

Pineland Forest Independent Forest Audit 2007-2012 *Final Report*



349 Mooney Avenue
Thunder Bay, Ontario
Canada P7B 5L5
Bus: 807-345-5445
www.kbmrg.com

TABLE OF CONTENTS

1.0	Executive Summary	iii
2.0	Table of Recommendations and best practices	iv
3.0	Introduction	1
3.1	Audit Process	1
3.2	Management Unit Description	2
3.3	Current Issues	4
3.4	Summary of Consultation and Input to Audit.....	4
4.0	Audit Findings	4
4.1	Commitment	4
4.2	Public Consultation and Aboriginal Involvement.....	4
4.3	Forest Management Planning	6
4.4	Plan Assessment and Implementation.....	10
4.5	System Support.....	14
4.6	Monitoring	15
4.7	Achievement of Management Objectives and Sustainability	16
4.8	Contractual Obligations.....	19
4.9	Conclusions and Licence Extension Recommendation	19
	Appendix 1 – Recommendations and Best Practice.....	21
	Appendix 2 – Management Objectives Table.....	29
	Appendix 3 – Compliance with Contractual Obligations.....	32
	Appendix 4 – Audit Process.....	34
	Appendix 5 – List of Acronyms.....	39
	Appendix 6 – Audit Team Members and Qualifications	40
	Appendix 7 – Trends Analysis Report	41

LIST OF TABLES

Table 1. List of Progress Checkpoints.	7
Table 2: Reported Silvicultural Success and Regeneration Success by Forest Unit for the period 2006-2010.	17
Table 3: Summary of the status of the 2006-2011 FMP Objectives	31
Table 4: Conditions of SFL No. 550816 for the Pinewood Forest and Degree of Attainment of the Condition.	33
Table 5: Procedures selected by the audit team.	35
Table 6: Audit sampling intensity for the Pineland Forest.	37

LIST OF FIGURES

Figure 1. Location of Pineland Forest.....	3
Figure 2. Reported depletion area, SGR target area and FTG area by forest unit for the period 2006-2010.....	18

1.0 EXECUTIVE SUMMARY

This report documents the results of an Independent Forest Audit for the Pineland Forest conducted by KBM Forestry Consultants Inc. covering the five-year period April 1, 2007 to March 31, 2012. Independent forest audits are mandated by the Crown Forest Sustainability Act to be completed at least once every five years.

The scope of this audit includes two forest management plans. Specifically, implementation of the last four years of the 2006-2011 FMP, and planning/approval of the 2011-2021 FMP and implementation of its first year.

The Sustainable Forest Licence for the Pineland Forest is held by the Pineland Timber Company Limited which has assigned all responsibilities associated with the licence to the EACOM Timber Corporation (EACOM). The Forest is located in the northeast Region of the Ministry of Natural Resources (MNR) and overlaps both the Chapleau and Timmins Districts of the MNR. The Forest is administered by the Chapleau District office of the MNR.

The audit included a review of all documents and records associated with forest management of the Pineland Forest during the audit term. Input from the public was solicited through an online survey, advertisements in newspapers and a direct mailing of a short survey to all businesses, organizations and a representative sample of individuals listed in the FMP mailing list (as provided by the MNR).

The audit team also conducted interviews with persons and groups involved in or impacted by forest management on the Forest during a one-week site visit. The audit team examined a number of randomly selected sites using a helicopter and trucks for access. All of these procedures are consistent with the Independent Forest Audit Process and Protocol.

The audit team can make recommendations to address observations of material non-conformances, or situations with a significant lack of effectiveness in forest management activities. As a result of this audit, the audit team made five recommendations. Best practices can also be provided to recognize highly effective novel approaches to various aspects of forest management may represent best practices or, applications of established management approaches which achieve remarkable success. One best practice is provided in this report.

One recommendation is directed at ensuring that forest management planning follows the process as outlined in the Forest Management Planning Manual while four aim to improve practices in implementation of the plan. The audit team is concerned about practices that might lead to a decline in the black spruce component of the forest and that a reduced presence of spruce across the Forest may go unnoticed and undocumented if analyzed only at the forest unit level. Two of the recommendations provided in this report provide direction to address this concern.

The best management practice was given to recognize EACOM's information management system.

The audit team concludes that management of the Pineland Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the SFL held by the Pineland Timber Company Limited. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of Sustainable Forest Licence 550816 for a further five years.



Brad Chaulk, R.P.F.



Peter Higgelke, R.P.F.

Co-Lead auditors on behalf of the audit team

2.0 TABLE OF RECOMMENDATIONS AND BEST PRACTICES

Recommendation on Licence Extension
<p>The audit team concludes that management of the Pineland Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the SFL held by the Pineland Timber Company Limited. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of Sustainable Forest Licence 550816 for a further five years.</p>
Recommendations Directed to the Pineland Timber Company Limited
<p><u>Recommendation 2</u>: The Company must look at ways of maximizing productive land along cut-to-length strips.</p> <p><u>Recommendation 4</u>: The Company must ensure that spruce is maintained as a component of mixed wood stands and lowland stands on the Forest. This should be managed at the sub-forest unit level.</p> <p><u>Recommendation 5</u>: The Company must ensure that target white pine seed collection and inventory levels are met and develop a clear succession strategy for its first generation tree improvement orchards.</p>
Recommendations Directed to District MNR
<p><u>Recommendation 1</u>: MNR must ensure that the Final List of Required Alterations in the next Pineland FMP meets the intent of the FMPM.</p>
Recommendations Directed to Corporate MNR
<p><u>Recommendation 3</u>: Corporate MNR must review the recommended practice of regenerating black spruce through advanced growth in rich swamps.</p>
Best Practice
<p><u>Best Practice 1</u>: EACOM's information management system was deemed to be a best practice.</p>

3.0 INTRODUCTION

3.1 Audit Process

Independent Forest Audits (IFAs) are a requirement of the *Crown Forest Sustainability Act* (S.O. 1994, c. 25) (CFSA); every forest management unit in Ontario must be audited by an independent audit team at least once every five years. In specific circumstances, the five-year period may be extended by the Minister of Natural Resources by a period of two years or less.

The Pineland Forest is located within the Ministry of Natural Resources (MNR) administrative districts of Chapleau and Timmins, with the Chapleau District acting as the lead district for all forest management planning related activities on the Forest. The Pineland Forest is administered regionally by the Northeast Regional office in Timmins.

KBM Forestry Consultants Inc. (KBM) conducted an independent forest audit on the Pineland Forest for the five-year period April 1, 2007 to March 31, 2012. The auditees are the Pineland Timber Company Limited, the holder of the Sustainable Forest Licence (SFL) for the Pineland Forest, and the Chapleau District office of the MNR. The Pineland Timber Company has delegated all responsibilities for forest management and supervision on the Pineland Forest to the EACOM Timber Corporation (EACOM). The audit assessed the implementation of the 2006-2011 Forest Management Plan (FMP) for the period April 1, 2007 to March 31, 2011; the planning of the 2011-2021 FMP and the first year of its implementation (i.e. April 1, 2011 to March 31, 2012); and, the degree to which the contractual obligations of the SFL have been fulfilled.

The on-site portion of the audit occurred from October 01 through October 05, 2012 with document examination and interviews taking place prior to, during, and subsequent to this period. Included in this on-site portion of the audit were two days in the field examining a sample of the sites where forest management activities had occurred during the audit period.

The audit followed direction provided by the Independent Forest Audit Process and Protocol (IFAPP), developed by MNR to provide a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP states that the purpose of an IFA is to:

- a) assess to what extent forest management planning activities comply with the Forest Management Planning Manual (FMPM) and the Act;
- b) assess to what extent forest management activities comply with the Act and with the forest management plans, the manuals approved under the Act and the applicable guides;
- c) assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;
- d) compare the forest management activities carried out with those that were planned;
- e) assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit;
- f) review and assess a licensee's compliance with the terms and conditions of the forest resources licence.

IFAs are governed by a set of eight guiding principles as described in the IFAPP. Recommendations arise from audit team observations of material non-conformances, or may be developed to address situations in which the audit team identifies a significant lack of effectiveness in forest management activities. All recommendations made in this report are correspondingly described in full in Appendix 1 and are listed above in Section 2. A review of the achievement of objectives and contractual obligations are summarized in Appendix 2 and 3 respectively.

More detailed information on the audit process is provided in Appendix 4. A list of acronyms is presented in Appendix 5. Audit team members and their qualifications are presented in Appendix 6.

3.2 Management Unit Description

The text in this section was largely taken from the 2011-2021 Pineland Forest FMP and has been paraphrased as appropriate for this report.

The Pineland Forest lies, for the most part, in the Chapleau District of the Northeast Region and is administered from the Chapleau District office. The Pineland Forest is divided into two discrete sections: Foleyet and Gogama (the Gogama Management Unit or "GMU"). The Forest is located east of Chapleau, encompassing the community of Foleyet (see Figure 1). There are no Aboriginal communities located on the Forest but five have indicated an interest in the Pineland Forest: Brunswick House First Nation; Chapleau Cree First Nation; Michipicoten First Nation; Flying Post First Nation; and, Mattagami First Nation. The Forest is bounded by five forest management units: Gordon Cosens; Martel; Romeo Malette; Spanish; and Timiskaming.

The Pineland Timber Company has held a licence for the Pineland Forest since 1925 under a variety of terms and conditions with forest management planning becoming a responsibility in 1982 with the signing of a Forest Management Agreement (FMA). The Pineland Timber Company has undergone a series of ownership changes over the years with its present configuration established in 2010 after the transfer by Domtar, of its Forest Products Group, to EACOM. This transfer included responsibility for the SFL.

The present forest condition has been shaped by a series of natural events, forest harvesting and forest fire suppression. Timber harvesting has been ongoing on the Pineland Forest since 1914 when the Canadian National Railway (CNR) built a railway through to Foleyet. At that time axe-cut railway ties were produced within a few kilometres of the railway right-of-way. By 1925 the Pineland Timber Company held licence to most of the Forest supplying timber for mining, poles, posts, pulpwood, and for sawlogs to its three nearby sawmills, all located on major water systems where they intersected the CNR line. The Pineland Timber Company was the only operating company in the old Sudbury District through the depression years 1929 to 1932.

By 1950, the Pineland Timber Company had added to more sawmills and was beginning to plan for all-weather road construction to service its sawmill facilities. From 1950 to 1962 highway development from Timmins through Foleyet and on to Chapleau was completed. Road access on the Pineland has become well developed with a network of logging roads providing access within the area.

The latest Forest Resource Inventory (FRI) for the Pineland Forest was based on 1992 aerial photography and was completed in 1995. Since then, FRI updates have been made annually through the incorporation of annual reports, information on depletions, road construction and successful forest renewal provided by the Pineland Timber Company.

The lands within the Pineland Forest are primarily Crown lands which comprise 99.3% (388,536 ha) of the 391,325 total area. The total managed production forest area is 312,664 ha (80.5%). The remaining Crown area is composed of Non-Productive, Protection and Other Crown Forested area totalling 39,673 ha (10.2%); and Non-Forested areas totalling 36,198 ha (9.3%).

The Forest is characterized by a variety of extensive terrain units including bedrock, morainal, glaciofluvial and eolian deposits. Local relief varies from low to high and the land surface is undulating to steeply and abruptly sloping. Rock knobs and ridges predominate in many areas giving rise to long, narrow, northeast trending lakes. The Forest is productive where soil depth to bedrock or soil drainage is not a limiting factor.

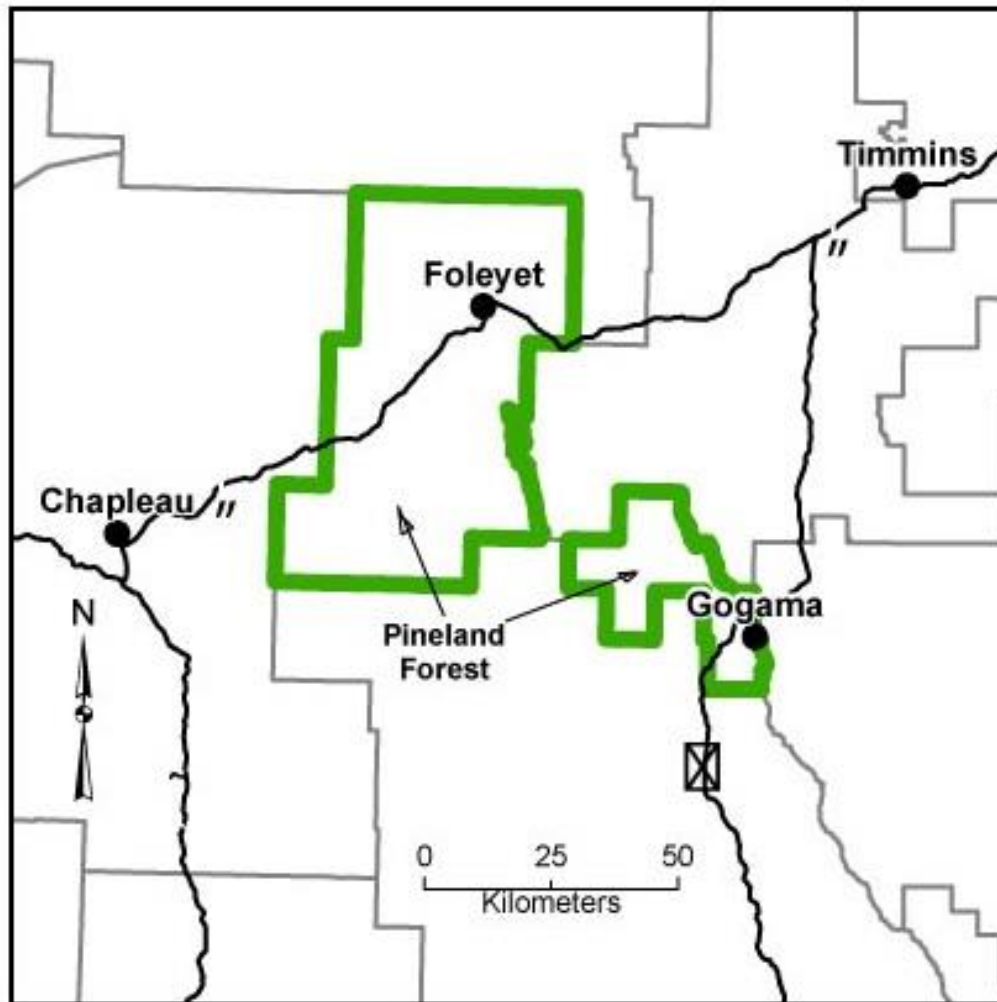


Figure 1. Location of the Pineland Forest.

The Pineland Forest lies completely within the Arctic Watershed with four major waterway systems that drain into James Bay. Approximately 4% of the Forest is covered by water and many of its larger rivers and lakes create formidable challenges to access development.

A rich abundance of natural resources is a significant attraction to recreation and tourism users of the Forest. To provide road-based recreational access while protecting remoteness for remote tourism values, a number of access restrictions in the form of gates and signage have been established within the Pineland.

The Pineland Forest lies entirely within the Boreal Forest Region of Canada which is typified by black and white spruce, balsam fir, jack pine, trembling aspen and white birch and sporadic patches of cedar in the lowlands. White pine, red pine and yellow birch are fairly abundant in small localized areas.

An age-class imbalance exists on the Forest, with 29% of the Production Forest landbase in the 0-20 age class. Of note is the low percentage, 8.61%, in the 41-60 age class and low percentages in the Jack Pine forest units; PJ1 and PJ2 combine for 13.2% of the Production Forest landbase with 0.85% and 0.63% in the 41-60 and 61-80 age classes respectively. The dominant forest unit is MW1 wherein 2.58% and 4.10% of the Production Forest landbase lies in the 41-60 and 61-80 age classes respectively.

3.3 Current Issues

The IFAPP requires a review of high priority aspects of the auditees' systems or activities. The audit will include examination of the following high priority aspects as determined through discussion with the auditees, review of the 2011-2021 FMP and the findings of the previous IFA audit report.

- The Pineland Forest has a high percentage of mixedwoods and due to the lack of hardwood markets there are difficulties accessing the conifer components of these stands. The 2006-2011 FMP was amended with the Regional Utilization Strategy and the 2011-2021 FMP included the strategy to enable the company to operate in these areas. There have been no compliance issues as a result of EACOM's operations; the company has been very proactive in terms of engaging the MNR to review the current utilization strategy. As a result a Regional Utilization task team was developed to review the existing strategy and ensure the most up to date science/information is incorporated. This review is currently ongoing.
- Access/Tourism – Issue resolution in both the 2006-2011 and 2011-2021 FMPs focused on Tourism/access issues. Through the development of the 2011-2021 FMP the planning team developed a new "Tourism Lake" prescription amongst other provisions. There was no Individual environmental assessment (EA) as a result. As the 2011-2021 FMP is implemented, further limitations on road access may create concerns for the general public and intensify the need for further public involvement and LCC input.

3.4 Summary of Consultation and Input to Audit

KBM used several different strategies for encouraging input to the audit process. Letters, including a one-page survey, were mailed to numerous stakeholders advising of the audit. The survey was also available to the general public on the KBM website (www.kbmr.org.on.ca). A summary of the methods and input is provided in Appendix 4.

4.0 AUDIT FINDINGS

4.1 Commitment

Since the Pineland Forest is registered as a Certified Forest under the Forest Stewardship Council (FSC) list of FSC-Certified Forests in Canada (Certificate Number SW-FM/COC-002002; Issue Date; 31.08.11; Expiry Date: 30.08.16), this principle was not audited. The commitment principle is deemed to be met since the Pineland Forest is certified under the FSC certification standard.

Still, during the field audit many opportunities for the audit team to engage with EACOM staff emerged. The audit team found EACOM staff to be knowledgeable of the policies, legislation and regulations relevant to forest management and associated forestry activities on the Pineland Forest.

MNR was found to have clear policies that identified a commitment to sustainable forest management; MNR staff correspondingly reflected this commitment in their work on the Pineland Forest.

4.2 Public Consultation and Aboriginal Involvement

Local Citizens Committee

The Pineland LCC is a longstanding committee with a number of very experienced members. As there were attendance issues during the previous audit period, the 2006 IFA recommended that the District Manager review the membership. To this end, two members were removed for lack of attendance and a

number of new members appointed on the recommendation of the LCC. The 2011-2021 FMP contributors page listed the members of the LCC and their affiliations. The membership effectively covers the range of community interests including anglers, hunters, cottagers, trappers, independent loggers, remote tourism, naturalists, local Metis, snowmobilers, contract harvesting and municipalities.

The absence of representation from the Aboriginal communities in or adjacent to the forest was notable considering that five Aboriginal communities had indicated an interest in the development of the 2011-2021 FMP. Aboriginal communities interviewed indicated that they were not interested in taking positions on the LCC because it is an *advisory* board and they felt their interests are of greater importance than the LCC format allowed.

The LCC assisted in the implementation of the 2006-2011 Plan and the preparation of the 2011-2021 Plan. With respect to implementation, the LCC reviewed and commented on Annual Work Schedules (AWSs), slash pile management, spray program issues and compliance on the Forest. The LCC nominated a representative to serve on the planning team during the creation of the 2011-2021 FMP. This member provided advice on public consultation, participated in the development of values maps, and provided advice to the District Manager on a number of discretionary issues. The LCC provided a brief statement at the beginning of the plan that indicated the general agreement and support of the 2011-2021 Pineland Forest FMP.

Issue Resolution

Development of the 2011-2021 FMP included the required five stages of public consultation. Notification for each of the five stages included the required text related to availability of issue resolution.

Public consultation during the development of the 2011-2021 FMP included discussions with many individuals and groups, particularly those affiliated with or affected by tourism. Many concessions were made to the FMP through consultation with these stakeholders. One issue progressed to the Regional Director Stage for resolution in January 2011. A response was provided by early February 2011 and this issue was not requested for individual environmental assessment (bump-up). There were no bump-ups of the 2011-21 FMP.

Aboriginal Involvement

There are five Aboriginal Communities adjacent to the Pineland Forest that have expressed an interest in the forest: Mattagami First Nation, Chapleau Cree First Nation, Michipicoten First Nation, Flying Post First Nation and Brunswick House First Nation.

For the audit, two Aboriginal communities, Flying Post and Michipicoten, elected to do phone interviews due to time-constraints during the week of the audit. In-person interviews were scheduled with representatives from Mattagami, Chapleau Cree and Brunswick House. During the field visit the representative from Brunswick House became unexpectedly unavailable. Subsequent attempts to make contact after the field visit were unsuccessful.

Interviewees had varying descriptions of their relationship with MNR from very good to disingenuous. All Aboriginal interview participants identified lack of capacity and resources as barriers to their full participation; however, two reported that even when their community makes great efforts to participate in forest management planning their input is most often disregarded. Further to this they reported that current consultation efforts do not recognize Aboriginal communities' deep connection to the land, their duty as stewards of the land and environment, and their inherent aboriginal rights. They also expressed concerns with CFSA in its current form criticizing that it does not create a sustainable forest, allowing practices that *denude* the land and threaten indigenous flora and fauna.

Although it is recognized that for some Aboriginal communities the Pineland Forest is at such a great distance that participating in the benefits provided through forest management planning is difficult, at least three communities feel they would be able to take advantage of the benefits. Condition 34 Reports

for the audit period were provided and detailed a number of activities undertaken by MNR intended to provide Aboriginal communities with ways of achieving more equal participation in the benefits provided through forest management planning. Despite these efforts, two Aboriginal communities felt that they were not provided adequate opportunities or opportunities to negotiate their involvement and all communities expressed a desire for accommodation due to lost hunting grounds, fishing lakes and trapping areas. These differing perceptions on the efforts and actual benefits to Aboriginal communities from forest management planning are concerning.

From 2007 to 2010, EACOM did not report on how it had worked with local Aboriginal communities to identify and implement ways of achieving a more equal participation in the benefits provided through forest management planning. From 2010 - 2012, EACOM reported having met this objective, stating that Aboriginal communities were participating on the planning team and the First Nations Task Team. However, as stated above, all Aboriginal communities suggested different efforts and opportunities for participation were desired. Given differing perceptions, it is suggested that EACOM and MNR make further efforts to work with Aboriginal communities to identify mutually agreeable ways for Aboriginal communities to participate in the benefits provided through forest management planning.

As per the FMPM (2009) requirements, MNR sent letters to the Aboriginal communities six months prior to the commencement of the formal public consultation process, inviting their participation in the preparation of the FMP including the opportunity to develop a specialized consultation approach. None of the communities chose this option.

All the required reports were completed; however, as a result of requests from the communities the *Report on the Protection of Aboriginal Values* and *Summary of Aboriginal Involvement* are not included in the supplementary documents of the FMP. Each community had a representative on the planning team but the Aboriginal communities declined representation on the LCC citing that it was an advisory body and therefore not an appropriate avenue for them to contribute to the FMP as they feel their role is greater than that of a stakeholder.

The district office funds the Chapleau Area Aboriginal Resource Team (CAART), to which four of the five impacted communities are members; Brunswick House, Michipicoten First Nation, Mattagami and Flying Post First Nation. CAART is an innovative initiative formed to overcome the lack of resources and capacity issues that prevent Aboriginal communities from fully participating in forest management and forest management planning. To that end it appears to have greatly facilitated their involvement on the planning team. Since finalization of the FMP, the number of CAART meetings has declined sharply. The audit team suggests that CAART efforts should continue throughout the implementation of the plan as should efforts to include input from Chapleau Cree.

4.3 Forest Management Planning

Preparation of the 2011-2021 FMP was underway during the replacement of the 2004 FMPM with the 2009 FMPM and therefore was prepared in accordance with the 2009 FMPM and relevant Phase-in Provisions described in the 2009 FMPM for management plans scheduled for renewal on April 1, 2011.

2011-2021 FMP Development and Content

The 2011-2021 FMP contains a thorough, well written management unit description. This includes required text related to the forest planning inventory, current forest condition, implications of forest land classifications and other factors such as age-class distribution. Discussion of changes from the 2006-2011 to the 2011-2021 FMP is also provided. Much of this information is located in the Analysis Package of the FMP.

The management unit description included a thorough and noteworthy discussion of habitat for wildlife species. Moose was a featured species in the 2011-2021 FMP. Based on data showing declining moose populations in the area, the planning team adopted a variety of approaches to ensure that habitat conditions remained as favourable as possible for moose. The FMP also provides a comprehensive review

of bird population tracking on the Pineland Forest and where forest habitats were thought to impact species decline, forest management objectives were developed to maintain important habitat types for the species. Other measures to protect important habitat for bird species in decline were provided in AOCs (Areas of Concern), for example directing operational conditions in AOCs in the vicinity of shorelines to promote beaver use and the development of beaver ponds for great blue heron, black duck and rusty blackbird (a species at risk).

It was found that the reliability of some of the assumptive work used in the FMP was not clearly discussed. For example, Site Index equations were used to 'grow' the forest and this is referenced in the FMP but is not specifically discussed. In addition, an algorithm was used to determine ecosite for a portion of the planning inventory. Again, although noted, a discussion of the reliability of this assumptive work is not included in the FMP. No recommendation is made for what is considered by the audit team to be a very minor finding.

Model Development and Application Leading to Long Term Management Direction

The modelling was well developed and documented in the analysis package and FMP text. The analysis package documents the information, assumptions and decisions made during the analysis conducted to support the development of the long-term management direction for the 2011-2021 FMP, and consists of text, tables, maps and other information. The analysis package was prepared to meet the requirements of the FMPM and was included in the supplementary documentation. It should be noted that the analysis package was completed following the 2004 FMPM but the FMP text and tables were prepared using the 2009 FMPM direction which had different FMP tables and descriptions.

The analysis package documented the progress checkpoints in Table 1 as follows:

Checkpoint #	FMPM Checkpoint	Endorsement Date
1	Planning Inventory (Part A, Section 1.1.7.5)	April 29, 2009 (MNR Region) April 30, 2009 (MNR District)
2	Forest Units and Habitat Classifications (Part A, Section 1.2.2.1 and 1.2.2.2)	Forest Units - April 21, 2009 Wildlife Habitat Units - Sept 2, 2009 (MNR Region)
3	Base Model (Part A, Section 1.2.4.4)	Nov 12, 2009 (MNR Region) Nov 17, 2009 (MNR District)
4	Scoping Analysis (Part A, Section 1.2.4.5)	Feb 05, 2010 (MNR Region) Mar 11, 2010 (MNR District)
5	Management Strategy (Part A, Section 1.2.6.2)	Mar 08, 2010 (MNR Region) Mar 11, 2010 (MNR District)
6	Preliminary Endorsement of Long-term Management Direction (Part A, Section 1.3.2).	Apr 29, 2010 (MNR Region) Apr 22, 2010 (Chapleau District) Apr 27, 2010 (Timmins District)

Table 1. List of Progress Checkpoints.

The completion of the required checkpoints (1) through (5) was documented in the analysis package. The MNR Regional Director's preliminary endorsement of the long-term management direction confirmed the satisfactory completion of the required information for progress checkpoint (6).

The modeling and associated documentation is thorough and complete and meets all the requirements of the FMPM (2009). The modeling assumptions and inputs used in the scoping analysis and to develop the proposed management strategy are acceptable. The objectives and constraints used in the modeling are reasonable and reflect the current approach to analysis applied in plan development.

The scoping analysis was performed consistent with direction provided in applicable guides, manuals, policies, etc. The results of the proposed management strategy from the Sustainable Forest Management Model (SFMM) indicate it meets the definitions of sustainability outlined in the FMPM. It was found that the modelling conformed to all standards listed in the audit protocol.

One important consideration was noted. Although not required by the FMPM, the analysis did not include examining the impacts of current management strategies on objective achievement and sustainability.

A major issue facing the Pineland Forest is the under-utilization of the hardwood volume. Currently, the market for hardwood from the Pineland is limited due to the permanent and temporary facility closures. The current harvest level is about 25% of historic volumes. During the development of this FMP the utilization standards were adjusted to reflect the lack of markets for hardwoods, allowing for the harvest of softwood volume in softwood and softwood leading mixed stands, while leaving the hardwood volume for future/return harvest. This practice started in the previous FMP term and has continued in the current plan and there is no indication that it will be ending in the near future. The analysis package and any related supplemental material did not contain an analysis of the impacts of this strategy.

The preferred management strategy relies upon volume from mixedwood and hardwood dominated stands to achieve volume objectives. In term 1, half the area allocated is from hardwood leading and hardwood mixed stands, for the first 6 terms it is over 45%. If a large percentage of these stands are not available for harvest it will impact the ability of the SFL to achieve volume objectives for spruce pine and fir.

The lack of markets for hardwoods will impact the future forest condition. Leaving the hardwood volume in the stand may impact renewal success. Without additional silviculture investments to lessen the impacts of higher levels of residual hardwoods, the renewal program will not achieve the modeled intensity, actual stocking levels and volume will be below the modelled levels, and species composition will be different than the modeled outcomes, specifically more hardwood than desired. The impact will be less area in what is considered 'intensive management' and those stands that are on the intensive track will have lower volumes realized in future terms. In addition, the increased hardwood will likely impact the future habitat unit classification of many stands. These areas may track on different habitat units and thus may not be preferred habitat as defined in SFMM for species like marten.

The MNR's direction to the planning team was this hardwood utilization strategy is expected to be applied for the short-term only, therefore, the impacts will likely be minor and the future forest conditions can still be achieved. Although this statement might be true and the reduced hardwood demand would be temporary, it is suggested that when the planning team is exploring the range of alternatives as described in the FMPM, it would be prudent to review the impacts of current management strategy. Even if current management strategies are expected to be implemented for only a short period, it would be informative to determine the impacts if the management strategies have an impact on objective achievement if implemented longer than intended.

Planning of Proposed Operations

Appropriate criteria were developed and used in the 2011-2021 FMP to select areas for harvest; it was noted that there is a good discussion of the effects of policy/regulatory factors on the selection of operating areas. Almost the entire allowable harvest area was allocated (within about 80 ha) and the planned harvest area is appropriately split between the two five-year terms of the FMP. The allocation contains some age class substitution, mainly to younger classes, but this is unavoidable and was not found to be excessive. Planning for maintenance of residual timber patches within cut areas was also well done.

Planned volumes to be derived from the Forest do not meet desired levels and are about three percent lower than modeled mainly due to balancing of objectives and the current forest condition. However, most commitments from the Forest can be met or nearly met with the allocation.

Contingency, bridging and conditions on regular operations were all effectively covered in the 2011-2021 FMP. A very thorough utilization section was also included in the FMP, providing clear direction in times of poor marketability.

Compliance planning completed included the 10-Year Compliance Plan for the 2011-2021 FMP and annual compliance scheduling in each AWS produced during the audit term. All of this documentation is complete and well done.

Planned renewal and tending operations in the 2011-2021 FMP were found to be in line with the proposed management strategy. Of the 33,815 ha planned for renewal during the term, 63% will be renewed naturally, 36% planted and 1% seeded; 37% will receive site preparation. These activities are consistent with the Long Term Management Direction (LTMD) which has a renewal intensity breakdown of 50% extensive, 9% intensive and 40% basic. Natural renewal of lowland conifer forest units (LC1) via a strip shelterwood harvest (50% canopy closure to be maintained – 2006-2011 FMP, page 265) was modelled on a basic yield curve which accounts for the 10% variation in planned natural vs extensive renewal, a reasonable approach.

Planned renewal support, revenues and expenditures were very well detailed and defined in the plan and by in large of sufficient volume to achieve the planned levels of renewal and tending activities. However, the total number of seedlings forecast to be planted (~1,341 seedlings/ha) was determined to be underestimated considering the implemented average from the previous term (1,555 seedlings/ha) and the implemented densities for the first year of the current plan (1,721 seedlings/ha). Nearly 74% (8,903 ha) of the total area for planting is modelled under a low density planting target of 1,200 seedlings/ha. The majority of these areas (96%) are mixedwood (MW2) forest units which under the FMP's boreal mixedwood strategy are carefully logged followed with scarification and planting within the harvest corridors. The company stated that implemented planting densities are based on total available planting microsites on each individual block and that the low density planting targets would likely be overachieved during the 2011-21 planning term. This is further discussed in the Plan Implementation: Silviculture section of this report.

Silvicultural ground rules (SGRs) in the 2011-2021 FMP were found to be compliant with the FMPM, the silvicultural guides and appropriately reflected the planned management strategy and direction. Multiple forest unit targets were used for the SGRs to better reflect the forest unit transitions modelled in SFMM.

Careful Logging Around Advanced Growth (CLAAG) is permitted on several upland forest units including MW1, MW2, SP1 & SF1. Although conditionally recommended under the Boreal Mixedwood Guide, there is concern that the widespread use of natural regeneration via advanced growth will lead to an increase of less desirable species such as balsam fir and a net reduction of spruce. The Boreal Mixedwood Guide states "*On upland boreal mixedwood sites, black spruce advance growth is generally only sufficiently abundant to be considered as a supplementary, rather than the primary, source of regeneration. Balsam fir advance growth is generally abundant, but longevity and growth is affected by spruce budworm population levels*". Further discussion and a recommendation pertaining to careful logging on upland sites is included in the Plan Implementation: Silviculture section of this report.

FMP Submission, MNR Plan Review and Approval

The Final List of Required Alterations included 197 comments in total from 26 reviewers – only a couple of the reviewers were MNR planning team members. Most of the comments were classed as 'required' and the others were deemed as comment only. Overall, the list was deemed to be fair with useful observations and it was noted that there were some positive comments included in the list – this is commendable. However, although the strategic direction in the FMP had already received Regional Director approval about one year previous at the conclusion of the LTMD phase, there were a number of strategic-level (i.e. directed at the LTMD) comments in the list. Regional Director preliminary endorsement of the LTMD is intended to enable planning of operations to proceed with some certainty and to minimize revisions of the LTMD in the draft FMP. The FMPM allows for revisions to the LTMD subsequent to endorsement if major changes in information or assumptions were to occur. This was not

the case for the Pineland FMP; rather, the strategic level comments were included in the Final List of Required Alterations because some reviewers were not available during the review of the LTMD.

The audit team believes that the Regional Director endorsement imparts acceptance of MNR's level of review of the LTMD. The strategic-level comments included in the Final List of Required Alterations made no mention of major changes in information or assumptions and therefore should not have been included in the Final List.

Recommendation 1: MNR must ensure that the Final List of Required Alterations in the next Pineland FMP meets the intent of the FMPM.

FMP Amendments

There have been three amendments to the 2011-2021 FMP. Two of the three amendments are to allow access to planned harvest areas. Issues with a semi-automated routine for buffering operational roads led to these amendments – this may now be fixed or additional amendments may need to occur. As this issue is well understood by the company and work has been done to mitigate problems, no recommendation is made. There were no major amendments to the 2011-2021 FMP during the period under audit.

4.4 Plan Assessment and Implementation

The current inventory of the Pineland Forest is based on 1992 black and white 1:20,000 scale aerial photography. It was found during the audit that the forest units derived from the inventory were incorrect in many instances. For example, a number of areas deemed SP1 (a spruce upland forest unit) were SB1 (spruce lowland). Correct identification of upland versus lowland sites is very important to ensure proper access; harvest and renewal treatments are planned and implemented. A new enhanced inventory with improved identification of tree species and ecosites is due in 2013. This new FRI will greatly improve strategic and operational planning on the Forest. Imagery from the new inventory is already being used by the company to aid with confirming stand species composition, etc. for operational planning.

Areas of Concern

The audit team examined a number of harvest blocks operated during the term of the audit, a number of which included the examination of AOCs within or adjacent to harvested areas. Accuracy of mapped AOCs was assessed with a GPS receiver that had been loaded with shapefiles of the blocks; no variances were found between mapped AOCs and their locations on the ground. Aerial imagery of each sample harvest block was provided and used to assess AOCs where direct on-the-ground examination was not possible.

Harvest

Actual harvest levels were well below planned for the audit term due to the sector downturn and closure of mills. For the 2007-12 period about 54% of planned harvest was achieved (9,917 ha of 18,490 ha – based on actual harvest area versus annual planned harvest area from the 2006-2011 and 2011-2021 FMPs).

Harvest operations during the audit term predominantly consisted of CTL (Cut-To-Length) operations, using a variety of equipment types to fell, sort, delimb, cut to length, pile and forward to roadside. One overlapping licensee also conducted full tree operations on a small area of forest during the audit term.

Utilization during the audit term was deemed to be very good – particularly considering the poor to dismal market conditions facing the company. Hardwood markets were particularly difficult and a strategy was amended to the 2006-2011 FMP and included in the 2011-2021 FMP to allow for modified

utilization during periods of difficult marketability. The lack of markets was obvious at some sites where white birch trees with veneer potential had been dropped in the bush or were left standing.

Boundary control was very good during the audit term – only one small trespass was discovered during compliance monitoring. The field audit did not find additional issues.

Harvest operators on the Forest have been trained to protect advanced growth through operating in a careful logging pattern of alternating cut and leave strips. Careful logging was implemented on almost all areas harvested during the audit term, including many upland mixed wood stands. There were a few areas where no advanced growth existed; these were fully clear cut where appropriate. The careful logging pattern is used to minimize site disturbance and maximize retention of regenerating trees (i.e. protect advanced growth). Cut strips are clear cut and operators reach into the leave/protection strips to remove mature trees while leaving regenerating trees to become part of the new stand. Some mature trees are also left for wildlife or silviculture use or due to poor marketability. The processed trees are then removed along the travel corridors.

With the exception of some very limited areas, soil disturbance was minimized on all sites viewed. This is a very positive accomplishment considering the abundance of lowland and fine-textured soils found across the Forest. The cut-to-length and careful logging system used during the audit term minimized soil disturbance through use of low impact equipment and through placing tree tops and branches on the cut strips for machinery to travel on.

Use of cut-to-length systems also had the positive outcome of virtually eliminating roadside accumulation of logging debris. Conversely, where excessive logging debris accumulates along cut trails natural regeneration of trees will be hampered. This was noted to be an issue at portions of some of the audit field sites, particularly the mixed wood areas. Regeneration success will likely still be achieved in these areas but stocking will be reduced. Movement of some of this material to areas not conducive to tree growth such as rock, thick shrub, etc. would uncover microsites appropriate for tree growth along the cut trails.

Recommendation 2: The Company must look at ways of maximizing productive land along cut-to-length strips.

The shelterwood harvest system was conducted on one site during the audit term and this one site was included in the audit sample. The company selects this system when the inventory indicates that a significant tolerant hardwood component exists. The site audited was a mixed wood stand with typical boreal tree species such as aspen and birch mixed with some red maple and white pine. Red maple is not considered a tolerant hardwood and there was not enough white pine in this stand to warrant sheltering. Because shelterwood is so infrequently used on the Forest, the audit team does not believe a recommendation is warranted. Instead a suggestion is made that the company review shelterwood as an option as there appears to be very little tolerant hardwood on this Forest.

Silviculture

The implementation of renewal activities during the audit period was assessed through field examination and document review to confirm compliance with the CFSA and the approved FMPs. The locations of renewal operations were consistent with the areas in the approved FMP and AWS. Forest Operation Prescriptions were found to be consistent with the SGRs and in correlation with the plan's LTMD.

On lowland sites the careful logging system is used to protect advanced growth (regenerating) black spruce and is called CLAAG. CLAAG is well suited to many of the lowland sites on the Forest and effective CLAAG prescriptions were viewed during the field audit. These sites had abundant black spruce regeneration and natural seeding will ensure renewal to the required density and species composition.

In richer swamps (i.e. ecosite 13) where CLAAG is prescribed, retention of mature larch, a prolific seeder, and cedar trees (due mainly to poor marketability) as well as advanced growth, is leading to increased presence of these species in the renewing stand.

When reviewing the silviculture guides for northeast and northwest Ontario, it was noted that advanced growth is recommended for regenerating black spruce in rich swamps (northeast ecosite 13) but it is not recommended in the ecologically identical ecosite in northwest Ontario (ecosite 37). This apparent discrepancy should be looked at to ensure CLAAG is practiced on appropriate sites. The auditors are aware of ministry efforts to update several guides according to the harmonized ecosystem system now employed in Ontario; actions to this recommendation may aid in that effort.

Recommendation 3: Corporate MNR must review the recommended practice of regenerating black spruce through advanced growth in rich swamps.

The majority of harvest during the audit term occurred in upland stands, many of mixed wood composition (i.e. conifer and hardwood mixes). The predominant prescription for these areas was natural regeneration with careful logging. Careful logging is not well suited to upland mixed wood sites since there is usually a larger diversity of trees, shrub patches can be more pervasive and advanced regeneration normally consists of tree species historically less desirable than spruce.

Harvest also occurred on many lowland stands during the term using the CLAAG logging method. As noted in the lead up to Recommendation 3, CLAAG is best suited to the less rich lowland sites dominated by black spruce. When CLAAG occurs on the more rich lowland sites, species such as larch and cedar are known to increase in presence.

What was observed during the audit of records, documents and field sites is that, on average, pre-harvest spruce levels are not being re-attained following a natural renewal prescription on many upland and lowland sites. The prior recommendation (#3) involves the direction in silviculture guides with regards to lowland stands. The following speaks to the decreased presence of spruce on these sites.

Section 4.7 in this report notes some key forest unit transition trends for the 2006-2011 period. Notable is the large overachievement in transition to both mixed wood forest units and the lowland conifer forest unit. This has come at the expense of the lowland and upland spruce forest units, which have underachieved. This means that more lowland spruce stands are being converted to lowland conifer (larch and cedar dominated) stands than is planned and more upland spruce stands are being converted to mixed wood stands than is planned.

These transitions are counter to plan objectives and are very large over a short period of time. It is believed that actions following from Recommendation #3 should provide better direction with regards to careful logging in lowland stands and thus eventually reduce the transition from lowland spruce to larch and cedar. Thus, the following focuses on maintenance of spruce on the Forest.

The silviculture guide for Northeast Ontario (Northeast Book III: Ecological and Management Interpretations for Northeast Site Types, 1997) lists advanced growth as a 'Conditionally Recommended' treatment for renewing black spruce on the mixed wood ecosites 3a and 3b noting "*black spruce advanced growth is not of sufficient quantity or distribution to form a major part of the new stand and will have to be augmented with another regeneration option*". On two other mixed wood ecosites (6a and 6b) advanced growth is a 'Not Recommended' treatment with the note that advanced growth is predominantly balsam fir. This guide direction means that a black spruce forest unit cannot be expected from careful logging of many upland mixed wood stand types (this practice was not planned for or witnessed during the audit). This also means that, in the absence of active renewal (i.e. planting spruce), balsam fir will become a more dominant proportion of the conifer composition in many of these mixed wood stands.

Harvesting a mixed wood stand (conifer or hardwood mixes) and naturally renewing to a mixed wood stand will work and is appropriate on most sites and was practiced on the Pineland Forest during the audit but, the auditors noted that, on average, pre-harvest spruce levels in many of these mixed wood stands are not being re-attained following a natural regeneration prescription. This was evident in some areas where advanced growth consisted mainly of balsam fir and birch with little spruce. Thus the mixed wood stands are being preserved and the conifer component is being maintained with balsam fir supplanting the spruce component.

According to Annual Reporting a shift from conifer-dominated to mixed wood and from black spruce to other conifer lowland forest units is already occurring on the Forest (see section 4.7 and the text for Recommendation #3). This is concerning but is at least known and can be easily reviewed/analyzed and considered by the planning team for the next FMP. Of greater concern, due to the broad definition of some forest units, is that reduced presence of spruce across the Forest may go unnoticed and undocumented if analyzed/managed only at the forest unit level. Instead, the auditors suggest that sub-forest unit spruce composition is also planned for and managed. The following recommendation is made with the core consideration that spruce is an important species that needs to be maintained across the Forest.

Recommendation 4: The Company must ensure that spruce is maintained as a component of mixed wood stands and lowland stands on the Forest. This should be managed at the sub-forest unit level.

Implemented renewal intensities were by in large closely in line with the FMP's LTMD prorated to the actualized forest unit harvest distribution during the audit period. Implemented extensive renewal was determined to be 10% higher than the prorated targets in the FMP. Intensive renewal target were slightly surpassed (~1%) while basic target were underachieved by 10%. Despite the severe economic downturn experienced during the audit period, the company was able to fulfill the majority of its planned renewal operations.

Mechanical site preparation operations were implemented on 3,245 ha (56% of planned) of which 2,946 ha were power trenched with the remainder being straight bladed. Blading operations were found to effectively windrow slash while minimizing excessive soil disturbance. Power trenching operation did provide sufficient microsites for planting however poor mineral soil exposure was noted in areas with heavy slash. Poor mineral soil exposure was a contributing factor to reduced stocking in the block viewed for aerial seeding. The company will be using a heavier power trencher (Bracke T26) during the next five years which is expected to improve mineral soil exposure and slash alignment.

A total of 5,986,430 seedlings were planted over 3,864 ha (68% of planned) with an average density of 1,578 seedlings/ha. Implemented planting operations viewed during the field audit were found to be very well executed with excellent microsite selection, inter-seedling spacing and species selection. Aerial seeding operations were implemented on 83 ha (29% of planned) and were found to have sufficient stockings in areas where site preparation created adequate mineral soil exposure and deciduous competitions was adequately controlled. A preference for the planting of jack pine is the largest contributor to the underachievement of aerial seeding targets. Several planted sites were viewed during the field audit which would have been well suited to aerial seeding with jack pine. The company should look to meet its planned aerial seeding target as it implements improved site preparation operations on the Forest.

Actualized seed collection volumes during the term were variable depending on species and seed zones. Target volumes for improved jack pine and black spruce were met along with general collection targets for seed zone 24 jack pine and white spruce. The company did not collect any jack pine, white spruce and black spruce seed for seed zone 22. Seed collection targets for white pine and red pine were also underachieved. White pine seed collection targets were not met due to cone worm infestations at the Gurd seed orchard. The White pine seed inventory for the Pineland forest is currently depleted. Recent updates to the Northeast improved seed breeding zones have amalgamated seed zones 22 and 24 on the Folyet block of the Pineland Forest into the Saganash (jack pine) and Ivanhoe (black spruce) breeding zones. These changes have allowed EACOM, through permission granted by the Northeast Seed Management Association (NESMA), to utilise seed sourced from zone 22 and 24 on the entire Folyet parcel of the Pineland forest. Given the Company's ability to move seed from these seed lots, current seed inventories with the exception of white pine was found to be of sufficient volume to meet planned renewal objectives.

Currently there are two first generation improved seed orchards which supply zones 22 and 24 jack pine and black spruce seed. Both of these sites are aging with a maximum production capacity of ten years. Succession planning in the development of second generation orchards has been curtailed by the

members of NESMA. EACOM has indicated its commitment to continuing the use of improved seed and is considering several options for succession. Given the current FMP's planned use of improved seed for up to 45% of jack pine and black spruce seedlings, a clear decision that supports tree improvement succession planning is required to avoid any future supply shortfalls.

Recommendation 5: The Company must ensure that target white pine seed collection and inventory levels are met and develop a clear succession strategy for its first generation tree improvement orchards.

A total of 5,560 ha (45% of planned) were declared as being renewed naturally during the audit period. The company typically delays declaration of naturally renewed areas up to four year post harvest to coincide with the completion of artificial renewal operations in adjacent blocks. This practice is done primarily to avoid the double counting of naturally declared areas receiving supplementary renewal treatments in areas deemed to have insufficient stocking. The FMPM (2009) (page E-10 lines 36-38) does stipulate a normal reporting period of one year post disturbance for naturally renewed stands; however, MNR did not have any concerns with the delayed reporting of the naturally renewed areas.

Chemical tending operations were conducted on 11,158 ha (152% of planned) during the audit period, done primarily with an aerial application. A small area (55 ha) was tended via a backpack ground spray. Tending operations were found to effectively control deciduous competition. The overachievement of planned tending targets was in part due to the required re-treatment of areas from the previous term which exhibited poor chemical efficacy. Sites on the Pineland Forest typically exhibit high levels of deciduous competition often requiring multiple sprays to attain suitable conifer release. The company implemented an effective tending monitoring program, annually assessing areas requiring treatment and the efficacy of treatments of the prior season.

Access

The field portion of the audit included examination of a sample roads and water crossings to assess their compliance with the FMPs and the associated guides and manuals plus activities performed under the Road Construction and Maintenance Agreement. Road construction was performed as described in the plan. Water crossing installations were well done and located as planned; AOCs at water crossings were protected as outlined in the FMPs. Activities outlined in invoicing related to the Road Construction and Maintenance Agreement were found to be have been completed as documented.

4.5 System Support

EACOM is currently FSC certified; therefore, assessment of IFAPP protocols pertaining to System Support (Principal 5) is not required. However, throughout the course of the audit and concurrent with the completion of the required protocols, the company's information management systems and procedures were determined as being exemplarily and, in the opinion of the auditors, warranted a best practice.

EACOM's information management system is built around its integrated GIS (Geographic Information System) database. The company utilizes ArcGIS® Server to enable web hosting of spatial and non-spatial data which allows for remote access of information, secure data storage and tiered information access clearance. System input is controlled via designated GIS technical staff that ensures accurate data entry and eliminate duplication. Protocols set a maximum of two weeks for field data to be transferred into the system. A spot check of Silvicultural Effectiveness Monitoring (SEM) data found it to be consistent with observations during the field audit and of sufficient quantity and quality to accurately monitor renewal success and identify areas requiring remedial treatments.

System outputs for FMP planning, FRI, AWS submission and Annual Reports are easily generated under the current system while technical updates from THE Forest Information Manual (FIM) are continually being used to refine mandated outputs and ensure compliance with all submission requirements.

EACOM's Environmental Management System (EMS) web interface was also deemed to be extremely well executed with clear access to required documents and policies for both company and contract staff.

Contract harvesting staffs are also able to access maps and GIS shape files for approved harvest allocations further adding to operational efficiencies.

Best Practice: EACOM's information management system was deemed to be a best practice.

4.6 Monitoring

Compliance

Planning completed for compliance monitoring was well done by EACOM and MNR. This included the 10 Year Compliance Plan included with the 2011-2021 FMP, the annual schedules produced for each AWS and MNR's Annual Compliance Operating Plan (ACOP) for each year. One deviation was that the year-end summary of the 2009-2010 ACOP was not completed. This is considered a minor finding and no recommendation is made.

During the audit term EACOM was responsible for reviewing and submitting Forest Operations Information Program (FOIP) reports completed by the contracting groups. EACOM also completed reporting for overlapping licensees. This arrangement was in accordance with the compliance plans in effect during the audit period.

Implementation of compliance monitoring was well done by EACOM staff – 345 FOIP reports were completed during the audit term. This level was appropriate for the operations conducted and reporting timelines were met for most reports (some completion reports were found to be completed as a bunch at year end but this was not considered to be a significant issue). Only two non-compliances were found by industry during the audit term – neither was noteworthy.

MNR also completed 64 compliance inspections throughout the audit term. This level of monitoring generally met the ACOP targets set by MNR but some specific targets were not met in some years. For example, at least 10% of renewal and maintenance activities were to be inspected during the 2007-2008 year and none occurred. Also, a minimum of 20% of water crossings were to be inspected annually but that target was not always met. MNR also had a target of one joint inspection for each year. These only occurred in the final year of the audit term but annual joint compliance meetings were also held. MNR found three non-compliances during the term, again, each was considered minor (e.g. two instances of missing approval for crossing and a 0.09 ha AOC incursion). Underachievement of some specific MNR targets during the audit term was not considered significant.

In total 409 inspections were completed during the term with five non-compliances found (over 99% compliant). This is an excellent record. The relative lack of findings during the field audit (when compared to most other forests audited) corroborated a high rate of compliance during the term.

Silviculture

During the audit period, a total of 21,920 ha were surveyed (142% of planned) for free growing assessment status. The overachievement of Free To Grow (FTG) survey targets during the audit period was in part due to meeting the terms of the previous IFA's recommendation to the reduce free-to-grow backlog area. 1,163 ha had been assessed using intensive ground assessments with the remainder assessed using extensive aerial assessments. Ground assessment data was used to calibrate aerial survey calls particularly in naturally regenerated blocks.

The audit team examined FTG areas from a helicopter. Overall, FTG calls were found to be consistent with species, stocking and height conditions observed during the aerial portion of the field audit. FTG assessments completed during the audit period were well done and completed in accordance to the Silvicultural Effectiveness Monitoring Manual for Ontario and FIM. Invitations to the MNR were extended throughout the audit term to participate in the aerial surveys with a single joint MNR/Company survey conducted in 2009.

Supplementary silvicultural assessments and surveys conducted by the company during the audit period included; post harvest silvicultural inspections, site preparation quality assessments, tree plant quality assessments, one year post plan survival assessments, tending and spray efficacy surveys. Supplementary surveys and assessments conducted during the audit period were found to be thorough and provided sufficient information to determine the need for remedial treatments. Monitoring information was found to be extremely well managed via the Company's GIS which was found to be a best practice (see System Support section of this report).

The MNR implemented a SEM program for the Chapleau District throughout the audit period in accordance to the direction provided by MNR region. A prioritized approach was used in completing the required core tasks based on available resources and funding. MNR staff completed the ground assessment of approximately 4.75% (1,043 ha) of company submitted FTG surveys and completed spot assessment of implemented silvicultural activities throughout the term. A very good working relationship exists between the company and MNR allowing for the fluid transfer of monitoring information and any requirements for improvement.

4.7 Achievement of Management Objectives and Sustainability

Achievement of Management Objectives

The 2006-2011 FMP outlines 17 objectives related to forest diversity, social and economic matters, provision of forest cover and silviculture. The audit team found one objective to be not met, the other were either met or partially met. The full suite of objectives from the 2006-2011 FMP are provided in this report as Appendix 2 – Management Objectives Table accompanied by the assessment of each objective by the audit team, with comments

Silviculture Objective #2 spoke to improving the quality of low volume and/or degraded forest stands with the target of conducting improvement cuts on approximately 100 ha of low volume or degraded stands. Although under achievement of planned harvest levels were a contributing factor (53% of planned), only 5% of targeted barren and scattered stands were harvested during the term of the FMP. This objective was not met.

Although the primary contributing factor to the partially met objectives was the under achievement of the planned harvest, herbicide targets were significantly over achieved due to poor treatment efficacy in 2006 and subsequent retreatment. The audit team notes that the extremely competitive sites which characterize the Pineland Forest will make herbicide reductions difficult.

Year Ten Annual Report

As part of the Independent Forest Audit, EACOM was required to prepare a Year Ten Annual Report for the Pineland Forest. This report was found to have been prepared according to the direction provided in the FMPM, providing comparisons and trend analysis from plans dating back to 1992. Text in the report indicates that comparisons between the past four management plans would be difficult due to changes in management unit boundaries, through management unit amalgamations and separations, and different forest units. Comparisons were made where appropriate notes are included on the tables to identify differences between the plans.

The planned harvest area has changed slightly since 1992 with actual harvest levels falling significantly during the 2001-2006 period: 1992-1997 = 84%; 1997-2001 = 85%; 2001-2006 = 63%; 2006-2011 = 52%). The sharp decline in harvest during the last term was not uncommon in Ontario with the poor state of the economy at that time. While utilization of spruce-pine-fir volumes fell from 85% in 1992-1997 to 69% in 2001-2006, poplar utilization fell considerably across the plans: 145%; 82%; 64% and 30%.

Planned versus actual tree planting levels varied slightly across the terms and has remained consistent with actual harvest levels. Actual versus planned levels of site preparation have changed across the time

period (58%; 97%; 93% 62%) while mechanical site preparation declined sharply during the latter term (82%; 97%; 90%; 64%). Other than 1992-1997, actual tending levels have consistently exceeded those planned.

Reported regeneration success (renewed areas meeting minimum stocking and species requirements without regard to the intended forest unit) was met on 92% of the areas surveyed from 2006-2010 (13,495 ha surveyed). The company indicated that the balance of the area (1,018 ha) required additional height growth to reach FTG status and was to be re-assessed throughout the current planning term. Reported silvicultural success (renewed areas meeting minimum stocking and species requirements as well as the desired forest unit) was met on 37% of the areas surveyed from 2007-2010. Table 1 provides silvicultural success and regeneration success for the Pineland Forest between 2006 and 2010.

Forest Unit	AR-13 Totals (2006-2010)			Percent		
	Silvicultural Success	Regeneration Success	NSR	Silvicultural Success	Regeneration Success	NSR
Bw1	261.3	811	101.4	22%	91%	9%
Lc1	386.1	451	11.1	46%	99%	1%
Mw1	143	234.4	52.6	33%	88%	12%
Mw2	444.7	816.4	205.4	30%	86%	14%
Pj1	691	226.5	45.6	72%	95%	5%
Pj2	327	224.1	37.7	56%	94%	6%
Po1	1394.1	1659.7	408.5	40%	88%	12%
Sb1	628.5	2106.2	87.1	22%	97%	3%
Sf1	421.2	678.1	58.9	36%	95%	5%
Sp1	186.9	270.4	10.3	40%	98%	2%
Total	4883.8	7477.8	1018.6	37%	92%	8%

Table 2: Reported Silvicultural Success and Regeneration Success by Forest Unit for the period 2006-2010.

Of the total area assessed 6,658 ha (49%) were naturally regenerated with 24% of the total area reaching the single target forest unit. This represents a departure from the strategic model which assumes multiple forest unit targets when regenerating stands under an extensive yield curve. This issue has been addressed in the current FMP through the use of multiple target forest units particularly for extensively treated areas. The Year Ten Annual Report noted an 88% increase in silviculture success for extensively treated areas surveyed in 2010-2011 when the multiple forest unit target method was applied. This allows for better benchmarking of survey results to what is being modelled in the FMP.

Figure 2 shows the depleted area, SGR target area and FTG area by forest unit for the period 2006-2010. General trends in forest unit transitions were analysed based on the submitted FTG information. Key trends include:

- Overachievement of targeted MW1 (260%), MW2 (146%), LC1 (94%) and PJ2 (30%) forest units
- Underachievement of targeted SB1 (-48%), SP1 (-40%), BW1 (-32%), PJ1 (-29%) and PO1 (-24%) forest units.

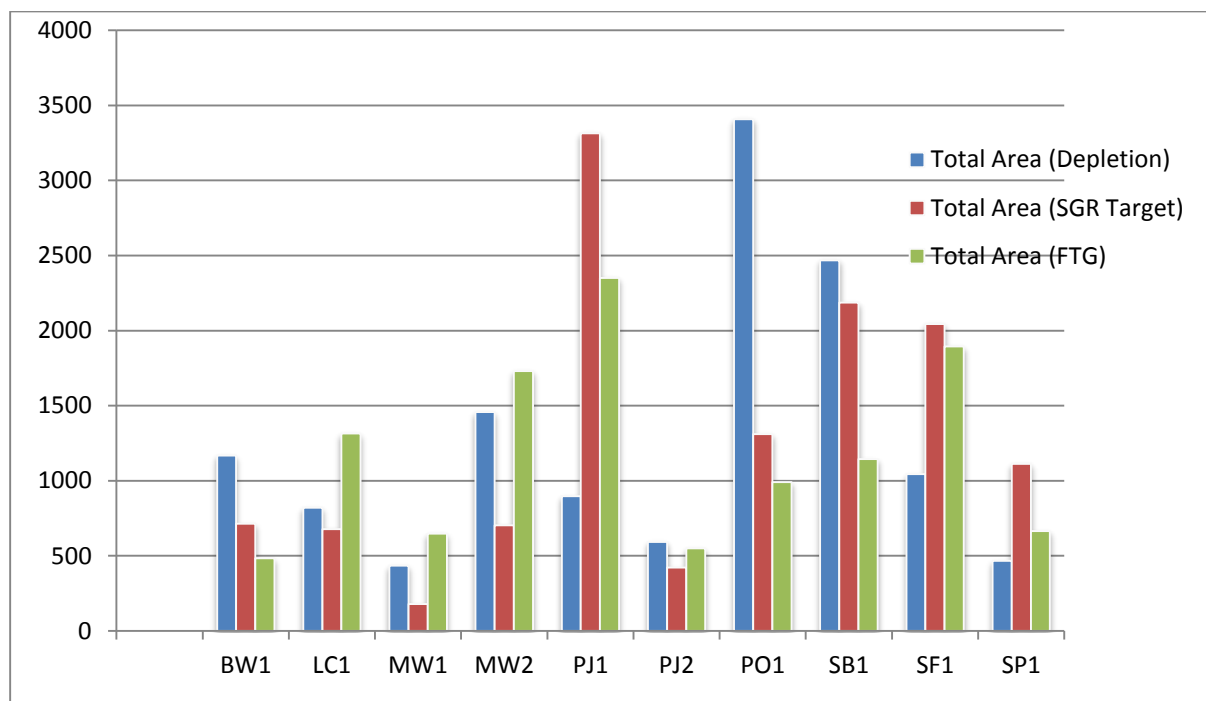


Figure 2. Reported depletion area, SGR target area and FTG area by forest unit for the period 2006-2010.

The data shows that spruce dominated lowland stands (SB1) are moving away from spruce domination with an increase in the cedar and larch component (LC1). Recommendations 3 and 4 are provided to address this concern. Overall, conifer and hardwood dominated forest units are underachieving SGR targets with the balance moving towards mixed wood forest unit types. This is largely due to the broad capture of the mixedwood forest unit definitions and the outdated FRI which does not accurately describe the current forest composition of naturally succeeding stands.

Forest Sustainability

In developing its conclusions regarding sustainability of the Pineland Forest, the audit team considered information from a number of sources, principally the:

- 2006-2011 FMP; 2011-2021 FMP
- Annual Work Schedules for the audit period
- Annual reports of the audit period
- 2007 IFA Audit Action Plan Status Report
- Interviews with staff of EACOM and Chapleau District MNR
- Observations from sampled field sites

Although actual harvest levels were well below those planned, the audit team found that forest sustainability is being achieved on the Pineland Forest. The audit included an assessment of the achievement of objectives in the 2006-2011 FMP and found the objectives to have been met or partially met with one relatively minor exception. Partially met objectives were largely due to lower than planned harvest levels. The 201-2021 FMP was found to have been well prepared and written.

Harvesting and access development activities were examined and found to have been implemented well and according to plans. Forest renewal was maintaining pace with the harvest, with high regeneration success and lower silviculture success. Lower silviculture success is a reflection of lowland spruce stands transitioning to larch and cedar dominated stands and broadening forest unit definitions in successive plans. Mixed wood forest units in particular have broadened. For example, PJ2 has a minimum

requirement of 70% jack pine while the minimum requirement for MW1 is PJ + PR > 20%. A stand comprised of 60% jack pine with a PJ2 target is considered a silvicultural failure.

Of concern in this audit was the apparent decline in the spruce component of the renewing forest and recommendations are provided to address this concern. The recommendations provided in this audit report are made to address findings before they become a threat to forest sustainability.

4.8 Contractual Obligations

In the opinion of the audit team, the Company met all of the conditions of its SFL with the Crown, although areas exist where improvements could be made: negligible amount (\$6,593) of charges was outstanding; the Forest was not able to produce required aspen veneer; and, the Company should work with the MNR and Aboriginal communities to identify opportunities for the communities to achieve more benefits provided through forest management planning. For the complete list of SFL conditions and the degree of attainment of each condition as determined by the audit team, see Appendix 3 – Compliance with Contractual Obligations.

4.9 Conclusions and Licence Extension Recommendation

The audit team found that management of the Pineland Forest was well done during the period under audit. The 2011-2021 FMP was well written as were supporting documents throughout the audit period. Forest management activities performed during the period were in accordance with the respective forest management plan. Licence obligations were all met with a few insignificant variances – see Appendix 3.

It was found that several improvements could be made; five recommendations were made to improve the following aspects:

- Forest Management Planning - Recommendation 1
- Plan implementation - Recommendations 2, 3, 4 and 5

The Final List of Required Alterations included a number of strategic-level comments although the strategic direction in the FMP had already received Regional Director approval about one year previous at the conclusion of the Long Term Management Direction phase. The audit team believes that strategic level comments should not have been included in the Final List, and a recommendation is made.

Use of cut-to-length systems on the Pineland Forest had the positive outcome of virtually eliminating roadside accumulation of logging debris. Conversely, where excessive logging debris accumulates along cut trails, natural regeneration of trees will be hampered. This was noted to be an issue at portions of some of the audit field sites, particularly the mixed wood areas. Regeneration success will likely still be achieved in these areas but stocking will be reduced. Exposure of microsites appropriate for tree growth along the cut trails is needed.

In richer swamps (i.e. ecosite 13) where CLAAG is prescribed, retention of mature larch, a prolific seeder, and cedar trees (due mainly to poor marketability) as well as advanced growth, is leading to increased presence of these species in the renewing stand. When reviewing the silviculture guide for northeast Ontario it was noted that advanced growth is recommended for regenerating black spruce in rich swamps (ecosite 13) but it is not recommended in the ecologically identical ecosite in northwest Ontario (ecosite 37). The apparent discrepancy between silviculture guides with regards to rich swamps should be looked at to ensure CLAAG is practiced on appropriate sites across Boreal Ontario.

The auditors were concerned with an apparent decrease in the spruce component of the Forest. In the field portion of the audit, the auditors noted that, on average, pre-harvest spruce levels in mixed wood stands were not being re-attained following a natural regeneration prescription. This was evident in some areas where advanced growth consisted mainly of balsam fir and birch with little spruce. As well, annual reporting had noted a shift from conifer-dominated to mixed wood forest units on the Forest. Although concerning, it is at least known and can be easily reviewed/analyzed and considered by the

planning team for the next FMP. Of greater concern, due to the broad definition of some forest units, is that reduced presence of spruce across the Forest may go unnoticed and undocumented if analyzed/managed only at the forest unit level. Instead, the auditors suggest that sub-forest unit spruce composition is also planned for and managed. Spruce is an important species that needs to be maintained across the Forest.

Strategies to ensure adequate seed stocks for future needs are needed. While the 2011-2021 FMP has a clear objective to increase red and white pine on the Forest, the white pine seed inventory for the Pineland forest was found depleted. EACOM has indicated a commitment to continue to use improved seed for up to 45% of jack pine and black spruce seedlings did not have a clear plan for sourcing the improved seed.

Additionally, the audit team provided a best practice for EACOM's information management system. The information management system was core to the support of plan development, operational implementation and the reporting of target planned objectives.

Licence Extension Recommendation

The audit team concludes that management of the Pineland Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the SFL held by the Pineland Timber Company Limited. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of Sustainable Forest Licence 550816 for a further five years.

Appendix 1 – Recommendations and Best Practice

Independent Forest Audit – Record of Finding Recommendation # 1
<p>Principle: PRINCIPLE 3 – FOREST MANAGEMENT PLANNING</p> <p>Criterion: Criteria 3.6 FMP Submission, MNR Plan Review and Approval</p> <p>Procedure(s): 2. Review the preliminary and final lists of required alterations compared to FMPM requirements, documentation related to addressing required alterations, and have discussions with reviewers and the plan author to assess:</p> <ul style="list-style-type: none"> • the suitability of required alterations
<p>Background Information and Summary of Evidence: The Final List of Required Alterations included 197 comments in total from 26 reviewers – only a couple of the reviewers were MNR planning team members the remainder were other District, Regional and Provincial MNR staff. About 90% of the comments were classed as 'required' and the others were deemed as comment only.</p>
<p>Discussion: Overall, the list was deemed to be fair with useful observations and it was noted that there were some positive comments included in the list – this is commendable. However, although the strategic direction in the FMP had already received Regional Director approval about one year previous at the conclusion of the Long Term Management Direction phase, there were a number of strategic-level comments in the list. According to MNR, these comments were included because some reviewers were not available during the review of the LTMD.</p>
<p>Conclusion: The audit team believes that strategic level comments should not have been included in the Final List, and a recommendation is made.</p>
<p>Recommendation: MNR must ensure that the Final List of Required Alterations in the next Pineland FMP meets the intent of the FMPM.</p>

Independent Forest Audit – Record of Finding

Recommendation # 2

Principle: PRINCIPLE 4 – PLAN ASSESSMENT AND IMPLEMENTATION

Criterion: Criteria 4.3 Harvest. To review and assess through field examination whether information used in preparation of the FMP was appropriate and assess the implementation of the management strategy.

Procedure(s): Review and assess in the field the implementation of approved harvest operations. Include the following:

- assess whether: the harvest and logging methods implemented were consistent with the FOP; the FOP was consistent with the SGRs; the FOP was certified by an R.P.F. or other qualified individual, and actual operations, were appropriate and effective for the actual site conditions encountered including
 - residual stand structure required of the FMP including individual residual tree retention and downed woody material
 - whether harvest operations were conducted to minimize site disturbance taking soil and weather conditions into account
 - whether wood utilization followed the Scaling Manual by considering items such as stump heights, wood left on site
 - for selection silviculture system harvest and thinning projects assess and report on the percentage of residual damage and comment on the impact on future forest conditions and sustainability

Background Information and Summary of Evidence: The cut-to-length and careful logging system used during the audit term minimized soil disturbance through use of low impact equipment and through placing tree tops and branches on the cut strips for machinery to travel on.

Discussion: Use of cut-to-length systems also had the positive outcome of virtually eliminating roadside accumulation of logging debris. Conversely, where excessive logging debris accumulates along cut trails natural regeneration of trees will be hampered. This was noted to be an issue during the field portion of the audit, particularly on the mixed wood areas.

Movement of some of this material to areas not conducive to tree growth such as rock, thick shrub, etc. would uncover microsites appropriate for tree growth along the cut trails. Site preparation of the cut trails could also remove some of this material.

Conclusion: Regeneration success will likely still be achieved in these areas but stocking will be reduced.

Recommendation: The Company must look at ways of maximizing productive land along cut-to-length strips.

Independent Forest Audit – Record of Finding

Recommendation # 3

Principle: PRINCIPLE 4 – PLAN ASSESSMENT AND IMPLEMENTATION

Criterion: Criteria 4.3 Harvest. To review and assess through field examination whether information used in preparation of the FMP was appropriate and assess the implementation of the management strategy.

Procedure(s): Review and assess in the field the implementation of approved harvest operations. Include the following:

- assess whether: the harvest and logging methods implemented were consistent with the FOP; the FOP was consistent with the SGRs; the FOP was certified by an R.P.F. or other qualified individual, and actual operations, were appropriate and effective for the actual site conditions encountered including
 - residual stand structure required of the FMP including individual residual tree retention and downed woody material
 - whether harvest operations were conducted to minimize site disturbance taking soil and weather conditions into account
 - whether wood utilization followed the Scaling Manual by considering items such as stump heights, wood left on site
 - for selection silviculture system harvest and thinning projects assess and report on the percentage of residual damage and comment on the impact on future forest conditions and sustainability

Background Information and Summary of Evidence: On lowland sites the careful logging system is used to protect advanced growth (regenerating) black spruce and is called CLAAG. CLAAG is well suited to many of the lowland sites on the Forest and effective CLAAG prescriptions were viewed during the field audit. These sites had abundant black spruce regeneration and natural seeding will ensure renewal of these areas to the required density and species composition.

In richer swamps (i.e. ecosite 13) where CLAAG is prescribed, retention of mature larch, a prolific seeder, and cedar trees (due mainly to poor marketability) as well as advanced growth, is leading to increased presence of these species in the renewing stand.

Discussion: When reviewing the silviculture guide for northeast Ontario it was noted that advanced growth is recommended for regenerating black spruce in rich swamps (ecosite 13) but it is not recommended in the ecologically identical ecosite in northwest Ontario (ecosite 37).

Conclusion: The apparent discrepancy between silviculture guides with regards to rich swamps should be looked at to ensure CLAAG is practiced on appropriate sites across Boreal Ontario. The auditors are aware of ministry efforts to update several guides according to the harmonized ecosystem classification system now employed in Ontario; actions to this recommendation may aid in that effort. This recommendation examines the guidelines under which this practice occurs. The silvicultural implications of decreased spruce composition on rich lowlands are discussed with the next recommendation.

Recommendation: Corporate MNR must review the recommended practice of regenerating black spruce through advanced growth in rich swamps.

Independent Forest Audit – Record of Finding

Recommendation # 4

Principle: PRINCIPLE 4 – PLAN ASSESSMENT AND IMPLEMENTATION

Criterion: Criteria 4.3 Harvest. To review and assess through field examination whether information used in preparation of the FMP was appropriate and assess the implementation of the management strategy.

Procedure(s): Review and assess in the field the implementation of approved harvest operations. Include the following:

- assess whether: the harvest and logging methods implemented were consistent with the FOP; the FOP was consistent with the SGRs; the FOP was certified by an R.P.F. or other qualified individual, and actual operations, were appropriate and effective for the actual site conditions encountered including
 - residual stand structure required of the FMP including individual residual tree retention and downed woody material
 - whether harvest operations were conducted to minimize site disturbance taking soil and weather conditions into account
 - whether wood utilization followed the Scaling Manual by considering items such as stump heights, wood left on site
 - for selection silviculture system harvest and thinning projects assess and report on the percentage of residual damage and comment on the impact on future forest conditions and sustainability

Background Information and Summary of Evidence: The majority of harvest during the audit term occurred in upland stands, many of mixed wood composition (i.e. conifer and hardwood mixes). The predominant prescription for these areas was natural regeneration with careful logging. Careful logging is not well suited to upland mixed wood sites since there is usually a larger diversity of trees, shrub patches can be more pervasive and advanced regeneration normally consists of tree species historically less desirable than spruce.

Harvest also occurred on many lowland stands during the term using the CLAAG logging method. As noted in Recommendation #3, CLAAG is best suited to the less rich lowland sites dominated by black spruce. When CLAAG occurs on the more rich lowland sites, species such as larch and cedar are known to increase in presence.

What was observed during the audit of records, documents and field sites is that, on average, pre-harvest spruce levels are not being re-attained following a natural renewal prescription on many upland and lowland sites. The prior recommendation (#3) involves the direction in silviculture guidelines with regards to lowland stands. The following speaks to the issue of decreasing black spruce on these sites.

The Ten-Year Annual Reporting section of this report (section 4.7) notes some key trends of forest unit transition for the 2006-2010 period. Notable is the large overachievement in both mixed wood forest units (260% for MW1 and 146% for MW2) as well as LC1 (94%). Also notable is underachievement in spruce dominated forest units (-48% for SB1 and -40% for SP1). So more lowland spruce stands (SB1) are being converted to lowland conifer stands (LC1) than is planned and more upland spruce stands (SP1) are being converted to mixed wood stands than is planned. Obviously some of the SB1 lost went to other forest units (likely upland based on the observations of this audit) or is currently classed as depleted but most went to LC1. So, following harvest of SB1, spruce is being partially or largely replaced by larch, cedar, balsam fir and other species in many of these stands. In the upland stands species such as balsam fir and white birch are becoming more prevalent.

Discussion: The transitions noted above are counter to plan objectives and are very large over a short period of time. It is believed that actions following from Recommendation #3 should provide better direction with regards to careful logging in lowland stands and this may eventually reduce the transition from SB1 to LC1. This recommendation focuses on maintenance of spruce on the Forest.

The silviculture guide for Northeast Ontario (Northeast Book III: Ecological and Management Interpretations for Northeast Site Types, 1997) lists advanced growth as a 'Conditionally Recommended' treatment for renewing black spruce on the mixed wood ecosites 3a and 3b noting "*black spruce advanced growth is not of sufficient quantity or distribution to form a major part of the new stand and will have to be augmented with another regeneration option*". On two other mixed wood ecosites (6a and 6b) advanced growth is a 'Not Recommended' treatment with the note that advanced growth is predominantly balsam fir. This guide direction means that a black spruce forest unit (SP1) cannot be expected from careful logging of many upland mixed wood stand types (this practice was not planned for

or witnessed during the audit). This also means that, in the absence of active renewal (i.e. planting spruce), balsam fir will become a more dominant proportion of the conifer composition in many of these mixed wood stands.

Harvesting a mixed wood stand (conifer or hardwood mixes) and naturally renewing to a mixed wood stand will work and is appropriate on most sites and was practiced on the Pineland Forest during the audit but, the auditors noted that, on average, pre-harvest spruce levels in many of these mixed wood stands are not being re-attained following a natural regeneration prescription. This was evident in some areas where advanced growth consisted mainly of balsam fir and birch with little spruce. Thus the mixed wood stands are being preserved by increasing balsam fir content not through maintaining the original conifer mix that included more spruce. The reduction in spruce composition in lowland stands has been discussed in Recommendation 3.

Conclusion: According to Annual Reporting a shift from conifer-dominated to mixed wood and from black spruce to other conifer lowland forest units is already occurring on the Forest. This is concerning but is at least known and can be easily reviewed/analyzed and considered by the planning team for the next FMP. Of greater concern, due to the broad definition of some forest units, is that reduced presence of spruce across the Forest may go unnoticed and undocumented if analyzed/managed only at the forest unit level. Instead, the auditors suggest that sub-forest unit spruce composition is also planned for and managed. The following recommendation is made with the core consideration that spruce is an important species that needs to be maintained across the Forest.

Recommendation: The company must ensure that spruce is maintained as a component of mixed wood stands and lowland stands on the Forest. This should be managed at the sub-forest unit level.

Independent Forest Audit – Record of Finding

Recommendation # 5

Principle: PRINCIPLE 4 – PLAN ASSESSMENT AND IMPLEMENTATION

Criterion: Criteria 4.6 Renewal Support. To review and assess through field examination whether information used in preparation of the FMP was appropriate and assess the implementation of the management strategy.

Procedure(s): 2. Review and assess whether actual tree seed collection and nursery stock production is appropriate for the site conditions encountered on the management unit, and at the level required of actual operations, in consideration of the management strategy and SGRs. Consider whether there are any gaps between the planned and actual levels; consider results of determination under criteria 6.

Background Information and Summary of Evidence:

Actualized seed collection volumes during the term were variable depending on species and seed zones. Target volumes for improved jack pine and black spruce were met along with general collection targets for seed zone 24 jack pine and white spruce. The company did not collect any jack pine, white spruce and black spruce seed for seed zone 22. Seed collection targets for white pine and red pine were also underachieved. No white pine seed was collected due to cone worm infestations at the Gurd seed orchard. The white pine seed inventory for the Pineland forest is currently depleted. Recent updates to the Northeast improved seed breeding zones have amalgamated seed zones 22 and 24 on the western block of the Pineland into the Saganash (Jack Pine) and Ivanhoe (Black Spruce) breeding zones. These changes have allowed EACOM through permission granted by NESMA to utilise seed sourced from zone 22 and 24 on the entire western parcel of the Pineland forest. Given the company's ability to move seed from these seed lots, current seed inventories with the exception of white pine was found to be of sufficient volume to meet planned renewal objectives.

Improved seed is currently sourced through the Northeast Seed Management Association (NESMA). Currently there are two first generation improved seed orchards which supply Zone 22 & 24 jack pine and black spruce seed. Both of these sites are aging with a maximum production capacity of ten years. Succession planning in the development of second generation orchards has been curtailed by the members of NESMA.

Discussion: The 2011-21 FMP has a clear objective to increase the amount of red & white pine on the forest so as to more closely resemble the historic forest condition. Without sufficient seed inventory of white pine the achievement of this objective is highly unlikely. EACOM has stated that continued cone worm infestations at the Gurd white pine seed orchard have resulted in little to no cone yield throughout the audit term.

EACOM has indicated its commitment to continuing the use of improved seed and is considering several options for succession. Given the current FMP's planned use of improved seed for up to 45% of jack pine and black spruce seedlings, a clear decision on tree improvement succession planning is required to avoid any future supply shortfalls.

Conclusion: EACOM should implement suitable solutions that will ensure the successful achievement of white pine cone collection targets.

A clear succession strategy for the first generation improved seed orchards must be determined to ensure the uninterrupted flow of improved seed in meeting with planned renewal targets.

Recommendation: EACOM must ensure that target white pine seed collection and inventory levels are met and develop a clear succession strategy for its first generation tree improvement orchards.

Independent Forest Audit – Record of Finding

Best Practice # 1

Principle: PRINCIPLE 5 – SYSTEM SUPPORT

Criterion: Criteria 5.2 Document and Record Quality Control

Procedure(s): 1. Assess the organization's information management system processes by considering

- identification of individuals or positions responsible to prepare, maintain, and revise individual documents, relevant procedures, schedules
- interviews with employees
- control of distribution of documents, both internally and externally
- control of obsolete documents
- ensuring a back-up process for important documentation
- availability of a current version of the relevant documents at all locations where activities essential to the effective functioning of the sustainable forest management system are performed
- storing copies of all relevant documents in a central location for audit inspection

include whether FIM technical requirements for base and values, FRI, FMPs, AWSs, amendments, annual reports are being met, including electronic submissions

Background Information and Summary of Evidence: EACOM is currently certified under the FSC third party certification standard. As such the auditors are not required to evaluate the company under the IFAPP protocols pertaining to System Support (Principal 5). However, throughout the course of the audit and concurrent with the completion of the required protocols, the company's information management systems and procedures were determined as being exemplarily and, in the opinion of the auditors, warranted a best practice.

EACOM's information management system is built around its integrated GIS database. The company utilizes ArcGIS® Server to enable web hosting of spatial and non-spatial data which allows for remote access of information, secure data storage and tiered information access clearance. System input is controlled via designated GIS technical staff that ensures accurate data entry and eliminate duplication. Protocols set a maximum of two weeks for field data to be transferred into the system. A spot check of SEM data found it to be consistent with observations during the field audit and of sufficient quantity and quality to accurately monitor renewal success and identify areas requiring remedial treatments.

System outputs for FMP planning, FRI, AWS submission and Annual Reports are easily generated under the current system while technical updates from FIM are continually being used to refine mandated outputs and ensure compliance with all submission requirements.

EACOM's EMS web interface was also deemed to be extremely well executed with clear access to required documents and policies for both company and contract staff. Contract harvesting staffs are also able to access maps and GIS shape files for approved harvest allocations further adding to operational efficiencies.

Discussion: EACOM's information management system is largely the product of its previous owner Domtar who implemented companywide reform of its information management technology, protocols and procedures. The company has embraced new technology which has led to the development of a system which ensures spatial accuracy and improves planning and operational efficiency.

Conclusion: A functioning information management system is core to the support of plan development, operational implementation and the reporting of target planned objectives. EACOM's information management system was found to meet and surpass all of the required criteria.

Best Practice: EACOM's information management system was deemed to be a best practice.

Appendix 2 – Management Objectives Table (2006-2011 FMP)

<i>Objectives</i>	<i>Auditor Assessment and Comments</i>
Forest Diversity Objectives	
<p>1. To maintain the area of forest cover types that would occur naturally on the Pineland Forest within the bounds of natural variation.</p>	<p>Met. SFMM projections describe movement towards management objective achievement. The 100-year projections for the Crown productive forest condition show that all of the components of the forest are maintained, with relatively little change. This suggests a slow migration toward a more natural forest condition; the modelling does offer a strategy for achieving this objective. Reduced harvest levels have slowed progress.</p> <p>Analyses conducted by the audit team indicate that short term adjustments to the planned strategies did not materially impact long term objective achievement. The audit team also provides recommendation 4 to ensure that in future periods the forest remains on track to achieve the objective.</p>
<p>2. To provide a level and type of disturbance pattern, using forest practices that within the limits of silvicultural requirements, moves towards resembling that which would occur naturally on the Pineland Forest.</p>	<p>Met. The Plan provided a template for moving toward a naturally occurring disturbance pattern. Actual progress occurred resulting in improvements in frequency and area distribution by size class. Disturbance patterns that existed on the forest at plan onset provided limitations to progress.</p>
<p>3. To increase the jack pine component of the Pineland Forest to more closely reflect the historic forest condition.</p>	<p>Partially Met. Modeling showed that more than one rotation was required to fully achieve first target and actual harvest level was lower than planned leaving second target under achieved. Figure 2 shows an increase in the jack pine FUs. Progress toward meeting this objective was apparent.</p>
<p>4. To increase the white pine and red pine component of the Pineland Forest to more closely reflect the historic forest condition.</p>	<p>Partially Met. 33% of the white pine and red pine area planting targets met. Actualized harvest of the targeted FU for white pine and red pine restoration was 61% of planned. These targeted FUs contained no white pine or red pine component at the time of harvest.</p>
<p>5. To provide for forest age class structure needed to maintain functional old growth ecosystem conditions.</p>	<p>Met. Modeled forest conditions for the 2006-2011 FMP project how the forest develops over time, in terms of its future structure and composition if the management strategies in the model are implemented the objective will be achieved.</p>
<p>6. To maintain the existing genetic diversity of tree species on the Pineland Forest.</p>	<p>Met: Implemented natural regeneration was in line with the plan LTMD and consistent with plan objective. All seed used for artificial regeneration was sourced from Seed Zone 22 and 24.</p>

	Recommendation 5 is provided to address concerns about white pine seed inventories and the future supply of improved seed.
Socio – Economic Objectives	
1. To ensure that the Pineland Forest is managed in a sustainable manner to provide an economical and predictable supply of quality wood fibre to user mills sourcing fibre from the Forest.	Met. Wood supply targets for this objective were supplied by NE Region. SFMM was used to determine sustainable harvest levels and to develop management strategies to manage predicted in spruce-pine-fir and poplar volumes to levels that industry could adapt to and what was considered to be socially acceptable. None of the management alternatives could fully meet the spruce-pine-fir and poplar volume objectives.
2. To ensure that forest management activities are planned and implemented in a manner in which opportunities for recreational, commercial, and other Crown-land activities can occur.	Met. Forest management planning included consideration of a broad range of stakeholder interests, some of which were not compatible with forest management activities. Specific operational prescriptions were used to mitigate remote tourism concerns. AOC prescriptions were developed to ensure that other Crown land opportunities could occur.
3. To provide opportunities for First Nation involvement in forest management planning activities.	Partially Met: Opportunities have been provided, as outlined in the Condition 34 reports, showing that the objective was met. However, Aboriginal communities expressed a desire to access different opportunities and accommodation for lost harvesting areas. To that end it is suggested that further efforts be made.
4. To maintain and protect identified local First Nation values in a manner which provides opportunities for First Nation cultural activities to occur.	Met. Planning team prepared Report on the Protection of Identified Native Values outlining AOC prescription.
Provision of Forest Cover Objectives	
1. To ensure the protection and maintenance of an acceptable level of wildlife habitat for rare, threatened, endangered and NER selected wildlife species. (This is also a test for sustainability).	Met. Marten core area met. Habitat levels for 19 featured achieved. Measures applied to protect and improve habitat for rare, threatened and endangered wildlife species.
2. To undertake all forest management operations using sound environmental practices such that any negative environmental impacts are avoided or minimized.	Met. During the field portion of the audit, the auditors found that efforts had been made to avoid negative environmental impacts caused by forest operations.
3. To ensure the protection and maintenance of riparian zones, water quality and habitat for fisheries resources within watersheds where forest management activities occur.	Met. AOC prescriptions were developed within the FMP to meet this objective. Field examination found that AOC prescriptions were implemented according to the plan.

Silviculture Objectives	
1. To enhance the value, growth and yield of forest stands to support the long term productivity of the Pineland Forest.	Partially Met. Silviculture activity targets were not fully achieved due to under achievement of harvest. Some work done towards meeting strategies although spruce strategy not met. Recommendations 3 and 4 provided to address the concern.
2. To improve the quality of low volume and/or degraded forest stands.	Not Met: Only 5% of targeted barren & scattered stands were harvested during the term. Reduced harvest levels (53% of planned) and the severe market downturn were the main contributors to not meeting this objective.
3. To reduce the losses to the productive forest landbase of the Pineland Forest from road construction and accumulations of roadside debris.	Met. Company's move to CTL system resulted in no slash at roadside. Areas where full tree harvest occurred were treated for slash accumulation at roadside. Recommendation 2 provided to address concern of debris accumulation in cut-to-length strips, directly related to the reduction roadside debris.
4. Reduce the use of pesticides through: tracking long and short term use and quantifying future measurable reduction targets, actively cooperating with agencies to develop effective and affordable alternatives to chemical pesticides, and efficient application strategies.	Partially Met: 48% overachievement of planned pesticide usage 2007-2011. Poor chemical efficacy in 2006 contributed to increased spray volumes in 2007 (194% of planned). Implemented spray program for the remainder of the audit period was well prescribed and of sufficient volume to attain the desired future forest condition. The Pineland Forest is characterised by extremely competitive sites often requiring multiple chemical tending applications to reach suitable conifer release. Failure to implement adequate tending treatments would contribute to the high likelihood of plantation failure. Tracking of long and short term pesticide usage completed as well as the determination a 5% reduction target in the 2011-21 FMP. EACOM did collaborate with several parties to investigate suitable vegetation control alternatives.

Table 3: Summary of the status of the 2006-2011 FMP Objectives

Appendix 3 – Compliance with Contractual Obligations

The following table provides the conditions of SFL No. 550816 for the Pinewood Forest. Each condition is provided on a separate row with comments by the audit team to report on the degree of attainment of the condition.

Licence Condition	Licence Holder Performance
Payment of Forestry Futures and Ontario Crown charges	Met. Ontario Crown Charges and Forestry Futures dues paid throughout the term. A negligible amount is currently outstanding (\$6,593).
Wood supply commitments, MOAs, sharing arrangements, special conditions	Met. Licence condition met where possible although the Forest is not able to produce required aspen veneer at this time.
Preparation of FMP, AWS and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA	Met. Documents preparation met requirements; document quality very well done.
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM	Met. 21,920 ha surveyed as FTG (142% of planned). A variety of types of silviculture assessments completed to develop treatment regime and track treatment success.
Wasteful practices not to be committed	Met. Utilization during the audit term was deemed to be very good – particularly considering the poor to dismal market conditions facing the company. Boundary control was very good during the audit term.
Natural disturbance and salvage SFL conditions must be followed	Not applicable. No natural disturbances during audit term.
Protection of the licence area from pest damage, participation in pest control programs	Not Applicable: No pest damage was reported
Withdrawals from licence area	Not Applicable.
Periodic review of licensee's performance <ul style="list-style-type: none"> • Audit action plan and status report 	Met. 2007 IFA included 14 recommendations, five of which were directed at the Company. Action Plan and Action Plan Status Report prepared as required. Evidence showed that the recommendations were either met or progress was being made, where appropriate.
Payment of forest renewal charges to Forest Renewal Trust (FRT)	Met: All outstanding charges to the Forest Renewal Trust were paid during the term.
Forest Renewal Trust eligible silviculture work	Met: The company maintained accurate records of invoiced silvicultural work. Records were found to be consistent with actual conditions viewed in the field.

Forest Renewal Trust forest renewal charge analysis	Met: FRT charge analysis was prepared annually. The completed analysis was consistent with the requirements of section 12.3 of the SFL
Forest Renewal Trust account minimum balance	Met: The required minimum balance was met on March 31 st of each year throughout the term.
Silviculture standards and assessment program	Met: EACOM maintains a silviculture standards assessment program that fulfills the contractual obligations associated with the SFL.
Aboriginal opportunities	Met: The 2010-2011 Annual Report describes opportunities that were provided to Aboriginal communities including a seat on the planning team and the creation of CAART. There is no mention of Aboriginal opportunities in other annual reports. Although some measures have been taken to meet this objective it is suggested that the Company make further efforts to work with the Minister and Aboriginal communities to identify opportunities.
Preparation of compliance plan	Met. EACOM prepared all compliance plans as required.
Internal compliance prevention/education program	Met. Compliance education activities performed by the Company.
Compliance inspections and reporting; compliance with compliance plan	Met. Implementation of compliance monitoring was well done by EACOM staff – 345 FOIP reports completed during the audit term. Level was appropriate for the operations conducted and reporting timelines were met for most reports.
SFL forestry operations on mining claims	Met. Claim holders were notified before forest operations occurred.

Table 4: Conditions of SFL No. 550816 for the Pinewood Forest and Degree of Attainment of the Condition.

Appendix 4 – Audit Process

The Independent Forest Audit Process and Protocol (IFAPP) was developed by MNR to provide a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP (2012) states that the requirements of the independent forest audit are to:

- a) assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the Act (CFSA);
- b) assess to what extent forest management activities comply with the Act and with the forest management plans, the manuals approved under the Act and the applicable guides;
- c) assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;
- d) compare the forest management activities carried out with those that were planned;
- e) assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit;
- f) review and assess a licensee's compliance with the terms and conditions of the forest resources licence;
- g) provide a conclusion regarding sustainability of the Crown forest.

The IFAPP is based on eight guiding principles and contains 148 procedures, most of which are applicable to the Pineland Forest. The audit procedure serves as a framework to provide a structured approach to evaluating whether or not forest management activities meet the requirements governing forestry practices on Crown land in Ontario. The guiding principles are:

- Commitment
- Public Consultation and Aboriginal Involvement
- Forest Management Planning
- Plan Assessment and Implementation
- System Support
- Monitoring
- Achievement of Management Objectives and Forest Sustainability
- Contractual Obligations

MNR categorized most of the IFA procedures based on complexity and their potential impact on forest sustainability. The IFAPP directs the audit team to assess through sampling, per audit principle and associated criteria, the three categories of procedures as follows:

- Administrative procedures – low risk: 20-30% of low risk procedures to be assessed
- Administrative but also having a bearing on sustainable forest management – medium risk: 50-75% of medium risk procedures to be assessed
- Procedures directly related to sustainable forest management – high risk: 100% of high risk procedures to be assessed

Table 5 summarizes the number of procedures selected for audit based on the direction provided by the IFAPP.

IFA Procedures Audited, by Risk Category								
Principle	Low Risk			Medium Risk			High Risk	Applicable Procedures Not Audited
	Applicable (#)	Selected (#)	% Audited	Applicable (#)	Selected (#)	% Audited	Audited #	
1. Commitment	2	2	100	-	-	-	-	
2. Public Consultation and Aboriginal Involvement	-	-	-	6	5	83	2	2.2.1
3. Forest Management Planning	5	3	60	9	7	78	38	3.1.1.1, 3.1.2.1, 3.2.2.1, 3.6.2.2
4. Plan Assessment & Implementation	1	1	100	1	1	100	9	
5. System Support	-	-	-	1	1	100	1	
6. Monitoring	1	1	100	6	5	85	11	6.5.4
7. Achievement of Management Objectives and Forest Sustainability	-	-	-	-	-	-	15	
8. Contractual Obligations	-	-	-	4	4	100	8	
Totals	9	7	-	27	23	-	84	

Table 5: Procedures selected by the audit team.

The audit process for the Pineland Forest consisted of eight components:

- Audit Plan:** KBM prepared an audit plan that described the schedule of audit activities, audit team members and their qualifications, audit participants, and auditing methods. The audit plan was submitted to EACOM, MNR and the Forestry Futures Trust Committee (FFTC).
- Pre-Audit Meeting:** As required (IFAPP Section 3.3), a pre-audit meeting was held to review the mandated components of the IFAPP, scheduling of the audit, the field stop schedule and logistics, and working accommodations for the audit team. The meeting was held via teleconference and included representatives of EACOM, Chapleau District office of the MNR, the LCC, MNR NE region, MNR Forests Branch and the FFC.
- Public Consultation:** Through individual letters sent via mail, KBM advised a sample of MNR's FMP mailing list that an audit would be taking place and invited input from the addressee.
- Newspaper ads** were published in Wawatay News, Chapleau Express and, Timmins Daily Press prior to the pre-audit meeting advising the public of the upcoming audit. As per the requirements of the IFAPP, the notices identified the purpose of the audit and invited public comment.

KBM also prepared a one-page survey to solicit public input to the audit process. The survey, in addition to a general letter informing recipients of the audit, was mailed to all businesses and organizations, and a representative sample of one-third of the individuals listed in the FMP mailing list (as provided by MNR Chapleau District). The survey was also available to the general public on the KBM website (www.kbmrq.on.ca).

5. **Aboriginal Engagement:** Letters were sent to the governing authority in all Aboriginal communities, inviting them to participate in the audit. The letter explained that their input is welcomed and encouraged them to contact KBM if they wish to participate in the audit or if they require more information before making a decision. Prior to the site visit, the auditor attempted to reach the District Resource Liaison Officer (DRLO), in Chapleau to explore whether a more effective engagement of Aboriginal Communities might be achieved with DRLO involvement. No contact was made prior to the audit so the audit team member contacted each community by telephone in the weeks prior to the site visit to arrange a time for the auditor to meet representatives in person.

During the week of the audit, the auditor met with the DRLO. The DRLO had previously held a number of positions at the Chapleau MNR, including plan author, and had an in-depth understanding of forest management and forest management planning, something not common to this position. The DRLO also demonstrated great sensitivity and understanding to the positions and issues faced by the local Aboriginal communities.

6. **Field Site Selection:** Annual Work Schedules and Annual Reports were used to ascertain the amount and type of forest operations carried out on the Forest during the audit period. Using spatial information obtained from EACOM, the audit team conducted a preliminary site selection which was shared with EACOM and the MNR to get feedback and provide opportunity for site selection consultation. This selection was a stratified random sample of sites to ensure that selected sites were representative of a cross section of all activities conducted on the Forest during the audit period and included harvest, silviculture, AOCs, and road construction and maintenance.

As well, invoicing related to the Road Construction and Maintenance Agreements was reviewed and a sample of those activities was included with the field site.

7. **Pre-audit Document Review:** Prior to the five-day site visit, the audit team reviewed documents provided by EACOM and MNR, including the:
- a. 2006-2011 and 2011-2021 FMPs for the Pineland Forest
 - b. Annual Work Schedules and Annual Reports associated with the above FMPs
 - c. Report of the Pineland Forest Independent Forest Audit 2002-2007
 - d. Pineland Forest Independent Forest Audit 2002-2007 Action Plan and the 2002-2007 Independent Forest Audit Action Plan Status Report for the Pineland Forest.
8. **On-Site Audit:** The objectives of the field site visits were to confirm that activities were conducted according to plan, that they conformed to provincial laws, regulations, and guidelines, and that they were effective. The on-site portion of the audit began on Monday October 01, with the opening meeting in EACOM's Timmins office. Field auditors spent the remainder of the day with EACOM and MNR representatives examining field binders, confirming field logistics and conducting interviews. Tuesday and Wednesday were used to complete field visits by helicopter and truck. One EACOM employee was present during the helicopter field visits and representative(s) of EACOM, MNR, the LCC, and Forestry Futures Trust Committee joined the audit team during the truck day. The audit team completed interviews with EACOM and MNR staff, examined documents, records and maps at the EACOM and MNR offices and developed the closing presentation during the remaining hours of the on-site audit.

Several stops provided the opportunity to audit multiple activities such as harvesting, renewal, values protection, etc. KBM committed to, and surpassed, a minimum of a 10% sampling of key activities and operations conducted on the Forest during the audit period. The 10% minimum sampling intensity is prescribed by the 2012 IFAPP.

Table 6 presents the actual sampling intensity for each forestry activity examined on the ground as part of the field site visits. Due to access and time restraints, the audit team relied on a helicopter to reach many of the selected field sites. The helicopter also provided opportunities for overviews of the subject areas, enabling overall examination of target blocks.

The closing meeting was held at the EACOM's Timmins office on October 05, 2012. This meeting provided a forum for the audit team to present and discuss preliminary audit findings with EACOM and MNR.

Activity	Total Area or Number (2007-2012)	Actual Sample Area	Actual Sample - Percent
Harvest clearcut (ha)	7,504	899	12.0
Harvest CLAAG (ha)	2,325	298	12.8
Harvest shelterwood (ha)	87	87	100.0
Natural Renewal	5,562	744	13.4
Plant (ha)	3,783	467	12.4
Seeding (ha)	84	84	100.0
Site Preparation mechanical (ha)	3,234	628	19.4
Tend chemical (ha)	11,190	1,117	10.0
Free-to-Grow (ha)	20,440	2,266	11.1
Area of Concern Categories (#)	14	3	21
Road Construction (km)	7.0	3	42
Road Maintenance (km)	348.0	67	19
Specified Procedures Review (ha)	4,982	579	11.6

Table 6: Audit sampling intensity for the Pineland Forest.

- Audit Report: The audit results are presented in this report following a brief description of the audit process and the forest licence area under review. Within the report, the audit team has made recommendations to address instances of a non-conformance to a law and/or policy, or an identified lack of effectiveness in forest management activities.

Recommendations from this audit must be addressed in an action plan developed by EACOM and MNR Chapleau District, with input and review by MNR Regional and Forest Management Branch representatives.

Suggestions are no longer highlighted in audit reports, nor will they be addressed in action plans. Any suggestions of the audit team have been incorporated within the regular text of this report.

Best practices are also be reported. Any practices so identified should be 'exceptional', not situations in which the forest manager is simply meeting a good forest management standard.

Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly, applications of established management approaches which achieve remarkable success may represent best practices.

Public Response

No responses from the public mail out were received.

Local Citizens Committee

Letters were mailed to 100% of current members of the LCC to notify them of the audit and invite their input. LCC members were also invited to participate in the opening and closing meetings and the field truck day and requested for interviews by auditors. An LCC member attended a portion of the field audit and two other LCC members were interviewed via telephone. Main concerns were roads, aerial spraying and tourism. Auditors also attended an LCC meeting in order to garner more input into the audit process.

Aboriginal Communities

Two Aboriginal communities conducted interviews over the phone, two communities participated in in-person interviews in their communities and one community was unable to complete an interview.

Overlapping Licensees, Contractors and Commitment Holders

All businesses listed in the FMP mailing list provided by Chapleau MNR were sent the one-page KBM survey and letter soliciting input to the audit.

EACOM

Several EACOM employees were fully involved in the audit including creating the field binders, making records/documents available to the audit team, participating in end-of-day meetings, attending the opening and closing meetings, providing interviews and hosting the field days.

Ministry of Natural Resources

Interviews were held with the Area staff - Supervisor, Forester and Technicians. MNR District personnel including the Area Forester and Acting Area Forester, the Area Biologist and the Area Technician also accompanied the audit team in the field for one day. The audit opening and closing meetings were attended by MNR Chapleau District personnel and one staff representative from the Timmins District office.

One representative from the Forestry Futures Trust Committee participated in the opening and closing meetings via teleconference and two representatives attended the field truck day.

One representative from MNR Forests Branch attended one field day and participated in the pre-audit and opening meetings via teleconference.

1 **Appendix 5 – List of Acronyms**

2	ACOP	Annual Compliance Operating Plan
3	AOC	Area of Concern
4	AWS	Annual Work Schedule
5	CAART	Chapleau Area Aboriginal Resource Team
6	CFA	Crown Forest Sustainability Act
7	CLAAG	Careful Logging Around Advanced Growth
8	CNR	Canadian National Railway
9	CTL	Cut-to-Length
10	EA	Environmental Assessment
11	EACOM	EACOM Timber Corporation
12	FIM	Forest Information Manual
13	FMA	Forest Management Agreement
14	FMP	Forest Management Plan
15	FMPM	Forest Management Planning Manual
16	FOIP	Forest Operations Information Program
17	FRI	Forest Resource Inventory
18	FSC	Forest Stewardship Council
19	FTG	Free-To-Grow
20	GIS	Geographic Information System
21	GMU	Gogama Management Unit
22	IFA	Independent Forest Audit
23	IFAPP	Independent Forest Audit Process and Protocol
24	KBM	KBM Forestry Consultants Inc.
25	LCC	Local Citizens Committee
26	LTMD	Long Term Management Direction
27	MNR	Ministry of Natural Resources
28	NESMA	Northeast Seed Management Association
29	SEM	Silviculture Effectiveness Monitoring
30	SFL	Sustainable Forest Licence
31	SFMM	Sustainable Forest Management Model
32	SGR	Silviculture Ground Rule
33		

1 Appendix 6 – Audit Team Members and Qualifications

Name/Role	Responsibilities	Credentials
Stephane Audet <ul style="list-style-type: none"> • Silviculture 	Assess silviculture planning and operations Assist in assessment of achievement of management objectives and forest sustainability.	R.P.F., H.B.Sc.F.; 12 years of forestry experience with a primary focus on silviculture. Stephane has been the silviculture auditor on six previous IFAs.
Brad Chaulk <ul style="list-style-type: none"> • Co-lead Auditor • Operations • Forest management planning 	Overall audit coordination and oversight of activities of the audit team. Assess portions of forest management planning Assess harvest planning and operations Assessment of achievement of management objectives and forest sustainability.	R.P.F., H.B.Sc.F.; over 18 years experience as a practising forester, educator and consultant; primary areas of practice are silviculture, forest management and forest inventory; completed ISO 14001 EMS Lead Auditor training; worked on 19 previous IFAs as either silviculture, harvest or planning auditor. This is Brad's second co-lead assignment.
Peter Higgelke <ul style="list-style-type: none"> • Co-lead Auditor • Forest management planning • Wildlife/Ecology 	Assess portions of forest management planning related to access development and to wildlife and other non-timber uses Assess AOC documentation and practices and aspects of forest management related to environmental protection and wildlife practices. Review of management objectives, contractual obligations, and forest sustainability.	R.P.F., M.Sc.F.; 31 years combined forestry experience in Ontario, Quebec, and Germany; experience as practicing consultant; completed ISO 14001 EMS Lead Auditor training; lead auditor on 5 IFAs, wildlife auditor on one Forest Management Agreement Review and 13 IFAs; harvest auditor on six IFAs.
Jennifer Keith <ul style="list-style-type: none"> • Consultation Auditor 	Assess Public Consultation and Aboriginal involvement in forest management planning and compliance with contractual obligations related to Aboriginal opportunities	M.A. B.A.; 12 years experience working with Indigenous peoples on self-government and related political development.
John MacGillivray <ul style="list-style-type: none"> • Modeling 	Review SFMM strategic planning.	M.F.; over 13 years experience in the forest sector with emphasis on long-term forest management planning and strategic business initiatives; responsibilities in the forest industry sector included wood supply analysis on 12 forest management plans, leading the analysis including growth and yield, succession, disturbance and renewal. This is John's sixth audit assignment.
Caleigh Sinclair <ul style="list-style-type: none"> • Secretariat 	Assist with audit logistics and undertake certain low or medium risk audit procedures under the guidance of the Lead Auditor.	H.B.Sc. Biology.; works with KBM renewable energy and forestry related planning projects; secretariat on one prior audit in 2010.

2
3

1 **Appendix 7 – Trends Analysis Report**

2 In accordance with the IFAPP, the auditee’s responsibility to prepare a Trends Analysis Report is
3 covered in the development of the Year Ten Annual Report. In the case of the Pineland Forest
4 IFA, the trends analysis requirements are contained in the 2010-2011 Annual Report which is
5 available electronically on the MNR website at:

6 <http://www.appefmp.mnr.gov.on.ca/eFMP/viewFmuPlan.do?fmuid=421&fid=100094&type=CURRENT&pid=100094&sid=10737&pn=AR&ppyf=2006&ppyt=2026&ptyf=2006&ptyt=2011&aryf=2010&aryt=201>

9