Spruce Mix	Conifer	SB	16, 15, 13	Clearcut		
PO	Poplar	Intolerant Hardwood	PO	18, 17	Clearcut		
PR	Red Pine	Conifer	PR	12	Clearcut		
PWST	White Pine Seed Tree	Mixedwood	PW/PO	11, 20, 18, 21	Clearcut (Seed Tree)		
PWUS	White Pine Uniform Shelterwood	Conifer	PW	11, 20, 21	Uniform Shelterwood 3C		
SF	Spruce / Fir	Conifer	BF/SB/SW	16, 22, 18	Clearcut		

## Appendix 7 Current Age Class of Managed Forest, Pine Working Groups (FMP .

**FMP-9 SUMMARY OF MANAGED CROWN PRODUCTIVE  
FOREST BY FOREST UNIT**

Forest Unit	Age Class	Protection Forest		Production Forest	
		(ha)	(m3)	Unavailable (ha)	
<b>PWST</b>	B&S				
	0-10				
	11-20			2	40
	21-30				
	31-40			1	62
	41-50	7.0	574	2	172
	51-60	4.7	498	3	331
	61-70			2	296
	71-80	64.8	9,003	34	4,683
	81-90	36.3	5,518	25	3,869
	91-100	9.9	1,614	84	13,703
	101-110	17.2	2,955	142	24,406
	111-120			58	10,320
	121-130			33	6,118
	131-140			2	359
	141-150				
	151-160				
	161-170			7	1,423
	171-180				
	181-190				
191-200					
200+					
<b>Forest Unit Subtotal</b>		<b>139.9</b>	<b>20,161</b>	<b>396</b>	<b>65,783</b>
<b>PWUS</b>	B&S				
	0-10				
	11-20				
	21-30				
	31-40				
41-50	31.7	3,457			

51-60					
61-70				1	238
71-80	11.5	2,116	101		18,675
81-90	22.8	4,651	59		12,117
91-100	10.1	2,212	222		48,668
101-110	40.1	9,263	202		46,613
111-120	38.1	9,182	241		57,981
121-130	9.8	2,421	75		18,535
131-140	6.4	1,632	66		16,801
141-150			17		4,488
151-160			2		610
161-170					
171-180			7		1,959
181-190					
191-200					
200+					
<b>Forest Unit Subtotal</b>	<b>170.5</b>	<b>34,934</b>	<b>995</b>		<b>226,684</b>

## Appendix 8 Excerpts from Old Growth Strategy for Nipissing Forest (NFRM, 2004).

The following text is highlights of particular relevance to HCVs in the Nipissing Forest.

### 1.0 Introduction

This strategy is being prepared in response to a suggestion from the 2001 Independent Forest Audit that “NFRM and MNR should develop a comprehensive Old Growth management strategy for the Nipissing Forest”.

MNR recently released their old growth provincial policy, and every attempt has been made to ensure that this strategy for the Nipissing Forest is consistent with emerging provincial direction.

MNR’s approach for conserving old growth is through both natural heritage protection and through forest management planning. MNR’s 2003 Old Growth Policy for Ontario’s Crown Forests states that:

“The objectives for conserving old growth conditions in provincial parks and conservation reserves are:

- *to identify the representative amounts of forest ecosystems, including old growth stands for the major tree species or forest community associations present in each ecodistrict within provincial parks and conservation reserves within their natural ranges and allow these protected sites to evolve subject to natural ecological processes*
- *to contribute to the maintenance of red and white pine, including old growth stands, by providing for the protection and/or restoration of at least one representative forest stand (ecosite) of old growth red and white pine in each ecodistrict in provincial parks and conservation reserves within their natural ranges -- now and in the future.*

The objectives for conserving old growth conditions in forest management units are:

- *to identify, consider, and provide for forest age class structure needed to maintain functional old growth conditions in forest units (or ecosites or provincial forest types) for forest types (major tree species or forest community associations) within their natural ranges in each management unit as part of future forest condition*
- *to contribute to the maintenance of red and white pine, including old growth stands, within their natural ranges by maintaining no less than the 1995 amount (hectares) while permitting a sustainable harvest of red and white pine -- now and in the future.”*

This document focuses on developing strategies for old growth on the managed forest through forest management planning. The strategies will be implemented through the 2004 Nipissing Forest Management Plan (FMP) and will be evaluated through the report of past forest operations.

This document contains a definition of old growth for the purpose of this strategy, a description of old growth on the Nipissing Forest, objectives and strategies for managing old growth at both the landscape and stand level, and finally, brief statements on how the strategy will be implemented and evaluated.

A task team was assembled to advise the planning team on developing this strategy.

### 2.0 Definition of old growth

There are many definitions of old growth. In their *Old Growth Policy for Ontario’s Crown Forests*, 2003, MNR provided this definition:

“Old growth is a functional condition of a forest ecosystem that embodies a unique set of physical features and characteristics in dynamic forest ecosystems. Old growth features and characteristics typically include:

- complex forest stand structure (e.g. old trees for the ecosite, large tree size and wide spacing, multiple canopy layers and gaps, and rates of change in species composition)
- large dead standing trees (snags), accumulations of downed woody material, up-turned stumps, root and soil mounds, and accelerating tree mortality
- ecosystem functions that are different from earlier stages of forest development (e.g. stand productivity, nutrient cycling, and unique wildlife habitat).

Old growth conditions in Ontario's Crown forests will be identified using age-of-onset and duration periods defined for the major tree species or forest community associations and described in the *Old Growth Forest Definitions for Ontario -- a work in progress report* (MNR 2003) (old growth definition report).”

Old growth is a “value” for the purpose of forest management planning. As part of implementing their policy, MNR is in the process of determining how to identify old growth values in individual management units in the province. The old growth policy will be implemented for 2006 forest management plans. As an interim measure for this 2004 FMP, “age of on-set” and “major tree species or forest community” were used to determine old growth for the even-aged forest units – more specifically, age by forest unit. Old growth onset age has been calculated according to the old growth definitions paper. The old growth durations provided in the definitions paper was also a significant input into the succession rules developed for computer modeling for the FMP.

Old growth duration ages are provided in the *Old Growth Forest Definitions for Ontario* for species and for ecosite. Forest units are based on both species and ecosite. The longevity of individual species, of plant communities of individual ecosites, and of forest units (certain species associations on certain ecosites) are all different. The longevity of each forest unit and how and when it succeeds to a different forest unit was determined by the planning team with significant guidance and input from Southcentral Science and Information. Duration of old growth by forest unit is reflected in the modeling succession rules that were designed for the forest units on the Nipissing Forest (see Table 1).

**Table 1. Old Growth Onset Age and End of Succession for the Nipissing Forest****Highlights in grey added for HCV forest units**

Forest Unit	Onset Age	End of Succession (i.e. stands have changed to another forest unit by this age) <sup>35</sup>
White Pine Seed Tree	120	270
Red Pine	140	301+
Jack Pine	100	190
Poplar	100	180
White Birch	100	190
Mixed Conifer Lowland <sup>36</sup>	120	270
Jack Pine Black Spruce	110	200
Spruce Fir	110	210
Mixedwood	110	190
White Pine Uniform Shelterwood	130	301+
Hemlock	150	301+
Lowland Mixedwood	110	250
Hardwood Uniform Shelterwood	130	270
Yellow Birch	140	220
Hardwood Selection	140	NA <sup>37</sup>

## 4.2.2 Stand level strategies

- 4.2.2.1 Reduce site and stand damage, such as compaction, rutting, soil erosion, damage to residual trees, advanced regeneration and understory plants, by ensuring that all operators adhere to NFRM's standard operating procedures for reducing site and stand damage – this will be done through NFRM's annual training program for operators (Tables 10.0.2 and 10.0.3 in the conifer silviculture guide are examples of the standards used by NFRM to mitigate stand and site damage).
- 4.2.2.2 In all stands retain cavity trees, snags, down woody debris, mast trees, solitary conifers, solitary hardwoods, supercanopy trees and veterans as per the silviculture and tree marking guides. Apply direction in the Natural Disturbance Pattern Emulation Guide to clearcuts and final removal cuts.
- 4.2.2.3 Following the Natural Disturbance Pattern Emulation Guide, incorporate small remnant pockets of old growth encountered into insular or peninsular patches - leave mature forest in insular or peninsular patches to become old growth.

<sup>35</sup> End of succession according to the succession rules developed for the Nipissing Forest in the Strategic Forest Management Model.

<sup>36</sup> This forest unit becomes multiaged similar to Hardwood Selection

<sup>37</sup> Old Growth Definitions Paper suggests old growth duration for Hardwood selection as 500+. It is not included in this Table because there is no "end of succession" for this forest unit.

- 4.2.2.4 Avoid using wind rows for site preparation. When using the tree-length harvesting system, leave tops in the harvested area; when using the full-tree harvesting system, disburse large unmerchantable material back on to the harvested area.
- 4.2.2.5 After stand stocking falls below 30%, the stand moves into the barren and scattered (B&S) category – as part of the free-to-grow (FTG) surveys, NFRM will track residuals in these low stocked areas.
- 4.2.2.6 When mapping depletions, NFRM will map reserves, bypass and other residual areas containing old growth.
- 4.2.2.7 When conducting field work to prepare Forest Operations Prescriptions, white pine and red pine areas that exhibit old growth characteristics and appear to have never been disturbed by humans, will be deferred from harvesting. These areas will be identified as potential areas to meet future old growth targets and/or potential candidates for protection under the parks system.
- 4.2.2.8 During the Forest Operations Prescriptions that are conducted prior to harvesting, areas may be discovered that contain old growth white and red pine. Where the stocking to white/red pine is adequate (as defined by the Silviculture Guides for Conifer Forests in the Great Lakes St. Lawrence) these areas will be managed under the shelterwood system to perpetuate these species.
- 4.2.2.9 Identify natural red pine stands that are 50-60 years old now for potential old growth in the future.
- 4.2.2.10 For tolerant hardwood stands that have been selected to have more old growth features and functions, use the relevant proposed prescriptions provided by Southcentral Science and Information for this purpose (see Appendix 3).