



# 2005/06 Annual Sustainable Forest Management Report



**Iroquois Falls Forest**

**Nighthawk Forest**

**Smooth Rock Falls Freehold**

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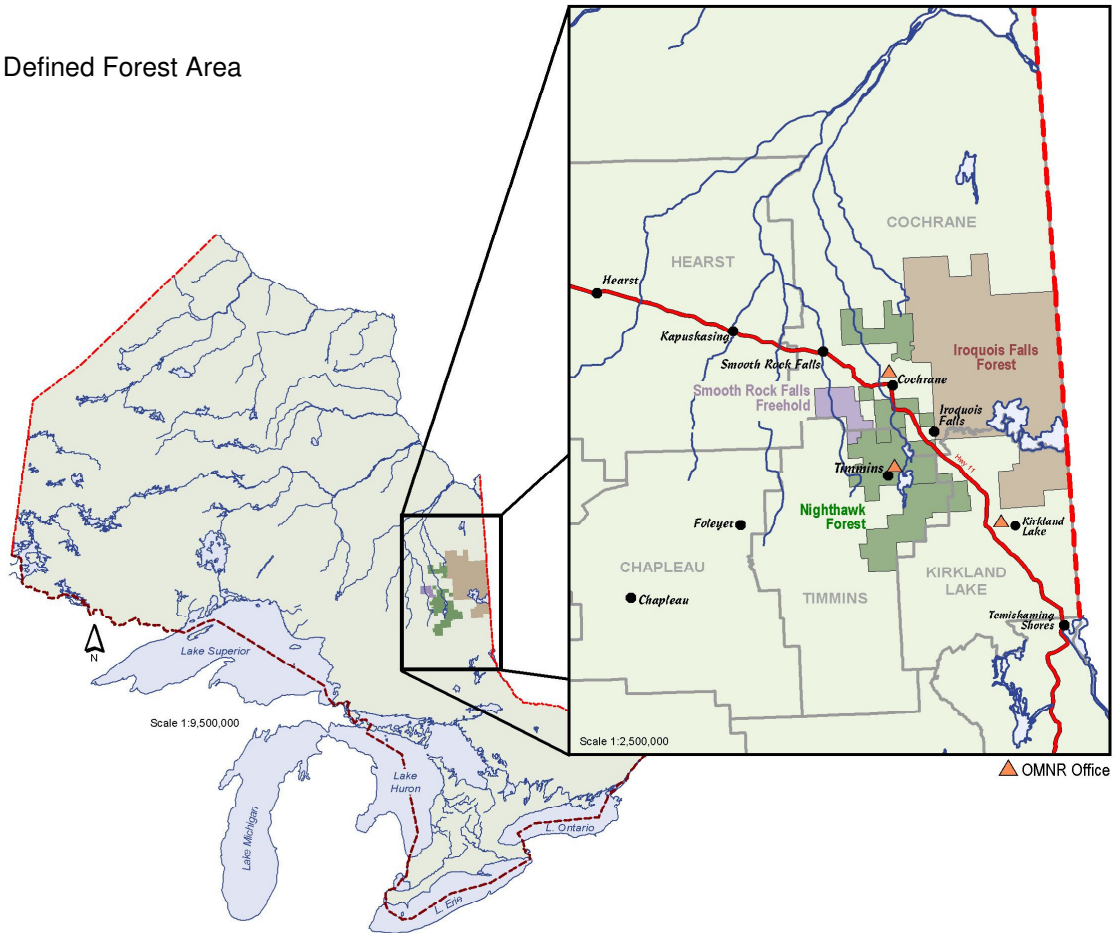
Final  
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## 1. Purpose of the Report

The 2005/06 Annual Sustainable Forest Management (SFM) Report has been prepared to describe the progress that Abitibi Consolidated Company of Canada (Abitibi-Consolidated) has made in meeting and maintaining the SFM commitments of the CSA Z809-02 standard within the Ontario-East Woodlands.

The CSA Z809-02 standard is an internationally recognized standard for SFM which addresses a range of social, cultural, environmental, and economic issues that will provide benefits for future generations. CSA certification was achieved on February, 2004 for the Iroquois Falls Forest and Nighthawk Forest (Figure 1). A year later (February, 2005), we received confirmation that we could add our private land (Smooth Rock Falls Freehold) into the certification. Certification is achieved when the commitment to the standard is audited and verified by a non-governmental, independent third party.

Figure 1. Defined Forest Area



## 2. Background

Initial steps to achieve CSA certification began in the spring of 2003, at which time a SFM Working Group representing a broad cross-section of individuals was created. The Working Group was made up of Abitibi Consolidated staff, Aboriginals, an Environmental representative, Industry, Ministry of Natural Resources, the General Public and the Lake Abitibi Model Forest. Six evening meetings were held to understand, discuss and agree on the initial set of **V**alues, **O**bjectives, performance **I**ndicators, and **T**argets (**VOITs**):

**V**alue: a specific characteristic or quality of the forest, considered to be important to an interested party (e.g. wildlife habitat).

**O**bjective: a broad statement describing a desired future state or condition for a specific value of the forest (e.g. wildlife habitat levels for specific species should be consistent with a natural disturbance regime).

**Indicator:** a variable that measures the state or condition of a specific value of the forest, and for which one or more targets are set (e.g. km<sup>2</sup> of marten habitat on the forest).

**Target:** a specific statement describing the future state or condition of an indicator (e.g. ensure that available marten habitat is similar to what would have existed under a natural disturbance regime).

After agreement was achieved from Abitibi-Consolidated staff, the 2004-09 SFM plan was drafted and sent out for review from November 14, 2003 to January 9, 2004. A third party review of the SFM plan was completed (February, 2004) at which time the company was informed that we would be recommended for certification.

### 3. SFM Performance Indicators

The CSA Z-809-02 standard includes 6 criteria that define the broad parameters of sustainable forest management, and a number of elements under each criterion to further define them. The SFM plan identified 38 individual VOITs that form the measure of our performance in relation to the criteria and elements described in the Z809-02 standard. Figure 2 illustrates the general proportion of VOITs in the SFM plan for each of the six Z809 criteria.

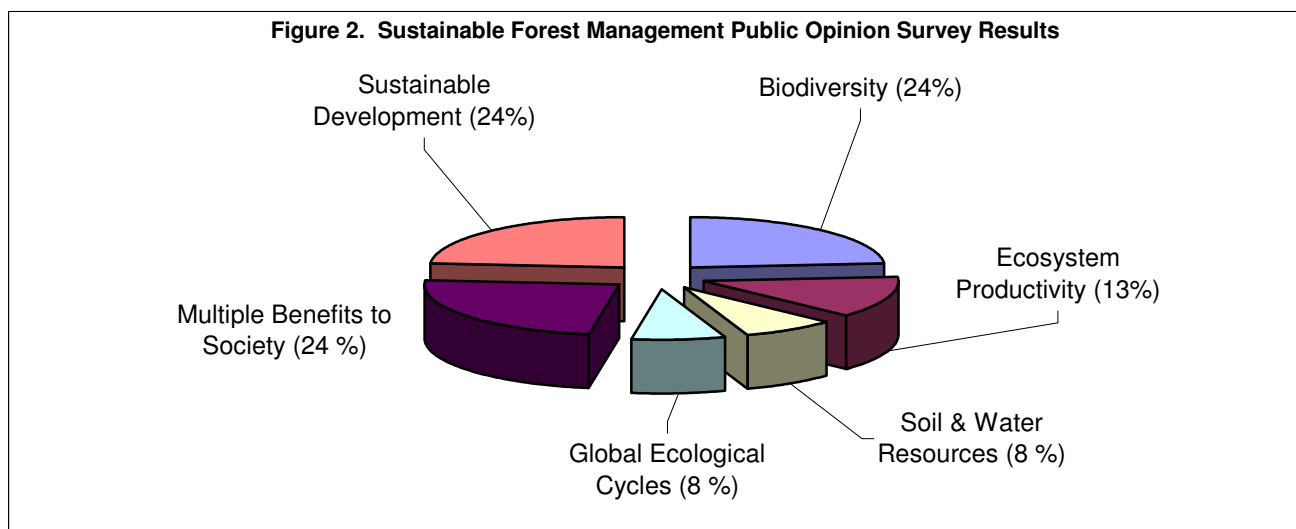


Figure 2 provides a breakdown of the indicators associated with the SFM plan, highlighting the source of the indicator. There are three main types of indicators used in the SFM Plan i) Forecasting, ii) Monitoring, and iii) Compliance Indicators. Forecasting Indicators are used to make forecasts of the future condition of the forest, and are used in the assessment of management strategies, objectives and determination of sustainability. Monitoring indicators are used to assess the implementation of management strategies, based on a comparison of actual achievements on the forest against stated forest management plan objectives. Compliance indicators are used to assess operational practices in the forest, to identify compliance issues and determine training needs of DFA-related forestry workers. Compliance indicators are also used to determine if operational practices are compromising the long-term sustainability of the CSA SFM elements, and implement a course of corrective action, where required.

### 4. Progress Report

Completion of activities consistent with VOIT objectives will result in performance indicators trending toward a desired target, which is the primary objective of the SFM plan. In some cases the realization of the target condition is something that can be, and should be, realized annually, whereas in others the target will take several years to attain, although continual progress should be demonstrated. Table 1 summarizes the 38 performance indicators within this report. It should be noted that most of the results are based on the OMNR fiscal year which starts April 1, 2005 to March 31, 2006.

**Glossary of terms and acronyms used in the progress report can be referenced at the end of the report.**

Table 1. Indicators associated with the Sustainable Forest Management Plan.

Criterion	Element	Indicator	Target	Target Achieved	Page #
1	1.1	1. Forest Composition (area in hectares by forest unit).	Changes in forest composition (area by forest unit) are consistent with the Bounds of Natural Variation.	<input checked="" type="checkbox"/>	4
		2. Percent of Total Area (Available+Reserved) in older age classes by forest unit.	Presence of older age classes in the forest, consistent with the Bounds of Natural Variation.	<input checked="" type="checkbox"/>	6
		3. Area (ha) and frequency distribution of harvest and natural disturbance areas (by size class).	Disturbance patches on the forest will be consistent with the historic size class and frequency distribution.	<input checked="" type="checkbox"/>	8
	1.2	1. Area (ha) of habitat of selected wildlife species.	Preferred habitat of the provincially featured species is similar to what would have existed naturally.	<input checked="" type="checkbox"/>	9
		2. Marten habitat maintained in suitable areas.	Increase marten habitat over the next 20 years.	<input checked="" type="checkbox"/>	12
		3. Rare animals, plants and habitat protected or enhanced.	No Forest Operations Information Program (FOIP) reports with non-compliances.	<input checked="" type="checkbox"/>	13
	1.3	1. Compliance with seed and stock transfer guidelines.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	14
		2. Species distributions (ranges) maintained or enhanced.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	15
	1.4	Compliance with prescriptions associated with Parks, Conservation Reserves, and Natural Heritage Values.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	16
	2	2.1	Forecast vs. Actual Natural Disturbance Area (ha)	Available Harvest Area calculations do not result in unsustainable harvest levels.	<input checked="" type="checkbox"/>
2.2		1. Managed Crown Forest Area (ha) Available for Timber Production.	Abitibi-Consolidated will maintain the current productive forest area levels on a long term basis	<input checked="" type="checkbox"/>	18
		2. Amount of area of regeneration reported and declared Free-To-Grow (FTG).	All harvested areas will be surveyed and declared FTG according to the Silvicultural Ground Rules.	<input checked="" type="checkbox"/>	19
		3. Amount of Long-term Backlog Barren and Scattered Area (ha) on the Forest.	Current Barren and Scattered area will be reduced by 10% over the next 10 years, and by 30% over the next 20 years.	<input checked="" type="checkbox"/>	20
		4. Level of active chemical ingredients (Litres) applied per hectare (tending and site preparation).	Decrease the amount of active ingredient applied by 10 % over 5 years.	<input checked="" type="checkbox"/>	21
3	3.1	Compliance with forest soil protection guidelines.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	22
	3.2	1. Compliance with water quality & fish habitat protection.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	23
		2. Status of water crossing installations.	Repair or abandon 3% of the water crossings over 5 years.	<input checked="" type="checkbox"/>	25
4	4.1	1. Amount of fossil fuel consumption in forest management.	Reduce fossil fuel consumption per cubic metre of wood harvested by 2% annually.	<input checked="" type="checkbox"/>	26
		2. Have a positive contribution to global ecological cycles by removing CO2 from the atmosphere & storing in forest.	Net canopy carbon assimilation will remain positive (i.e. act as a carbon sink).	<input checked="" type="checkbox"/>	27
	4.2	Non-forested Crown land area (ha) - roads, landings and gravel pits.	The total non-forested managed forest area will remain < 1% of the managed forest area over the next 100 years.	<input checked="" type="checkbox"/>	29
5	5.1	1. Long-Term Wood Supply: Volume available by species group versus industrial demand.	Minimize long-term wood supply shortfalls during critical supply periods (41-60 years in the future).	<input checked="" type="checkbox"/>	30
		2. Planned vs. actual depletion area.	Harvest the annual planned harvest area.	<input checked="" type="checkbox"/>	31
		3. Compliance with Wood Utilization/Wasteful Practices.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	32
		4. Compliance with the protection of cultural heritage, recreational, tourism, and other non-timber resource uses.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	33
		5. Number of Resource Stewardship Agreements (RSA's) established on the DFA.	Abitibi-Consolidated will establish an RSA with all of the Resource-Based Tourism Operators.	<input checked="" type="checkbox"/>	34
	5.2	Employment levels in the forest industry and service sector.	Increase employment levels in local communities.	<input checked="" type="checkbox"/>	35
	5.3	1. Planned vs. actual Crown stumpage revenues.	Annual Crown stumpage revenues.	<input checked="" type="checkbox"/>	36
		2. Amount (km) of roads available for public use.	Primary and secondary road construction planned for construction during the 5-year term.	<input checked="" type="checkbox"/>	37
		3. Volume of fuel wood harvested for personnel use.	Provide opportunity for fuel wood harvesters.	<input checked="" type="checkbox"/>	38
	6	6.1	1. Percent of Aboriginal communities involved in the Forest Management First Nations Consultation Process.	Continue to seek involvement from all Aboriginal communities in the planning process.	<input checked="" type="checkbox"/>
2. Extent of Aboriginal participation (jobs, value of contracts) in forest-based economic opportunities.			Increase forest-related economic opportunities for Aboriginals.	<input checked="" type="checkbox"/>	40
6.2		1. Compliance with Area of Concern Prescriptions for Aboriginal Values.	No FOIP reports with non-compliances.	<input checked="" type="checkbox"/>	41
		2. Amount of Traditional Ecological Knowledge shared.	All mutually agreed upon knowledge shared will be incorporated into forestry practices.	<input checked="" type="checkbox"/>	42
6.3		1. Degree of Satisfaction with the planning process (based on SFM Public Opinion Survey results).	Increase current levels of support in future planning initiatives.	<input checked="" type="checkbox"/>	43
		2. Number of events attended and presentations given by Abitibi personnel to educate the public.	Attend as many events and make as many presentations as possible.	<input checked="" type="checkbox"/>	45
6.4		1. Training of Forestry Workers on the DFA .	All operators and contractors must be provided awareness.	<input checked="" type="checkbox"/>	46
		2. Training of Local Citizens Committees.	LCCs will receive FMP training, presentations at regular meetings, and be invited to participate in field audits.	<input checked="" type="checkbox"/>	47
		3. Research contributions to wildlife and forestry projects.	Monitor contributions to research projects.	<input checked="" type="checkbox"/>	48
				Gossary	

 On Target Not On Target

<b>CRITERION:</b>	1. Conservation of Biological Diversity
<b>ELEMENT:</b>	1.1 Ecosystem Diversity
<b>VALUE:</b>	Well balanced, resilient forest ecosystems that emulate natural disturbances and landscape patterns.
<b>OBJECTIVE:</b>	To provide for a forest composition that is representative of the forest condition under a natural disturbance regime.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.1.1 Forest Composition (area in hectares by forest unit).</b>	To ensure that the changes in forest composition (area by forest unit) are consistent with the Bounds of Natural Variation (BNV) in the future: Iroquois Falls – 100 years (Year 2100) Nighthawk – 100 years (Year 2103) SRF Freehold – 100 years (Year 2102)	On a long-term basis (100 years), forest unit area will fall within the BNV: plus or minus 20% of natural run (or null scenario).

**MANAGEMENT STRATEGY:**

This Indicator was used to assess the sustainability of management alternatives during development of the Forest Management Plans (FMP). Forest composition (Total Productive Crown Forest Area by Forest Unit) was forecasted for 100 years for the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold (SRF Freehold) using the Strategic Forest Management Model (SFMM), and model constraints were applied to each management alternative to follow a natural disturbance regime (null), as required.

**MONITORING:**

The Forest Resources Inventory (FRI) will be updated annually. Depletion areas (harvest and natural) and areas declared Free Growing will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests. With each successive forest management plan, the total productive forest area will be summarized, and compared to previous forest management plans to evaluate whether there is movement towards the desired future forest condition. This comparison will be made every five-years, according to the forest management planning cycle in Ontario.

**IMPLEMENTATION:**

The evaluation of future forest composition trends associated with each management alternative was completed during the preparation of the FMPs (forecasts will be completed with each successive FMP). Annual reporting will include confirmation that FRI has been updated according to legislative requirements. A productive forest area trend analysis will be completed during the preparation of future FMPs (2000, 2003 and 2002 levels will serve as the initial benchmark for the Iroquois Falls Forest, Nighthawk Forests and SRF Freehold, respectively).

**2005/06 STATUS:**

A summary of the status of this indicator is provided in the FMPs or in the SFM Plan (2004-2009). A new plan commenced for the Iroquois Falls Forest (2005-2010) for the forecast analysis of forest composition. See Table 1.1.1a for current status:

Forest Unit	Target	Current Area (ha) Year 2005	Forecasted Area (ha) Year 2025	Forecasted Area (ha) Year 2045	Forecasted Area (ha) Year 2065	Forecasted Area (ha) Year 2105
Spruce Bog	>=19,362	24,202	24,202	24,202	24,202	24,202
White Birch pure & mixed	>=8,541	10,676	13,207	16,269	18,402	22,691
Other Conifer	>=4,012	5,015	5,082	5,145	5,175	5,188
Jack Pine Poplar mixed	>=4,393	5,492	5,548	7,105	9,838	14,714
Spruce Poplar mixed	>=33,339	69,105	67,295	66,674	68,603	81,209
Jack Pine pure	>=19,617	24,522	26,763	27,726	26,649	27,069
Jack Pine mixed	>=10,135	12,669	10,948	9,201	8,516	6,027
Poplar pure	>=59,952	74,489	81,572	86,337	86,124	85,658
Spruce upland	>=113,443	141,807	149,122	153,868	159,862	164,224
Black Spruce lowland	>=255,311	319,139	323,585	326,811	329,656	333,515
Spruce / Fir mixed	>=21,629	77,023	70,886	66,190	56,660	47,930
Spruce Jack Pine mixed	>=32,203	85,435	82,356	77,087	78,269	65,534
<b>Total All Forest Units</b>	<b>&gt;=682,365</b>	<b>852,567</b>	<b>863,559</b>	<b>869,611</b>	<b>874,950</b>	<b>880,955</b>

Source: 2005 Iroquois Falls FMP; FMP-12

Forest composition was assessed during the preparation of the Forest Management Plans. This indicator will be assessed during the preparation of each Forest Management Plan (Nighthawk Forest – 2008 and Smooth Rock Falls Freehold – 2012). See Tables 1.1.1b and 1.1.1c for current status.

Table 1b. Forecast of Area by Forest Unit on the Nighthawk Forest

Forest Unit	Current Area (ha) Year 2003	Forecasted Area (ha) Year 2103	BNV Acceptable Levels (ha)	
			From	To
Bog	10,820	10,820	8,592	12,888
W. birch	10,718	11,355	8,574	15,267
Lowland conifer	16,845	18,576	13,476	21,526
mixed jack pine pure	5,139	11,945	4,111	16,048
mixed spruce/poplar	41,075	34,387	27,378	49,290
other hardwood	290	297	290	> 290
Jack pine pure 1 & 2	18,560	16,113	14,848	23,435
Jack pine pure 3 & 4	5,713	11,212	4,570	11,718
Poplar pure 1 & 2	36,337	42,496	26,069	53,509
Poplar pure 3 & 4	6,583	6,288	4,937	> 4937
Red & White pine	162	650	324	> 324
B. spruce pure 1 & 2	114,208	117,312	91,366	149,320
B. spruce pure 1 & 3	27,166	27,584	21,733	33,194
Spruce Fir mixed	42,976	32,828	13,903	51,571
Spruce pure mixed	20,938	21,029	16,683	26,220

Source: 2003 Nighthawk FMP; FMP-12, FMP-13

Table 1c. Forecast of Area by Forest Unit on the Smooth Rock Falls Freehold

Forest Unit	Current Area (ha) Year 2002	Forecasted Area (ha) Year 2102	BNV Acceptable Levels (ha)	
			From	To
Birch / Poplar	1,267	1,338	1,014	3,698
lowland conifer	4,030	5,101	3,224	6,938
Spruce / Fir mix	3,906	4,162	1,716	4,687
Poplar pure	1,192	2,383	954	8,654
B. spruce lowland	20,259	20,942	16,207	26,736
Spruce / Fir	7,335	6,183	2,756	8,802
Spruce / Pine	1,741	1,410	270	2,089

Source: 2002 Smooth Rock Falls Freehold FMP; FMP-12, FMP-13

**MANAGEMENT ACTIONS:**

No further actions required at this time.

**CRITERION:** 1. Conservation of Biological Diversity

**ELEMENT:** 1.1 Ecosystem Diversity

**VALUE:** Well balanced, resilient forest ecosystems that emulate natural disturbances and landscape patterns.

**OBJECTIVE:** To provide an age class structure on the forest that is representative of the forest condition under a natural disturbance regime, within the bounds of natural variation.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.1.2 Proportion of Forest in older age classes by forest unit.</b>	To ensure the presence of older age classes in the forest, consistent with the Bounds of Natural Variation (BNV).	On a long-term basis (100 years), the amount of area in older age classes will be consistent with the BNV levels.

#### MANAGEMENT STRATEGY:

This indicator was used to assess the percentage of older age classes associated with each management alternative during the comparison of management alternatives for the 2000 Iroquois Falls, 2003 Nighthawk and 2002 Smooth Rock Falls Freehold (SRF Freehold) FMPs. The percentage of the total productive forest area in older age classes was considered during Strategic Forest Management Model (SFMM) development. Old growth definitions were derived from Conserving Ontario's Old Growth Forest Ecosystems (MNR, 1994). Mature forests are considered to be harvestable and an overmature forest is considered old growth.

#### MONITORING:

The Forest Resources Inventory (FRI) will be updated annually. Depletion areas (harvest and natural) and areas declared Free Growing will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). With each successive forest management plan, the percentage of each forest unit in older age classes will be summarized, and compared to previous forest management plans to evaluate whether there is movement towards the desired future forest condition. This comparison will be made every five-years, according to the forest management planning cycle in Ontario.

#### IMPLEMENTATION:

The comparison of future older age class trends associated with each management alternative was completed during the preparation of the 2003 Nighthawk and 2002 SRF Freehold FMPs (forecasts will be completed with each successive FMP). Older age class trend analysis will be completed during the preparation of the 2008 Nighthawk FMP (2003 levels will serve as the initial benchmark) and 2012 SRF Freehold FMP (2002 levels will serve as the initial benchmark). The comparison of future older age class trends associated with each management alternative was completed for the Iroquois Falls Forest during the 2005-2010 FMP (2005 levels will serve as the initial benchmark - see Tables 2a & 2b for the results of the analysis).

#### 2005/06 STATUS:

Forest composition was assessed during the preparation of the Forest Management Plans.

A summary of the status of this indicator is provided in the FMPs or in the SFM Plan (2004-2009). A new plan commenced for the Iroquois Falls Forest (2005-2010) for the forecast analysis of forest composition:

Table 1.1.2a. Forecast of Proportion of Forest in Older Age Classes on the Iroquois Falls Forest (Sub-unit 3E1\*).

Forest Units	Level of Achievement Mature (Harvestable) %					Level of Achievement Overmature (Old Growth) %				
	Target	Year 2005	Year 2025	Year 2065	Year 2105	Target	Year 2005	Year 2025	Year 2066	Year 2105
Spruce/Pine	≥ 17	34	24	25	23	≥ 8	17	13	11	8
Intolerant Hardwoods	≥ 31	54	39	39	32	≥ 10	13	24	18	10
Mixedwoods	≥ 38	44	38	41	47	≥ 15	15	18	20	18
Blace Spruce Lowlands	≥ 31	49	39	31	50	≥ 14	29	22	19	14
Jack Pine	≥ 17	49	38	17	17	≥ 2	2	3	5	3
Spruce/Fir	≥ 20	21	22	28	20	≥ 7	8	8	17	9

\* Source: 2005 Iroquois Falls Forest FMP, SFMM, FMP-12. Subunit 3E1 is found north of Abitibi Lake and River.

Table 1.1.2b. Forecast of Proportion of Forest in Older Age Classes on the Iroquois Falls Forest (Sub-unit 3E6\*\*).

Forest Units	Level of Achievement Mature %					Level of Achievement Overmature %				
	Target	Year 2005	Year 2025	Year 2065	Year 2105	Target	Year 2005	Year 2025	Year 2065	Year 2105
Spruce/Pine	≥ 19	33	40	19	22	≥ 2	2	19	18	9
Intolerant Hardwoods	≥ 24	30	27	58	36	≥ 4	4	20	14	14
Mixedwoods	≥ 44	59	64	48	52	≥ 3	3	25	36	15
Blace Spruce Lowlands	≥ 21	30	30	23	49	≥ 4	6	6	16	14
Jack Pine	≥ 17	28	17	32	17	≥ 3	4	12	3	3
Spruce/Fir	≥ 24	44	52	35	24	≥ 7	7	13	28	9

\*\* Source: 2005 Iroquois Falls Forest FMP, SFMM, FMP-12. Subunit 3E6 is found South of Abitibi Lake and River.

This indicator will be assessed during the preparation of each Forest Management Plan (Smooth Rock Falls Freehold – 2012; and Nighthawk Forest – 2008). The following is the current status of the 2 forests:

Table 1.1.2c. Forecast of Proportion of Forest in Older Age Classes on the Smooth Rock Falls Freehold.

Forest Units	Level of Achievement Mature Target (17%)			Level of Achievement Overmature Target (3%)		
	Year 2002	Year 2020	Year 2102	Year 2002	Year 2022	Year 2102
White Birch	84%	78%	41%	0%	54%	9%
Lowland Conifer	22%	36%	33%	10%	3%	10%
Mixed Woods	46%	76%	28%	0%	5%	4%
Poplar	55%	57%	37%	0%	26%	3%
Lowland Black Spruce	29%	26%	44%	16%	3%	14%
Mixed Conifer	11%	30%	17%	2%	4%	6%
Upland Black Spruce	12%	41%	22%	4%	4%	20%

Source: 2002 Smooth Rock Falls FMP, SFMM, FMP-12

Table 1.1.2 d. Forecast of Proportion of Forest in Older Age Classes on the Nighthawk Forest (NE ecoregion 2\*)

Forest Units	Level of Achievement Mature Target (17%)		Level of Achievement Overmature Target	
	Year 2003	Year 2103	Year 2003	Year 2103
Spruce/Pine	39%	46%	14%	30%
Intolerants Hardwoods	38%	20%	2%	3%
Mixedwoods	45%	33%	15%	9%
Blace Spruce Lowlands	42%	48%	33%	26%
Jack Pine	0%	57%	0%	47%
Spruce/Fir	35%	32%	14%	18%

Northeast Ecoregion 2\* – within the Northern Clay section and are conditioned by widespread

Source: 2003 Nighthawk FMP, SFMM, FMP-12

Table 1.1.2 e. Forecast of Proportion of Forest in Older Age Classes on the Nighthawk Forest (NE ecoregion 4\*)

Forest Units	Level of Achievement		Level of Achievement	
	Year 2003	Year 2103	Year 2003	Year 2103
Spruce/Pine	52%	30%	18%	11%
Intolerants Hardwoods	51%	19%	5%	4%
Mixedwoods	73%	36%	22%	7%
Blace Spruce Lowlands	46%	43%	21%	17%
Jack Pine	21%	17%	2%	4%
Spruce/Fir	60%	38%	27%	12%

Northeast Ecoregion 4\* – within the Missinabi-Cabonga section of the Boreal Forest Region. It

Source: 2003 Nighthawk FMP, SFMM, FMP-12

#### MANAGEMENT ACTIONS:

No further actions required at this time.

**CRITERION:** 1. Conservation of Biological Diversity

**ELEMENT:** 1.1 Ecosystem Diversity

**VALUE:** Well balanced, resilient forest ecosystems that emulate natural disturbances and landscape patterns.

**OBJECTIVE:** To create a range of harvest disturbance patches across the landscape that is consistent with size frequency distribution and shape of disturbance patches created under a natural fire regime.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.1.3 Area (ha) and frequency distribution of harvest and natural disturbance areas (by size class).</b>	To establish harvest disturbance patches on the forest in a manner which is consistent with the historic size class and frequency distribution trend shown in the Fire Analysis Results (McNichol, 1997).	Long-term movement (100 years) towards the historic patterns associated with a historic natural disturbance regime (from McNichol, 1997).

**MANAGEMENT STRATEGY:**

The landscape disturbance analysis conducted with this indicator was used to assess the areas selected for harvest in the FMPs. The frequency and area distribution of disturbances (both clearcut and natural) were compared to historic data from McNichol (1997), to determine if the forest is moving towards a more natural disturbance regime. The Crown Forest Sustainability Act (CFSA) and the Policy Framework for Sustainable Forest directs managers to maintain crown forest health by using forest practices that emulate natural disturbances and landscape patterns.

**MONITORING:**

The Forest Resources Inventory (FRI) will be updated annually. Depletion areas (harvest and natural) and areas declared Free Growing will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario’s Crown Forests (FMPM). A landscape disturbance pattern analysis will be conducted with each successive FMP (using table RPFO-19) to evaluate progress towards a natural disturbance regime. This analysis will be conducted every 5-years, consistent with the current management planning cycle in Ontario.

**IMPLEMENTATION:**

The landscape disturbance analysis was completed during the preparation of the FMPs. This analysis will be conducted with each successive FMP (next analysis with the 2005 Iroquois Falls, 2008 Nighthawk and 2012 SRF Freehold FMPs). Table RPFO-19 will be used to evaluate progress towards a natural disturbance regime.

**2005/06 STATUS:**

The area (ha) and frequency distribution of harvest and natural disturbance areas was assessed during the preparation of the Forest Management Plans. This indicator will be assessed during the preparation of each Forest Management Plan (Nighthawk Forest – 2008 and Smooth Rock Falls Freehold – 2012).

A summary of the status of this indicator is provided in the FMPs or in the SFM Plan (2004-2009). A new plan commenced for the Iroquois Falls Forest (2005-2010) for the forecast analysis of forest composition (results may be seen in the 2004/05 Annual SFM Report).

**MANAGEMENT ACTIONS:**

No further actions required at this time.

<b>CRITERION:</b>	1. Conservation of Biological Diversity
<b>ELEMENT:</b>	1.2 Species Diversity
<b>VALUE:</b>	Species Diversity / Wildlife Habitat.
<b>OBJECTIVE:</b>	To provide wildlife habitat for selected wildlife species that is consistent with the levels associated with a natural disturbance regime.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.2.1 Habitat for Selected Wildlife Species (hectares of preferred habitat)</b>	On a long-term basis, ensure that available preferred habitat of the provincially featured species is similar to what would have existed under a natural disturbance ecosystem, within the specific zones.	Preferred or preferred plus marginal habitat for selected wildlife species will fall within the Bounds of Natural Variation on a long-term basis (100 years).

**MANAGEMENT STRATEGY:**

This indicator was used to assess the sustainability of wildlife habitat levels for selected indicator species during the comparison of management alternatives for the FMPs. The Strategic Forest Management Model (SFMM) was used to evaluate changes in preferred and marginal habitat for selected wildlife species (chosen as key indicator species by MNR biologists), in relation to the Bounds of Natural Variation (BNV).

**MONITORING:**

The Forest Resources Inventory (FRI) will be updated annually. Changes in habitat levels will be tracked in table RPFO-16, as part of the assessment of sustainability. A forecast of wildlife habitat levels will be conducted with each successive FMP, as part of the assessment of sustainability. Monitoring and reporting on wildlife habitat levels will occur every 5-years, according to the forest management planning cycle in Ontario.

**IMPLEMENTATION:**

The wildlife habitat analysis was completed during the preparation of the FMPs. In RPFO-16, the term 2000-2005 for the Iroquois Falls and 2003-2008 for the Nighthawk will serve as the benchmark for future plan terms. An analysis of wildlife habitat levels will be conducted with each successive FMP (next FMP analysis: 2005 Iroquois Falls Forest, 2008 Nighthawk Forest and 2012 SRF Freehold FMPs).

**2005/2006 STATUS:**

The habitat for selected wildlife species was assessed during the preparation of the Forest Management Plans.

A summary of the status of this indicator is provided in the FMPs or in the SFM Plan (2004-2009). A new plan commenced for the Iroquois Falls Forest (2005-2010) for the forecast analysis of forest composition:

Table 1.2.1a. Habitat for 21 Selected Wildlife Species (ha) on the Iroquois Falls Forest – North Sub-unit (sub-unit 3E1).

Wildlife Species	Minimum BNV Acceptable	Current Area (ha) Year 2005	Forecasted Area (ha) Year 2025	Forecasted Area (ha) Year 2065	Forecasted Area (ha) Year 2105
Bay-breasted Warbler	64,681	79,997	67,161	66,488	64,681
Black-backed Woodpecker	38,313	47,888	49,616	55,982	47,320
Black Bear foraging	2,327	2,909	3,031	<b>2,206</b>	2,657
Black Bear fall & winter	42,796	53,080	43,807	46,486	52,353
Boreal Chickadee	35,072	43,840	56,310	65,859	62,703
Blue-spotted Salamander	446,836	585,859	586,409	583,882	577,895
Lynx	55,264	69,080	77,706	76,011	72,799
Woodland Caribou	1,725	5,338	4,628	2,184	2,277
Deer Mouse	26,759	34,311	47,737	42,215	49,636
Great Grey Owl	9,689	13,674	11,669	<b>9,803</b>	9,884
Least Flycatcher	45,010	55,649	66,691	75,036	70,474
Marten	76,895	95,879	88,412	96,874	91,316
Moose Summer	25,136	32,278	44,627	39,061	46,063
Moose Winter	73,113	133,371	124,145	115,913	112,727
Northern Flying Squirrel	82,450	102,198	90,448	94,235	96,964
Pileated Woodpecker	2,291	2,864	7,107	7,714	3,590
Ruby-crowned Kinglet	185,625	243,993	194,610	288,231	291,164
Ruffed Grouse	13,930	17,238	17,870	22,321	25,314
Snowshoe Hare	55,264	69,080	77,706	76,011	72,799
Spruce Grouse	3,576	7,136	6,566	8,246	7,506
White-throated Sparrow	59,842	105,970	105,149	89,034	105,822

Source: Iroquois Falls Forest 2005-2010, FMP Table 12.

Subunit 3E1 is found north of Abitibi Lake and River.

Table 1.2.1b. Habitat for 21 Selected Wildlife Species (ha) on the Iroquois Falls Forest – South Sub-unit (sub-unit 3E6).

Wildlife Species	Minimum BNV Acceptable	Current Area (ha) Year 2005	Forecasted Area (ha) Year 2025	Forecasted Area (ha) Year 2065	Forecasted Area (ha) Year 2105
Bay-breasted Warbler	21,916	32,151	31,353	32,917	26,474
Black-backed Woodpecker	7,623	10,271	11,021	7,623	8,026
Black bear foraging	826	1,032	<b>* 514</b>	1,266	<b>* 439</b>
Black Bear Fall Winter	15,227	22,355	21,840	21,484	20,145
Boreal Chickadee	4,097	5,123	5,803	4,609	8,037
Blue-spotted Salamander	61,244	76,860	77,453	78,975	77,436

Wildlife Species	Minimum BNV Acceptable	Current Area (ha) Year 2005	Forecasted Area (ha) Year 2025	Forecasted Area (ha) Year 2065	Forecasted Area (ha) Year 2105
Lynx	19,163	23,930	31,050	32,753	29,675
Deer Mouse	18,343	27,732	16,472	16,865	20,512
Great Grey Owl	5,673	7,827	6,982	12,536	9,096
Least Flycatcher	9,164	11,457	10,956	17,748	14,777
Marten	19,845	29,625	29,957	23,138	24,479
Moose Summer	13,967	25,695	15,222	14,554	18,870
Moose Winter	18,345	34,696	33,564	34,522	32,725
Northern Flying Squirrel	27,786	35,775	37,311	38,743	33,058
Pileated Woodpecker	310	387	2,926	4,031	3,941
Ruby-crowned Kinglet	8,840	11,554	10,747	23,131	20,773
Ruffed Grouse	8,899	11,133	11,991	12,296	13,114
Snowshoe Hare	19,163	23,930	31,050	32,753	29,675
Spruce Grouse	2,333	3,279	3,520	2,996	3,175
White-throated Sparrow	17,722	37,820	29,214	21,976	28,218

Source: Iroquois Falls Forest 2005-2010, FMP Table 12.

Subunit 3E6 is found south of Abitibi Lake and River.

**Comments:**

Some of the wildlife habitat constraints on the 3E6 sub-unit were not implemented. Due to the small size of this sub-unit, and the initial area some of the targets needed more time to ramp up the area to the target. No minimum habitat constraints were entered for black bear foraging as the initial areas were only a few thousand hectares. The wildlife calculation for this species does not appear to accurately depict their habitat. In fact this was verified during planning for 2006 FMPs, where it was noted that MNR had revised the calculations for black bear and now had much higher habitat levels. According to the district biologist, the forecasts of black bear foraging habitat are not expected to be reliable given that the population of black bears is flourishing, and there does not appear to be any problems with a lack of black bear foraging habitat. It should be noted that there has been no official population census of Black Bears in Ontario.

This indicator will be assessed during the preparation of each Forest Management Plan (Smooth Rock Falls Freehold – 2012; and Nighthawk Forest – 2008 and). The following is the current status of the 2 forests:

**Table 1.2.1c. Habitat for 21 Selected Wildlife Species (ha) on the Nighthawk Forest (Northeast Ecoregion 2\*)**

Wildlife Species	Current Area (ha)	Forecasted Area (ha)	Minimum BNV Acceptable Levels (ha)
	Year 2003	Year 2103	
Blue Spotted Salamander **	122,274	120,028	93,418
Spruce Grouse **	80,403	82,541	59,787
Ruffed Grouse	1,259	3,188	1,007
Great Gray Owl	2,927	2,773	2,200
Black Backed Woodpecker	8,192	8,679	6,554
Pileated Woodpecker	235	403	188
Least Flycatcher	14,544	12,732	7,374
Boreal Chickadee	13,505	13,490	6,675
Ruby Crowned Kinglet	47,880	54,368	36,671
Bay Breasted Warbler	17,793	14,731	12,998
White Throated Sparrow	18,836	20,676	14,689
Snoeshoe Hare	16,688	20,002	11,869
Lynx	16,688	20,002	11,869
Northern Flying Squirrel	20,370	18,899	15,585
Black Bear (foraging) **	97,810	106,613	78,248
Black Bear (fall and winter)	10,499	9,057	7,290
Marten	18,342	21,729	13,585
Woodland Caribou **	9,987	8,003	66,90
Moose (foraging - summer)	6,984	11,715	5,587
Moose (winter)	32,235	28,283	17,976
Deer Mouse	7,028	11,776	5,623
Sharp Shinned Hawk	26,977	43,618	20,010
Fisher	10,820	10,820	6,360

\* Northeast Ecoregion 2 – within the Northern Clay section and are conditioned by

\*\* Marginal Habitat

**Table 1.2.1d. Habitat for 21 Selected Wildlife Species (ha) on the Nighthawk Forest (Northeast Ecoregion 4\*)**

Wildlife Species	Current Area (ha)	Forecasted Area (ha)	Minimum BNV Acceptable Levels (ha)
	Year 2003	Year 2103	
Blue Spotted Salamander	120,892	121,929	96,523
Spruce Grouse	6,834	7,393	5,037
Ruffed Grouse	16,419	23,620	12,615
Great Gray Owl	17,647	28,656	14,118
Black Backed Woodpecker	18,540	11,943	10,528
Pileated Woodpecker	1,497	1,387	1,197
Least Flycatcher	25,783	15,517	13,461
Boreal Chickadee	21,362	20,096	13,226
Ruby Crowned Kinglet	42,480	4,640	29,840
Bay Breasted Warbler	58,433	24,821	22,740
White Throated Sparrow	27,146	35,975	21,717
Snoeshoe Hare	28,381	35,407	22,705
Lynx	28,381	35,407	22,705
Northern Flying Squirrel	67,345	33,041	30,723
Black Bear (foraging)	14,535	21,813	11,628
Black Bear (fall and winter)	58,317	41,070	30,410
Marten	54,951	30,347	23,850
Woodland Caribou	2,810	1,973	2,248
Moose (foraging - summer)	14,535	21,813	11,628
Moose (winter)	58,317	41,070	30,410
Deer Mouse	17,647	28,656	14,118
Sharp Shinned Hawk	41,067	46,777	20,729
Fisher	10,718	11,355	11,515

\* Northeast Ecoregion 4 – within the Missinaibi-Cabonga section of the Boreal Forest

\*\* Marginal Habitat

**Comments:**

Wildlife habitat levels derived from the Strategic Forest Management Model (SFMV), and

**Table 1.2.1e. Habitat for 19 Selected Wildlife Species (ha) on the Smooth Rock Falls Freehold**

Wildlife Species	Current Area (ha)	Forecasted Area (ha)	Minimum BNV Acceptable Levels (ha)
	Year 2003	Year 2103	
Bay Breasted Warbler	7,363	6,271	5,044
Black Backed Woodpecker	5,259	4,945	3,512
Black Bear (foraging)	0	0	0
Black Bear (fall and winter)	4,135	3,454	2,411
Boreal Chickadee	3,445	4,574	2,630
Blue Spotted Salamander	0	0	0
Lynx	593	2,382	474
Deer Mouse	591	1,223	473
Fisher	3,862	3,239	2,266
Great Gray Owl	961	1,050	523
Least Flycatcher	3,511	3,981	2,361
Marten	9,552	8,638	6,234
Moose (foraging - summer)	591	1,223	473
Moose (winter)	14,486	13,374	9,741
Northern Flying Squirrel	8,385	6,994	5,211
Pileated Woodpecker	0	57	0
Ruby Crowned Kinglet	14,616	15,970	10,933
Ruffed Grouse	379	541	280
Snoeshoe Hare	593	2,382	474
Spruce Grouse	0	0	0
White Throated Sparrow	2,335	3,130	1,868

**MANAGEMENT ACTIONS:**

No further actions required at this time.

<b>CRITERION:</b>	1. Conservation of Biological Diversity
<b>ELEMENT:</b>	1.2 Species Diversity
<b>VALUE:</b>	Species Diversity / Wildlife Habitat.
<b>OBJECTIVE:</b>	Maintain and enhance marten habitat availability through the implementation of the Forest Management Guidelines for the provision of marten habitat.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.2.2 Marten Habitat: mature and overmature conifer forest habitat.</b>	Increase marten habitat over the next 20 years to meet the 10-20 % criteria range of forest that is capable of sustaining marten in suitable conditions. Increase the portion of forest maintained in suitable conditions will be arranged into "marten core areas" of 3000-5000 ha.	Maintain 10-20% of the forest that is capable habitat. Maintain core areas in blocks of 3000-5000 ha.

**MANAGEMENT STRATEGY:**

Marten is a selected indicator species that is used to assess the sustainability of other wildlife species that live in mature and over mature conifer forests (Watt et. al, 1996). Suitable and capable habitat levels were determined from the Strategic Forest Management Model (SFMM) and the Ontario Wildlife Habitat Analysis Model (OWHAM). Suitable habitat is forest that is in a state that will satisfy the life requirements of a marten. Capable habitat is land that can produce a forest that would satisfy a marten's life requirements however is not at that state yet. The marten guidelines state that 10-20% of the forest must be maintained which has the capability to produce marten, in suitable conditions. In addition, core areas are identified to provide refuge where a sub-population of marten can continue to live and produce offspring, which can disperse to outside areas. Core habitat should be maintained between 3000-5000 ha with 75% being suitable.

**MONITORING:**

The Forest Resources Inventory (FRI) will be updated annually, according to the requirements of the Forest Information Manual (FIM). Depletion areas (harvest and natural) and areas declared Free Growing will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). Changes in marten habitat levels will be tracked in table RPFO-16, as part of the assessment of sustainability. A forecast of marten habitat levels will be conducted with each successive FMP, as part of the assessment of sustainability. Monitoring and reporting on marten habitat levels will occur every 5-years, according to the forest management planning cycle in Ontario.

Establishment of marten core areas was not implemented in the Smooth Rock Falls Freehold plan, although the establishment of marten core areas was analyzed and information can be found on potential core areas in the plan's 'Maps' binder. Currently, there are no areas suitable for creation of marten core areas because the forest is generally too young due to past forestry practices. The modeling of core areas reveals that it would take 80 years to create a suitable marten core area on the Smooth Rock Falls Freehold. At the moment, the marten guidelines are being studied to determine if they are valid for the northeastern Ontario. Until the results of the research project are available no marten core areas will be established on the Smooth Rock Falls Freehold. In addition, marten habitat supply levels on the Smooth Rock Falls Freehold were found to lie within the Bounds of Natural variation.

**IMPLEMENTATION:**

The marten habitat analysis was completed during the preparation of the FMPs. The term 2000-2005 for the Iroquois Falls and 2003-2008 for the Nighthawk serves as the benchmark for future plan terms. An analysis of marten habitat levels will be conducted with each successive FMP (next analysis with the 2010 Iroquois Falls and 2008 Nighthawk FMPs).

**2005/2006 STATUS:**

Table 1.2.2. Marten habitat levels for the Defined Forest Area.

Habitat Levels	Iroquois Falls Forest 2005 FMP	Nighthawk Forest 2003 FMP	Smooth Rock Falls Freehold 2002 FMP	Total	Average
<b>Core Areas</b>	19	16	1	36	
< 3000 ha	2	15	0	17	
3000 - 5000 ha	5	0	0	5	
> 5000 ha	12	1	1	14	
<b>% Suitable Habitat</b>					
Current	69%	62%	18%		50%
Predicted (20 years)	79%	74%	55%		69%
Predicted (40 years)	84%	85%	79%		83%
<b>% of Suitable Area in Core</b>					
Current	9.2%	9.4%	11.4%		10.0%
Predicted (20 years)	10.7%	11.2%	16.7%		12.9%
Predicted (40 years)	11.3%	12.8%	16.7%		13.6%

**MANAGEMENT ACTIONS:**

On Target – core habitat suitability is predicted to increase over the next 40 years (Table 1.2.2). No further actions required until analysis is completed for the Nighthawk Forest in 2008.

**CRITERION:** 1. Conservation of Biological Diversity  
**ELEMENT:** 1.2 Species Diversity  
**VALUE:** Species Diversity / Wildlife Habitat.  
**OBJECTIVE:** To maintain, protect, or enhance where needed, critical habitat for special concern, threatened, and endangered species.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.2.3 Rare flora, fauna and ecosystem habitat maintained, protected or enhanced.</b>	Forest practices will be carried out on all sites in a manner that protects rare flora, fauna, and ecosystem habitat during the FMP terms. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP rare flora, fauna and ecosystem habitat inspections with minor non-compliances. No FOIP inspections with moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**

This indicator was selected to track trends of non-compliance for rare, flora (plant species), fauna (wildlife) and ecosystem habitat. Area of Concern guidelines were developed by Ministry of Natural Resources Biologists to protect or enhance wildlife populations. Some of the wildlife guidelines currently implemented by the FMPs are for the Bald Eagle, Osprey, Heron, Accipiters/Buteos (Hawks and Falcons) and cavity nesters (Snag Management). In addition, the recently enacted Species at Risk Act (2003) in Canada will be an evolving process that will be respected. There are two committees that assess the status of Ontario species, the *national* Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the *provincial* Committee on the Status of Species at Risk in Ontario (COSSARO) which classify species as special concern, threatened, and endangered.

**MONITORING:**

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans for the Iroquois Falls and Nighthawk Forest (included in each Annual Work Schedule). Commencing in 2004/2005, the Compliance Plan will include a requirement to conduct FOIP inspections on all AOC prescriptions associated with rare flora, fauna and ecosystem habitats on the DFA. The Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports.

**IMPLEMENTATION:**

Compliance monitoring for this new indicator will commence in the 2004/2005 operating year, and will be carried out annually by certified compliance inspectors.

**2005/2006 STATUS:**

A total of 100 harvest inspections were conducted to assess compliance for the maintenance and protection of rare flora and fauna protection. No disturbances of rare flora and fauna ecosystem habitat were observed (100% compliance).

Currently, the 2005-2010 Iroquois Falls Forest FMP has designated areas to conserve threatened Woodland Caribou. Strategies are in place to ensure operations do not occur within calving or caribou travel corridors at critical times of the year. Other strategies include access management and regeneration activities to enhance and protect caribou habitat.

**MANAGEMENT ACTIONS:**

Management objective and target was achieved. Continue to monitor.

**CRITERION:** 1. Conservation of Biological Diversity

**ELEMENT:** 1.3 Genetic Diversity

**VALUE:** Sustainable populations of native tree species.

**OBJECTIVE:** To sustain genetic diversity through populations of naturally occurring species, well-adapted to local site conditions.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.3.1 Compliance with seed and stock transfer guidelines.</b>	Ensure that all seed and stock used in artificial renewal program is used in accordance with seed zones and transfer guidelines. No Forest Operations Information Program (FOIP) reports with non-compliances.	No FOIP inspections of seed and stock transfer guidelines with minor, moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**

All tree seed and stock used in Abitibi-Consolidated's artificial regeneration program will be transferred according to provincial Seed Zone transfer guidelines (Ministry of Natural Resources Directive FOR 06 02 01). The control of tree seed and stock transfer to ensure the use of well adapted plant material is considered to be a fundamental component of managing genetic diversity, and ensuring an effective artificial regeneration program.

**MONITORING:**

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans (included in each Annual Work Schedule). Commencing in 2004, the Annual Compliance Plans will include a requirement to inspect seed sources of seed and stock used in artificial regeneration programs. In conjunction with the Tree Plant FOIP reports, inspections will be carried out for each seed zone planted, to ensure compliance with Seed Zone transfer guidelines. Records will be maintained on the seed source in the company Foresters filing system.

Monitoring and Reporting on this indicator will occur on an annual basis. The results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12. A 5-year summary for 2000-2005 term (Iroquois Falls Forest) and 2003-2008 (Nighthawk Forest) term will also be included in the Report of Past Forest Operations (Table RPFO-12). Table AR-12 will be included in the Annual SFM Report. The Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports.

**IMPLEMENTATION:**

Compliance monitoring for this new indicator commenced in the 2004/2005 operating year, and will be carried out annually by certified compliance inspectors.

**2005/2006 STATUS:**

A total of 22 renewal inspections Compliance inspections were scheduled in 2005/06 to assess compliance seed and stock transfer guidelines, consistent with the requirements of the Annual Compliance Plan. No non-compliances of seed and stock transfer guidelines were observed.

Trees planted during the 2005/06 work schedule are compiled in table 1.3.1.

Table 1.3.1

Forest	Seed Zone	Amount Planted				Total
		Black Spruce	White Spruce	Jack Pine	White Pine	
Iroquois Falls Forest	Zone 18	2,100,150	400,110	600,000		3,100,260
	Zone 24	300,240	200,160	212,400		712,800
Nighthawk Forest	Zone 18	32,724	14,148			46,872
	Zone 24	218,463	180,328		5,200	403,991
Defined Forest Area Total		2,651,577	794,746	812,400	5,200	4,263,923

**MANAGEMENT ACTIONS:**

Management objective and target was achieved. Continue to implement and monitor.

**CRITERION:** 1. Conservation of Biological Diversity

**ELEMENT:** 1.3 Genetic Diversity

**VALUE:** Sustainable populations of native tree species.

**OBJECTIVE:** To maintain or increase the area occupied by white pine and red pine. To work towards restoring the area occupied by white pine and red pine to historical levels.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.3.2 Species distributions (ranges) not be impacted by forestry practices. Red and white pine distributions maintained and enhanced.</b>	Red and white pine distributions maintained and enhanced. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP red and white pine distribution inspections with minor non-compliance. No FOIP inspections with moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**

No harvest is planned for white and red pine forest units, where white and red pine form the majority of the stand. Harvest of white pine and red pine trees may occur where they form a minor component of the allocated stand.

**MONITORING:**

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans (included in each Annual Work Schedule). Commencing in 2004, the Annual Compliance Plans will include a requirement to monitor for non-prescribed harvest with red and white pine forest units.

Monitoring and Reporting on this indicator will occur on an annual basis. The results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12. A 5-year summary for 2000-2005 term (Iroquois Falls Forest) and 2003-2008 (Nighthawk Forest) term will also be included in the Report of Past Forest Operations (Table RPFO-12). Table AR-12 will be included in the Annual SFM Report. The Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports.

**IMPLEMENTATION:**

Compliance monitoring for this new indicator will commence in the 2004/2005 operating year, and will be carried out annually by certified compliance inspectors.

**2005/2006 STATUS:**

A total of 100 harvest inspections were conducted to assess compliance with red and white pine distributions. No disturbances of red and white pine distributions were observed (100% compliance).

Enhancement: 5,200 White Pine were planted during the 2005/2006 operating year in the Nighthawk Forest.

**MANAGEMENT ACTIONS:**

Management objective and target was achieved. Continue to implement and monitor.

**CRITERION:** 1. Conservation of Biological Diversity

**ELEMENT:** 1.4 Protected Areas and Sites of Biological Significance

**VALUE:** Protected natural heritage features and landscape values

**OBJECTIVE:** To plan and implement forestry operations in a manner that considers the diversity of social, cultural, and environmental values present on the forest, in order to provide all users and citizens with the opportunity to benefit from the forest.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>1.4.1 Compliance with Area of Concern (AOC) prescriptions associated with Parks, Conservation Reserves, and Natural Heritage Values.</b>	Forest practices will be carried out on all sites in a manner which protects all significant natural heritage and landscape values during the FMP term. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP inspections of AOCs associated with Parks, Conservation Reserves, and Natural Heritage Values with minor non-compliance. No FOIP inspections with moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**

Area of Concern Prescriptions were developed for all Parks, Conservation Reserves, and Natural Heritage Values in proximity to forest operations on the DFA. The requirements for Area of Concern Planning are identified in the Forest Management Planning Manual for Ontario’s Crown Forests. The Compliance Monitoring Program will be used to monitor forest operations (harvest, renewal and tending, access, and protection) in these areas, to evaluate compliance with these prescriptions.

**MONITORING:**

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans (included in each Annual Work Schedule). Commencing in 2004/05, the Annual Compliance Plan will include a requirement to conduct FOIP inspections on all AOC prescriptions associated with Parks, Conservation Reserves, and Natural Resource Values on the DFA.

Monitoring and Reporting on this indicator will occur on an annual basis. The results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12. A 5-year summary for the 2002-2007 term will also be included in the Report of Past Forest Operations (Table RPFO-12). Table AR-12 will be included in the Annual SFM Report. No parks, conservation reserves or natural heritage values have been identified for the Smooth Rock Falls Freehold.

**IMPLEMENTATION:**

Compliance monitoring for this new indicator will commence in the 2004/05 operating year, and will be carried out annually by certified compliance inspectors.

**2005/2006 STATUS:**

A total of 100 harvest inspections were conducted to assess compliance with area of concern prescriptions associated with parks, conservation reserves and natural heritage values. No disturbances were observed within parks, conservation reserves and natural heritage values (100% compliance).

**MANAGEMENT ACTIONS:**

Management objective and target was achieved. Continue to monitor.

**CRITERION:** 2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity

**ELEMENT:** 2.1 Forest Ecosystem Resilience

**VALUE:** Health of the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold.

**OBJECTIVE:** Monitor and manage incidents of natural forest disturbance in order to maintain the long-term health of forest ecosystems.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>2.1.1 Forecast (predicted) vs. Actual (observed) Natural Disturbance Area (ha).</b>	Natural disturbance levels will be monitored annually during the 5-year terms, to ensure that assumptions made during Available Harvest Area (AHA) calculations do not result in unsustainable harvest levels.	Over the 5-year term of the plan, if actual natural depletion levels significantly exceed forecasted natural depletion levels (i.e. natural levels are within six (6) times the forecast levels), the Available Harvest Area calculations will be reviewed to ensure that the sustainability of the wood supply is not compromised.

**MANAGEMENT STRATEGY:**

Actual natural depletion levels will be tracked by forest unit, consistent with the requirements of the Forest Management Planning Manual (FMPM) for Ontario's Crown Forests. Actual natural depletion levels (i.e. fire, blow down, insect and disease) will be compared to levels forecasted in the Strategic Forest Management Model run for the FMPs. If actual levels significantly exceed forecasted levels, the Available Harvest Area calculations will be reviewed to ensure that the sustainability of the wood supply is not compromised.

**MONITORING:**

Monitoring and Reporting will occur on an annual basis. The Forest Resources Inventory (FRI) will be updated annually. Natural depletion areas will be identified according to the monitoring and reporting requirements of the FMPM, and compared to SFMM forecasted natural depletion levels. With each successive forest management plan, disturbance cycles will be reviewed and updated based on historic fire data for the three MNR Districts.

**IMPLEMENTATION:**

Natural depletion areas will be included in Annual SFM Report (Table AR-1 and AR-6 to be submitted to the MNR by November 15th each year). At the end of the 5-year terms, SFMM model assumptions on natural disturbance levels will be reviewed.

**2005/2006 STATUS:**

2806 hectares (see Table 2.1.1) of natural depletion from 1 large wild fire occurred on the Nighthawk Forest during the 2005/2006 operating year. This represents 130% of the 2,155 hectares/year acceptable forecast level for the DFA. Salvage operations occurred in 749 hectares representing 38% available for salvage (70% available for salvage). No natural disturbances were recorded for insect, disease and blowdown.

Table 2.1.1

Year	Iroquois Falls Forest	Nighthawk Forest	Smooth Rock Falls Freehold	Total	Acceptable Forecast Level (ha)	% Total
2004/05	892	112	0	1004	2,155	47%
2005/06	0	2,806	0	2,806	2,155	130%
2006/07					2,155	
2007/08					2,155	
2008/09					2,155	
	892	2918	3810	3810	10,775	35.4 %

**MANAGEMENT ACTIONS:**

Natural depletion levels was an issue in 2005/2006 on the Nighthawk Forest, however the management objective and target has not been exceeded for the DFA. Continue to monitor.

- CRITERION:** 2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity
- ELEMENT:** 2.2 Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions.
- VALUE:** Health of the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold.
- OBJECTIVE:** Maintain the area of managed forest available for timber production at the highest possible level.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>2.2.1 Managed Crown Forest Area (ha) Available for Timber Production.</b>	Maintain the current production forest area levels on a long term basis (next 100 years): <ul style="list-style-type: none"> <li>- Iroquois Falls Forest * 873,143 ha</li> <li>- Nighthawk Forest * 457,770 ha</li> <li>- Smooth Rock Falls Freehold * 45,598 ha</li> </ul>	Ensure that there is no significant decline (<3%) in the production forest area <ul style="list-style-type: none"> <li>- * 846,949 ha over the next 100 years (Iroquois Falls Forest)</li> <li>- * 444,037 ha over the next 100 years (Nighthawk Forest)</li> <li>- * 44,230 ha over the next 100 years (Smooth Rock Falls Freehold)</li> </ul>

\* **Please Note:** The targets and acceptable level have been amended in the SFM Plan. The original target numbers were erroneous. The numbers used to calculate the production forest targets were based on total Free-to-grow status and should have based on total production forest numbers.

#### MANAGEMENT STRATEGY:

Abitibi-Consolidated will work towards maintaining a production forest at the highest possible levels, through the elimination of backlog Barren and Scattered (B&S) depletion areas (see definition – indicator 2.2.3), by maintaining an up-to-date Forest Resources Inventory (FRI), and through silvicultural treatments where feasible.

#### MONITORING:

The FRI will be updated annually. Depletion areas (harvest and natural) and areas declared Free Growing (see definition – indicator 2.2.3) will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). Monitoring and reporting will occur every 5 years, with each successive forest management plan. The managed forest available for timber production will be summarized every 5 years in Tables RPFO-13 and RPFO-14, and compared to future levels as part of the assessment of sustainability. Smooth Rock Falls Freehold monitoring results will be reported in the 5-year SFM report.

#### IMPLEMENTATION:

The comparison of production forest by forest unit associated with each management alternative was completed during the preparation of the FMPs (forecasts will be completed with each successive FMP). Annual reporting will include confirmation that FRI has been updated according to legislative requirements. For the production forest trend analysis (RPFO-13, RPFO-14), 2000 and 2003 levels will serve as the initial benchmark for the Iroquois Falls and Nighthawk Forests, respectively. In addition, the 2002 production forest level will serve as the initial benchmark for the Smooth Rock Falls Freehold.

#### 2005/2006 STATUS:

The managed Crown forest area available for timber production was assessed during the preparation of the Forest Management Plans. This indicator will be assessed during the preparation of each Forest Management Plan (Nighthawk Forest – 2008 and Smooth Rock Falls Freehold – 2012).

A new plan commenced for the Iroquois Falls Forest (2005-2010) – the forecast analysis of forest composition (Table 2.2.1):

Table 2.2.1. 5-year production forest update for the Iroquois Falls Forest.

Production Forest – 2000 Benchmark	Production Forest – 2005 Inventory	Change in Production Forest	Target Threshold	Production Forest Currently – Compared to Benchmark
873,143 ha	871,973 ha	- 1170 ha	97 %	99.9 %

The Forest Resources Inventory (FRI) has been updated to reflect changes to the Forests associated with natural and harvest depletions, and areas which have become free growing.

#### MANAGEMENT ACTIONS:

The Iroquois Falls Forest will be compared again in 2010 with the benchmark set in 2000. The Nighthawk Forest will be compared in 2008 with the benchmark set in 2003. The Smooth Rock Falls Freehold will be compared in 2012 with the benchmark set in 2002.

<b>CRITERION:</b>	2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity
<b>ELEMENT:</b>	2.2 Conserve forest ecosystem productivity and production capacity by maintaining ecosystem conditions.
<b>VALUE:</b>	Health of the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold.
<b>OBJECTIVE:</b>	To monitor, assess and report on silvicultural activities to ensure that all regenerated area is accounted for and to update the inventory accordingly when regeneration reaches Free-To-Grow (FTG).

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>2.2.2 Amount of area of regeneration reported and declared Free-To-Grow (FTG).</b>	All harvested areas will be surveyed and declared FTG according to the Silvicultural Ground Rules. 1000 hectares/year will be assessed on the Smooth Rock Falls Freehold.	The area of successful regeneration (as reported in Table AR-9) will meet 90% of the area harvested (Table RPFO-1) for the period: - 2000-2005 by 2025 (IFF); - 2003-2008 by 2028 (NHF). 800 hectares/year will be assessed on the Smooth Rock Falls Freehold.

**MANAGEMENT STRATEGY:**

Free-To-Grow (FTG) forest stands are those stands that meet stocking and height as specified in silvicultural ground rules and are judged to be essentially free from competing vegetation. Renewal operations will be conducted in a manner that ensures that all recent cutover areas are promptly regenerated to meet free-growing standards, within time frames specified in the Silvicultural Ground Rules (FMP-10) for the 2000 Iroquois Falls, 2003 Nighthawk and SRF Freehold FMPs. Under normal circumstances, all cutover areas should be planted, seeded or declared for natural regeneration within 7 to 20 years of harvest.

**MONITORING:**

Monitoring and Reporting will occur on an annual basis. The Forest Resource Inventory (FRI) will be updated annually, according to the requirements of the Forest Information Manual. Depletion areas (harvest and natural) will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests. The annual reports (AR-1 and 14) will be summarized in the Report of Past Forest Operations for inclusion with the 2010 Iroquois Falls and 2008 Nighthawk FMPs. The Smooth Rock Falls Freehold monitoring and reporting will occur in the annual and 5-year SFM report.

**IMPLEMENTATION:**

The FRI will be updated on an annual basis. The FMPs will use the information to evaluate the progress. Over 800 hectares/year will be assessed for FTG status on the Smooth Rock Falls Freehold over the next 5 years (2005-2010) to determine the silviculture that may be required.

**2005/2006 STATUS:**

Trend analysis of amount harvested (depleted) compared declared free-to-grow:

Iroquois Falls Forest	Year					Totals (hectares)	% Declared Free-to-grow
	2004/05	2005/06	2006/07	2007/08	2008/09		
Depleted (ha)	8,327	5,493				13,820	
Declared Free-to-grow (ha)	6,257	8,918				15,175	110 %

Nighthawk Forest	Year					Totals (hectares)	% Declared Free-to-grow
	2004/05	2005/06	2006/07	2007/08	2008/09		
Depleted (ha)	3,652	1,553				5,205	
Declared Free-to-grow (ha)	3,918	5,821				9,739	187 %

Smooth Rock Falls Forest	Year					Totals (hectares)	% Declared Free-to-grow
	2002-04	2005/06	2006/07	2007/08	2008/09		
Depleted (ha)	775	0				775	
Declared Free-to-grow (ha)	1,160	0				1,160	150 %

**MANAGEMENT ACTIONS:**

The Iroquois Falls and Nighthawk Forest have exceeded the target. Free-to-grow surveys are being conducted to catch-up on areas that have been previously harvested and should be surveyed in a timely manner after harvest.

Exceeded the free-to-grow survey target for Smooth Rock Falls Forest in 2004/05 by 160 hectares. No harvest occurred during 2005/06 due to the mild winter conditions in January the contractor did not decide to build the winter road to the harvest allocations. The harvest was postponed to 2006/07.

<b>CRITERION:</b>	2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity
<b>ELEMENT:</b>	2.2 Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions.
<b>VALUE:</b>	Health of the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold.
<b>OBJECTIVE:</b>	Work towards the elimination of Barren and Scattered areas.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>2.2.3 Amount of Regenerating area (ha) on the DFA.</b>	Lands classified as 'Regenerating' on the DFA will be reduced to or remain below 10% of the total production forest.	Lands classified as 'Regenerating' on the DFA will be reduced to or remain below 15% of the total production forest

**MANAGEMENT STRATEGY:**

Forest that has been depleted from the Forest Resources Inventory by harvesting, insects, disease or weather and has not yet reached Free-To-Grow (re-entered into the inventory) is classified as "Regenerating". Forest operations will be conducted in a manner that ensures that all recent cutover areas are promptly regenerated to meet free-growing regeneration standards, within time frames specified in the Silvicultural Ground Rules (FMP-10) for the FMPs. Under normal circumstances, all cutover areas should be planted, seeded or declared for natural regeneration within three years of harvest. Areas of natural Barren and Scattered have been removed from this indicator (except on the SRF Freehold due to data considerations) since they are more or less constant over time and do not add anything to this indicator.

**MONITORING:**

The FRI will be updated annually. Depletion areas (harvest and natural) and areas declared Free Growing will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests. The amount of Regenerating lands (ha) in the Available Managed Crown Forest will be calculated every 5 years, and reported in Table FMP-1. Annual Report tables (AR-1 and AR-14) will be referenced for depletion and free-to-grow inventory changes.

**IMPLEMENTATION:**

Current levels of Regenerating lands are reported in the FMPs. The FRI will be updated on an annual basis, and the Planning Inventory for the 2010 Iroquois Falls, 2008 Nighthawk and 2012 Smooth Rock Falls Freehold FMPs will be used to evaluate progress towards the targeted reductions from the benchmarks set in 2005, 2003 and 2002 respectively.

**2005/2006 STATUS:**

All harvested areas must have prescriptions to bring them back into the inventory as a regenerated stands. As of the 2004/05 fiscal year, the forest inventory is categorizing areas not regenerated as "Regenerating" and are tracked until Free-To-Grow status is reached and then subsequently moved into the inventory as Free-To-Grow stands. The definition of Barren and Scattered has changed which now reflects a more or less constant area of natural barren and scattered areas. The original intent of the indicator was to reduce the amount of area that had not been surveyed as free-to-grow. Current Barren and Scattered area is 15,492 ha on the Iroquois Falls Forest and 8,142 ha on the Nighthawk Forest. These areas are not expected to change very much over time since they reflect areas with ground conditions that currently do not permit the establishment of forest stands. The Smooth Rock Falls Freehold regenerating number captures both "Regenerating" and Barren and Scattered categories and the Barren and Scattered portion cannot be separated as this time.

Table 2.2.3. Trend analysis of total production area compared to regenerating area:

Iroquois Falls Forest	Total Production Area (hectares)	Years	Depletion (hectares)	Free-to Grow Survey (hectares)	Regenerating Area (hectares)	% Regenerating					
809,960 ha (2005 FMP)		2005 FMP			168,057	20.7 %					
		2005/06	5,493	8,918	164,632	20.3 %					
Nighthawk Forest	Total Production Area (hectares)	Years	Depletion (hectares)	Free-to Grow Survey (hectares)	Regenerating Area (hectares)	% Regenerating					
		344,007 (2003 FMP)					2003 FMP			28,829	8.4 %
							2003/04	1,315	4,582	25,562	7.5 %
	2004/05	3,652	3,918	25,296	7.4 %						
	2005/06	1,553	5,821	21,028	6.1 %						
Smooth Rock Falls Freehold	Total Production Area (hectares)	Years	Depletion (hectares)	Free-to Grow Survey (hectares)	Regenerating + Barren and Scattered (hectares)	% Regenerating					
		45,598 (2002 FMP)					2002 FMP			5,667	12.4 %
							2002/03	37	0	5,704	12.5 %
							2003/04	396	0	6,100	13.4 %
	2004/05	342	1,160	4,940	10.8 %						
	2005/06	0	0	4,940	10.8 %						

**MANAGEMENT ACTIONS:**

It was decided by the Forest Management Group to change the indicator to reflect lands that are regenerating rather than true barren and scattered. The target was subsequently changed to 10% and 15% for the acceptable level.

All Forests are on target to reducing the amount of regenerating area. The Nighthawk Forest has met the target and Smooth Rock Falls Forest is almost at the target level. The Iroquois Falls Forest is double the target of 10% but a great deal of work was done in the new inventory to declare areas as Free-To-Grow and this percentage has dropped significantly and will be reported in the next annual report.

**CRITERION:** 2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity  
**ELEMENT:** 2.2 Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions.  
**VALUE:** Health of the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold.  
**OBJECTIVE:** To monitor, assess and report on chemical usage (tending and site preparation).

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>2.2.4 Level of active chemical ingredients (Litres) applied per hectare (tending and site preparation).</b>	Decrease the amount of active ingredient applied by 10 % over 5 years (kg or active ingredient / hectare).	Decrease the amount of active ingredient applied by 5 % over 5 years (kg or active ingredient / hectare).

**MANAGEMENT STRATEGY:**

A comparison of silviculture activities will be completed for the amount of area predicted (AWS-4) and area achieved (AR-6). Annual reduction trends in chemicals applied/hectare will be tracked. Ground spray system (i.e. air blast and basal bark treatment) strategies may be implemented to increase the accuracy and efficiency of the chemical applied.

**MONITORING:**

The reduction in the active ingredients applied will be tracked within the SFM Annual Report. The 2004/2005 report were served as the baseline for trend analysis. No spray programs scheduled for the Smooth Rock Falls Freehold.

**IMPLEMENTATION:**

A comparison of silviculture activities and the amount of active ingredients applied will be included in Annual SFM Report. In addition, historical data will also be reported to demonstrate the reductions of active ingredients applied over time.

**2005/2006 STATUS:****Iroquois Falls Forest**

Active Ingredient Trade Name (Chemical Compound)	Ground Spray				Aerial Spray			
	Concentration of Active Ingredient (Kg of active ingredient / hectare)		Litres / Hectare		Concentration of Active Ingredient (Kg of active ingredient / hectare)		Litres / Hectare	
	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06
Vision (glyphosate)					1.76**	1.92	4.95**	5.40
Vantage (glyphosate)						1.78		5.00
2,4-D *					2.35**	2.40	4.17**	4.26

\* 2,4-Dichlorophenoxyacetic acid

\*\* numbers in the 2004/05 SFM Annual Report were incorrectly stated.

**Nighthawk Forest**

Active Ingredient Trade Name (Chemical Compound)	Ground Spray				Aerial Spray			
	Concentration of Active Ingredient (Kg of active ingredient / hectare)		Litres / Hectare		Concentration of Active Ingredient (Kg of active ingredient / hectare)		Litres / Hectare	
	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06
Catena (glyphosate)	1.69		4.7		2.30	2.09	6.40	5.80
Vision (glyphosate)	1.78	1.79	5.0	5.03	1.85	1.77	5.21	4.97
Vision Max (glyphosate)						2.25		4.17

**Defined Forest Area (Total Weighted Average)**

Active Ingredient Trade Name (Chemical Compound)	Ground Spray				Aerial Spray			
	Concentration of Active Ingredient (Kg of active ingredient / hectare)		Litres / Hectare		Concentration of Active Ingredient (Kg of active ingredient / hectare)		Litres / Hectare	
	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06	2004/05	2005/06
Glyphosate	1.76	1.79	4.94	5.03	1.81	1.90	5.07	5.29
2, 4 D					2.35	2.40	4.17	4.26

**MANAGEMENT ACTIONS:**

The concentration and litres/hectare of vision applied increased on the Iroquois Falls Forest because of the amount of area that had accumulated on the south unit that required tending – this unit requires the maximum application (6 Litres/ hectare) because of relatively higher competition from deciduous/shrub/herbaceous species due to the richness of the soil. Nighthawk Forest is on target. Continue to monitor.

**CRITERION:** 3. Conservation of Soil and Water Resources

**ELEMENT:** 3.1 Conserve soil resources by maintaining soil quality and quantity.

**VALUE:** Soil quality and productivity.

**OBJECTIVE:** To minimize any possible adverse effects of forest practices on soil quality.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>3.1.1 Compliance with forest soil protection guidelines (% of inspections in compliance).</b>	Forest practices must minimize any possible adverse effects on soil, water, remaining vegetation, fish and wildlife habitat and other values. Forest operations will not be undertaken in areas where forest practices threaten the long-term health and vigour of the site. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP site damage inspections with minor non-compliance. No FOIP inspections with moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**

In order to ensure that forest operations have a minimum impact on soil quality, a program of operator awareness and training, and compliance monitoring has been implemented in the forest. Best management practices for minimizing site disturbance and damage will be developed by Abitibi-Consolidated and included in staff and operator training. The Annual Compliance Action Plan also includes the requirement for site disturbance inspections in specific blocks. Training and compliance monitoring programs have been developed to satisfy the requirements of Forest Management Guidelines for the Protection of the Physical Environment (MNR, 1997).

**MONITORING:**

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plan for the DFA (included in each Annual Work Schedule). Soil compaction, displacement, erosion, puddling, and loss of organic matter will be monitored and corrected when observed. The Annual Compliance Plan has included a requirement to conduct FOIP inspections of specified blocks for site disturbance and site damage.

Monitoring and reporting for this indicator will occur on an annual basis, and the results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12. A 5-year summary for the terms will also be included in the Report of Past Forest Operations (Table RPFO-12: separate breakdown for Site Damage). Table AR-12 will be included in the Annual SFM Report. Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports.

**IMPLEMENTATION:**

Compliance monitoring will continue to occur, and will be carried out annually by certified compliance inspectors. The results of the compliance monitoring will be included in the Annual SFM Report.

**2005/2006 STATUS:**

A total of 233 harvest, access (water crossings) and renewal inspections were conducted to assess compliance of soil protection. No non-compliances for disturbances of soil were reported (100% compliance).

A site disturbance standard operating procedure was developed and implemented during the 2005/06 operating season.

**MANAGEMENT ACTIONS:**

Management objective and target was achieved. Continue to implement and monitor.

**CRITERION:** 3. Conservation of Soil and Water Resources

**ELEMENT:** 3.2 Conserve water resources by maintaining water quality and quantity.

**VALUE:** Water quality and fisheries habitat.

**OBJECTIVE:** To minimize any possible adverse effects of forest practices on water quality.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>3.2.1 Compliance with water quality and fish habitat protection guidelines (% of inspections in compliance).</b>	Forest practices on all sites must minimize all possible adverse effects on water quality and fish habitat. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP water quality AOC inspections with minor non-compliance. No FOIP inspections with moderate to significant non-compliance.

#### MANAGEMENT STRATEGY:

In order to ensure that forest operations have a minimum impact on water quality and fisheries habitat, a program of operator awareness and training, and compliance monitoring has been implemented on the forest. In addition to the legislative and guideline requirements, specific Area of Concern (AOC) prescriptions were included in the FMPs to protect water quality and fisheries habitat (Supplementary Documentation). These AOC prescriptions are largely based on the requirements on the Timber management Guidelines for the Protection of Fish Habitat (MNR, 1988) and the Environmental Guidelines for Access Roads and Water Crossings (MNR, 1988). Standard Operating Procedures were also included in the plan for harvesting in riparian areas, road construction, water crossings and portable bridges. The Annual Compliance Plans includes a requirement for the evaluation of the implementation of AOC prescriptions to protect water quality within specific blocks.

#### MONITORING:

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans for the DFA (included in each Annual Work Schedule). The Annual Compliance Plans have included a requirement to conduct FOIP inspections of AOC prescription for the protection of water quality and fish habitat within specified blocks. Monitoring and reporting for this indicator will occur on an annual basis, and the results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12. A 5-year summary for the terms will also be included in the Report of Past Forest Operations (Table RPFO-12: separate breakdown for Water Quality Protection). Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports.

#### IMPLEMENTATION:

Compliance monitoring for this indicator will continue, and will be carried out annually by certified compliance inspectors.

#### 2005/2006 STATUS:

A total of 106 access (water crossing) inspections were conducted to assess compliance with water quality and fish habitat protection. Eight non-compliances were identified during the course of these inspections (92.5% compliance). However, 5 were classified as minor (95% compliance). OMNR rated one of the non-compliances as moderate and 1 as significant. Table 3.2.1 summarizes the non-compliances and the associated corrective actions. It should be noted that OMNR determines the significance of the non-compliances.

Table 3.2.1. Water quality and fish habitat Not In Compliance reports for the Defined Forest Area during 2005/2006.

Description of Non-compliance	Significance	Corrective Action
Iroquois Falls Forest: Logs used for temporary stream crossing were not removed prior to spring freshet.	Minor	Ongoing: Tembec (Lasarre) were not able to retrieve the logs because a loss frost resulting in heavy equipment not able to reach crossing to remove the logs. Logs were eventually removed via helicopter. OMNR recommended an administrative penalty.
Iroquois Falls Forest: Area of Concern slope dependent width (30 metres) not wide enough through water crossing ACO. West side 19 metres; East side 26 metres.	Minor	Closed: Tembec (Lasarre) will adopt Tembec Cochrane's operating procedure for layout. Layout will be handed in on a daily basis and signed off by Tembec Lasarre prior to any harvest. All reserve checks performed by the layout person will be documented for location and distance. OMNR determined incident as self corrected.
Iroquois Falls Forest: Road right-of-way width (15 metres) through Area of Concern exceeded at 19 metres. The feller buncher operator followed a single ribbon line placed through the AOC. The operator was expected to cut the right-of-way no wider than 15 metres.	Minor	Closed: Tembec (Lasarre) will adopt Tembec Cochrane's operating procedure for layout where ribbon will be placed on both sides of the right-of-way so machines will not harvest wider than 15 metres. A yellow stopper laid across the ROW with water crossing printed on both sides will be flagged along with the actual creek. OMNR determined incident as self corrected.
Iroquois Falls Forest: Road right-of-way width (15 metres) through Area of Concern measured at 2 locations 19 and 20 metres.	Minor	Closed: Tembec (Lasarre) will adopt Tembec Cochrane's operating procedure for layout. The sides of the AOC will be ribboned to keep the machine from harvesting too wide. OMNR determined incident as self corrected.
Iroquois Falls Forest: A 1500mm diameter culvert was used instead of a 1600mm pipe as prescribed in the AWS. Using professional judgement it was determined that a 1500mm pipe was sufficient and would not alter the flow of the stream.	Minor	Closed: Abitibi will ensure that the Operations Supervisors are aware of the AWS requirements for culvert installations with respect to size of culvert. Prior to any culvert installation, the AWS will be checked to verify that the size of culvert is correct for that location. OMNR accepts remedial actions and determined incident is self corrected.
Iroquois Falls Forest: Grubbing occurred within the AOC boundaries, due to miscommunication between worker and supervisor and also the inexperience of the bulldozer operator. The grubbing started approximately 3 feet away from the culvert.	Minor	Closed: Rehabilitation of the site consisted of placing spruce tops over the exposed area, removing the bulldozed debris from the waters edge, and was seeded. OMNR agreed that rehabilitation work achieved excellent results. OMNR issued a 'Notice of Warning' to Abitibi.
Nighthawk Forest: Aerial tending sprayed outside of approved area during 2004/05.	Moderate	Closed: Spray buffers were not identified on computer files that aerial spray pilots used. Pilots in the future will use aerial photographs in addition to the computer map files.
Nighthawk Forest: Sucker River Bridge Installation – During the construction of the south approach about 14 loads of sand and gravel slumped into the river.	Significant	Ongoing: Tembec stabilized banks and removed attainable slumped material. However the material used is washing into river – a wire mesh type material on top of the roadway but the slope is not fully stabilized.

**MANAGEMENT ACTIONS:**

Based on the achievement of 95% compliance for minor infractions, the target was not reached but attained the acceptable level. However, there was 1 moderate and 1 significant non-compliance which did not achieve the acceptable level for non-compliances. Two of the non-compliances are pending enforcement decision by the OMNR.

The Forest Management Group decided that the moderate and significant non-compliances were isolated and the corrective actions are all that is necessary to mitigate the incident and to ensure the non-compliances do not re-occur in the future.

The Forest Management Group felt that the majority of the minor non-compliances were related to the lack of harvest layout procedures used by Tembec Lasarre. The management group is confident that less infractions will occur with regard to harvest layout if Tembec Lasarre adopts Tembec Cochrane's standard operating procedures for harvest layout. Furthermore, the Abitibi annual indoctrination given to Tembec Lasarre will emphasize harvest line layout procedures.

**CRITERION:** 3. Conservation of Soil and Water Resources

**ELEMENT:** 3.2 Conserve water resources by maintaining water quality and quantity.

**VALUE:** Water quality and fisheries habitat.

**OBJECTIVE:** To minimize any possible adverse effects of forest practices on water quality.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>3.2.2 Status of water crossing installations.</b>	Repair or decommissioning of 3% of the water crossings over the 5-year planning periods.	Repair or decommissioning of 2% of the water crossings over the 5-year planning periods.

**MANAGEMENT STRATEGY:**

Water crossings will be monitored at a minimum every 3 years. An accurate inventory database for water crossings is kept to determine the priority for repair or decommissioning.

**MONITORING:**

Monitoring and reporting for this indicator will occur on an annual basis, resulting from compliance monitoring. At a minimum, each crossing will be monitored every 3 years to determine the status.

**IMPLEMENTATION:**

The 2003-2008 Nighthawk Forest FMP has implemented a schedule for decommissioning and/or repairing water crossings. Further, the Iroquois Falls Forest 2005-2010 FMP will schedule the repair and/or decommissioning of water crossing based on the inventory database. The Smooth Rock Falls Forest repair and decommissions will be tracked from 2002-2007. At the end of the 5-year terms the number of repairs and decommissions will be reviewed and adjusted, if necessary.

**2005/2006 STATUS:**

Forest	Number of Water Crossings	Number of Water Crossings Targeted	Number Repaired	Number Decommissioned	Total Number Repaired or Decommission	% Target Achieved
Iroquois Falls Forest (2005-2010)	533	16	2	3	5	31 %
Nighthawk Forest (2003-2008)	201	6	3 (1 added in 2005/06)	10	13	216%
Smooth Rock Falls Freehold (2002-2007)	100 *	3	0	2	2	67 %

\* Approximate estimate. Water crossing inventory analysis to be completed in 2007.

**MANAGEMENT ACTIONS:**

Management objective achieved for the Nighthawk Forest (during the first 2 years of the 5-year FMP) and on target for the Smooth Rock Falls Freehold and Iroquois Falls Forest. Continue to repair crossing installations and decommission roads.

**CRITERION:** 4. Forest Ecosystem Contributions To Global Ecological Cycles

**ELEMENT:** 4.1 Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems. Forest carbon has recently become a key SFM value, especially in view of Canada's international commitment to lower its net carbon outputs to the atmosphere.

**VALUE:** Healthy forest ecosystems, contributing to local and global ecological cycles.

**OBJECTIVE:** Ensure that fossil fuels are used efficiently on the DFA.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>4.1.1 Amount of fossil fuel consumption in forest management.</b>	Reduce fossil fuel consumption per cubic metre of wood harvested by 2% annually.	1% reduction in fossil fuel consumption annually.

**MANAGEMENT STRATEGY:**

In order to minimize fossil fuel consumption, forest operations will be conducted in a manner which reduces fuel requirements but maintains the same level of timber production. These measures will be implemented to ensure the forest remains healthy, and that carbon outputs to the atmosphere resulting from wildfire are minimized.

**MONITORING:**

Fuel consumed will be analyzed by the cubic metres of wood harvested. Fuel consumption will be monitored on 1/3 of the forest operations (Abitibi-Consolidated company harvest operations). Fuel consumption will then be extrapolated to the other operations on the DFA. It would be difficult to determine directly the fuel consumed by the contractors and overlapping licensees operating on Abitibi-Consolidated's Sustainable Forest Licenses due to proprietary reasons.

**IMPLEMENTATION:**

Monitoring commenced in 2004, and will be carried out on an annual basis. The results of the monitoring will be included in the Annual SFM Report.

**2005 and 2006 STATUS:**

The following is a sum of the total litres consumed by trucks (including wood and gravel haul) and harvest equipment as compared to the cubic metres hauled and harvested. It should be noted that Abitibi also hauls wood that is not harvested by the Abitibi operations.

**Fuel**

Year	Trucks			Harvest Equipment			Total Fuel Consumed (L / m <sup>3</sup> )
	Litres Consumed	Cubic Metres Hauled (m <sup>3</sup> )	Fuel Consumed by m <sup>3</sup>	Litres Consumed	Cubic Metres Harvested (m <sup>3</sup> )	Fuel Consumed by m <sup>3</sup>	
2005	1,527,073	428,099	3.57 L/m <sup>3</sup>	1,956,103	371,725	5.26 L/m <sup>3</sup>	<b>8.83 L/m<sup>3</sup></b>
2006	1,472,677	317,996	4.63 L/m <sup>3</sup>	1,853,691	311,736	5.95 L/m <sup>3</sup>	<b>10.53 L/m<sup>3</sup></b>

**Oil**

Year	Total Oil Consumed	Total Cubic Metres	Total Oil Consumed by total cubic metres
2005	97,620	3,483,176	<b>0.028</b>
2006	144,592	3,326,068	<b>0.043</b>

**MANAGEMENT ACTIONS:**

Prior to 2005 the cost to purchase fuel and oil was tracked within Abitibi's accounting system as a cost and not by litres consumed. However, a better measure to determine annual trends for consumption would be to track the litres of oil and fuel consumed. Starting January 2005, all fuels and oils were tracked for litres of consumption.

It appears that the fuel and oil consumption has increased with less volume cut in 2006 compared to 2005. Two reasons were suggested for the increase:

- 1) more road construction may have increased the fuel and oil consumption for 2006.
- 2) more floating of equipment due to smaller block sizes

Continuous Improvement: An idling policy regarding shutting off vehicles and machinery when not in use was implemented in 2005. In 2006, the idling policy was strengthened to specify the temperature at which vehicles and machinery are allowed to idle when not operating. The idling time was reduced from 33% in 2005 to 28% in 2006. In addition, the installation of Espar heaters (provide heat to cab when vehicle is not running) within Abitibi's log haul trucks and certain machines will also help reduce idling time under colder conditions. Idling reminder stickers were also created and placed in equipment and vehicles.

Continue to monitor trend.

**CRITERION:** 4. Forest Ecosystem Contributions To Global Ecological Cycles

**ELEMENT:** 4.1 Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems. Forest carbon has recently become a key SFM value, especially in view of Canada’s international commitment to lower its net carbon outputs to the atmosphere.

**VALUE:** Healthy forest ecosystems, contributing to local and global ecological cycles.

**OBJECTIVE:** Ensure that the forest continues to contribute to the global carbon budget through carbon sequestering.

INDICATOR	TARGET	ACCEPTABLE LEVEL
4.1.2 The DFA should have a positive contribution to global ecological cycles, by removing CO2 from the atmosphere and storing it in the forest.	The DFA net canopy carbon assimilation will remain positive (i.e. act as a carbon sink).	Based on a carbon budget model applicable at the management unit level, values will remain positive (i.e. forest should act as a carbon sink).

**MANAGEMENT STRATEGY:**

In order to ensure that the DFA acts as a carbon sink, forest operations will be conducted in a manner which maintains site productivity, and the overall managed Crown forest area available for timber production. To classify a forest as a Carbon Sink, the forest must be able to remove and store more carbon (biomass/trees and dead organic matter), than is flowing to the atmosphere (i.e. lakes, forests or soils), through physical or biological processes, such as photosynthesis and removed due to harvesting. Humans are trying to increase carbon sinks by growing new forests. Forest protection measures will be implemented to ensure the forest remains healthy, and that carbon outputs to the atmosphere resulting from wildfire are minimized.

**MONITORING:**

Changes in carbon flux will be measured between successive 5-year FMP terms. The carbon budget model will be applied to the DFA to determine impacts of forest management on carbon sequestering. Projections will be made using the Strategic Forest Management Model (SFMM).

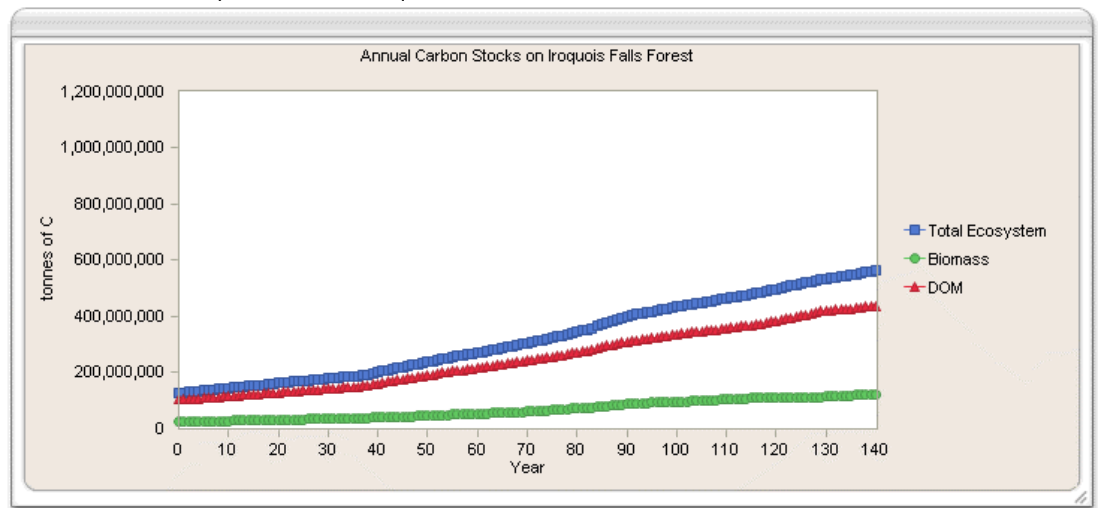
**IMPLEMENTATION:**

Currently, the Net Primary Productivity levels are calculated by the MNR by using the Regional Hydro Ecological Simulation System (Table FMP-6). This model is very crude and regionalized. The new model developed by the Model Forest Network was tested in November, 2003 on the Iroquois Falls Forest and is anticipated to be a more accurate measure of carbon flux in the environment and will replace the Net Primary Productivity model.

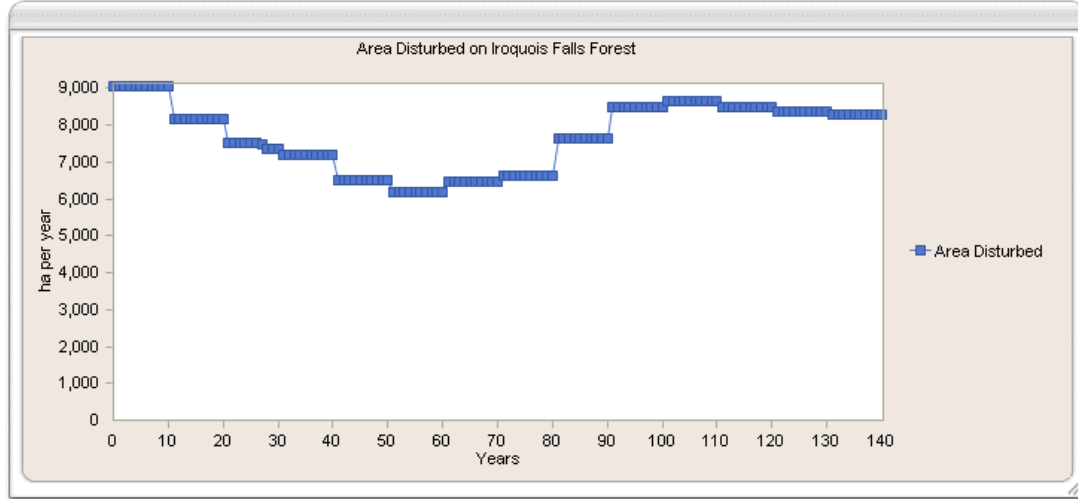
**2005/2006 STATUS:**

A new carbon budget model (CBM-CFS3 Beta) was developed by the Model Forest Network (Canadian Forest Service) and was showcased at a Model Forest meeting in June, 2003. The Operational-Scale Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) Version 1.0: User’s Guide has been published and is available for free download at the Canadian Forest Service Online Bookstore ([http://bookstore.cfs.nrcan.gc.ca/detail\\_e.php?recid=12586097](http://bookstore.cfs.nrcan.gc.ca/detail_e.php?recid=12586097)). The carbon budget model was applied to the Iroquois Falls Forest in the fall of 2004 using the 2000-2005 SFMM runs (see 3 graphs below – 4.1.2 A,B,C). It should be noted that the numbers used in the carbon model are based on a 100-year rotation scenario and thus the predicted numbers after 100-years are not reliable.

**Figure 4.1.2 A. Predicted carbon stocks without disturbance over 140 years.** Biomass = trees, shrubs, litter above ground; DOM (Dead Organic Matter) = below ground biomass turnover; Total Ecosystem = Biomass + DOM  
The carbon model predicts that the Biomass and DOM increases slightly over time. Soil is a greater carbon pool than are trees. In accordance with this prediction, the Iroquois Falls Forest will increase over time as a carbon sink if left undisturbed.

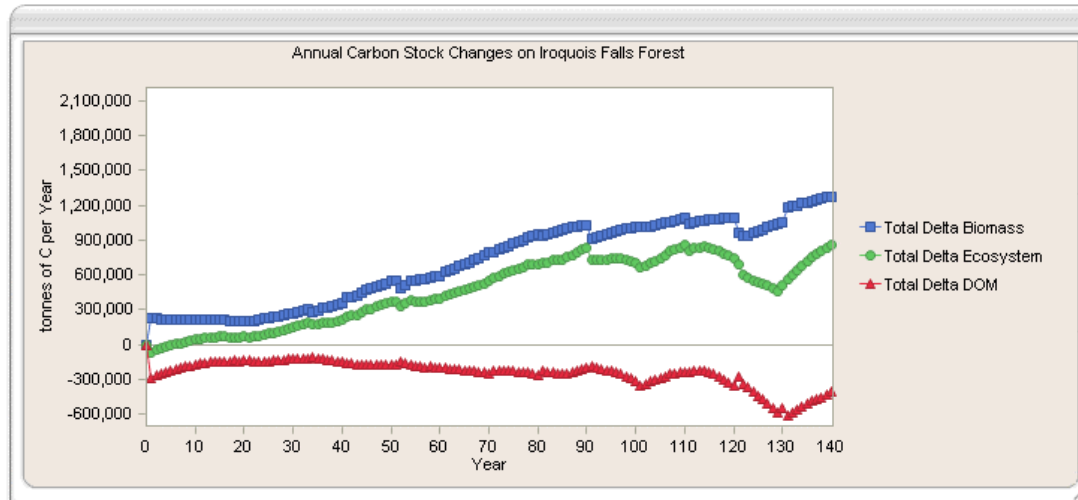


**Figure 4.1.2 B. Predicted area disturbed (harvest) over 140 years according to SFMM.**



**Figure 4.1.2 C. Predicted carbon stocks with disturbance (harvesting) over 140 years.**

The Iroquois Falls Forest appears to be a carbon sink over time. The Total Ecosystem is positive except for the first 5 years which denotes that the ecosystem is a carbon source. It should be noted that DOM is at a negative level over time because the majority of the current forest is old and well beyond the 100 year rotation cycle resulting in younger forests (shorter rotation after harvest), but act as a greater carbon sink. Overall, an increased carbon sink (Total Ecosystem) is realized over time.



**MANAGEMENT ACTIONS:**

We only are presenting the results of the predictions made by the carbon model based on the 1999 Forest Resource Inventory for the Iroquois Falls Forest 2000-2005 Forest Management Plan SFMM results. It is difficult to control the inputs of this model because Abitibi does not have the software nor the expertise to translate SFMM data to fit the carbon model. Therefore, we will pursue further investigation on the Nighthawk Forest and the Smooth Rock Falls Freehold with regard to carbon sequestration if the OMNR adopts this model. A training workshop was completed January, 2006 in Victoria, B.C. for those who will be implementing the model.

We feel confident that the model will also predict that the DFA functions as are carbon sink as predicted by the Iroquois Falls Forest.

**CRITERION:** 4. Forest Ecosystem Contributions To Global Ecological Cycles

**ELEMENT:** 4.2 Protect forestlands from deforestation or conversion to non-forest lands.

**VALUE:** Maintain the forested area of the DFA.

**OBJECTIVE:** To minimize the conversion of managed forest to non-forested land.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>4.2.1 Non-forested area (ha) - roads, landings and gravel pits.</b>	The total non-forested managed forest area on the DFA will remain less than 1% (14,199 ha) of the total managed forest area over the next 100 years.	The total non-forested managed area on the DFA will remain less than 1.5% (21,299 ha) of the total managed forest area over the next 100 years.

**MANAGEMENT STRATEGY:**

The conversion of forested managed forest to non-forested managed forest (i.e. roads, landings, gravel pits) should be minimized. Roads and landings within harvest areas and aggregate pits will be regenerated to the fullest extent possible. Regenerating areas (i.e. areas not sufficiently regenerated within the time frames specified in the Silvicultural Ground Rules; see definition in Indicator 2.2.3) are not considered to be non-forested lands in the context of this indicator.

**MONITORING:**

The Forest Resources Inventory (FRI) will be updated annually. Depletion areas (harvest and natural) and areas declared Free-To-Grow (see indicator 2.2.2 for definition) will be identified according to the monitoring and reporting requirements of the Forest Management Planning Manual for Ontario's Crown Forests (2004). In all future forest management plans, the non-forested area associated with roads and landings will be summarized in Table FMP-1, and an analysis of target achievement will be conducted every five years, consistent with the forest management planning cycle in Ontario.

**IMPLEMENTATION:**

The non-forested area associated with roads and landings are included in the SFMM model outputs for the FMPs. The 2000, 2003 and 2002 levels will serve as a benchmark for future levels for the Iroquois Falls, Nighthawk Forests and Smooth Rock Falls Freehold, respectively.

**2005/2006 STATUS:**

Currently the non-forested lands for the DFA are 12,613 hectares (Table 4.2.1) which is below the 1% target set. The non-forested area is expected to rise to 18,485 hectares over the long-term (50 years into the future). Therefore, it is the long-term trend that will determine if the target has been achieved.

Table 4.2.1. Non-forested area (hectares) on the DFA

Iroquois Falls Forest (2005 FMP)	Nighthawk Forest (2003 FMP)	Smooth Rock Falls Freehold (2002 FMP)	Total	% of Target
7500 hectares	4997 hectares	116 hectares	12613 hectares	88.8 %

The non-forested area was assessed during the preparation of the Forest Management Plans. This indicator will be assessed during the preparation of each Forest Management Plan (Iroquois Falls Forest – 2010, Nighthawk Forest – 2008 and Smooth Rock Falls Freehold – 2012).

**MANAGEMENT ACTIONS:**

No further actions required at this time.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.1 Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

**VALUE:** To supply industrial wood needs, while maintaining forest sustainability.

**OBJECTIVE:** To provide a continuous, predictable and sustainable supply of timber, in compliance with all applicable legislation, regulations, and guidelines.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.1.1 Long-Term Wood Supply: Volume Available by Species Group versus MNR benchmark (% achievement of MNR volume benchmark to mills from forest) during critical supply periods.</b>	Minimize long-term wood supply shortfalls during critical supply periods (41-60 years in the future). The annual timber production targets for the DFA are *721 Mm <sup>3</sup> of conifer and **283 Mm <sup>3</sup> of Hardwood.	Selected management alternative should minimize supply gaps during the critical supply period. Strategic Forest Management Model (SFMM) forecasted volumes should reach 80% of MNR target volumes during the critical supply period (years 2034-2053).

\* 520m<sup>3</sup> Iroquois Falls Forest (2005-2010), 180m<sup>3</sup> Nighthawk Forest (2003-2008), 21m<sup>3</sup> Smooth Rock Falls Freehold (2002-2012)

\*\* 176m<sup>3</sup> Iroquois Falls Forest (2005-2010), 104m<sup>3</sup> Nighthawk Forest (2003-2008), 3m<sup>3</sup> Smooth Rock Falls Freehold (2002-2012)

#### MANAGEMENT STRATEGY:

As identified in the FMPs, critical supply periods are being addressed by silvicultural management of plantations. Long-term wood supply strategies may include increased levels of pre-commercial thinning/manual cleaning, commercial thinning during critical supply periods, harvesting within riparian areas, using mitigation measures associated with the Ontario Forest Accord (MNR, 1999), and salvaging damaged timber in natural disturbance areas to the fullest extent possible.

During SFMM (Strategic Forest Management Model) development for the selected management alternative, a variety of management constraints were applied to the model in order to minimize supply gaps during critical supply periods (31-50 years in future).

#### MONITORING:

Monitoring and Reporting on this indicator will occur every five years, when forecasts of SFMM available harvest volumes will be used to assess the sustainability of management alternatives included in the plan. The long-term sustainable supply of timber was a highly ranked indicator during the public consultation process associated with the FMPs.

#### IMPLEMENTATION:

The wood supply during critical supply gaps was forecast during the preparation of the Forest Management Plans. This indicator will be assessed every five years, during the preparation of each Forest Management Plan.

#### 2005/2006 STATUS:

Currently the critical supply lies between 16-35 years for conifer (Table 5.1.1).

**Table 5.1.1 Forecast of Long-Term Wood Supply During the Critical Supply Period.**

Species Group	Target Volume (Mm <sup>3</sup> )	SFMM Forecast Volume (Mm <sup>3</sup> )					% Achievement of MNR Volume Commitments				
		16-25 Years	26-35 Years	36-45 Years	46-55 Years	56-65 Years	16-25 Years	26-35 Years	36-45 Years	46-55 Years	56-65 Years
Conifer	721	619	610	626	664	723	86%	85%	87%	92%	100%
Hardwood	283	260	254	277	309	352	92%	90%	98%	109%	124%

The non-forested area was assessed during the preparation of the Forest Management Plans. This indicator will be assessed during the preparation of each Forest Management Plan (Iroquois Falls Forest – 2010, Nighthawk Forest – 2008 and Smooth Rock Falls Freehold – 2012) but is based on a benchmark set in 2004.

#### MANAGEMENT ACTIONS:

Forecast total timber volumes are greater than 80% of MNR target volumes with the most critical being between 16 to 35 years into the future for conifer and hardwood.

Management objective achieved; no further actions required at this time.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.1 Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

**VALUE:** To supply industrial wood needs, while maintaining forest sustainability.

**OBJECTIVE:** To provide a continuous, predictable and sustainable supply of timber, in compliance with all applicable legislation, regulations, and guidelines.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.1.2 Planned (predicted) vs. Actual (observed) Depletion Area (% of available harvest Area actually utilized).</b>	Harvest total annual planned harvest area.	For the 5-year term, the actual average harvest area will be at least 85% of the planned harvest area (average annual harvest area of 8,365 ha).

**MANAGEMENT STRATEGY:**

A comparison between the Available Harvest Area and the Actual Depletion Area will be conducted according to the requirements of the Forest Management Planning Manual for Ontario's Crown Forests (FMPM).

**MONITORING:**

Monitoring will be carried out annually through the FRI update process. Actual depletion area will be reported annually in Annual Report Table AR-1. Predicted depletion area is obtained from FMP-22. A five year summary of the actual area harvested during the 5-year terms will be included in the Report of Past Forest Operations (RPFO-2).

**IMPLEMENTATION:**

Monitoring and reporting of actual depletion areas will commence in 2004. In the comparison of the 5-year depletion areas to previous plan terms, the comparison will be made strictly in terms of total depletion area, since forest unit definitions have evolved over time. Comparisons of future depletion levels (from 2004 forward) will also be made on a forest unit basis.

**2005/2006 STATUS:**

Planned and actual depletion area for the Iroquois Falls Forest, Nighthawk Forest and Smooth Rock Falls Freehold:

Forest	Years Completed of FMP Plan	Predicted Depletion Area	Actual Depleted Area	% Actual Depletion	% Predicted Depletion	% On Target
Iroquois Falls Forest (2005-2010)	1 of 5	39,148 ha (over 5 years)	5,493 ha	14 %	20 %	70 %
Nighthawk Forest (2003-2008)	3 of 5	14,076 ha (over 5 years)	6,520 ha	46 %	60 %	77 %
Smooth Rock Falls Freehold (2002-2012)	4 of 10	3,961 ha (over 10 years)	784 ha	20 %	40 %	50 %

**MANAGEMENT ACTIONS:**

The Iroquois Falls Forest during the 1<sup>st</sup> year of the plan achieved 70 % of the predicted 7,830 ha because of the following reasons:

- 1) lower demand for poplar volumes by local mills – production down (43% of the target)
- 2) conifer production down (83 % of the target)
- 3) wood to be hauled during next fiscal year (32,500 m<sup>3</sup>)

Management objective and target achieved is below the 85% target for the Nighthawk Forest (during the first 3 years of the 5-year FMP) due to the low volumes harvested during the 2003/04 fiscal year. Overall, the acceptable level has not been achieved for the Nighthawk but this may change in the final 2 years of the FMP. Continue to monitor.

The target for the Smooth Rock Falls Freehold area depleted is below the 85% target during first 4 years of the 10-year FMP. During the first year of the plan only 46 hectares were cut due to the areas planned to be harvested not having the merchantable size anticipated by the contractors from the forest inventory mapping. A different contractor may revisit the areas that were bypassed for harvest in the future. During 2005/06 the planned harvest was not carried out due to weather conditions preventing access to the operating area.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.1 Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.

**VALUE:** To supply industrial wood needs, while maintaining forest sustainability.

**OBJECTIVE:** To provide a continuous, predictable and sustainable supply of timber, in compliance with all applicable legislation, regulations, and guidelines.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.1.3 Compliance with Wood Utilization/Wasteful Practices will be in accordance with the scaling manual.</b>	Forest operations will be carried out on all harvest areas in a manner consistent with the legislative requirements concerning wood utilization/wasteful practices. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP wood utilization/wasteful practices inspections with minor non-compliance during the 5-year terms. No FOIP inspections with moderate to significant non-compliance.

#### MANAGEMENT STRATEGY:

In order to ensure that forest operations have a minimum impact on wood supply, wood utilization/wasteful practices will be evaluated according to the requirements of the Compliance Plans. FOIP inspections will be carried out in specific blocks, according to Annual Compliance Plans. Abitibi-Consolidated is currently using a Compliance Inspection Checklist in their Forest Environmental Management System to better quantify wood utilization in harvest areas. Wasteful Practices and Wood utilization standards are defined in the Scaling Manual (MNR, 1995) and the Compliance Plans for the DFA.

#### MONITORING:

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans for the DFA (included in each Annual Work Schedule). The Annual Compliance Plans includes a requirement to monitor wood utilization/wasteful practices within harvest areas.

Monitoring and Reporting on this indicator will occur on an annual basis. The results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12. A 5-year summary for the terms will also be included in the Report of Past Forest Operations (Table RPFO-12: separate breakdown for Wood Utilization/Wasteful Practices). Table AR-12 will be included in the Annual SFM Report. Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports

#### IMPLEMENTATION:

Compliance monitoring for this indicator will continue to be carried out annually by certified compliance inspectors.

#### 2005/2006 STATUS:

A total of 100 harvest inspections were conducted to assess compliance with wood utilization/wasteful practices. Three non-compliances were identified during the course of these inspections (97% compliance). OMNR rated all 3 non-compliances as minor. Table 5.1.3 summarizes the non-compliances and the associated corrective actions.

Table 5.1.3. Wood Utilization/Wasteful Practices Not In Compliance reports for the Defined Forest Area during 2005/2006.

Description of Non-compliance	Significance	Corrective Action
Nighthawk Forest: Scaled wood stranded beyond bridge removal. Approximately 200 tree length spruce.	Minor	Ongoing: Wood left resulted from small roadside piles obscured by heavy snows missed by haul contractor and compliance inspectors. Tembec is currently drafting a procedure for dealing with small piles (marking piles, re-skidding) to ensure that the issue is addressed. An administrative penalty will be issued by OMNR.
Iroquois Falls Forest (South): Merchantable timber left at roadside – ½ load of conifer, 1 ½ load of birch, 20 pieces of poplar and 3 loads of cedar.	Minor	Ongoing: Tembec will not move wood on site due to legal implications associated with the wood.
Iroquois Falls Forest (South): Merchantable timber of any length left at roadside	Minor	Closed: Tembec will not act on the utilization issue because it is not feasible for them to retrieve the timber. Tembec has indicated that this is part of normal operations and will not return to pick up the wood. An administrative penalty was issued by the OMNR.

#### MANAGEMENT ACTIONS:

Management objective was achieved (< 5% minor non-compliances) however the target was missed.

Abitibi held meetings with Tembec and OMNR stressing the importance of removing harvested wood. Abitibi was assured from Tembec representatives that this would be more closely monitored. Results of this management action will not be realized until the compliance inspection flights are conducted for the 2006/07 operating season.

<b>CRITERION:</b>	5. Multiple Benefits to Society
<b>ELEMENT:</b>	5.1 Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.
<b>VALUE:</b>	Multiple-use of the forest, including the consideration of cultural values, recreational uses, tourism, and other non-timber resources.
<b>OBJECTIVE:</b>	Forestry operations will be planned and implemented in a manner that considers the diversity of social, cultural, and environmental values present in the forest, in order to provide all users and citizens with the opportunity to benefit from the forest

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.1.4 Compliance with Area of Concern (AOC) prescriptions for the protection of cultural, recreational, tourism, and other non-timber resource uses.</b>	Forest practices on all sites must minimize adverse effects on cultural, recreational, tourism, and other non-timber resources. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP inspections pertaining to AOCs for non-timber uses of the forest with minor non-compliance. No FOIP inspections with moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**

Management strategies are included in the FMPs, to minimize conflicts with other resource users. Strategies for road use management, conflicts with trappers, forest operations adjacent to Parks, and for other social issues are included in the FMPs. Specific Area of Concern prescriptions were developed for the protection of these values, as part of the Area of Concern planning process required in the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). Compliance with AOC prescriptions for cultural, recreational, tourism, and other non-timber resource uses will be monitored throughout the plan term.

**MONITORING:**

Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plans for the DFA (included in each Annual Work Schedule). The Annual Compliance Plans includes a requirement to monitor inspect all AOC prescriptions associated with cultural, recreational, tourism, and other non-timber resource values on the DFA. The results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12, and Report of Past Forest Operations Table RPFO-12 (separate breakdown for protection multiple-use values). Table AR-12 will be included in the Annual SFM Report. Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual and 5-year SFM reports.

**IMPLEMENTATION:**

Compliance monitoring for this indicator will continue to be carried out annually by certified compliance inspectors.

**2005/2006 STATUS:**

A total of 100 harvest inspections were conducted to assess compliance with Area of Concern prescriptions for the protection of cultural, recreational, tourism, and other non-timber resource uses. Two non-compliances were identified during the course of these inspections (98% compliance). OMNR rated the two non-compliances as minor. Table 5.1.4 summarizes the non-compliances and the associated corrective actions.

Table 5.1.4. Area of Concern prescriptions for the protection of cultural, recreational, tourism, and other non-timber resource uses Not In Compliance reports for the Defined Forest Area during 2005/2006.

Description of Non-compliance	Significance	Corrective Action
Nighthawk Forest: Area was mechanically site prepared outside the approved 2005/06 AWS area. The size of the disturbance was 750 metres of disk trenching (0.075 ha) within a 100 metre wide cultural heritage AOC where no ground disturbance is permitted.	Minor	Ongoing: The ribbon line was well flagged by Abitibi personnel. Operations happened during the day with good visibility, the operator had been told by Abitibi to stay outside of the flagged area, therefore the root cause was human error.
Nighthawk Forest: Moose aquatic AOC (120 metres) was not laid out properly – 2 locations measured at 85 & 105 metres.	Minor	Closed: Grant Forest Products line runner was retrained on Grant's and Abitibi's operating procedure for layout. OMNR issued warning.

**MANAGEMENT ACTIONS:**

Management objective was achieved (< 5% minor non-compliances) however the target was missed. OMNR penalties will be completed and paid by the contractor.

- CRITERION:** 5. Multiple Benefits to Society
- ELEMENT:** 5.1 Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits.
- VALUE:** Multiple-use of the forest, including the consideration of cultural values, recreational uses, tourism, and other non-timber resources.
- OBJECTIVE:** Forestry operations will be planned and implemented in a manner that considers the diversity of social, cultural, and environmental values present on the forest, in order to provide all users and citizens with the opportunity to benefit from the forest.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.1.5 Number of Resource Stewardship Agreements (RSAs) established on the DFA.</b>	Abitibi-Consolidated will establish RSAs with all of the Resource-Based Tourism (RBT) Operators on the DFA.	The company will establish RSAs with all RBT Operators who choose to enter into the RSA negotiation process.

**MANAGEMENT STRATEGY:**

All RBT Operators will be provided an opportunity to negotiate an RSA with Abitibi-Consolidated, in accordance with the Guide to Resource Stewardship Agreements and the Tourism and Forest Industry Memorandum of Understanding. In a RSA, the two businesses agree on aspects of resource use affecting both parties (e.g. recognized tourism values, forest management prescriptions to protect tourism values, road use management strategies) that will be proposed in upcoming forest management plans. All proposals will be subjected to public review and MNR approval.

**MONITORING:**

The total number of signed RSAs on the DFA will be reported in the Annual SFM Report. The report will include a breakdown of the number of signed RSAs, the number being currently negotiated, and the number of RBT Operators who are unwilling to negotiate an RSA. The names of individual RBT Operators will not be included in the report.

**IMPLEMENTATION:**

Reporting for this indicator will commence in the first Annual SFM Report.

**2005/2006 STATUS:**

Abitibi sent letters to all 18 Resources Tourist Operators, requesting them to indicate their interest in negotiating an RSA for the 2008-2018 Nighthawk Falls Forest FMP. A total of 8 expressed interest in RSAs, whereas 7 did not respond and 3 were not interested. November 7, 2005 Resource Stewardship Agreement Initiation letters were sent to the Tourist Outfitters that expressed interest. None of the agreements have been signed. However, there is indication that 2 will extend the terms of the 2003 agreement.

Abitibi sent letters to all 9 Resources Tourist Operators, requesting them to indicate their interest in negotiating an RSA for the 2005-2010 Iroquois Falls Forest FMP. A total of 5 expressed an interest in RSAs. Four joint meetings were held between fall 2003 and spring 2004. These meetings included the interested Tourist Operators and the NOTO (Northern Ontario Tourist Outfitters) representative assigned to the Iroquois Falls Forest. The initial meeting also included representatives from Cochrane OMNR. Draft RSAs were prepared and submitted to each of the five Tourist Outfitters during the fall of 2004. None of the agreements have been signed but the conditions within are being met to the satisfaction of all 5 Resource Tourist Operators. In addition, it should be noted that the conditions in the agreements also follow the Cochrane District Remote Tourism Strategy.

**MANAGEMENT ACTIONS:**

Abitibi will contact RSA stakeholders before writing the 2010 Iroquois Falls Forest Management Plan.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.2 Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and to participate in their use and management.

**VALUE:** The long-term viability of local forest-based communities and businesses.

**OBJECTIVE:** To continue to provide opportunities for local employment, including Aboriginal communities, in resource sectors that are dependent on the use of forest resources.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.2.1 Employment levels in the forest industry and service sector.</b>	To help increase employment levels in local resource-based communities.	To help maintain employment levels in local resource-based communities.

**MANAGEMENT STRATEGY:**

The Socio-Economic Impact Model (SEIM) was used to assess the impact of each management alternative included in the FMPs on employment levels in the forest industry and the service sector during the plan terms. Employment levels was an indicator used in the assessment of plan objective achievement. The Socio-Economic analysis was conducted by the Ministry of Natural Resources, and the analysis results are found in Appendix 2 and 3 (Iroquois Falls Forest and Nighthawk Forest). No SEIM analysis was possible for the Smooth Rock Falls Freehold FMP since the plan is for private land and the SEIM modeling is only done by MNR for proprietary reasons and the complexity of the modeling.

**MONITORING:**

The SEIM analysis will be conducted every five years, during the preparation of each successive forest management plan.

**IMPLEMENTATION:**

The forecast of employment levels was completed during the assessment of management alternatives for the FMPs. Forecasts will be completed with each successive forest management plan.

**2005/2006 STATUS:**

A new analysis was done for the 2005-2010 Iroquois Falls FMP. Based on the assessment of the 2001 Canada Statistics 2,525 were employed in the forest and service sector on the Iroquois Falls Forest. This number will serve as the benchmark for the Iroquois Falls Forest as a comparison for the 2006 Canada Statistics report.

A new analysis was done for the 2008-2018 Nighthawk FMP. Based on the assessment of the 2001 Canada Statistics 2,730 were employed in the forest and service sector on the Nighthawk Forest. This number will serve as the benchmark for the Nighthawk Forest as a comparison for the 2006 Canada Statistics report.

**MANAGEMENT ACTIONS:**

Continue to monitor.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.3 Promote the fair distribution of timber and non-timber benefits and costs.

**VALUE:** Crown stumpage revenues.

**OBJECTIVE:** To generate stumpage revenues for the provincial government, for the benefit of the citizens of Ontario.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.3.1 Planned vs. Actual Crown Stumpage Revenues on the DFA.</b>	The forecasted annual Crown stumpage revenues from the DFA are \$6,693,000.	For the 5-year terms, actual Crown stumpage revenues will be at least 85% of the planned levels.

#### MANAGEMENT STRATEGY

Crown stumpage revenues will be dependent on actual harvest levels during the current FMP terms. The forecast revenues are based on the planned harvest area being fully utilized, and the local mills and licensees operating at full capacity. Wood utilization/wasteful practices will be monitored according to the requirements of the Compliance Plans. Natural disturbance areas will also be salvaged to the fullest extent possible.

#### MONITORING

Forecasted stumpage revenues were provided in Table FMP-27 of the FMPs. Actual revenues and expenditures will be reported annually through Annual Report Table AR-11, and a five-year summary report will be provided through the Report of Past Forest Operations (RPFO-11).

#### IMPLEMENTATION

Forecasted revenues and expenditures is provided in Table FMP-27 of the FMPs. Actual levels will be monitored and reported annually.

#### 2005/2006 STATUS

Planned and actual crown stumpage revenues on the Iroquois Falls Forest and Nighthawk Forest:

Forest	Years Completed of FMP	Actual Harvest Volume (m <sup>3</sup> )	Planned Harvest Volume (m <sup>3</sup> ) per year	% of Predicted harvest Volume	Planned Annual Stumpage Revenues per year	Actual Annual Stumpage Revenues	% Actual Revenues (annually)	Stumpage Revenues % on Target
Iroquois Falls Forest	2005/06	545,598	3,764,937 / 5 = 752, 987	72 %	\$ 23,300,000 / 5 = \$ 4,660,000 / year	\$ 2,153,000	46%	9 % (1 year)
Nighthawk Forest	2003/04 2004/05 2005/06	200,760 348,915 282,968	1,452,210 / 5 = 290,442	69 % 120 % 97 %	\$ 10,165,000 / 5 = \$ 2,033,000 / year	\$ 1,349,000 \$ 2,210,000 \$ 1,195,000	66% 109% 59%	47 % (3 years)

#### MANAGEMENT ACTIONS

This indicator is difficult to predict over the 5-year term because stumpage rates are adjusted frequently based on market conditions and is also dependant on the species harvested and the products made from each species. The original numbers predicted in the SFM Plan (2004-2009) were higher than the adjustment made to the new Iroquois Falls FMP (2005-2010). The annual predicted stumpage revenues for the DFA has decreased to \$6,693,050 (adjusted for the Iroquois Falls 2000-2005 FMP) from \$8,754,000 (benchmark of the Iroquois Falls 2000-2005 FMP).

Less than 50% (9 of 20%) of the stumpage revenues were generated on the Iroquois Falls Forest during the first year of the five-year term due to:

- 4) lower demand for poplar volumes by local mills – production down (43% of the target)
- 5) poplar stumpage rates have declined dramatically since the FMP was written
- 6) conifer production down (83 % of the target)
- 7) 10% undersize utilized – no crown stumpage
- 8) wood to be hauled during next fiscal year (32,500 m<sup>3</sup>)

Management objective slightly off target (47 of 60%) for the Nighthawk Forest due to the low volumes harvested during the 2003/04 fiscal year. Lower than expected stumpage revenues were realized during 2005/06 because 97,000m<sup>3</sup> of the 276,000m<sup>3</sup> (35% of the volume) was salvaged Poplar (tent caterpillar infestation) which generates approximately 50% of the normal stumpage revenues. Overall, the acceptable level has not been achieved for the Nighthawk but this may change in the final 2 years of the FMP.

Continue to monitor.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.3 Promote the fair distribution of timber and non-timber benefits and costs.

**VALUE:** Access to the DFA for multiple-use purposes.

**OBJECTIVE:** To plan and implement the construction of forest access roads in a manner that considers the diversity of social, cultural, and environmental values present on the forest, in order to provide all users and citizens with the opportunity to benefit from the forest.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.3.2 Amount (km) of roads available for public use.</b>	For the 5-year terms, actual road construction will be equal to the planned levels.	For the 5-year terms, actual road construction will be at least 90% of the planned levels.

**MANAGEMENT STRATEGY:**

Roads are generally open to public travel except where they may have effects on remote tourism or fisheries values. Roads must be constructed according to the Environmental Guidelines for the Construction of Access Roads and Water Crossings (MNR, 1988) to minimize effects on water quality. For each new primary and secondary road, a detailed analysis was conducted to evaluate factors such as the physical constraints, conflicts with other users, and engineering or safety factors, associated with each road. Where practical, alternative corridor locations were identified, and evaluated in terms of the advantages and disadvantages of the corridor for forest operations and non-timber values. Use management strategies were also developed for each alternative, along with an estimate of the costs. This analysis is found in the Roads Documentation section of the Supplementary Documentation 8 (Iroquois Falls Forest), Supplementary Documentation 9 (Nighthawk Forest) and Section 4.5.1 (Smooth Rock Falls Freehold) for the FMPs.

**MONITORING:**

The Company, on an annual basis, will carry out monitoring and reporting of road construction. Road construction will be measured using GPS units and Supplemental Aerial Photography, and achievements will be reported in Annual Report Table AR-10. A five-year summary will be provided in the Report of Past Forest Operations in Table RPFO-10. Annual achievements will be reported in the Annual SFM Report.

**IMPLEMENTATION:**

Forecasted road construction is provided in Table FMP-26 of the FMPs. Actual annual achievements will be monitored and reported on commencing in 2004/05, according to the requirements of the FMPM.

**2005/2006 STATUS:**

Table 5.3.2. Planned and actual primary/secondary road construction for the Iroquois Falls Forest and Nighthawk Forest:

Forest	Years Completed of FMP	Total Planned Road Construction	Total Actual Road Construction	Total % of Road Constructed by Term Years	% On Target
Iroquois Falls Forest (2005-2010)	1 of 5	192.9	27.3	14 %	70 %
Nighthawk Forest (2003-2008)	3 of 5	38.8	10	26 %	43 %
DFA		231.7		25%	62 %

No new primary or secondary roads are planned for construction during the term of the Smooth Rock Falls Freehold.

**MANAGEMENT ACTIONS:**

Each forest will now be tracked separately to determine if the planned primary and secondary roads are on target for construction. Target numbers (amount of primary and secondary road planned for construction) in the SFM Plan (2004-2009) should have been to only state the target and acceptable threshold levels.

Management objective and target not achieved for the Iroquois Falls and Nighthawk Forest (< 90%). This is not of concern because road construction is dependent on where the operations have occurred (i.e. use of existing roads not requiring new road construction). Continue to monitor.

**CRITERION:** 5. Multiple Benefits to Society

**ELEMENT:** 5.3 Promote the fair distribution of timber and non-timber benefits and costs.

**VALUE:** Financial benefits and/or energy savings to citizens of Ontario.

**OBJECTIVE:** Provide for other forest users so that they may continue to derive specific benefits from the forest

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>5.3.3 Volume (m<sup>3</sup>) of fuelwood harvested for personal use.</b>	Forest practices on all sites will provide opportunity for fuelwood harvesters.	Track trends over time for the amount of fuelwood being harvested.

**MANAGEMENT STRATEGY:**

The FMPs promote opportunities for the utilization of currently under-utilized species (e.g. white birch, balsam poplar and larch). Wherever feasible as outlined in "Towards Resolving Utilization Issues A Process to Manage Unutilized Fibre (MNR, 1999). In the current FMPs cedar, larch and balsam poplar is expected to be under-utilized as there are no consistent markets. Only a portion of the white birch is expected to be under-utilized as Grant Forest Products has been utilizing this species. The company has provided a generic overlapping agreement for firewood that the MNR can issue to people applying for personal use fuelwood permits.

**MONITORING:**

The total volume of personal use fuelwood is provided annually in AR-5. No permits have ever been requested or issued on the Smooth Rock Falls Freehold.

**IMPLEMENTATION:**

Reporting for this indicator will commence in the 2004/2005 Annual SFM Report.

**2005/2006 STATUS:**

Forest	Years Completed of FMP	Volume cubic metres (m <sup>3</sup> ) of fuelwood harvested	Annual Average (m <sup>3</sup> )
Iroquois Falls Forest (2005-2010)	2005/06	1,192	1,192
Nighthawk Forest (2003-2008)	2003/04 2004/05 2005/06	1,086 1,745 4,739	2,523
Smooth Rock Falls Freehold	2002-2006	0	0
DFA Total			2,191

Iroquois Falls Forest 2000-2005	5 of 5	4,824	965
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**MANAGEMENT ACTIONS:**

The annual average volume (m<sup>3</sup>) reported for each of the forests in this report will serve as the benchmark for future SFM Annual reports. The amount of fuel harvested jumped dramatically in 2005/06 on the Nighthawk Forest because of the increase of wood required by the Cut Right fuel wood business venture based in Timmins.

Continue to monitor trend.

**CRITERION:** 6. Accepting Society's Responsibility For Sustainable Development

**ELEMENT:** 6.1 Recognize and respect Aboriginal and treaty rights.

**VALUE:** Non-abrogation of Aboriginal and treaty rights.

**OBJECTIVE:** Consideration of Aboriginal and treaty rights as related to forest management - continued involvement from Aboriginal communities in the planning process.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.1.1 Percent of Aboriginal communities in or adjacent to the management unit involved in the Forest Management Consultation Process.</b>	Abitibi-Consolidated will continue to seek involvement from all Aboriginal communities associated with the DFA in the planning process.	No variation is acceptable - involvement from Aboriginal Communities will always be sought.

**MANAGEMENT STRATEGY:**

The Forest Management Native Consultation requirements are identified in the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). All First Nations communities within or adjacent to the DFA are invited to participate in this program during FMP development. The purpose of this consultation opportunity is to advise the aboriginal community that forest management planning is commencing for the management unit and to solicit their active participation; to invite the aboriginal community to participate in preparation of the Native Background Information Report (NBIR); and to provide an opportunity for the aboriginal community to choose between the standard public consultation provisions of the FMP process and the Forest Management Native Consultation Program. Consultation is done to ensure the protection of identified aboriginal values and how these values will be protected.

**MONITORING:**

Aboriginal involvement in the planning process will be reported on according to the requirements of the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). The percent of Aboriginal communities in or adjacent to the management unit involved in the Forest Management Consultation Process is a measurable indicator of sustainability, included in the assessment of sustainability for the Report of Past Forest Operations (RPFO-18). No Aboriginal communities have been identified in the vicinity of the Smooth Rock Falls Freehold.

**IMPLEMENTATION:**

A summary of First Nations participation in the Forest Management Native Consultation Program is included in the Native Background Information Report for the FMPs (Supplementary Documentation 3). Table RPFO-18 will be included in the Report of Past Forest Operations for the 5-year planning terms for the DFA.

**2005/2006 STATUS:**

Four of five First Nations are participating in the Forest Management Native Consultation program for the 2008-2018 Nighthawk Forest FMP process. Six First Nation Communities were contacted to review the 2005-2006 Iroquois Falls Forest and Nighthawk Forest Annual work schedules. Three communities accepted Abitibi's offer and staff presented the annual work schedule to band council or representatives of the First Nation.

The following is a record of communications with Aboriginal Groups with regard to consultation:

- IFF AWS presentation (2005/06): Wahgoshig (April 7 & 29; June 1 & 7), Taykwa (June 1).
- NHF AWS presentations (2005/2006): Matachewan (June 22); map given to M. Kistabish (Wahgoshig). Letter sent to all 5 First Nations (March 17).
- NHF FMP 2008-2018: Matachewan, Mattagami, Taykwa Tagamou and Wahgoshig and First Nations have agreed to participate. Moose Cree First Nation have declined to participate but have requested updates through planning team minutes.
- Matachewan First Nation (Harvest Block 139 on the Nighthawk Forest): Many ongoing discussions since 2004/05 AWS review where it was discovered by Matachewan First Nation that harvest Block 139 in the 2003-2008 Forest Management Plan had harvest allocations in traditional hunting territory for moose. Block 139 was an approved harvest block with aboriginal consultation during the preparation of the 2003-2008 Forest Management Plan, however it was mistakenly missed by Matachewan during the planning stages. Many subsequent discussions concluded with mutually agreed upon harvest allocations, silviculture and access planning. Harvest occurred during the summer of 2006.

**MANAGEMENT ACTIONS:**

Abitibi-Consolidated will continue to work with local Aboriginal Communities, in order to maintain relationships based on mutual respect and understanding.

**CRITERION:** 6. Accepting Society's Responsibility For Sustainable Development

**ELEMENT:** 6.1 Recognize and respect Aboriginal and treaty rights.

**VALUE:** Aboriginal Employment on the DFA

**OBJECTIVE:** To continue to provide opportunities for local employment, including First Nation communities, in resource sectors that are dependent on the use of forest resources.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.1.2 Extent of Aboriginal participation (value of contracts offered to Economic Development Corporations) in forest-based economic opportunities.</b>	Increase forest-related economic opportunities on the DFA for Aboriginals.	At a minimum maintain economic opportunities on a year-to-year basis (over the next 100 years). As of 2002, the annual value of Aboriginal forest-based economic opportunities is \$1,726,710.

**MANAGEMENT STRATEGY:**

Abitibi-Consolidated will continue to work with individual First Nations communities and Aboriginal Organizations, to ensure that they have an opportunity to share in the economic benefits associated with the forest.

**MONITORING:**

The extent of Aboriginal participation (jobs, value of contracts offered) in forest based economic opportunities by Abitibi-Consolidated, will be summarized on an annual basis, and included in the Annual SFM Report.

**IMPLEMENTATION:**

The company will begin tracking data associated with this indicator in 2004, and the actual levels will be included in the Annual SFM Report. These figures are based on harvesting, road construction and maintenance, silvicultural contracts.

**2005/2006 STATUS:**

Year	Total value of Contracts \$	Cubic Metres Offered for Harvest (all species)	Cubic Metres Harvested (all species)
2004/05	3,521,438	108,583	116,022
2005/06	2,282,346	118,314	40,827

The overall economic value of Aboriginal forest-based economic opportunities was increased dramatically in 2004/05 due to an additional First Nation harvest contractor which doubled the amount of wood available to First Nations. There are now 2 First Nation harvest operators working on the Iroquois Falls Forest. There was a drop in the amount of wood harvested in 2005/2006 because 1 First Nation contractor did not harvest any volume because of internal company restructuring. Note the 2004/05 harvest included road construction whereas 2005/06 did not require road construction.

**MANAGEMENT ACTIONS:**

The management objective was achieved in 2005/06 increasing the value of contracts completed by \$ 555,636 based on the 2002 benchmark. However, the economic return was lower in 2005/06 compared to 2004/05 due to the unforeseen circumstances listed in the status section.

Continue to emphasize and provide for Aboriginal participation in forest-based economic opportunities.

**CRITERION:** 6. Accepting Society's Responsibility For Sustainable Development

**ELEMENT:** 6.2 Respect traditional Aboriginal forest values and uses identified through the Aboriginal input process.

**VALUE:** Protection of Aboriginal social, cultural, and environmental Values.

**OBJECTIVE:** To plan and implement forestry operations in a manner that considers the diversity of values present on the forest, in order to provide all users and citizens with the opportunity to benefit from the forest.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.2.1 Compliance with Area of Concern Prescriptions for Aboriginal values.</b>	Forest practices on all sites must minimize adverse effects on Aboriginal values. No Forest Operations Information Program (FOIP) reports with non-compliances.	Less than 5% of FOIP inspections pertaining to Aboriginal values with minor non-compliance. No FOIP inspections with moderate to significant non-compliance.

**MANAGEMENT STRATEGY:**  
 Area of Concern Prescriptions were developed for Aboriginal values in proximity to forest operations on the DFA, during the FMP process. These prescriptions were consistent with Timber Management Guidelines for the Protection of Cultural Heritage Resources (MNR, 1991). The requirements for Area of Concern Planning are identified in the Forest Management Planning Manual for Ontario's Crown Forests. The Compliance Monitoring Program is used to monitor forest operations (harvest, renewal and tending, access, and protection) and to evaluate compliance with these prescriptions.

**MONITORING:**  
 Compliance monitoring will be carried out according to the requirements of the Annual Compliance Plan for the DFA (included in each Annual Work Schedule). The Annual Compliance Plans include the requirement to inspect all AOC prescriptions associated with Aboriginal values on the DFA.  
 The results of the compliance monitoring for this indicator will be included in Annual Report Table AR-12, and Report of Past Forest Operations Table RPFO-12 (separate breakdown for protection of Aboriginal values). Table AR-12 will be included in the Annual SFM Report. Smooth Rock Falls Freehold compliance monitoring results will be reported in the annual SFM report.

**IMPLEMENTATION:**  
 Compliance monitoring for this indicator will continue to be carried out on an annual basis by certified compliance inspectors.

**2005/2006 STATUS**  
 A total of 233 harvest and access (water crossing) and renewal inspections were conducted to assess compliance with area of concern prescriptions for the protection of aboriginal values. No infractions were observed (100% compliance).

**MANAGEMENT ACTIONS:**  
 Management objective and target was achieved. Continue to implement and monitor.

**CRITERION:** 6. Accepting Society's Responsibility For Sustainable Development

**ELEMENT:** 6.2 Respect traditional Aboriginal forest values and uses identified through the Aboriginal input process.

**VALUE:** Protection of Aboriginal social, cultural, and environmental Values.

**OBJECTIVE:** To plan and implement forestry operations using Traditional Ecological Knowledge (TEK).

INDICATOR	TARGET	ACCEPTABLE LEVEL
6.2.2 Amount of Traditional Ecological Knowledge shared.	100% - All mutually agreed upon knowledge shared will be incorporated into forestry practices.	No variation is acceptable - mutually agreed upon knowledge shared will be incorporated into forestry practices.

**MANAGEMENT STRATEGY:**

The Traditional Ecological Knowledge indicator will go beyond what is required by the Forest Management Native Consultation requirements identified in the Forest Management Planning Manual for Ontario's Crown Forests. Presentations of Annual Work Schedules will be given to interested First Nation Communities. In addition, joint site and field visits will be conducted on a ongoing basis to share information.

**MONITORING:**

The extent of presentations given by Abitibi-Consolidated, joint field/site visits and information sharing will be summarized on an annual basis, and included in the Annual SFM Report.

**IMPLEMENTATION:**

The company will begin tracking data associated with this indicator in 2004, and the number of occasions that information was shared and used will be included in the Annual SFM Report.

**2005/06 STATUS:**

The following is a record of communications with Aboriginal Groups with regard to sharing ecological knowledge:

- Matachewan: Canoeshed Lake archaeological assessment with Dr. John Pollock during the first week of July, 2005. Loren Flood attended 1 day. Report has been received by Dr. Pollock.
- GIS values data mapping project which would store Traditional Ecological Knowledge from Wahgoshig First Nation (data to be collected by W.C McKay Consulting Services - Mattagami First Nation).
- Matachewan First Nation (Harvest Block 139 on the Nighthawk Forest): Many ongoing discussions since 2004/05 AWS review where it was discovered by Matachewan First Nation that harvest Block 139 in the 2003-2008 Forest Management Plan had harvest allocations in traditional hunting territory for moose. Block 139 was an approved harvest block with native consultation during the preparation of the 2003-2008 Forest Management Plan, however it was mistakenly missed by Matachewan during the planning stages. Meeting with Matachewan took place June 22, 2005 regarding moose harvest block 139. Discussed potential harvest techniques and ground truthing. Many subsequent discussions concluded with mutually agreed upon harvest allocations, silviculture and access planning in a portion of the original block. Harvest occurred during the summer of 2006.
- Provided funding to the Mattagami First Nation to continue to implement the Community Resource Information Program (collection of traditional ecological knowledge)
- Provided funding to the Wahgoshig First Nation to implement Community Resource Information Program (collection of traditional ecological knowledge)

**MANAGEMENT ACTIONS:**

Abitibi-Consolidated will continue to work with local Aboriginal Communities, in order to maintain relationships based on mutual respect and understanding with regard to the sharing of ecological knowledge.

**CRITERION:** 6. Accepting Society’s Responsibility For Sustainable Development  
**ELEMENT:** 6.3 Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants.  
**VALUE:** Local public satisfaction with the planning process.  
**OBJECTIVE:** To obtain broad public satisfaction with the planning process.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.3.1 Degree of Satisfaction with the planning process (based on SFM Public Opinion Survey results).</b>	Based on the SFM Public Opinion Survey for the DFA, increase current levels of support in future planning initiatives.	The company will endeavour to maintain current level of public satisfaction with the process.

**MANAGEMENT STRATEGY:**

Public participation in forest management planning for the FMPs are carried out according to the requirements of the Forest Management Planning Manual for Ontario’s Crown Forests (FMPM). This includes a five-stage consultation process involving the public and Aboriginal Communities that chose to participate in the process. An additional consultation process was carried out to allow the public an opportunity to participate in the development of the Values, Objectives, Indicators, and Targets associated with this SFM plan, according to the requirements of the CAN/CSA-Z809 Standard. Public Information Centres, an SFM Public Opinion Survey, and an SFM website were developed to seek broad public input. An assessment of the public participation process will be carried out at the end of each planning initiative.

**MONITORING:**

Following the conclusion of each formal consultation process associated with the development of a management plan on the DFA, an assessment of the effectiveness of the consultation process will be carried out by the Company. Broad public consultation will be sought for this assessment, in order to improve the process. The question posed within the public opinion survey; Question 32: ‘I am satisfied with the planning process’. The respondent was to then rate this question on a 5 point scale (strongly disagree, moderately disagree, no opinion, moderately agree, strongly agree). This indicator will be assessed every five years, during the preparation of the Sustainable Forest Management Plan. Results of the assessment of the public participation process and the SFM Public Opinion Survey are available on the Company’s website [www.abitibiconsolidated.com](http://www.abitibiconsolidated.com) (click on ‘Forest’, then ‘Forest Certification’, then ‘Divisions’, then ‘Iroquois Falls and Nighthawk Forests’, Appendix D2 – Public Survey Results). 81 survey comments compiled during the writing of the 2004-2009 SFM plan.

**IMPLEMENTATION:**

The public consultation summary and SFM Public Opinion Survey results are included in Appendix D of the SFM Plan. This summary will be provided with each successive forest management plan. All post-plan comments and survey results received by Abitibi-Consolidated will be summarized and included in the Annual SFM Report. The results of the assessment of the public participation process for the SFM Plan will be made available to the public on the SFM website ([www.abitibiconsolidated.com](http://www.abitibiconsolidated.com)).

**2005/06 STATUS:**

The degree of public satisfaction with the planning process was assessed during the preparation of the 2004-2009 Sustainable Forest Management Plan for the Defined Forest Area. Moderate satisfaction with the planning process was identified with Public Opinion Survey respondents. Six surveys were submitted from April 1, 2005 to March 31, 2006. Moderate to strong agreement with the planning process satisfaction was identified. The following are the concerns/issues raised by those surveyed and responses given by Abitibi:

Affiliation	Opinion Rating	Concerns / Issues	Abitibi’s Response
Local Citizen’s Committee (Kirkland Lake)	Strong agreement	VOITs: No comments but very good information (regarding survey and background information). As a member of the Kirkland Lake LCC and with no special forestry training the information is very helpful when reviewing targets and indicators. My background is municipal planning so I find this very interesting. Issues: Ensure that the reforestation policies and programs continue to retain the forest industry. Suggestions: No suggestions for forest management practices but must say that the staff are very knowledgeable in their individual fields when making presentations and at our meetings that review SFM values, objectives, indicators and targets of sustainability. Staff accepts comments and suggestions from meeting members and aboriginal members.	Thank you for the encouraging and positive comments. Reforestation is definitely the key in the success of sustainable forest management (see indicators 1.3.1, 2.2.2 & 2.2.3).
Local Citizen’s Committee (Timmins)	Strong agreement	VOITs: I think that this has been addressed very well with the 38 indicators in the SFM plan. I think careful thought should still be looked at in the long range sustainability forest plan in regards to targets. These seem to change over time (wood allocations, forest units or landscape, social, economic patterns). Values will change as to (social, economic). The objectives and indicators discussed are realistic and fulfill goals. Greatest Sustainability Issues: Wood supply and regeneration of cut stands. With the overlapping licensees the demand of forest products on a global	VOITs: Targets will be adjusted annual if necessary; indicators will be assessed and adjusted every 5-years. During the 2006 external audit the auditors suggested that we should adjust certain targets that were achieved in the first year of the 5-year plan. During the next annual report (2005/06) each target will be assessed to determine if the target should be adjusted to what was set in the 2004-2009 SFM Plan. Issues: To ensure future wood supply regeneration efforts need to be implemented and assessed (see indicators 1.3.1, 2.2.1, 2.2.2 & 2.2.3).

Affiliation	Opinion Rating	Concerns / Issues	Abitibi's Response
		market, these will change and better utilization of the Nighthawk Forest timber, outfitters, trappers, hunters, cottagers and ecotourism. Suggestions: As long as we continue to update the SFM Plan and FMP and treat it as a sustainable forestry plan with periodic input from the LCC and public and user groups who will utilize and use the Nighthawk Forest Management Unit.	Suggestions: Annually, support and suggestions will be sought from the LCCs and general public regarding the annual Sustainable Forest Management report. A new plan will be written in 2009 for another 5 or 10 year term.
Forest Industry	Moderate agree	ISSUE: 1) Guidelines and regulations that are not conducive to sound silviculture or wildlife habitat management. COMMENT: 2) Viability of mills - if no forest industry - no forest management.	ISSUE: 1) Guidelines and regulations are imposed with a cautious approach. Over time research is conducted to refined to understand the ecosystem and try to imposed the best guidelines to ensure that values are protected and regulations are followed.
Trapper – Smooth Rock Falls Freehold	Strong agree	Comments: Careful logging and immediate reforestation is a must in the forest of the future. Do not over harvest.  Suggestion: Find a way to eliminate slash pile burning.	Careful logging addresses the retention of regenerative growth in the under story. The strategy in most uneven aged stands is to leave all non-merchantable trees unless they lie in the path of the feller buncher swath. Tree planting is a big program conducted every spring. Historically 2/3 of the areas harvested were replanted and the other 1/3 regenerated naturally. Today the ratio has reversed to 1/3 artificial replant and the other 2/3 of the areas come back on their own. This reversal is due to the careful logging practices conducted today. Over harvesting is controlled by computer models that predict harvest levels over a 160 year period. In addition, strict government scrutiny and compliance monitoring ensures that illegal harvest does not occur. Slash at roadside has become a major concern throughout northern Ontario. The MNR and forest companies are investigating the use of slash to generate energy in the form of steam or oil. Presently slash is minimized using the following techniques: 1) Utilize the tree stem to a 5 centimetres (2 inch) top, where possible; 2) Pile slash to maximize the area of renewal next to the slash; 3) Pile and burn the slash and recover as much area for renewal as possible. The ultimate goal of slash pile management is to regenerate the land that was harvested.
Trapper – Smooth Rock Falls Freehold	Moderate agreement	When surveying my trap line in the fall by air craft I noticed a lot of Tamarack taking over the forest. I believe that all companies should find a means to utilize this species. I know that this species can be used in kraft pulp.	Historically, Tamarack was more abundant than it is today and is making a comeback. A spruce bud worm outbreak in the 1920/30s wiped out the majority of mature Tamarack throughout Ontario. Tamarack is not a preferred species in most paper mills. The infrastructure of manufacturing is setup to handle most conifer species and now some deciduous species (i.e. Poplar) but not Tamarack - but maybe some day. The reason why the paper mills do not use Tamarack is pitch and brightness. Tamarack has a lot of resins which would cause problems in the pulp mill and the paper machine with respect to resin deposits. Secondly, it has a low brightness which means that we would have to increase our bleach consumption to meet our target newsprint brightness. Tamarack is being used by the Tembec pulp mill in Smooth Rock Falls and other uses such as flooring are developing.
Trapper – Smooth Rock Falls Freehold	Moderate agreement	The MNR has a fish sanctuary on the Mattagami River in Mahafey twp. MNR is netting fish by the lower sturgeon dam. I believe those fish are transported to other Lakes?!! Might be wrong, but if that is the case, there is no justice or fairness by having a fish sanctuary until June 15 of every year.	Unfortunately, Abitibi can not address fisheries concerns regarding fish netting, transplanting or fish sanctuaries. MNR has full jurisdiction over fish population management. As a company we can only address fish habitat outside of the water. We follow many guidelines regarding the installation of water crossings and riparian zone (area next to water) management. Please feel free to contact the MNR district in Cochrane for answers to your concerns. Ask to speak to the Area Biologist that is responsible for the area you mentioned.

**MANAGEMENT ACTIONS:** No further action required at this time.

**CRITERION:** 6. Accepting Society's Responsibility For Sustainable Development

**ELEMENT:** 6.3 Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants.

**VALUE:** Public education.

**OBJECTIVE:** To increase the level of education in regards to forest management planning and harvest operations.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.3.2 Number of events attended and presentations given by Abitibi personnel to educate the public.</b>	Attend as many events and make as many presentations as possible.	The company will endeavour to maintain or increase the level of public education by attending events and giving presentations to the public.

**MANAGEMENT STRATEGY:**

Public participation in forest management planning for the FMPs is carried out according to the requirements of the Forest Management Planning Manual for Ontario's Crown Forests (FMPM). This includes a five-stage consultation process involving the public and Aboriginal Communities that choose to participate in the process. In addition to the public consultation conducted during the FMP process, events will be attended, presentations and field tours will be given to the public by Abitibi-Consolidated personnel.

**MONITORING:**

The number of days spent educating the public on forest management. Reporting and harvest operations will be compiled in the annual SFM Report.

**IMPLEMENTATION:**

The company will begin tracking data associated with this indicator in 2004.

**2006 STATUS:**

Organization	Topics covered	Event, presentation or training
Kirkland Lake Local Citizen Committee	Iroquois Falls Mill tour and CSA presentation	tour and presentation and discussion - April
Iroquois Falls Girl Guide badge	Ecosystems and Forestry	presentation – April
Lake Abitibi Model Forest	Tree planting	Tree seedlings donated for grade 3 and 4 students education week – June
Forestry tour for teachers	Sustainable Forest Management	Sponsored 1 teacher – Forestry educational tour and workshop for teachers at the Canadian Ecology Centre in Mattawa (June)
Ontario Rangers	Sustainable Forest Management	Field Tour of Iroquois Falls Forest operations – August
Boreal Conference in Cochrane	Historical display ('Building on 100 years of success'). Historical Forestry Tour with Ken Armson (retired OMNR)	poster session and historical tour

**MANAGEMENT ACTIONS:**

No further action required at this time.

<b>CRITERION:</b>	6. Accepting Society's Responsibility For Sustainable Development
<b>ELEMENT:</b>	6.4 Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.
<b>VALUE:</b>	Continuous improvement of sustainable forest management practices on the DFA.
<b>OBJECTIVE:</b>	Continual increase in the knowledge of ecosystem processes and impacts of management practices.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.4.1 Training of Forestry Workers on the DFA.</b>	<p>a. All operators must be trained according to the Training Awareness and Competency requirements of the Forest Environmental Management System (FEMS).</p> <p>b. Provide all Overlapping Licensees and contractors regular Operator Indoctrination Sessions as per the Compliance Plan.</p>	<p>a. 99% of the DFA workers received FEMS training.</p> <p>b. No variation is acceptable - Operator training sessions shall be provided to all Overlapping Licensees and contractors on an annual basis.</p>

**MANAGEMENT STRATEGY:**

Training priorities for staff and DFA forestry workers is outlined in the Annual Compliance Plans included in the Annual Work Schedule. The Annual Compliance Plans includes a requirement for training forestry workers, consistent with the Guideline for Forest Industry Compliance Planning (MNR, 1998). Annual Operator indoctrination sessions are provided for all forestry workers on the DFA, to make them aware of new or existing legislative requirements, guidelines, operational procedures, and compliance issues. These indoctrination sessions summarize the Standard Operating and Emergency Response procedures associated with Ontario-East Woodlands Division's Forest Environmental Management System (FEMS). The FEMS ensures that the cycle of plan, do, check and act occurs to minimize impacts to the environment. Training will be provided according to the Training Awareness and Competency requirements of the Forest Environmental Management System for Abitibi-Consolidated staff, contractors, suppliers and overlapping licensees.

**MONITORING:**

A record of attendance will be maintained by Abitibi-Consolidated for the operator indoctrination sessions, in order to identify the operators that have participated in the program. Operators who do not participate in training, and demonstrate a trend of non-compliance with legislation and guidelines, will be subjected to higher levels of compliance scrutiny. Repeated minor or moderate compliance issues, or significant non-compliance issues will jeopardize the operator's right to continue to operate on the DFA.

**IMPLEMENTATION:**

Operator indoctrination sessions will continue to be offered on an annual basis.

**2005/06 STATUS:**a. Operators training – Abitibi Personnel

128 of 131 (98%) of Abitibi-Consolidated Woodlands employees have been trained according to Forest Environmental Management System training requirement as of January 10, 2007.

b. Overlapping Licensee and Contractor training

Nineteen Indoctrination sessions were provided to contractors and overlapping licensees by Abitibi-Consolidated staff during the 2005/06 operating year. The target was not achieved because 2 of 19 Contract Review checklists were not returned by contractors and overlapping licensees (although better than 2004/05 where 6 of 19 checklists were not returned). This checklist provides Abitibi assurance that Forest Environmental Management System training has been given to all employees working on behalf of Abitibi. In addition, the checklist includes other subjects such as safety, significant environmental aspects, prevention of pollution and laws/regulations.

**MANAGEMENT ACTIONS:**a. Operators training – Abitibi Personnel

The 3 employees have subsequently been given an indoctrination session on January 31, 2007 regarding FEMS training. All Abitibi personnel were also refreshed at number of indoctrination and open house sessions during the months of January and February.

b. Overlapping Licensee and Contractor training

100% of the contractors and overlapping licensees had representatives present during the Abitibi annual indoctrination sessions. However, two Contract Review checklists were not returned. The 2 contractors/overlappers that did not return the checklist also had numerous nonconformances/non-compliances issued to them during the duration of their operations (Tembec Lasarre – Harvesting; General Airspray – aerial tending).

Corrective actions are as follows:

Tembec Lasarre: Will not operate during the 2006/07 fiscal year due to market conditions. Corrective actions were such that leniency towards the infractions was granted for an additional year if Tembec Lasarre was able to operate – a full indoctrination and discussions regarding the infractions were to be scheduled during the annual indoctrination. The infractions will be discussed at the 2007/08 indoctrination for Tembec Lasarre.

General Airspray: It was recommended that all employees of General Airspray be indoctrinated and infractions discussed by Abitibi staff before commencement of operations – completed (June 2006). In addition, two inspections by Abitibi personnel of the aerial spray operations were completed – no major findings were raised.

- CRITERION:** 6. Accepting Society's Responsibility For Sustainable Development
- ELEMENT:** 6.4 Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.
- VALUE:** Continuous improvement of sustainable forest management practices on the DFA.
- OBJECTIVE:** Continual increase in the knowledge of ecosystem processes and impacts of management practices.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.4.2 Training of Local Citizens Committees (LCCs).</b>	<p>a. Local Citizens Committee members will receive FMP training, presentations at regular meetings, and information updates by Company staff.</p> <p>b. LCC committee members will be provided with opportunities to participate in at least one audit or field tour per year on the DFA.</p>	<p>a. No variation is acceptable.</p> <p>b. No variation is acceptable.</p>

**MANAGEMENT STRATEGY:**

LCC training by Company Staff will be accomplished by attending regular scheduled monthly LCC meetings or scheduling separate meetings to present material or update members on the AWS/FMP and/or forestry operations. In order to increase the overall knowledge base of LCC members, opportunities will be provided by Abitibi-Consolidated for participation in field-oriented audits or tours. The goal will be to improve their knowledge of Company management practices, forest management issues, and ecosystem processes.

**MONITORING:**

Interactions with the Cochrane, Kirkland Lake and Timmins LCCs will be summarized in the Annual SFM Report.

**IMPLEMENTATION:**

Opportunities for LCC members to participate in audits and field tours will be provided. The results will be summarized in the Annual SFM Report.

**2005/06 STATUS:****a. LCC Training**

Local Citizens Committee	Topics covered	Event or presentation
Cochrane LCC	Iroquois Falls Forest: Planning Forester presented 2005/2010 FMP summary and answered questions	Presentation – April 13, 2006
	Iroquois Falls Forest: Forest Management tour	Field Tour – June 8, 2005
	Iroquois Falls Forest: Slash Burn Plan and the Trend Analysis Report which was prepared for the IFA	Presentation – September 14, 2005
	Iroquois Falls Forest: Planning Forester requested LCC sign-off on IFF FMP & 2005/06 AWS	Presentation – February 9, 2006
Kirkland Lake LCC	Iroquois Falls Forest: Forest Management tour	Field Tour – June 8, 2005
	Iroquois Falls Forest: AWS presentation	Presentation – February 8, 2006
	Tembec provides information on behalf of Abitibi	
Timmins LCC	Nighthawk Forest: 2006/07 Annual Work Schedule; 2004/05 Annual Report and 2008-2018 FMP update	Presentation – March 8, 2006
	Nighthawk Forest: D. Romain updated LCC on the progress of CSA certification and invited members to attend the review of the 2004/2005 SFM Report	Presentation – December 14, 2005

**b. Field Audit:**

All three LCC were invited to attend the CSA recertification audit (week of February 20, 2006):

- 1 Kirkland Lake LCC member participated (attended 2 days)
- 1 Timmins LCC member participated (attended 3 days)

**MANAGEMENT ACTIONS:**

Management objective and target was achieved. Continue to implement and monitor.

<b>CRITERION:</b>	6. Accepting Society's Responsibility For Sustainable Development
<b>ELEMENT:</b>	6.4 Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.
<b>VALUE:</b>	Continuous improvement of sustainable forest management practices on the DFA.
<b>OBJECTIVE:</b>	Continual increase in the knowledge of ecosystem processes and impacts of management practices.

INDICATOR	TARGET	ACCEPTABLE LEVEL
<b>6.4.3 Research contributions to wildlife and forestry based practices.</b>	Monitor the number of research projects that the DFA is supporting (financial and in-kind).	Participation in research.

**MANAGEMENT STRATEGY:**

To increase the overall knowledge base related to biological information and harvest prescriptions. Monetary and in-kind support will be provided to research projects that advance the understanding of the forest science and best management practices.

**MONITORING:**

Summarize in the Annual SFM Report, the number of research projects that Abitibi's DFA is supporting.

**IMPLEMENTATION:**

The company will begin tracking data associated with this indicator in 2004, and the number of research projects will be included in the Annual SFM Report.

**2005 and 2006 STATUS:**

Project (Duration)	Lead Organization	Description	Support
Wildlife population monitoring (ongoing since 2000)	Abitibi-Consolidated	2 nocturnal owl and 2 frog/bird survey routes, Christmas Bird Count (Bird Studies Canada, Environment Canada)	monetary and data collection
Bird populations (2004-2006)	Bird Studies Canada (Dr. Ryan Zimmerling)	'Evaluating Forest Management for Protection of Bird Communities'. Songbirds dynamics in managed and unmanaged landscapes	In-kind support for research, FRI data, maps and navigation
Migratory Birds (2004-2007; may be extended)	Canadian Wildlife Service Canadian Space Agency	'Space For Habitat'. This project is investigating how best to enforce the Migratory Bird Act using satellite technology.	in-kind support, FRI data, attendance at technical planning meetings
Wildlife population dynamics (2004-2006)	Canadian Forest Service and OMNR (Steve Holmes)	To test and improve the Habitat suitability matrix in SFMM (Strategic Forest Management Model)	In-kind contribution of FRI data
Caribou (1998-2005)	OMNR	Caribou recovery strategy: 1 Abitibi-Consolidated staff was on the Northeast Caribou Task Team. PhD student submitted thesis on habitat and home range associations related to the satellite collaring work.	in-kind support and monetary
'Marten habitat' project (2001-2007)	Co-op project between industry and OMNR	Increase knowledge of marten biology and habitat requirements in northern Ontario (2002-2007)	monetary
'Marten core' project (2004-2006)	Co-operative project between industry and MNR	Evaluate the importance of core-sized blocks for suitable marten habitat using trapper information	monetary, FRI data
Small mammals and insects (2003-2006)	U of Toronto (PhD candidate Ben Kuttner)	Small mammal and insect work related to silvicultural practices.	In-kind support for FRI data
Mixed Woods Management (2002-2007)	Canadian Forest Service (Jim Rice)	'Stand Level Adaptive Management project': study of mixed wood management in relation to silvicultural treatment	Monetary and in-kind support; FRI data
Mixed Woods Management (2002-2007)	Natural Resources Canada (Dr. Lisa Venier)	'Stand Level Adaptive Management project': study of mixed wood management in relation to silvicultural treatment on invertebrate families.	In kind
Mixed Woods Demonstration trail (2006)	Lake Abitibi Model Forest	Trail Improvements	provided equipment as in-kind
HARP Regeneration (2004-2007)	U of Toronto (MSc candidate -Hillary Thorpe)	Harvest Around Regenerative Protection (HARP) – retrospective growth & mortality of Black Spruce investigation since the HARP technique was implemented (early 1990s).	In-kind support for research, FRI data, maps & navigation
HARP Regeneration (2006/07)	OMNR (Dr. Art Groot)	Quantifying HARP (Harvest With Regeneration Protection) growth. Summer of 2006 established 48 survey plots randomly located in previously depleted areas (up to 15 years of careful logging and HARP). Data will be analyzed to quantify what has taken place. New targets will be established for future harvesting.	Monetary and in-kind support
White Pine regeneration (2006)	OMNR (Krista Livsey) South Central Science & Information	White Pine regeneration growth project on Nighthawk Forest	provided silvicultural data
Growth and Yield (2001-ongoing)	Canadian Forest Service & Forest Ecosystem Co-op	Nagagami Forest: 40 plots established (total of 40 plots) Nighthawk Forest: 28 plots established (total of 30 plots) Iroquois Falls Forest: 15 plots established; plots 20 re-measured (Total of 168 plots)	monetary, FRI data

Project (Duration)	Lead Organization	Description	Support
MOSSY (Modeling Ontario's Stand Succession & Yield) (2006-2008)	Forest Ecosystem Co-op (industry and OMNR) – Al Stinson and Fred Pinto	The "MOSSY" project will provide estimates of yield and natural succession based on the re-measured Provincial growth and yield permanent sample plot dataset, and to be compatible with current forest management planning procedures and tools. This improved foundation will enhance forest management decision-making and contribute to strategic and operational opportunities for enhanced forest productivity over the long term.	monetary
Enhanced forest inventory (2005-2006)	Lake Abitibi Model Forest (Rob Arnp)	To analyze data needs to support forest management planning and operations, research activities and monitoring in remote areas. Comparison of imagery (black & white, Color and Color infrared) with scale (1:20,000 and 1:15,000).	monetary and in-kind support of FRI data
Natural Disturbance Pattern Emulation (2006-2008)	U du Quebec at Montreal (Dr. Sylvie Gauthier). Sustainable Forest Management Network	'Use of natural disturbance and natural processes (fire) as a template for the sustainable management of boreal forests'	monetary and in-kind support of FRI data
Carbon cycling (2006-2008)	University of Toronto (Dr. Jay Malcolm) – Sustainable Forest Management Network	Dynamics of woody debris in eastern boreal forests: model woody debris retention and associated wildlife communities, biomass harvesting, carbon supply and fluxes in ecosystem productivity.	in-kind support for FRI data and field accommodations
Soil Disturbance and carbon sequestration (scientific review 2005)	Lake Abitibi Model Forest (Martin Lavoie)	Effects of harvest and regeneration techniques on soil paludification (accumulation of organic matter i.e. peat over time that is generally believed to be caused by increasing soil moisture and Sphagnum moss).	in-kind support for FRI data
Socio-economic (2006)	Lake Abitibi Model Forest (Laurie Graveline & Arvind Vasudevan)	Socio-economic Indicators & Profile: An update for the Lake Abitibi Model Forest	in-kind support
Aboriginal communities (2005-2007)	Memorial University (Dr. David Natcher) and Lake Abitibi Model Forest	To assess Aboriginal community values and engage Aboriginal communities in Sustainable Forest Management (pilot study involving the Moose Cree First Nation).	monetary and in-kind support
Aboriginal traditional knowledge (2005/06)	Lake Abitibi Model Forest	Wahgoshig First Nation Community Resource Information Project	monetary
Aboriginal traditional knowledge (2005/06)	Mattagami First Nation	Community Resource Information Program	monetary
Hydrology (2003-2006)	OMNR, various universities industry, Canadian Forest Service (Dr. Jim Buttle)	'Scalable Indicators of Disturbance': investigate the cumulative hydrological impacts of forest disturbance.	in-kind support; FRI data
Depth-to-water mapping (2005-ongoing)	University of New Brunswick (Dr. Paul Arp)	High resolution mapping of water flow channels which could predict better where potential drainages exist to help locate roads.	in-kind support – mapping data
Shoreline Forest Management (2006-2008)	University of Guelph (Dr. Paul Sibley) – Sustainable Forest Management Network	Developing a science-based decision support framework for sustainable shoreline forest management. Model will relate response (biotic communities, water chemistry) to indicators of disturbance (percent watershed harvested, size of watershed) at different special scales.	in-kind support
Shoreline Forestry (2004-2006)	Forest Ecosystem Co-op (industry and OMNR)	"Can Boreal Forest Management Safely Emulate Natural Disturbance Patterns in Shoreline Forests?". Regional assessment of environmental risks associated with terrestrial and potential aquatic ecosystem response to shoreline forestry. A field guide to assess shoreline forestry management impacts was one of the products of this project. Also, a database was developed to facilitate standardized data input from these surveys. Report summaries were generated by the database for each site.	monetary
Boreal Conference 2006	Lake Abitibi Model Forest & Canadian Institute of Forestry	Historical display ('Building on 100 years of success'). Historical Forestry Tour with Ken Armson (retired OMNR)	staff in-kind contribution
Local Level Indicators (ongoing)	Lake Abitibi Model Forest	Various Local Level Indicator (LLI) projects for forest sustainability	2 Abitibi staff on LLI committee

Further details and information on the research projects can be obtained from the Ontario-East Woodlands office in Iroquois Falls.

Abitibi-Consolidated has memberships and partnerships with the following organizations:

- 1) Lake Abitibi Model Forest ([www.lamf.net](http://www.lamf.net)) – research leveraging agency under the direction of the Canadian Forest Service
- 2) Forest Ecosystem Science Co-op ([www.forestco-op.ca](http://www.forestco-op.ca)) – research leveraging collective made up of industry, government, and non-government organizations
- 3) OFIA ([www.ofia.com](http://www.ofia.com)) – Ontario Forest Industries Association
- 4) FPAC ([www.fpac.ca](http://www.fpac.ca)) – Forest Products Association of Canada
- 5) NCASI ([www.ncasi.org](http://www.ncasi.org)) – National Council for Air and Stream Improvement

**MANAGEMENT ACTIONS:** This annual report includes the entire 2006 year and fiscal year 2005/06. Future annual reports will summarize activities within the entire calendar year. No actions required at this time.

## GLOSSARY

**Aboriginal:** “Aboriginal peoples of Canada”, which includes Indian, Inuit, and Métis peoples of Canada (Constitution Act, 1982).

**Age Class:** One of the intervals into which the age range of forest stands is divided for classification and use.

**Annual Report (AR):** A document in the form of tables and maps, which identifies the type and extent of forest operations that was carried out in one year.

**Annual Work Schedule (AWS):** A document in the form of tables and maps, which identifies the type and extent of forest operations to be carried out in one year.

**Area of Concern:** A geographic area within an area of operations which is adjacent to an identified natural resource feature, land use or value that may be affected by forest management activities.

**Artificial Regeneration:** Renewal of a forest, by seeding or planting seedlings or cuttings.

**Biodiversity:** The variability among living organisms from all sources, including terrestrial, and aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems (Environment Canada).

**Bounds of Natural Variation:** The bounds of natural variation are determined by modeling the forest using the Strategic Forest Management Model (SFMM) without simulating and harvest or silviculture operations. This is called the Natural Benchmark run (or null scenario) and produces a simulated level for each forest unit projected over the next 100 years. The minimum forest unit area targets (lower natural bounds) are 20% below the lowest level that each forest unit reaches during the simulated 100-year period of the natural run.

**Barren and Scattered (B & S):** Productive forest land which, because of natural or artificial disturbance, contains only scattered trees or no trees at all with either shrub cover or bare soil, but no significant amount of regeneration.

**CCFM:** Canadian Council of Forest Ministers

**Commercial Thinning:** A thinning in which the harvested trees are removed from the site and used for commercial purposes.

**Compliance:** Conduct or results of activities in accordance with legal requirements.

**Conservation:** Management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations, and includes preservation, maintenance, sustainable utilization, restoration and enhancement of the environment.

**Conservation Reserves:** A protected area designation that is regulated under the *Public Lands Act*. This designation permits many traditional land uses to continue while excluding activities such as commercial timber harvest, mining and hydroelectric development.

**Contractor:** An individual or company conducting work directly for Abitibi-Consolidated or Overlapping Licensee.

**Criteria:** The standards by which ecological, economic, and social values relevant to Canada’s forest will be judged to assess sustainability. The criteria used in the CSA standard were developed by the Canadian Council of Forest Ministers (CCFM), and were used to group related elements.

**CSA:** Canadian Standards Association.

**Decommissioning (roads):** Roads and water crossings that have fulfilled its intended use for forest management purposes, and is no longer required for other resource management purposes.

**Defined Forest Area (DFA):** A specified area of forest, including land and water to which the requirements of the CSA standard apply.

**Disturbance:** A natural (i.e. fire, insects, wind) or human caused (i.e. timber harvest) event in the forest that alters the natural succession of a forest.

**Ecosystem:** A dynamic complex of plants, animals, and microorganisms and their non-living environment, interacting as a functioning unit.

**Element:** Each CCFM Criterion contains several elements that define its scope. Each element is considered to be a fundamental part of the criterion, and serves to elaborate the scope of the criterion.

**FOIP (Forest Operations Information Program):** A computer database set-up by MNR to monitor compliance inspections, tasks & issues.

**Forest Environmental Management System (FEMS):** An internationally recognized way of managing potential environmental impacts based on the ISO 14001 standard. The ISO 14001 standard has been approved as the National Standard of Canada by the Standards Council of Canada.

**Forest Management Plan (FMP):** A document prepared for a management unit in accordance with the Crown Forest Sustainability Act (1994). The document contains pertinent information and prescriptions by means of which forest policy, aims and objectives are translated into a continuous sequence of specific treatments on a management unit for a specified period of time.

**Forest Resource Inventory (FRI):** Geographic information that contains descriptive information about the timber resource on each management unit (i.e. stand age, stand height, species composition, stocking level).

**Forest Unit:** A classification system that aggregates forest stands for management purposes that will normally have similar species composition, will develop in a similar manner (both naturally and in response to silvicultural treatments), and will be managed under the same silvicultural system.

**Free-to-grow (free growing):** Stands that meet stocking and height as specified in the silvicultural ground rules, and are judged to be essentially free from competing vegetation.

**Indicator:** a variable that measures the state or condition of a specific value on the forest, and for which one or more targets are set (e.g. km<sup>2</sup> of pine marten habitat on the forest).

**Landscape:** Forest land composed of a cluster of interacting ecosystems that is repeated in similar form throughout.

**Local Citizens Committee (LCC):** A standing advisory committee of local citizens representing a range and balance of interests, appointed by the Ministry of Natural Resources to participate in the forest management planning process.

**Objective:** a broad statement describing a desired future state or condition for a specific value on the forest (e.g. wildlife habitat levels for specific species should be consistent with a natural disturbance regime).

**Overlapping Licensee:** An individual or company operating at arms-length from Abitibi-Consolidated, with a license issued by the MNR under the Crown Forest Sustainability Act (1994) to produce timber products on a Sustainable Forest License held by the Company.

**Pre-commercial Thinning:** A thinning that does not yield trees of commercial value, and is usually designed to improve crop spacing.

**Management Alternative:** A set of specific management objectives, each with quantified targets, and management strategies which aim to achieve those objectives.

**Not Sufficiently Regenerated:** Productive forest not stocked to a specified standard or which has not attained free-to-grow status.

**Production Forest:** Productive forest land, at various stages of growth, with no obvious physical limitations on the ability to practice forest management.

**Productive Forest:** All forest areas which are capable of growing commercial trees, and which is further sub-divided into "protection forest" and "production forest".

**Report of Past Forest Operations (RPFO):** A document in the form of tables and maps, which identifies the type and extent of forest operations that was carried out over a period of 5 years.

**Reserve:** Areas which were initially selected for harvest, but were subsequently removed from selected harvest areas through the area of concern planning process.

**Silviculture:** The science and art of cultivating and growing forests.

**Silvicultural Ground Rules:** Specifications, standards, and other instructions, that direct silvicultural activities on a management unit during the period of the forest management plan.

**Site Preparation:** Disturbance of the forest floor and the topsoil to create suitable conditions for natural or artificial regeneration by mechanical or chemical means, or by prescribed burning.

**Strategic Forest Management Model (SFMM):** An interactive modeling system that allows large forested areas to project through time based on several factors, including forest condition, forest dynamics, areas treated, finances, wood supply, areas of potential wildlife habitat, and forest diversity.

**Stumpage:** The amount equal to the total of the amount of the Crown dues and any other amounts added thereto in fixing the price to be paid for Crown Timber.

**Sustainable Forest Management (SFM):** Management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations.

**Target:** A specific statement describing the future state or condition of an indicator (e.g. ensure that available pine marten habitat is similar to what would have existed under a natural disturbance regime).

**Tending:** Forest management operations which are carried out to improve the growth or quality of a forest. Tending may involve cleaning (i.e. the removal of undesirable or competing vegetation through the use of herbicides or manual treatments), thinning, stand improvement or pruning.

**Value:** A specific characteristic or quality on the forest, considered to be important to an interested party (e.g. wildlife habitat).

**Volume (m<sup>3</sup>):** The amount of wood in a tree, stand, or a specified area, according to some unit of measurement or some standard of use.