Caribou Forest

Independent Forest Audit

April 1, 2009 – March 31, 2014

FINAL REPORT

ArborVitae Environmental Services Ltd.

January 8, 2015

Table of Contents

1.0 EXECUTIVE SUMMARY

This audit assessed the management of the Caribou Forest during the period from April 1, 2009 to March 31, 2014, which covered years two through six of the 2008 Forest Management Plan (FMP). This Independent Forest Audit (IFA) reviewed the performance of both the SFL-holder, Resolute FP Canada Inc., and the Ministry of Natural Resources and Forestry (MNRF). MNRF has many responsibilities related to forest management, including review and approval of key documents such as the FMP, annual reports, annual work schedules, undertaking compliance inspections and overseeing management of non-timber resources, etc. In other words, the accomplishments of both parties with responsibilities related to forest management are covered by the audit.

The auditors viewed a sample of between 13 and 26% of all major types of operations undertaken during the audit period. Site inspections were made by truck and helicopter. The audit scope included a review of the process of developing the Phase II Planned Operations, which came into effect April 1, 2014, one year later than originally scheduled. In addition, the audit covered reporting, monitoring, consultation and compliance with licence conditions.

The economic backdrop to the audit period was not favourable for forestry, starting as it did just after the collapse of the U.S. housing market and the onset of a severe recession in many parts of the world. Although the tone of the sector has very gradually improved during the last several years, many mills in the vicinity of the Caribou Forest were closed during the audit period. As a result, the level of harvest during the audit period was only 15% of the planned level. Given that the management of caribou habitat is based on harvesting 10-15,000 ha patches of forest over a short period of time and then decommissioning access to the area, the low harvest level meant that there was little progress in finishing operations in caribou blocks, with the result that a large number of caribou blocks (twelve) remain active, with further operations needed before they are closed off. Should this situation continue, it would cause concern. However the Company has been refurbishing its sawmill in Ignace and re-started it in November 2014, and it is constructing a sawmill in Atikokan which is scheduled to begin operations in March 2015. Furthermore, the Hudson sawmill has re-opened and will draw timber from the Forest.

A sense of the potential impact of these new mills can be gained by considering that Resolute expects the Ignace sawmill to process 470,000 m^3/yr while Atikokan is projected to have a demand for 600,000 m^3/yr. In contrast, during the audit period, the harvest from the Caribou Forest averaged 78,000 m^3/yr.

As a result, the harvest on the Caribou Forest is expected to climb significantly and this should expedite the completion of operations on the active caribou blocks, putting the implementation of the DCHS back on track. The audit found that the procedures for closing caribou blocks were not well-defined, and a series of four recommendations enjoin the Regional and Corporate levels of MNRF to provide appropriate direction.

The audit found that forest operations were generally undertaken to a high standard, and a best practice was issued to the Company for its slash and chipper debris management. Forest renewal handily kept pace with harvesting and was quite effective, with the one caveat that the species compositions of many of the renewing stands were not quite as expected at the time of Free to Grow (FTG) assessment. As a result, the Company

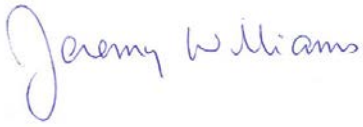
reported a silvicultural success rate of 25.1% during the audit period, well below the 88.8% renewal success rate that was achieved. Most of the successfully renewed stands that were not deemed silviculturally successful had a species composition that was similar but not the same as forecasted. In most cases, these results were due to unexpectedly high rates of natural ingress of jack pine.

The MNRF District is well administered and staff have a good working relationship with the Company staff. The Local Citizens Committee (LCC) functions at a high level and the MNRF compliance program is administered and implemented very effectively.

Of the fourteen recommendations issued, two were carried over from the previous IFA because they could only be implemented when the next full FMP is being prepared. Of the remaining twelve recommendations, eight are directed at Corporate or Regional levels of MNRF. Four of these are the aforementioned recommendations related to caribou block closure; others are concerned with issues as diverse as the Forest Information Portal, the time required to have Environmental Bill of Rights (EBR) notices approved and posted, FMPM direction for reporting planned Phase II harvest, and improving the responsiveness of existing mechanisms that identify wood available for other users. One of the carry-over recommendations and one of the new recommendations to Corporate MNRF from this audit are associated with the low silvicultural success rate reported by the Company, and the manner in which that rate is determined.

Two of three new recommendations directed at the Company and MNRF District (i.e. excluding Recommendations #3 and #13 which are carried forward from the previous audit) concern the need for stepped-up effort to engage with Mishkeegogamang First Nation while the third was administrative. While it is certainly challenging, Aboriginal engagement was one of the weaker areas of the IFA, which is notable given the high proportion of Aboriginal people in the local population.

With the overall high level of performance by the Company and MNRF, the audit team concludes that management of the Caribou 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 Sustainable Forest Licence held by Resolute FP Canada Inc. Forest sustainability is being achieved, as assessed through the IFAPP. The audit team recommends that the Minister extend the term of the licence by five years.



Jeremy Williams, R.P.F.
Lead Auditor

2.0 TABLE OF AUDIT FINDINGS

A description of the background information, related discussion and conclusions of recommendations is found in Appendix 1. Note that the two recommendations (**Recommendation # 3** and **Recommendation # 13**) have been carried over from the 2009 IFA.

Recommendation on Licence Extension
The audit team concludes that management of the Caribou 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 Sustainable Forest Licence held by Resolute FP Canada Inc. Forest sustainability is being achieved, as assessed through the IFAPP. The audit team recommends that the Minister extend the term of the licence by five years.
Best Practice
1. The Company has developed and implemented some creative ways of minimizing the loss of productive area due to roadside slash and chipper debris, and undertaken an exemplary program of managing its harvest debris during the audit period.
Recommendations Directed to the SFL Holder/MNRF District
1. District MNRF shall improve both the direct communications with Mishkeegogamang First Nation leadership and the continuity of meetings with them in order to facilitate discussions about benefits to the community as required by Class EA Condition 34.
2. The Company shall contact the Mishkeegogamang First Nation leadership to discuss training opportunities for future forestry operations.
3. The Planning Team for the next FMP shall provide in the FMP main text and in the Analysis Package as appropriate a clear explanation and rationale for the inputs, assumptions, and decisions made during the development of the LTMD for that plan. (This recommendation is carried forward from previous IFA as the subsequent FMP is not yet available.)
12. MNRF District and the Company shall ensure that the FOIP reporting timelines outlined in the Forest Compliance Handbook are being met.
13. During the development of the 2018-2028 FMP, the Company and District MNRF shall review the Free-to-grow survey data collaboratively to determine if any changes to the post-renewal succession rules used in strategic modeling, and/or the silvicultural standards associated with Silvicultural Ground Rules are warranted. (This recommendation is carried forward from the previous IFA since no FMP has been prepared since the last audit.)
Recommendations Directed to Regional or Corporate MNRF
4. Corporate MNRF shall examine its EBR procedures for reviewing, approving, and posting EBR notices that publicize FMP public consultation opportunities, with the intent of streamlining the process to avoid unnecessary delays.
5. Corporate MNRF shall revise the 2009 FMPM requirements for Tables FMP-11 and FMP-14 so that the Phase II planned harvest is accurately depicted by including any remaining Phase I planned harvest area and volume.
6. Corporate MNRF shall work with the forest industry to review the basis for determining when wood may be considered available and reported as such in the Wood Availability Reports.
7. Regional MNRF staff shall provide guidance to District MNRF staff on the appropriate FMPM mechanism for a timely review and approval of harvest block road rehabilitation efforts by the Company.
8. Regional MNRF staff shall provide clear criteria and expected outcomes for decommissioning and reclaiming of roads to remove linear features and increase productive forest**.**

9. Regional MNRF staff shall provide Sioux Lookout MNRF District staff with interim direction on criteria for accepting that an “A” Caribou block has been closed. The District Manager should assign a District MNRF staff person to oversee timely and appropriate negotiation of access to wood supply in Caribou blocks.
10. Corporate MNRF shall provide a glossary of commonly used words and phrases related to decommissioning or reclamation of roads including operational terms.
11. MNRF’s Regional Operations Division shall engage with Forest Information Portal users in the MNRF Districts to gain an improved understanding of the issues and shortcomings associated with the FI Portal and use the results to improve the efficiency and effectiveness of electronic file transfer.
14. Corporate MNRF shall develop appropriate metrics and methodologies to validate strategic modeling assumptions related to successional pathways, and to assess progress towards achieving long-term management direction.

3.0 INTRODUCTION

3.1 AUDIT PROCESS AND CONTEXT

The Crown Forest Sustainability Act (CFSA), and one of its Regulations (160/04), directs the Minister of Natural Resources and Forestry (MNRF) to conduct a forest audit of each of the province's managed forests every five years to assess compliance with the Crown Forest Sustainability Act, the Forest Management Planning Manual (FMPM), the forest management plan (FMP) and whether the licensee has complied with the terms and conditions of its Sustainable Forest Licence (SFL). The effectiveness of operations in meeting plan objectives and improvements made as a result of prior IFA results, are also to be evaluated. The guiding document which describes the precise manner in which audits are to be carried out is the Independent Forest Audit Process and Protocol (IFAPP), which is produced by the MNRF(available online at https://www.ontario.ca/environment-and-energy/independent-forest-audit-process-and-protocol). Consistent with the CFSA, the IFAPP requires the audit team to provide a conclusion regarding the sustainability of the Crown forest and, where applicable, a recommendation regarding an extension of the term of the SFL.

An important characteristic of the IFAs is that they review the performance of both the MNRF and the SFL-holder, which is Resolute FP Canada Inc (referred to in this report as Resolute or 'the Company'). The MNRF has many responsibilities related to forest management, including review and approval of key documents (including the FMP, annual reports, annual work schedules, etc.), overseeing management of non-timber resources, undertaking compliance inspections, etc. In other words, the activities and accomplishments of both parties with forest management responsibilities are covered by the audit.

This audit covers the period April 1, 2009 – March 31, 2014 which encompasses the second through sixth years of the 2008-2018 FMP. This period includes the development of the Phase II Planned Operations, which came into effect on April 1, 2014. The audit examined all forest operations that occurred within that period as well as the process of developing Phase II of the FMP. ArborVitae Environmental Services Ltd. (AVES) undertook this IFA using a four-person team and an administrator. Profiles of the team members, their qualifications and responsibilities, are provided in Appendix 6.

3.2 MANAGEMENT UNIT DESCRIPTION

The Caribou Forest is located in northwestern Ontario (Figure 1) at the northern boundary of commercial forest management in Ontario, in MNRF's Sioux Lookout District in the Northwest Region. There is one small community located in the Forest – Ojibway Nation of Saugeen – and Mishkeegogamang First Nation (formerly Osnaburgh) and Savant Lake are each located adjacent to the Forest. The largest nearby community is Sioux Lookout, which is approx. 70 km west of the southwestern portion of the Forest. The eastern portion of the forest is bounded by Wabakimi Provincial Park, one of the Province's largest protected areas.

Table 1 provides an area description of the Forest. The Caribou Forest has a relatively high proportion of fertile land, with 78 % of the area of managed Crown land classified as productive and only 5% as non-productive. With almost 17% of the unit in water, lakes and rivers comprise a significant portion of the forest area. There is very little patent (private) land on the forest – less than 2,500 ha.

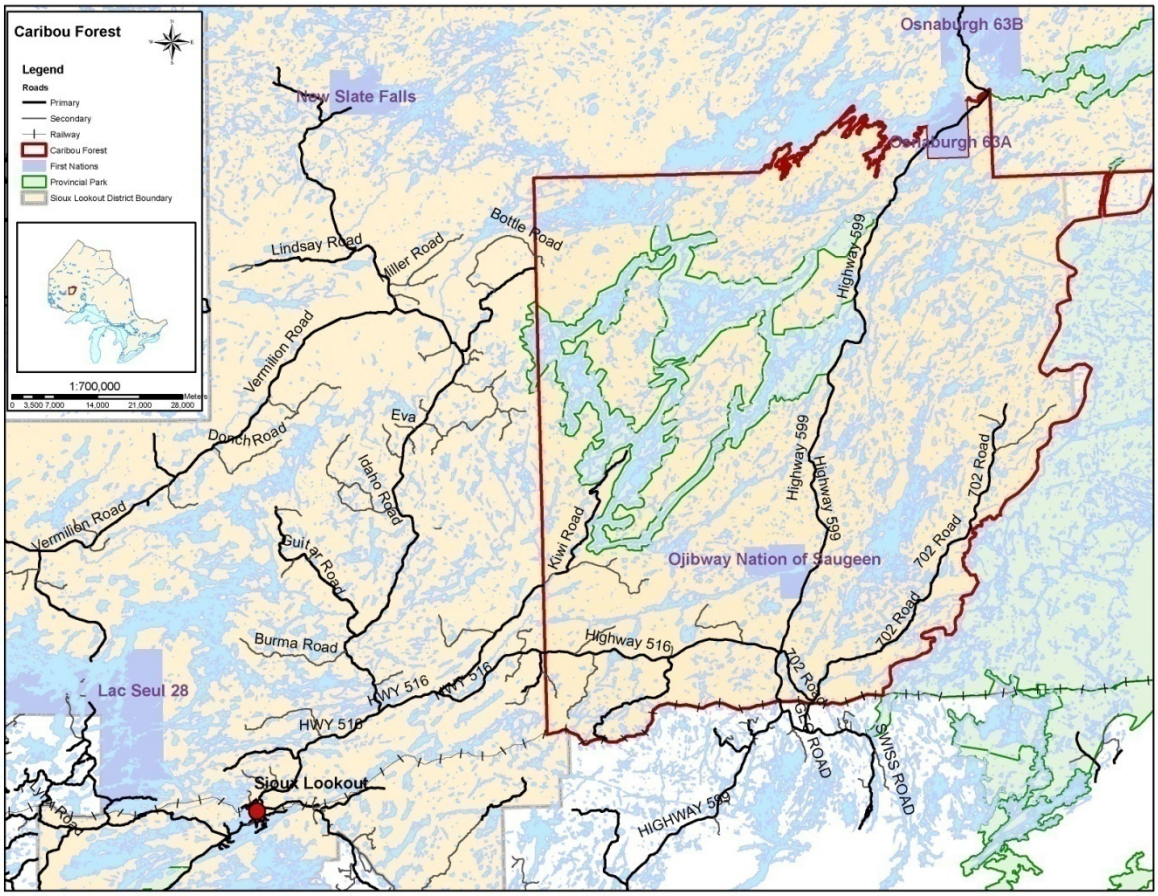


Figure 1. Map of the Caribou Forest including Main Roads, Communities & Native Reserves.

The forest type distribution on the Caribou Forest is indicative of the relatively simple structure of northern boreal forests, with a small number of tree species dominating the flora. Black spruce, jack pine, balsam fir, trembling aspen and white birch are the primary tree species, with less common species such as white spruce, balsam poplar, eastern white cedar, black ash, tamarack and even white pine and red pine occurring as scattered stands, individual trees, or minor components of stands.

Table 1. Area (ha) description of the Caribou Forest (Source 2008 FMP)

Land Class	All Land Ownerships[a]	Managed Crown Land
Water	132,697	102,848
Non-forested	3,469	2,653
Non-productive Forest[b]	34,325	31,841
Productive Forest[c]	547,726	483,992
Total	718,217	621,334

a – includes Crown managed forest, parks, private, and Federal land
b – areas incapable of growing commercial trees, such as muskeg, rock, etc.
c – forest areas capable of growing commercial trees.

Figure 2 shows the age class distribution of the Forest by major provincial forest type. As noted in the FMP, the Forest has only seen commercial harvesting since the 1970's, and it has only been extensive in some periods. As a result, the age class structure, which is imbalanced, is primarily indicative of fire suppression.

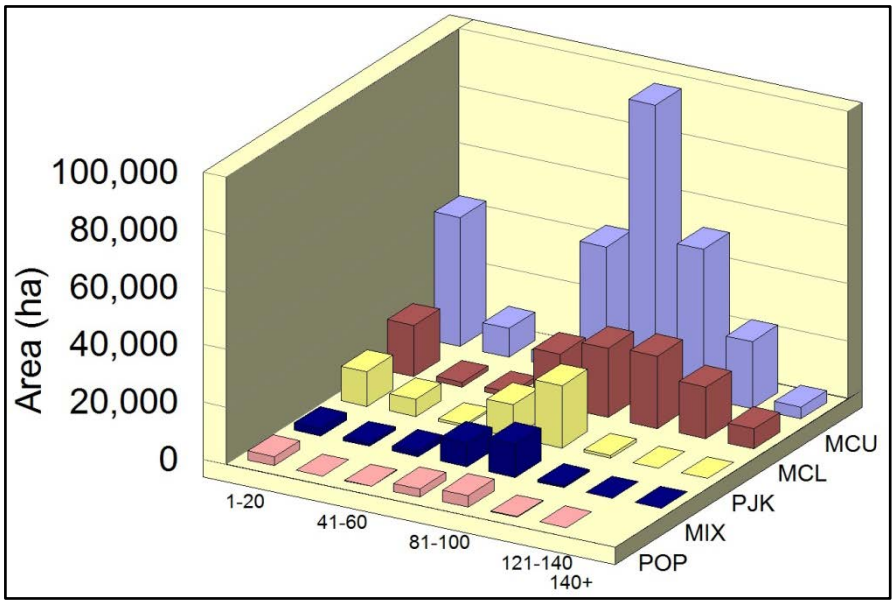


Figure 2. Age class distribution of major forest types on the managed Crown land portion of the Caribou Forest (From 2009 FMP, Table 2.) See Appendix 5 for definitions of the provincial forest types.

The Forest provides widespread recreational opportunities and commercial remote tourism is particularly important on the Forest. The FMP notes that important tourism areas on or adjacent to the Forest include Savant Lake, Lake St. Joseph, St. Raphael Provincial Park, the Miniss Enhanced Management Area and Wabakimi Park. The FMP also notes that there are 7 main base lodges and 16 outpost camps on the landbase, and the St. Raphael area and Albany River system are notable canoeing destinations. In addition, there are 33 documented campsites on the forest and seven identified lake access points. Other available commercial and recreational opportunities include trapping, baitfish harvesting, wild rice harvesting and the commercial walleye fishery in Lake St. Joseph. Crown land is also used extensively by local residents for hunting, fishing, snowmobiling, camping, berry-picking and other recreational pursuits.

Like all Ontario forests, the Caribou Forest supports a variety of wildlife species that depend on a mosaic of habitats. Many of the species common to the Forest are highly valued for providing recreational opportunities such as hunting and viewing, and commercial opportunities such as trapping. Moose and black bear are the main big game species in the area. However, as discussed in section 4.3, forest management is more strongly influenced by Woodland Caribou, which is classified as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Caribou are uncommon on the forest. The FMP reports that historically, several woodland caribou herds were present on the former Caribou West Working Circle and in the current Caribou Forest area. In 1975, ten caribou were reported in the area between Savant, Kashaweogama, and Barrington Lakes, and another herd of 50-100 was reported on the islands and the northern shore of Miniss Lake, migrating annually to Medcalf and Pashkokogan Lakes.

Other wildlife species classified as at risk either by COSEWIC or the Committee on the Status of Species at Risk in Ontario (COSARRO) known to occur on the forest, or whose range overlaps with the forest include wolverine, bald eagle, short-eared owl, black tern, great gray owl, barn swallow, common nighthawk, and olive-sided flycatcher.

3.3 CURRENT ISSUES

3.3.1 Low Level of Harvest

The previous IFA, undertaken in 2009, drew attention to the low harvest level in the Caribou Forest. During the 2002 FMP term, 63% of planned conifer and 47% of planned hardwood volume was realized. Since then, harvest levels have declined significantly due to the 2008 recession, which led to the closure of numerous mills in the area, including SPF sawmills in Ignace, Hudson, Atikokan, and Longlac, and reduced levels of operations at mills that survived.

On April 16, 2009, Resolute's predecessor company AbiBow entered bankruptcy protection. The Company successfully completed its reorganization and emerged from creditor protection on December 9, 2010. However, during the first five years of the 2008 FMP, the actual harvest area and volume were both only 15% of planned levels; during the audit period, preliminary data show that total volume harvested was 12.8%. Low activity levels imperil the effective implementation of the dynamic caribou habitat schedule (DCHS), which as the name implies, is a large pattern harvest schedule designed to emulate the natural disturbance pattern over a long time frame (>100 years). "Caribou blocks" are the large blocks (ca 10,000 – 15,000 ha) that create the pattern on the forest and may be harvested over a 20 year period. The success of the DCHS depends on relatively rapid harvesting of the caribou blocks; access to the block is removed once renewal is in place. By 60 years after harvest, the blocks are expected to provide suitable caribou habitat. At the time of the IFA field visit, there were 12 caribou "A" blocks[1] which remained "open", in that the Company had yet to complete all operations in them. While harvesting started in most of these blocks prior to the introduction of the DCHS, the Company had made little progress completing operations in the A blocks during the previous audit period, giving rise to a key recommendation in the 2009 IFA. The low level of harvesting in the current period continued to limit the ability of the Company to "close" blocks.

3.3.2 Low Rate of Silvicultural Success

While the previous IFA concluded that there was a successful renewal program on the Forest, the silvicultural success rate, which is based on the proportion of renewed area that is assessed as having the target forest composition, was low. The Trend Analysis in Appendix 7 reports a silvicultural success rate of 24% during the 2008-13 period, which contrasts with the 90% renewal success rate (i.e. renewal is considered successful when the amount and condition of renewal is sufficient to provide for a new forest stand). The previous IFA discussed this issue as well, and provided two related recommendations, and pointed out that factors such as an inaccurate Forest Resource Inventory assessment of the original forest unit could partially explain the low reported silvicultural success rate.

3.4 SUMMARY OF CONSULTATION AND INPUT TO AUDIT

Extensive input was provided to the audit by both Resolute and MNRF, covering all of the topics discussed here. In addition, the audit team solicited and received input from representatives of all four First Nations living in or with interests in the Forest, and from Métis Nation of Ontario. Approximately half of the members of the Local Citizens Committee were also interviewed. The audit used newspaper advertisements and a mailout targeted at remote tourism outfitters and lodge owners and trappers to solicit further input – one response was received. An overview of the key points made by interviewees and input providers can be found in Appendix 4.

[1] Caribou "A" blocks are the large areas of predominantly mature forest that are intended to be fully harvested over the first 20 year DCHS implementation period.

4.0 AUDIT FINDINGS

4.1 COMMITMENT

Because the Caribou Forest is certified to the Forest Stewardship Council national boreal standard and to the Sustainable Forestry Initiative standard, this principle is considered by the IFAPP to have been met and was not assessed during this audit.

4.2 PUBLIC CONSULTATION AND ABORIGINAL INVOLVEMENT

4.2.1 Public Consultation Process

The primary public consultation process during the audit period was associated with the development of the Phase II Planned Operations. Stage I Information Centres were held in Sioux Lookout, Savant Lake, and in the Lac Seul and Slate Falls Aboriginal communities. Also, several meetings were held at Mishkeegogamang and Ojibway Nation of Saugeen.

In addition to comments received during meetings at Aboriginal communities, six comments were received by the planning team during the broad public consultation process. Two comments, each related to implementation of caribou habitat management strategies, led to requests for issue resolution. One issue resolution request was resolved at the District Manager level and the second, which included concerns regarding a mining road constructed through a caribou calving AOC, spawned a request for an Individual Environmental Assessment that was denied because the request was submitted earlier than the prescribed response timeframe. The requester was informed of this and did not resubmit during the designated time period.

To respond to these issues, as well as to a recommendation from the previous IFA, MNRF assessed the viability of a longer, 120 year caribou mosaic, and required the Phase II Plan to include a schedule for completing harvest operations and road decommissioning of each caribou block.

4.2.2 Local Citizens Committee

The Sioux Lookout Local Citizens Committee (LCC) assists with consultation and provides advice to the District Manager for two forests – the Lac Seul Forest and the Caribou Forest. Throughout the audit period, the performance and effectiveness of the LCC continued the steady improvement reported in the 2009 IFA, to the point where the LCC now functions very well and makes a significant contribution to forest management. The functionality of the LCC was underpinned by the presence of a core of five members (including one Resolute employee and excluding MNRF staff) who were very regular attenders (each attended > 75% of all meetings during the past two years) and another five who attended approximately half of the meetings in the past two years. There is a reasonable diversity of viewpoints on the LCC, which has created a healthy tension.

The LCC benefits from good support from the MNRF and the Company. The meetings (and the minutes) are well organized and informative. The LCC is one of the most effective and functional that the audit team has seen.

4.2.3 Aboriginal Participation

All communities with an interest in the Forest were contacted and called prior to the audit week. The auditors conducted interviews and meetings with members/representatives of the following Aboriginal communities between Sept. 8 – Sept. 12:

- Mishkeegogamang First Nation (shown as Osnaburgh in Figure 1)
- Ojibway Nation of Saugeen
- Lac Seul First Nation
- Slate Falls First Nation.

The representatives were helpful in providing insight into the forestry interests of their communities. Details of input received are provided in Appendix 4. Values information for all of the communities meets the basic requirement of the FMPM. MNRF and the Company have provided maps and other information when requested. The communities have an opportunity to review proposed forestry operations.

Members of the Mishkeegogamang First Nation are hopeful of employment and other benefits associated with expansion of forest industry activities. However, previous efforts to provide training were not successful. The MNRF and the Company expressed a willingness to engage the First Nation on Forestry issues and the provision of benefits, but have found that engagement has been challenging and generally not successful. Issues identified during the audit that resulted in recommendations (**Recommendation # 1** and **Recommendation # 2** in Appendix 1) relate to the need for continuity in discussions and communication challenges in relations with Mishkeegogamang First Nation.

The audit team also spoke with representatives of the Métis Nation of Ontario (MNO). Corporate MNRF has determined that there are no Métis communities with an interest in the Forest and so, for now, there are no requirements that they be consulted.

4.3 FOREST MANAGEMENT PLANNING

4.3.1 Planning Team Activities

Planning team activities during the audit period included preparing the Phase II Planned Operations, five Annual Work Schedules (2010-11 to 2014-15) and five Annual Reports (2009-10 to 2012-13). All planning products were of reasonably good quality, were submitted and approved on time, with the exception of the Year 3 Annual Report (AR) and the Phase II Planned Operations. All had comprehensive MNRF reviews completed. The main challenges affecting the production and delivery of the Phase II operating plan were:

- completing the Year 3 AR so Phase II operations planning could proceed;
- developing new AOC's and Conditions on Regular Operations (CRO's) according to the 2010 Stand and Site Guide requirements;
- revising the silviculture ground rules;
- updating Phase II operations for 17 recently added Species at Risk (SAR) and ensuring consistency with the 2007 Endangered Species Act by adding a SAR section to the plan;
- defining a schedule for completing the remaining harvest, renewal, road rehabilitation in active caribou mosaic blocks;
- addressing conflicts between the Company wood supply needs and caribou, and issues regarding access to caribou mosaic A blocks with Mishkeegogamang First Nation (i.e. Medcalf and Dole Valley blocks); and

- delays in the Environmental Bill of Rights (EBR) public notification process.

The 2009 IFA identified a deficiency in the explanatory text of the FMP. The resultant recommendation could not be reviewed during this audit as the subsequent plan is not yet available, and so the recommendation is carried forward in this audit as **Recommendation # 3**.

4.3.2 Phase 2 Planned Operations Production

One of the pre-requisites for proceeding with Phase II operations planning is the approval of the Year 3 AR. Although the draft Year 3 AR was submitted on time, for reasons discussed in section 4.6.2, the planning team realized in February 2012 that Phase II operations planning would be delayed approximately 6 months due to a delay in approving the Year 3 AR, and also due to conflicts between the Company wood supply needs and First Nation and caribou issues.

Three options for proceeding were considered by the planning team, which chose to extend the Phase I FMP by one year by preparing a Year 6 AWS. This option had the advantage of being able to accommodate the 6 month delay with the least added work. The Year 3 AR was approved in May 2012 after numerous submissions. The Phase II operating plan was approved August 17, 2013, approximately 11 months later than originally scheduled and 4.5 months after the April 1, 2013 deadline. EBR notification delays are addressed by **Recommendation # 4**.

4.3.3 Phase II Harvest Planning

The Phase II Planned Operations states that the Planned Harvest in Phase II is 20,805 ha, however the terminology (which comes from the FMPM) is not quite accurate, because the Company has also rolled the unharvested area from Phase I into Phase II. The amount rolled in from Phase I is 23,164 ha (FMP-11a) for a total of 43,969 ha available for harvest. Some contingency block revisions were also made to allow flexibility to avoid planned harvest areas that were contentious to Mishkeegogamang First Nation or would result in excessive harvesting within specific caribou mosaic blocks. Table FMP-11, which was completed according to the 2009 FMPM requirements, implies a planned harvest of only 20,805 hectares which is misleading and has been addressed by **Recommendation # 5**.

Since the planned Phase I harvest was 25,758 ha, the amount rolled over implies that the Phase I harvest was 2,594 ha. Determining the planned harvest for a plan period is complicated by the need to estimate the harvest during the two years that the plan is developed, to meet planning timelines. For example, the planned Phase I harvest included area from the 2007-08 contingency FMP period that was expected to not be cut, but in fact was harvested during the contingency plan period. So, the Phase I planned harvest area included area already harvested as of April 1, 2008.

The authors of the Phase II plan are clear that by the end of the plan period, the landscape pattern will not meet the requirements of the landscape direction for 2008 plans (Forest Management Guide for Natural Disturbance Pattern *Emulation*) which stipulates that of 80% new clearcuts < 260 ha. Instead the focus has been consolidation of new harvest areas adjacent to older harvest areas to complete operations in the caribou mosaic A blocks by 2018. For example, during 2012-13, all of the 866 ha harvested occurred within a planned clearcut that is or eventually will be greater than 260 ha. Given the FMP commitment to the caribou mosaic, this approach of focussing harvests on improving landscape pattern is required.

The Phase II FMP is notable in that it includes a table of planned dates for the Company to complete harvest, establishment of regeneration and road decommissioning and reclamation in

the A Blocks. This table was added as a result of an issue resolution request by a stakeholder; the Company will need to significantly increase harvesting from current levels if it is to achieve these target dates.

4.3.4 Silvicultural Planning

Conditions on regular operations, planned renewal, tending and protection operations, renewal support requirements, and forecasts of expenditures were reviewed in the Phase II Operations Plan, and were found to conform with applicable planning requirements and were adequate to reflect the proposed 5-year operations. The Silvicultural Ground Rules (SGRs) were considerably revised and condensed between the Phase I and Phase II plans. Major changes included extending the age of assessment for free-to-grow surveys to 10-15 years, improving the silvicultural standards (modifications to the lists of acceptable species, and definitions of site occupancy), and enhancements to the descriptions of current and future stand conditions.

4.3.5 Areas of Concern

Area of Concern (AOC) prescriptions in the Phase II plan are based on MNRF's Stand and Site Guide. All reviewed prescriptions were appropriate for the values they were intended to protect. A question was received by the audit team asking how the Company would respond to woodland caribou *and* wolverine sightings during operations? The question reflects concern that the recent new regulation to the Endangered Species Act has weakened the protection measures for species at risk. In practice there have not been any occurrences of this. Given the low level of harvest which is focused on the southern part of the unit, it is not surprising. Operators are trained to call a supervisor in the case of a sighting of any species at risk. At that point, MNRF biologists would be called and an assessment made. If it was an occurrence near a possible calving site, which is critical habitat, operations would likely be curtailed.

On the larger question of the ESA regulation, MNRF and the Company comply with the law. Two environmental organizations (Ontario Nature and Canadian Parks and Wilderness Society) informed the audit team that they question the effectiveness of the DCHS and argue that the new ESA regulation enacted in July of 2013 is not appropriate. At the time of this audit, there were no changes to the regulations regarding caribou management that would affect the outcome of the audit. It is out of the scope of this audit to look at the strategic direction of the 2008 forest management plan in which the mandate for the DCHS was established.

4.3.6 Access

The Phase II plan contains an extensive set of supplementary documentation that includes an updated description of the use management strategies for existing primary and branch roads, including road use management strategies in the Road Management Program for the Conservation of Woodland Caribou Habitat (Supp Doc 8.13). Changes to the planned road network, including extensions and route revisions, have also been incorporated into the Phase II plan to fully update the roads information.

4.3.7 Plan Amendments

There were 2 minor and 12 administrative amendments approved during the audit term. The low number and lack of significant amendments is reflective of reasonably good planning as well as the low operating level. Amendment procedures, documentation and public consultation was consistent with the 2009 FMPM requirements. Overall, the amendment process is effectively managed.

4.3.8 Annual Work Schedules

Overall, the AWS's were well-prepared and consistent with the FMP, the 2009 FMPM and 2009 FIM. Complete draft AWS's were submitted on time by the Company and were of reasonably good quality. They all had comprehensive MNRF reviews and were approved on time. Forest Operation Prescriptions (FOPs) were reviewed in the AWS's and were found to conform with planning requirements: detailed FOPs were prepared annually based on field surveys conducted by the Company. All AWS's were processed through the Forest Information Portal.

MNRF has had concerns that the AWS's forecast an excessive level of operations. The annual planned harvest area ranged between 124% and 172% of the annualized available harvest area (AHA), which was within the 200% allowable limit. A higher level of planned AWS operations is required to deal with uncertain demand, the need for operational flexibility and the inclusion of prior harvest areas to clean up active Caribou mosaic A blocks.

One issue noted by the audit team is that although the 2009 FMPM has provisions for water crossing removals in FMP's and AWS's, it does not have effective provisions to document planned road rehabilitation. The AWS's indicate that operational roads will be rehabilitated where site preparation is planned, but does not specify how other operational, branch and primary roads will be treated, especially within completed portions of caribou mosaic blocks. This issue is discussed in more detail in Section 4.4. 2 below where a recommendation is provided.

The 2009 IFA contained a recommendation that annual of decommissioning of roads be reported in each AWS. Review of the AWS's revealed that the reporting is being done and provides a useful overview of activity. This is a good practice that should be examined by MNRF region for its potential in other SFL's.

A total of 22 AWS revisions were approved during the audit period. All revisions had good tracking, complete documentation and were processed appropriately with good review and approval timelines. The exception is spray plan additions that were not treated as revisions; this is a relative minor issue and no recommendation is warranted.

4.4 PLAN ASSESSMENT AND IMPLEMENTATION

4.4.1 Harvest

As indicated in Section 3.3, the level of harvest was very low during the audit period, averaging 12.8% on a volume basis for the five years[2]. This was especially true of hardwoods, for which markets evaporated during the 2009 – 2011 period, and only 28 m^3 of hardwood was cut during those three years. This low level of activity meant that harvest and renewal operations are completed in only one caribou block – Normandy. By the end of the 2011-12 year, all roads in the block including primary roads had received rehabilitation treatments.

The low hardwood harvest led to the inclusion of three options for approaching the hardwood harvest in the Phase II FMP. However 2013-14 was the first year in the audit period that saw significant use of hardwood, so the fortunes of the forest sector may have improved to the point where the hardwood market is no longer limiting access to mixedwood stands, at least on the west side of the Caribou Forest.

[2] Draft 2013-14 harvest volume data were available to the auditors at the time of writing.

The recent peak harvest on the Caribou Forest was 16,320 ha over the 2002-2007 FMP period; it would be highly unlikely on this forest to harvest anywhere close to the more than 40,000 ha that are available in Phase II. There are definite prospects for an increased harvest as local mills re-open, including the Mackenzie Forest Products Hudson sawmill in Hudson, and as the Company constructs a new sawmill in Atikokan. Resolute has also been upgrading its Ignace sawmill which re-started in November 2014. As a result of these start-ups, there is a credible expectation that the harvest level on the Caribou Forest will rise significantly. The Company's business plan is based on it fully utilizing all of the wood available from the Caribou Forest, and it would be a radical departure from past operational levels if this were to be achieved. If the harvest level on the Forest should continue to be well below available levels, there are now nearby mills that might be interested. **Recommendation # 6** is intended to facilitate the ability of the MNRF to enable another harvester or mill facility to cut available wood that has consistently gone unharvested.

The Company has come under pressure to improve its slash and chipper debris management, including a recommendation to this effect in the 2009 IFA. The Company has responded and implemented some new approaches that are proving effective. Its efforts in this regard have been judged to be sufficiently innovative to warrant the issuance of **Best Practice #1**.

4.4.2 Implementation of the Dynamic Caribou Habitat Schedule (DCHS)

The DCHS has become the primary strategy forming the direction for FMPs in the continuous Caribou Zone of Ontario. Implementation of the DCHS touches on all aspects of forestry – harvest, renewal, access etc. The DCHS strategic direction was set and approved by MNRF in 2008. Within the scope of this audit is a discussion of the implementation of the DCHS.

The entire Caribou Forest is managed under a DCHS, however harvesting had been undertaken on the Forest before the DCHS came into effect. As a result, there are numerous areas of the Forest that have had relatively recent harvesting activity in them, which has led to there being a large number of active A blocks. Excluding Normandy, there are 12 caribou mosaic blocks open (and two A blocks – Dole Valley and Medcalf – that have no harvesting in them as of yet). Going forward, Company staff anticipated that there will only be 3-4 caribou mosaic blocks with on-going harvest operations at any one time. Getting to that state has taken longer than anticipated due to the reduction in harvest activity since 2008.

However, Resolute is close to achieving some basic milestones of the DCHS, namely closing more caribou blocks. Table 2 in the Phase II FMP sets out the proposed completion dates for harvesting, renewal and access decommissioning of all A blocks. As block closure looms, managers are encountering issues not yet resolved in the province's management approach.

Three significant and related issues were apparent during this audit:

1. FMPM mechanisms for review and approval of road rehabilitation efforts. The current direction in the Phase II plan (Forest Road Management Program for the Conservation of Woodland Caribou Habitat on the Caribou Forest, Appendix 29, 2008 FMP) does not adequately describe the administrative procedure for MNRF District staff to determine whether the effectiveness of the treatment of operational or branch road beds is acceptable. The Company needs a clear milestone for when a road is "rehabilitated" (or other appropriate term) and on the way to once again being considered undisturbed for caribou management purposes. This is addressed in **Recommendation # 7**.
2. Objectives and criteria related to road decommissioning outcomes. Related to the administrative problem described above is the lack of clarity about the physical

description of a rehabilitated road bed. There is no MNRF guide or other document that describes the desired outcome (physical appearance or functional characteristics) of a road recovery. This is addressed in **Recommendation # 8**.

3. Criteria related to official closing of Caribou Blocks. On the same theme but at a landscape scale, District staff are in a difficult position when negotiating the "closing" of active Caribou blocks and the opening of new ones. Closing is defined as completion of all required renewal and road rehabilitation by the Company and signoff by MNRF with remaining road responsibilities assigned. As an example, Normandy Block is the only schedule "A" Caribou block that has had the last treatment by the Company. MNRF is reviewing the treatment and acknowledges that the work is done. It is not clear how it is to be closed by MNRF from an administrative point of view. This is addressed in **Recommendation # 9**.

Finally, on the subject of caribou, all of the participants in the audit agreed that the terminology used for describing the general subject of road decommissioning is becoming confusing to the point of being counterproductive. This is addressed in **Recommendation # 10**. The auditors did not see merit in issuing a recommendation related to the large number of open A blocks, since the fall-off in harvesting was due to conditions beyond the control of any organization, and since the anticipated harvest increase will accelerate block closures in future.

4.4.3 Areas of Concern

In the audit, the quality of the values information that went into the plan and modelling was reviewed in the field. A total of 35 AOC's were viewed by the auditors: Caribou calving - 7; Park boundaries - 3; Water quality/ crossings -- 16; Portage --1; Nest site -- 2; PSP -- 3; Highway buffer – 2; Aboriginal – 1. Phase 2 AOC prescriptions are based on the Stand and Site Guide (MNRF 2010). Overall implementation was good; no significant problems were noted. Some raptor nests that were mapped were no longer intact, which is a common finding.

Some amendments took place in keeping with changing conditions in the field. For example, a caribou calving AOC was amended to be more effective. Recent caribou field work continues to identify locations of animals and the release of the Integrated Caribou Range assessment for the Brightsand range is imminent. The auditors were informed that this work has been used for planning as it comes available.

4.4.4 Silvicultural Operations

Table 2 below compares planned versus actual levels of silvicultural activities during the 2008-2013 FMP term. The planned levels were not achieved because the reduced level of harvesting resulted in less area being available for treatment. All silvicultural activities were implemented at rates proportionately higher than the level of harvesting. During the 2008-2013 FMP term, 9,046 ha were regenerated compared with 3,894 ha harvested. Harvested areas were regenerated in a timely manner and additional effort was spent on regenerating area carried over from prior FMP terms. In the first year of the 2013-2018 Phase II Operating Plan, an additional 677 ha was regenerated, 428 ha of mechanical site preparation was conducted, and 999 ha were tended.

Table 2. Summary of planned and actual silvicultural operations (ha) during 2008-2013.

Renewal Activities	2008 P1 FMP Planned	2008 P1 FMP Actual	2008 P1 FMP Planned / Actual
Natural Regeneration	10,514	3,148	30%
Planting	9,885	5,088	51%
Seeding	5,339	1,487	28%
Supplementary Planting	879	530	60%
Total Artificial Regeneration	15,224	6,218	41%
Total Regeneration	**25,738**	**9,046**	**35%**
Site Preparation (mechanical)	13,960	4,625	33%
Tending (aerial spray)	4,537	3,792	84%
Harvest	**26,158**	**3,894**	**15%**

Silvicultural projects observed in the field were generally of good quality; the prescriptions were appropriate for the site conditions and were found to have been effective. There were no systemic issues or concerns associated with renewal and tending operations. A few sites visited by the auditors will require follow-up tending and/or fill planting to meet silvicultural standards, and the Company planned ground surveys for the following year to determine the most appropriate follow-up treatments for these sites. Renewal of operational (in-block) roads was being conducted as required, and the Company is encouraging their contractors to make renewal of operational roads a standard practice on the Caribou Forest.

All silvicultural activities and surveys are conducted by contractors. During the audit period, MNRF noted communication issues related to notification of the start-up of silvicultural projects by Company contractors, which is related to the delay in processing FOIP submissions for silvicultural activities (see Section 4.6.1). A review of Company-MNRF communications indicated a few projects where start-up notification had not occurred in a timely fashion, but it was not systemic. The Company recently became aware of this issue and has communicated it to its contractors.

The renewal support program was reviewed and found to be sufficient to support planned renewal activities. The seed inventory maintained by the Company was sufficient for planting and seeding operations for all tree species in all seed zones. Only one tree improvement site is located within the Caribou Forest, and there was no activity on this site during the audit period. Two seed orchards located in adjacent Forests supplied improved seed for the majority of black spruce and jack pine stock production for the Caribou Forest.

Site preparation was conducted on approximately 75% of artificial regeneration projects. This was an appropriate proportion for the observed site conditions. The mechanical site preparation treatments, which were conducted mostly with passive trencher equipment, were of generally good quality. Auditors noted reduced effectiveness of the passive trencher in a few cases on difficult sites (e.g., stony, rocky, peaty phase organic) but these were a small proportion of the total area treated and there did not appear to be any systemic issues related to site preparation quality. The MNRF silvicultural effectiveness monitoring program related to site preparation quality, discussed in section 4.6, came to a similar conclusion.

The tending treatments were conducted on appropriate sites and were observed to be effective. All tending *was* conducted by the aerial application of herbicides. There were no compliance issues related to tending projects during the audit period.

4.4.5 Access

The Company maintains a good road system that is partially funded by the Ontario Government roads funding program. Monitoring is done through its Environmental Management System (EMS) -- travelled roadways and existing water crossings are visually inspected on a regular schedule by an outside contractor and repaired when needs are identified. When roads are active, they are managed following the Road Management strategy (Appendix 29, Supplementary Document 8.13, Phase II FMP).

The system for decommissioning roads is managed by the Company silvicultural forester. During the audit team's field visits, operational and branch roads were found to have been effectively treated. **Recommendation # 7** and **Recommendation # 8**, identified in Section 4.4.2, relate to access management and implementation of the DCHS.

4.5 SYSTEM SUPPORT

Because the Caribou Forest is certified to the Forest Stewardship Council national boreal standard and to the Sustainable Forestry Initiative, the IFAPP allows the auditors to consider the human resource component of this principle to have been met.

4.5.1 Document and Record Quality Control

Document control, record retention and information management procedures were effective for the management of the required planning documents and information. The Forest Information Portal was utilized to submit, review and approve planning documents according to 2009 Forest Information Manual technical specifications. The E-FMP website includes current versions of all planning documents. Digital records are maintained on-line and at both the Company's Thunder Bay office and the MNRF District office.

One of the submissions made by MNRF to the audit concerned the amount of time that the Forester spent working with documents submitted by the Company via the Forest Information Portal. It is estimated that the MNRF forester spends up to one month's time per year simply working with the AWS, AR and amendment and revision documents. This excludes actual review time. While the impacts of Portal use on Company staff time are less onerous, both the Company and the MNRF work around the Portal as much as possible and only use it for the required final submissions. Corporate MNRF has recognized that the Portal is outdated, and developed a strategy to revamp it; the new Regional Operations Division will be given the responsibility to implement the overhaul. MNRF has just finished a wide-ranging Transformation Initiative designed in part to structure the organization to make better use of staff time – here is a felicitous opportunity to contribute to this goal. To this end, **Recommendation # 11** is issued.

4.6 MONITORING

4.6.1 Compliance Planning and Monitoring

MNRF and the Company have an effective and appropriate compliance program in place. The monitoring program is in accordance with the 2009 FMPM and 2010 Compliance Handbook requirements and is reasonable given the low operating levels and low levels of non-compliance and good communication between the MNRF and the Company.

The Company has prepared a comprehensive 10 year compliance strategy and simple annual compliance plans, and compliance results and issues are reviewed in annual reports. MNRF prepares comprehensive Annual Compliance Operations Plans (ACOPs) which outline clear work targets and priorities for MNRF staff to implement in a district wide program of monitoring. Progress to achieving targets is reviewed quarterly and summarized at the end of the year. This is one of the best ACOP systems observed by the audit team.

During the audit term, industry reported a total of 26 operational issues while MNRF reported 12 operational issues, which were all closed. Most operational issues were related to wood utilization, however others were related to a small stream trespass, the fire plan and equipment, garbage, a new value, improper culvert installation, slash and an oil leak. The operational issues resulted in one non-compliance resolved with a warning letter and agreement to pay stumpage and dispose of the slash. This reflects significant improvement over the prior audit term (34 non-compliances) but also reflects a change in the reporting process.

MNRF annual reviews acknowledge the need to increase their number of inspections and to improve compliance reporting timelines. Neither MNRF nor the Company are submitting FOIP reports under the required timelines, which resulted in **Recommendation # 12**.

4.6.2 Annual Reports

The Company submitted five annual reports during the audit term, including a Year 3 AR for the 2010-11 year. All initial Company submissions were on time and MNRF reviews were largely completed within the FMPM timelines. MNRF staff said that the quality of the Company's initial submissions improved during the term of the audit, with three of the five AR's accepted upon the second submission. It is noteworthy that MNRF staff reviewed all AR's, noting that when errors occur in an approved AR, it becomes very challenging and time-consuming to correct them in subsequent years if they are caught.

The Year 3 AR was challenging to prepare, in part as it included addressing Recommendation #12 from the 2009 IFA. This recommendation required Resolute and District MNRF to evaluate the continued viability of the caribou mosaic strategy in the 2008 FMP, including related silviculture and access strategies. The recommendation stemmed from concern that the low level of harvest and road decommissioning may reduce the effectiveness of caribou habitat management. The analysis was undertaken by MNRF District staff, who had led SFMM modeling work on the 2008 FMP. The results showed that the low harvest levels experienced during the first half of the 2008 FMP period would have negligible long-term impacts on the Available Harvest Area (AHA) and on the amount of caribou winter habitat.

Addressing the IFA recommendation involved considerable back and forth between the Company, MNRF District and MNRF Region regarding additional AR content and wording. The early decision to prepare a Year 6 AWS based on the first five years of planned operations

removed some of the time pressure from the preparation of the AR, contributing to the stretched schedule; because this is a unique situation, there is no recommendation.

4.6.3 Silvicultural Effectiveness Monitoring

The Company's program for silvicultural effectiveness monitoring (SEM) was reviewed and found to be in conformance with all requirements and was generally of very good quality. These surveys are implemented by the Company and its silvicultural contractors.

The MNRF SEM program is also very good, and includes surveys to verify and calibrate free-to-grow (FTG) assessments conducted by the Company, surveys of stand conditions 5 years after FTG, and assessments of tree planting and site preparation quality. There is generally good congruence between the Company's FTG assessment results (which are conducted by aerial observation in combination with ground calibration) and MNRF's SEM surveys (conducted on the ground using the approved "Free Growing Well Spaced" survey methodology).

Table 3. Summary of area assessed (ha) for free-to-grow status during the audit period.

Year of survey	Total area assessed (ha)	Area declared free-to-grow (regeneration success)	Area meeting projected future forest unit requirement (silvicultural success)
2009	3,543	2,968	529
2010	1,835	1,316	98
2011	0	0	0
2012	1,357	1,341	869
2013	4,195	4,081	1,245
Total	10,930	9,706	2,741
Percent of area assessed		88.8%	25.1%

Table 3 provides a synopsis of the area assessed for FTG during the audit period. During the audit period 10,930 ha was assessed and 9,706 ha (88.8%) was declared FTG (i.e. considered a regeneration success). The areas that were not declared FTG had not achieved sufficient height growth or density to meet silvicultural standards. Changes made to SGRs for the Phase II operating plan to modify the list of acceptable species for most Forest Units and to extend the time until FTG surveys allow for further stand development and ingress. These changes appear to have been appropriate - in 2013-14, the regeneration success rate was 97.3%.

However, during the audit period, only 25.1% of the surveyed area was considered a silvicultural success, having returned to the intended forest unit. This same issue was identified in the 2009 IFA and led to a recommendation to determine if any changes to post-renewal success rules are warranted in the development of the next FMP. Because no FMP has been prepared since the last IFA, this recommendation is carried forward in this audit as **Recommendation # 13**.

The assessment of FMP objective 3a in Appendix II includes a table that shows that the main issue leading to the low silvicultural success rate was a lower than forecast renewal of area in the spruce upland (SPU) FU back to the same FU. Significant areas formerly in the SPU FU were being renewed to the PJ1 and MC1 FU's (jack pine dominated and mixed conifer, respectively).

Although the low rate of silvicultural success seems disconcerting initially, there are a number of factors which may ameliorate concern. The first is that the proportion of conifer in the forest is being maintained. Secondly, the Company reports (in the Trend Analysis in Appendix 7) that there has not been an influx of balsam fir – rather the issue is unexpectedly high levels of jack pine renewal. The Company surmises, and the auditors agree, that many of the SPU forests probably started out as mixed conifer stands but the jack pine died out as the stand aged. Harvesting allowed jack pine seed long stored on site to germinate; the Company also notes that some of the spruce upland forests were offsite, further supporting the hypothesis that a large jack pine presence was initially present in these stands. The lack of correspondence between silvicultural success and successful regeneration of tree species appropriate to the site is addressed in **Recommendation # 14**. The Company and MNRF are aware of these limitations of the silvicultural success metric. The provincial Silvicultural Improvement Initiative Committee is in the process of reviewing the provincial SEM program. Their initial thoughts are that the methodologies used to assess "silvicultural success" metric will be revised so that they will account for intermediate outcomes.

During the 2008-2013 FMP term, the Company completed the assessment of a total area of 9,603 ha for FTG status. This effort represented 27% of the 5-year forecast area of 36,265 ha. Although less area than forecast was assessed, the FTG assessment program is keeping pace with actual harvesting and renewal activities such that there is effectively no backlog of sites needing assessment. The cycle of silvicultural and harvest mapping and record keeping, FTG survey data management, and inventory update was reviewed and was found to be in conformance with FMPM and FIM requirements and was generally of good quality.

4.7 ACHIEVEMENT OF FOREST MANAGEMENT OBJECTIVES & SUSTAINABILITY

This section reviews the achievement to date of the objectives of the 2008 FMP, assesses the information provided in the Trend Analysis (Appendix 7) and presents the audit team's conclusion regarding the sustainability of the Crown forest.

4.7.1 Trend Analysis Report

The Company prepared a Trend Analysis report for this IFA (See Appendix 7) that provides an overview of some of the trends in place on the Caribou Forest over the past three plan terms. The report assessed progress towards the completion of planned forest disturbances – as discussed above, the very low level of harvesting on the forest so far during the plan period, plus the lack of stand replacing natural disturbance, has meant little progress towards meeting the planned level and distribution of forest disturbances. For this reason, the Company felt it was too soon to assess the assumptions used to model the LTMD in the 2008 FMP.

4.7.2 Assessment of Objective Achievement

The audit team prepared an assessment of the extent to which the objectives and targets of the 2008 FMP have been met to date. This is provided in Appendix 2. In addition, Table AR-14 of the Trend Analysis provides the Company's assessment of FMP objective achievement. There is general consistency between the Company and audit team assessments, with the Company indicating that there was still enough time left in the plan period for significant progress to be made towards the objectives and targets.

There are several classes of objectives whose achievement is dependent on the extent of harvesting, including objectives related to disturbances in the forest moving towards the natural

disturbance template and the provision of economic benefits, which were generally not well achieved to date due to the low harvest level on the Forest. Objectives related to compliance were achieved to date, since the Company's compliance record was excellent during the audit period. Additionally, objectives related to the maintenance of old forest and habitat dependent on older forest were generally achieved to date, although as discussed above, the low level of harvest has hindered DCHS implementation to the point where blocks need to be closed soon to ensure that the application of the caribou habitat management strategy is effective.

4.7.3 Assessment of Sustainability

The IFAPP identifies the factors that the audit team should consider in developing its conclusion regarding the sustainability of the Crown forest. A number of factors support a positive conclusion. The Company's operations were well implemented. The observations made by the audit team in the field, discussions with Company and MNRF staff, and the excellent compliance record all contributed to a positive evaluation of operations. The proportions of planned versus actual harvest were similar for volume as well as area metrics, suggesting that the yields used in the FMP are generally accurate.

The low measure of silvicultural success is of some concern however the low rate is not due to poor renewal practices. The rate of regeneration success was 88.8% during the audit period, including a rate of 97.3% during 2013-14, the first year of the Phase II Planned operations which saw the age of FTG assessment set back to allow stands to develop further. The low silvicultural success rate seems to be primarily attributable to unexpectedly high levels of jack pine ingress on renewing spruce upland sites, as discussed in section 4.6.3. Additionally, it is not always reasonable to expect that the renewing stand will, at age 10 -15 years, have the same species composition it will have at maturity. While **Recommendation # 13** and **Recommendation # 14** have been issued with regard to the concern, the audit team does not think that the issue represents a threat to forest sustainability.

Regarding the social component of sustainability, there is a good relationship between District MNRF staff and the Company, and the LCC performed very well. There is a need for further relationship building with the interested Aboriginal communities, and it is notable that in an area with such a high Aboriginal population, none of the harvest is allocated to Aboriginal companies. On the positive side, the Company and Ojibway Nation of Saugeen are in the process of training at least one Aboriginal harvester for start up in 2014-15.

The key factor influencing much of this audit is the very low level of harvest on the Forest during the audit period. It may seem counterintuitive that low harvesting might constitute a concern with respect to sustainability, but the effectiveness of the DCHS is dependent on a relatively rapid completion of harvesting in the caribou A blocks. The longer that an A block stays open, the longer the access is maintained and the greater will be the range of age classes within each block once it is closed. A further concern is that the scheduling of the blocks is based on the maturity of the stands in them, and delayed entry into the B and later blocks may put at risk the anticipated future harvest levels. We also note, as discussed above, roughly half of the FMP objectives were on track to be met. The majority of those that were not on track to be met, or which had not been met to date, were dependent on a much higher level of harvest. In particular, the use of the forest by the forest sector did not provide many economic benefits to the local communities during the period.

Having said this, when the majority of regional mills are closed due to poor economic conditions, there is little that a forest manager can do to create demand for wood. Furthermore, in the very

near term there is an anticipation of a greatly increased harvest due to the start-up of mills in Ignace and Atikokan; the recent re-start of the Hudson mill also provides an additional potential source of demand. With these developments, the future harvest on the Caribou Forest will be higher, although how much higher is not clear. It is also not clear whether the wood on the west side of the Forest, which is furthest from mills, will become economical to harvest when the new mills start operations.

The audit team concludes that the low harvest levels that occurred during the audit period did not harm the sustainability of the Crown forest, however in the unlikely event that the harvest were to continue at a low level indefinitely, the audit team posits that this would become a major risk to sustainability. In conclusion, during the audit period, the audit team concludes that sustainability of the Crown forest has been achieved as assessed through the IFAPP.

4.8 CONTRACTUAL OBLIGATIONS

The SFL imposes a number of requirements on its holder, and the Company's compliance with 16 requirements is assessed in this section. On balance, the audit team concluded that the Company has met its SFL contractual obligations.

The Company is up-to-date with Crown dues payments and has ensured that the Forest Renewal Trust had the minimum balance at all five year-ends in the audit period. The Company has prepared all plans, annual work schedules, and annual reports as required and on time for the most part. The FMPM schedule for Phase II Planned Operations provides little time between the approval of the Year 3 AR and the required completion date of the Phase II plan, and the long period of time needed to get the Year 3 AR to where it could be approved led to a delay in the Phase II operating plan. The Company and MNRF worked around this by preparing a Year 6 AWS based on the blocks that were allocated for Phase I harvesting and were still available. The Action Plan from the previous IFA was approximately 7 months late however the Status Report was ready much closer to its due date.

The Company's silvicultural program more than kept pace with harvesting, essentially eliminating any backlog from previous FMP terms. The audit found that the prescriptions were appropriate to the sites. The renewal success rate was 89% during the audit period; the decision in recent years to delay the assessment of renewing stands by a few years has improved the reported success rate by allowing slower growing stands time to reach the minimum height requirements. In contrast, the silvicultural success rate was very low at 25% during the audit period, however as discussed in section 4.6.3, the audit team concluded that this did not suggest that there was an undesirable shift in forest composition taking place. Nevertheless, **Recommendation # 13** and **Recommendation # 14** were issued to ensure further consideration of the issue. The Company and MNRF undertook regular reviews of the renewal charge rates as required, and charged the FRT appropriately for silvicultural activities undertaken on the Forest.

The Company also prepared annual compliance plans as required and implemented an effective compliance monitoring program, in conjunction with MNRF. The two organizations appeared to share similar views on what constituted non-compliance, and there was only one non-compliance reported during the audit period, for wasteful practices. The FOIP reporting timelines are not always achieved by either organization, which led to **Recommendation # 12.**

During the audit period, the holders of the four wood supply commitments listed in Appendix E of the SFL were either out of business or did not take wood from the Forest for an extended

period. As a result, MNRF has withdrawn all four commitments. One of the former commitment holder mills, McKenzie Forest Products based in Hudson, has re-started after emerging from bankruptcy, and is nearing an agreement to be able to take wood from the Caribou Forest.

The Company has had mixed success meeting the requirement of SFL section 20 to work with MNRF and local Aboriginal communities to identify and implement ways for them to achieve more equal participation in the benefits of forest management. The Company has made efforts with respect to Ojibway Nation of Saugeen and Mishkeegogamang First Nation, and progress is being made in the former case. However, there has been no meaningful communication between Resolute and Mishkeegogamang for the past two years, which led to **Recommendation #2**. MNRF also needs to re-invigorate relationship-building with this First Nation (**Recommendation # 1**). Two nearby First Nations communities that live off the Forest have more interest in an adjacent forest. MNRF determined that there are no interested Métis communities associated with the Caribou Forest, and provided this direction to the Company. Therefore, the Company is in compliance with respect to the Métis. However, recent court rulings suggest that MNRF's assertion may be challenged, so the audit team suggests that the Company would be prudent to open a line of communication with relevant Métis organizations.

4.9 CONCLUSIONS AND LICENCE EXTENSION RECOMMENDATION

This audit has assessed the management of the Caribou Forest during the period from April 1, 2009 to March 31, 2014. The audit sampled the forest operations that occurred within the period, and reviewed the process of developing the Phase II Planned Operations, which came into effect April 1, 2014, one year later than originally scheduled. Annual planning and reporting, consultation and compliance with licence conditions were also evaluated.

The Caribou Forest is located very far north and lies entirely within the continuous caribou zone. The economic backdrop to the audit period was not favourable for forestry, starting as it did just after the collapse of the US housing market and the onset of a severe recession in many parts of the world. Although the tone of the sector has very gradually improved during the last several years, many mills in the vicinity of the Caribou Forest were closed throughout the audit period. As a result, the level of harvest during the audit period was only 15% of the planned level. The management of caribou habitat is based on harvesting 10-15,000 ha patches of forest over a short period of time and then decommissioning access to the area. The low harvest level meant that there was little progress in finishing operations in caribou blocks, with the result that a large number of caribou blocks (twelve) remain active, with further operations needed before they are closed off. Should this situation continue, it would cause concern. However the Company has refurbished its sawmill in Ignace re-started it in November 2014, and it is constructing a sawmill in Atikokan which is scheduled to begin operations in March 2015. Furthermore, the Hudson sawmill has re-opened and will draw timber from the Forest.

A sense of the impact of these new mills can be gained by considering that the Ignace sawmill is expected to process 470,000 m^3/yr and Atikokan will have a demand for 600,000 m^3/yr. During the audit period, the harvest from the Caribou Forest averaged 78,000 m^3/yr.

As the mills start up, the harvest on the Caribou Forest is expected to climb significantly and this should expedite the completion of operations on the active caribou blocks, putting the implementation of the DCHS back on track. The audit found that the procedures for closing caribou blocks were not well-defined, and a series of four recommendations enjoin the Regional and Corporate levels of MNRF to provide appropriate direction.

The audit found that forest operations were generally undertaken to a high standard, and a best practice was issued to the Company for its slash and chipper debris management. Forest renewal handily kept pace with harvesting and was quite effective, with the one caveat that the compositions of many of the renewing stands were not as expected at the time of FTG assessment – most were assigned to a forest unit that was similar but not the same as forecast. In many cases, these results were due to unexpectedly high ingress of jack pine, while in other cases, the cause was planting of a mixture of species that was not in the original prescription.

The MNRF District is well administered and its staff have a good working relationship with the Company staff. The LCC functions at a high level.

Of the fourteen recommendations issued, two were carried over from the previous IFA because they could only be implemented when the next full FMP was being prepared. Of the remaining twelve, nine were directed at Corporate or Regional levels of MNRF. Four of these were related to caribou block closure; others were concerned with issues as diverse as the Forest Information Portal, the time required to have EBR notices approved and posted, FMPM direction for reporting planned Phase II harvest, and reaching a fair and workable method for determining when wood may be considered available and reported as such in the Wood Availability Reports.

One recommendation that is administrative was directed at the Company and MNRF District while the other two concerned the need for stepped up effort to engage with Mishkeegogamang First Nation. While it is certainly challenging, Aboriginal engagement was one of the weakest areas of the IFA, which is notable given the high proportion of Aboriginal people in the area.

With the overall high level of performance by the Company and MNRF, the audit team concludes that management of the Caribou 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 Sustainable Forest Licence held by Resolute FP Canada Inc. Forest sustainability is being achieved, as assessed through the IFAPP. The audit team recommends that the Minister extend the term of the licence by five years.

APPENDIX 1 – AUDIT FINDINGS

Best Practice # 1

Principle 4: Plan Assessment and Implementation

Procedure 4.4.1: Review and assess in the field the implementation of approved renewal operations. ... assess the effectiveness of operations to reduce the areas of slash piles and chipping debris and treatments to regenerate these areas …..

Background Information and Summary of Evidence: A variety of harvest methods are used on the Caribou Forest by Resolute and its contractors, including in-bush chipping and cut-to-length. Recommendations related to slash and chipper debris management were provided in the 2004 and 2009 IFA's. The 2009 IFA reported that for a two-year period in the their audit term, Buchanan Forest Products Ltd (BFPL), then a significant overlapping licensee (OLL), did not pile slash due to a pricing dispute with Resolute. Management of slash and residue in the current audit period was complicated by financial difficulties of BPFL, which ceased operations as it went into receivership in March 2009, and Resolute's own entry into creditor protection. These events prolonged the resolution of who would treat the significant backlog of legacy piles (chipper debris, slash and roundwood). Even after Resolute emerged from creditor protection in 2010, it took a considerable time and collaboration with MNRF to develop strategies and approaches for dealing with residue and waste wood at roadside.

The main rationale for the best practice is some of the new techniques that the Company has implemented to manage slash and chipper debris at current operations. The Phase II Planned Operations contained a Condition of Regular Operations (CRO) dealing with Management of Roadside Logging Debris and Associated Landing Areas. The CRO provided a wide range of debris management options. During the field inspections, the auditors saw two particularly innovative and effective approaches. In one case, a backhoe had been used to mix chipper debris into the soil and the area was planted (See upper figure). Another approach has been to arrange the slash in multiple small piles with space for planting in between them – the idea is to minimize the loss of productive land by configuring the piles so that new forest on the processing area will have close to full canopy cover (See lower figure).

Conclusions: The Company should be recognized for the effort and creativity it has employed in looking for improved ways to manage roadside slash and chipper debris.
Best Practice: The Company has developed and implemented some creative ways of minimizing the loss of productive area due to roadside slash and chipper debris, and undertaken an exemplary program of managing its harvest debris during the audit period.

Recommendation # 1 and Recommendation # 2
Principle 2: Public Consultation and Aboriginal Involvement **Procedure 2.5.2.1:** Participation of Aboriginal peoples in benefits: Review whether Aboriginal peoples were provided with … opportunities to achieve more equal participation in the benefits provided through forest management planning and assess the results.
Background Information and Summary of Evidence: The leaders of Mishkeegogamang First Nation are aware of the soon to be opened Ignace sawmill and are hopeful of some benefits. They made it clear they are interested in training in preparation for future work and expressed that the community needs this activity urgently. The Community leaders are seeking opportunities for their members particularly through road construction and heavy equipment operation. Off reserve members may also benefit from employment there. Previous efforts by the Company to train community members in road construction did not work out due to some community problems. Of note is that the Company has not met with or spoken to the Community leaders in more than a year and a half. The Company had arranged for training several years ago but it was cancelled because of events in the Community. Recently money made available by the Company for assessing values was not used.
Discussion: The audit team found that MNRF and the Company expressed willingness to engage on forestry issues and provision of benefits but given other competing ventures, and logistics, engagement is not easy to achieve. There are two aspects to this: continuity of the relationship and direct communication with the leadership. First, the lack of continuity in the discussions with MFN is part of the problem. There are no regularly scheduled meetings for forestry. MNRF is in the difficult position of seeking consultation only when there is a process or a problem. MNRF funding arrangements for forestry center on the FMP process and it does not lend itself to ongoing meetings. Secondly, the communications challenge is hindering both MNRF and the Company from providing benefits. Logistics is part of the problem as the Company office is in Thunder Bay, six hours by road from the community. As well, making contact and setting meeting times with the Mishkeegogamang First Nation leaders is difficult.
Conclusions: Although the main concern from the audit point of view is the lack of progress in providing some direct benefits to MFN members, the root cause of some of the problems is the difficulty of contacting the community. The audit team is making a recommendation that MNRF look into improving direct communications with MFN leadership. The IFAPP procedure specifically requires the auditor to consider "… opportunities offered and opportunities that were implemented."
Recommendation: District MNRF shall improve both the direct communications with Mishkeegogamang First Nation leadership and the continuity of meetings with them in order to facilitate discussions about benefits to the community as required by Class EA Condition 34. **Recommendation:** The Company shall contact the Mishkeegogamang First Nation leadership to discuss training opportunities for future forestry operations.

Recommendation # 3
Principle 3: Forest Management Planning **Procedure 3.4.1.2:** Assess and report on whether the FMP modelling assumptions used are reasonable and whether they are based on the best available information.
Background Information and Summary of Evidence: In the 2009 IFA, there were two recommendations issued with respect to the development of the long-term management direction (LTMD) in the 2008 FMP. These could not be acted on during the period covered by the present audit because there was no new FMP developed during this time period. The next FMP is scheduled to come into effect April 1, 2018, and planning for that can be expected to start during late 2015 or early 2016. The first of the two recommendations issued in 2009 (their Recommendation #1) will not be directly applicable for the 2018 FMP, because it was related to a requirement of the 2004 FMPM that has been significantly overhauled in the current 2009 FMPM. Recommendation #1 from the 2009 IFA was that the natural benchmark run and bounds of natural variation should be clearly defined and documented in the next FMP. The 2009 FMPM has replaced the natural benchmark run with a base modeling run and the bounds of natural variation are now determined using templates provided in the Forest Management Guide for Boreal Landscapes. Recommendation #2 from the 2009 IFA was that the FMP text and Analysis Package clearly documents the methodology and rationale for all modeling inputs in the next FMP.
Discussion: Clearly, both of these recommendations were directed towards having a better and more extensive explanation of model inputs and the methodology used to develop the LTMD in the next FMP. There is no reason why the general intent of these two recommendations should not be carried forward.
Conclusions: A recommendation will be issued in the audit that carries forward the intent expressed in recommendations #1 and #2 from the 2009 IFA.
Recommendation: The Planning Team for the next FMP shall provide in the FMP main text and in the Analysis Package as appropriate a clear explanation and rationale for the inputs, assumptions, and decisions made during the development of the LTMD for that plan.

Recommendation # 4
Principle: 3 Forest Management Planning **Procedure 3.7.2:** Assess the effectiveness of the plan author, planning team, chair and advisors through: … assessing whether issues that may affect the schedule for Phase II planned operations were appropriately addressed
Background Information and Summary of Evidence: The current standard of a 12 week period for submission, review and approval of non-contentious, lower profile EBR notices is too long and was not anticipated by the planning team. The planning team anticipated a 4 week lead time to submit, review, approve and post EBR notices and endeavoured to submit EBR notices well before this deadline. The information centre EBR notice took 10 weeks for submission, review, approval and posting, which delayed the information centre by about 6 weeks The draft plan EBR notice was submitted April 27, 2012, was approved on May 28, 2012 and posted on July 5, 2012. The approved plan inspection EBR notice took over 11 weeks to pass through the system. It was submitted on April 8, 2013, approved on May 9, 2013 and posted on June 26, 2013. The process is quite onerous. After the district prepares the EBR notice, it is then forwarded sequentially to the EBR registry operator, the District Manager, the Regional Director, the Assistant Deputy Minister and the Deputy Minister needing reviews and approvals at each step. It eventually reaches the Minister's Office for final endorsement. Once approved, postings are forwarded to the Issues Management and Media Relations Unit and the EBR Registry Operator for posting on the EBR registry. These timelines are challenging when the planning process is often subject to delays and revision; to prevent having the process stall out waiting for EBR approval requires the planning team to either build 3 or more months of lead time for EBR notices or attempt to anticipate the EBR notice dates up to three or more months in advance.
Discussion: EBR posting delays contributed to the late Phase II operating plan approval. Late plan approval has the potential to delay operations and business activity. The LCC identified the problem in their Phase II operating plan activity report … "*As a result of issues internal to the province of Ontario there were impacts to the FMP schedule that were a direct result of unnecessary layers of bureaucracy delaying posting to Ontario's Environmental Registry (EBR). The LCC recommends that the province of Ontario review policies and procedures related to this in order to allow business to be conducted in a timely manner".* The LCC also sent a letter about EBR delays to the Minister of Natural Resources and was informed by the Regional Director that fixing the EBR system was a priority of the Deputy Minister. The MNRF Region response was to outline the 12 week EBR submission, review and approval procedure to MNRF Districts dated November 16, 2012. The procedure was revised on February 10, 2014 with responsibility for preparing and submitting EBR postings transferred from the District Management Forester to the Regional Planning Forester. There were no other improvements. The 12 week minimum EBR public notification process applies to non-contentious, low profile notices. Contentious, high profile notices would take longer.
Conclusions: The current practice of having at least six approvals over 12 or more weeks in advance of the EBR notice is unnecessary and ties up valuable staff time and resources. The benefits of having cabinet aware of notices going out the next week are outweighed by the fact Ontario business is being delayed unnecessarily by a slow and onerous EBR approval and

posting process.
Recommendation: Corporate MNRF shall examine its EBR procedures for reviewing, approving, and posting EBR notices that publicize FMP public consultation opportunities, with the intent of streamlining the process to avoid unnecessary delays.

Recommendation # 5
Principle: 3 Forest Management Planning **Procedure 3.9.4:** Assess the planning of harvest areas for the second five-year term to determine whether the requirements of the applicable FMPM were met …
Background Information and Summary of Evidence: According to the 2009 FMPM, all Phase I planned harvest areas that were not operated or were incompletely harvested by the end of Phase I are automatically rolled over into the Phase II operating plan. On the Caribou Forest, this was estimated to be 23,164 ha at the end of the Phase I of the 2008 FMP. In addition, the Phase II operating plan includes 20,805 ha of new planned harvest, for a total planned harvest of 43,959 ha. Table FMP-11, which was completed according to the 2009 FMPM requirements, implies a planned harvest in Phase II of only 20,805 ha which is misleading. To address this, the Planning Team prepared Table FMP-11a to show a planned harvest of 43,969 ha based on the remaining Phase I planned harvest plus the Phase II harvest. Table FMP-14 provided the planned harvest volume and wood utilization from the Phase II harvest, and Table FMP-14a was added to provide this information for the remaining Phase I plus the new Phase II area.
Discussion: Tables FMP-11 and FMP-14 were completed according to the 2009 FMPM requirements, however they depict only 20,805 ha of Phase II planned harvest area and associated volumes. This figure is misleading, especially for the public. To provide a more genuine planned harvest level, the Planning Team added Tables FMP-11a and FMP-14a. On November 29, 2010, MNRF requested an amendment to the Environmental Assessment Act approval (i.e. Declaration Orders MNR-71 and MNR-74) for forest management on Crown lands in Ontario to move from FMPs with two five year terms to an FMP with a 10 year term which would resolve this issue. However, these amendments still need to be approved by MOE and a new FMPM has to be prepared and rolled out. MNR optimistically forecasts the changes would be phased in beginning April 1, 2016, however it is very likely delays will occur.
Conclusions: The FMPM requirements for completing Table FMP-11 and FMP-14 should be revised to account for Phase I operations that are carried over into Phase II operating plans. This direction is necessary for phase 2 plans being prepared prior to the implementation of the new 10 year FMPs if approved by MOE.
Recommendation: Corporate MNRF shall revise the 2009 FMPM requirements for Tables FMP-11 and FMP-14 so that the Phase II planned harvest is accurately depicted by including any remaining Phase I planned harvest area and volume.

Recommendation # 6

Principle 4: Plan Assessment and Implementation

Criterion 4.3: Harvest operations must be conducted in compliance with all laws and regulations including the CFSA, approved activities of the FMP including SGR's, AWS and FOPs.

Background Information and Summary of Evidence: For some time, the harvest has been low relative to the planned and available levels on the Caribou Forest. There are strong prospects for a meaningful increase from current levels - once Resolute's Ignace and Atikokan mills start up, the harvest on the Forest will increase. The audit team does consider that it is likely that these mills will start up since they are being actively refurbished /constructed at the time of writing.

However, the new level of harvest is unknown. If the harvest reaches a very high level, such as 90% of planned or more, then the wood supply from the Forest will essentially be fully used. On the other hand, if the harvest increases to 60% or so of planned, which is near the previous high for the Forest, there will be a considerable amount of available timber that may be of interest to other users. One of the core principles of tenure modernization is that consistently unused available timber should be made available to other potential users.

Since 2011, MNRF has begun to produce regular reports showing the amount of timber by species that is considered to be available. These reports are prepared on a forest by forest basis, and consider commitments, levels of use, anticipated developments such as mill expansions, and the like. For the Caribou Forest, the amount of merchantable wood that has been considered to be available was 79,000 m^3/yr at the end of 2011, and as of August 2014, it stood at 58,000 m^3/yr.

Discussion: The Available Wood Reports are fairly new and both MNRF and the industry are on a learning curve regarding how they are being used and could be used. In part, the determination of the wood that is available depends on what is considered to be consistently and sufficiently used, a concept that has been the topic of extensive discussion between industry and MNRF.

For the MNRF, the main question in the determination of availability on the Caribou Forest would have been Resolute's intentions. Resolute has been planning the Ignace and Atikokan sawmill re-starts for some time but they have been delayed repeatedly due to factors such as uncertain market conditions. The MNRF would have needed to be very careful to avoid threatening the mill start-ups. Yet over this time, wood was not being used that might have been of interest to other users, with the attendant socio-economic opportunity costs as well as impacts on the implementation of the DCHS that have been discussed throughout this audit report.

Conclusions: The Available Wood Reports can be a good tool for making prospective wood users aware of both short-term and long-term opportunities. Potential beneficiaries include existing industry as well as potential new harvester and forest product company entrants. MNRF, which will ultimately have to decide what wood is available, except where existing SFL-holders are actively marketing available wood on their own, needs to continue to work with industry to strike the right balance that allows a company leeway for fluctuations in the business and the demand for wood products, while at the same time providing opportunities to make use of existing wood. Based on the evidence reviewed, hindsight suggests that the MNRF has been overly cautious in declaring wood to be available on the Caribou Forest during the audit period. A less cautious approach may have better served the province.

Recommendation: Corporate MNRF shall work with the forest industry to review the basis for determining when wood may be considered available and reported as such in the Wood Availability Reports.

Recommendation # 7

Principle 4: Plan Assessment and Implementation

Procedure 4.7.1: Review and assess in the field the implementation of approved access activities. Include … decommissioning… from primary, secondary/branch and tertiary/operational roads constructed during the five-year period of the audit… use management (maintenance, access control, any decommissioning or reclamation provisions) …

Background Information and Summary of Evidence: Some field visits during the audit examined harvest blocks where the Company had treated the road surface to promote renewal. Although the renewal was considered complete by the Company, MNRF did not agree. (Harvest blocks refer to the many smaller blocks (as small as about 50 ha) that constitute the Caribou blocks and are normally harvested in a single year.)

The Company cited the FMP which stated if a road renewal plan was included in the AWS and carried out and reported in the following AR, that the road had been accepted by MNRF. MNRF District and Region staff said that the road needed to be reviewed, and that a "sign-off" or review procedure was not agreed to. Both of these statements are supported by the 2008 FMP. The Phase II plan (Forest Road Management Program for the Conservation of Woodland Caribou Habitat on the Caribou Forest App 29, 2008 FMP) states:

"The timing and treatment combinations for specific roads that best meet the road management program objectives will be determined by Resolute's silviculture forester if applicable, as part of the annual work schedule process; these combinations will be subject to review and approval by MNR[F]".

The Road Management Program does not describe the exact procedure and timing for sign-off. Although the Company and MNRF seemed to agree on the basic tenets of the 2008 Road Management Program, some things were left unclear. It provides only general guidance: "Many operational roads will be treated simultaneously with the adjacent renewal area. Other roads will require some extended lag periods before treatment occurs in order to allow for the completion of renewal, tending and monitoring activities at points accessed by the road. In these cases, roads will be needed until those areas are deemed or declared free to grow. This period will vary from 3 to 12 years…"

Under the current arrangement, treatment and sign-off occur within a 12 month period. MNRF does not agree that this is a reasonable time frame.

Discussion: The Caribou Forest has a number of harvest blocks that are renewed and up for "sign-off". The process for sign-off is nowhere described. The Company needs a clear milestone for when in-block or adjacent branch roads are considered to be "rehabilitated" (or some other appropriate term) and on the way to once again being considered undisturbed (for the purposes of Caribou management). In an adjacent unit, Sioux Lookout District staff improvised an informal sign-off map that provided notification to the Company that the road rehabilitation was accepted. MNRF Region should be able to provide a more formal arrangement using the AWS /AR system. It should be sanctioned by Region and harmonized with other Districts.

Once this occurs, the habitat supply models can allow for the time until it is considered Suitable Caribou habitat. This means that the milestone or sign-off date has implications for the AHA as well as for the amount of area considered "undisturbed". For this reason the sign-off must be done promptly, but of course correctly. Regional expertise is needed to coordinate the details of sign-off.

Conclusions: The FMP direction on roads did not include an exact procedure and schedule for the signoff of roads declaring them as rehabilitated and on the way to once again being considered undisturbed for the purposes of Caribou management.
Recommendation: Regional MNRF staff shall provide guidance to District MNRF staff on the appropriate FMPM mechanism for a timely review and approval of harvest block road rehabilitation efforts by the Company.

Recommendation # 8

Principle 4: Plan Assessment and Implementation

Procedure 4.7.1: Review and assess in the field the implementation of approved access activities. Include … decommissioning… from primary, secondary/branch and tertiary/operational roads constructed during the five-year period of the audit… use management (maintenance, access control, any decommissioning or reclamation provisions) …

Background Information and Summary of Evidence: In the Caribou Forest and in other adjacent forests, the Company and other SFL holders have developed some useful techniques for reclaiming roads. However, there is no MNRF guide or other document that describes the desired outcome (physical attributes or functional characteristics) of a reclaimed road and there are differences of opinion regarding Strategy 3 of the Forest Road Management Program for the Conservation of Woodland Caribou Habitat on the Caribou Forest (Appendix 29, 2008 FMP), which says "*Apply the appropriate treatments to regenerate roads to forest cover that is similar to the adjacent forest renewal areas, where practical given the physical characteristics of the road bed*."

One perspective is that all roads should be renewed to the level of the adjacent harvest block. This would bring more productive forest area back into the land base, as well as break up the linear features for caribou conservation purposes. Alternatively, some argue that the objective of road rehabilitation is strictly to remove the linear feature, so complete recovery of the productive forest, which can be very expensive, is not necessary.

Discussion: Strategy 3, referred to above, left several points unresolved:

1. Realistically, not every road can be economically recovered; branch (and some primary) roads may be simply too expensive to renew. Some of these roads are intentionally built to lower standards to allow recovery.
2. Biologists note that a linear feature can be broken up without having to recover the entire road bed corridor.
3. Development of guidance should be based on local knowledge, which frequently has a well-developed although somewhat undocumented toolkit.
4. Forests south of the Caribou zone are allowed to write off a portion of the land base for road building and are not expected to recover it -- so the objective of bringing back the entire land base may appear imbalanced, although it is good stewardship.

Conclusions: Although a guidance document on desired outcomes for economical road rehabilitation may become outdated quickly due to evolving techniques, it will also expedite this important area of caribou conservation. MNRF needs to provide guidance on how to balance the appropriate objectives for recovery between removing linear features and land base recovery.

Recommendation: Regional MNRF staff shall provide clear criteria and expected outcomes for decommissioning and reclaiming of roads to remove linear features and increase productive forest**.**

Recommendation # 9
Principle 4: Plan Assessment and Implementation **Procedure 4.7.1:** Review and assess in the field the implementation of approved access activities. Include … decommissioning… from primary, secondary/branch and tertiary/operational roads constructed during the five-year period of the audit… use management (maintenance, access control, any decommissioning or reclamation provisions) …
Background Information and Summary of Evidence: Ideally, prior to any harvest, the Caribou Forest would have been divided into Caribou Blocks and one or two would have been started and closed before the harvest would move on to a new block. In reality, however implementation of the mosaic concept began in 2002 after there had been some widespread harvest activity in the Forest. Applying the mosaic on a partially disturbed landscape means that it can takes years to realign on-the-ground forest management with the strategic direction. The DCHS does not provide direction on how to address the legacy (i.e. incomplete harvest and rehabilitation) of open "A" blocks. The "closing" of an "A" block is close to occurring on the Normandy Block. However, the Company and MNRF need to negotiate where the harvest activity should next be focused to facilitate closing of more blocks. The challenge presented to the auditors is the problem of multiple objectives at a large scale.
Discussion: The competing objectives are completion of more "A" blocks, access to the larger supplies of economic wood in "B" blocks, and Aboriginal benefits (as Mishkeegogamang First Nation has aspirations north of the area of the undertaking outside of the District, and also want local benefits from Caribou Forest). All three of these objectives concern a scale larger than the District boundaries. Although the District may lead in the decision making about Caribou block dynamics, there is a clear need for input or oversight from MNRF Region.
Conclusions: There is a need to preserve a long term economic wood supply and quality Caribou habitat, which can be compatible objectives. The needs of the First Nation are also hard to consider (see Recommendations 1 and 2).
Recommendation: Regional MNRF staff shall provide Sioux Lookout MNRF District staff with interim direction on criteria for accepting that an "A" Caribou block has been closed. The District Manager should assign a District MNRF staff person to oversee timely and appropriate negotiation of access to wood supply in Caribou blocks.

Recommendation # 10
Principle 4: Plan Assessment and Implementation **Procedure 4.7.1:** Review and assess in the field the implementation of approved access activities. Include … decommissioning… from primary, secondary/branch and tertiary/operational roads constructed during the five-year period of the audit… use management (maintenance, access control, any decommissioning or reclamation provisions) …
Background Information and Summary of Evidence: During the audit, discussions of decommissioning procedures involved many terms that were used differently by various people. District staff commented that they found the terminology different in other parts of the region. Common words such as recovered, rehabilitated, reclaimed, restored, linear feature, retired, decommissioned, etc. meant different things to different people.
Discussion: The basis for this recommendation was the consensus support for this idea from five professional Company and MNRF staff involved in the operational side of road decommissioning. It is intended for the provincial level because there is also road rehabilitation occurring in other areas for different reasons that use different words. Notably rehabilitation for turtle habitat in southern Ontario is becoming more common. Those areas use words such as “debuilding” which is completely foreign to northwestern Ontario. The glossary is likely to grow as operational terms evolve around road rehabilitation techniques that are not yet commonly understood. The terms need to be clear because there are costs involved depending on the exact requirements.
Conclusions: There is a need for common language around decommissioning of roads.
Recommendation: Corporate MNRF shall provide a glossary of commonly used words and phrases related to decommissioning or reclamation of roads including operational terms.

Recommendation # 11

Principle 5: System Support

Procedure 5.2.1: Assess the organization's information management system processes by considering ... individuals or positions responsible to prepare, maintain and revise individual documents, relevant procedures and schedules …

Background Information and Summary of Evidence: The Forest Information Portal was designed to facilitate the transfer of forest planning information in electronic format between the SFL-holder Companies and the District MNRF. Submission, review, revision and approval functions are included. SFL-holders use the Portal to submit required planning and reporting documents to MNRF. MNRF staff access and download these documents to complete their reviews, posting review comments on the Portal. Company staff then revise and upload the documents for approval and eventual posting to the E-FMP website for public access. The current version of the Forest Information Portal is effective in performing these tasks however the upload and download does not always work and can be very time consuming.

The MNRF Management Forester for the Caribou Forest has primary responsibility for downloading FMP's, AWS's, AR's, amendment and revisions, as well as coordinating the review of these documents within MNRF. Excluding actual review time, her estimate of the time required to process an AR or AWS submission is:

- Download files (½ hr – 1 hour)
- Extract and transfer files to district computer (½ hr)
- Convert E00 files to geodatabases (½ hr – ½ day)
- Pull hard copies of maps from live FMP hard copy to compare with AWS maps (2 – 4 hrs)
- Print the complete approved AWS (plot, trim, fold and file maps) (2-3 days)
- Two versions of approval documentation required (2 hrs)
-

The ranges of time estimates vary depending on the size and complexity of documents, with FMP's, AWS's and AR's being more complex and amendments and revisions being less complex. Often there can be between two to four submissions of a planning document (draft, one or two re-submissions, and final). These time estimates assume that the upload and download processes are successful the first time, which is often not the case. The audit team estimated that in a non-FMP development year, the forester will spend 5-7 days downloading and transferring files and 6-10 days printing and filing for a total of anywhere from half to a full month's worth of time.

Moreover, the list of uncertainties or flaws in the system remains considerable, despite fixes and improvements that have been implemented. A sample of identified issues include:

- how to work with documents in the Portal that MNRF requires to have signatures but the Portal won't accept signatures in files;
- there is no requirement to include shape files with amendments or revisions, which makes it difficult for MNRF to consult when requested changes affect forest users;
- the approvals of Annual Reports are automatic even though the reports were not accepted by the District; and
- the pre-check of submitted files is simplistic (e.g. files accepted with empty tables, incorrect file names).

The Corporate level of MNRF has been developing a new strategy for the FI Portal, and has gone through an extensive process that has included discussions with users in the Districts. Three options were developed and reviewed, and the implementation now falls to the Regional

Operations Division (ROD), as a result of a re-allocation of corporate responsibilities through MNRF Transformation. Corporate MNRF acknowledges that the technology has become outdated and recognizes some of the flaws in the system.

The Company did not seem to have issues with the amount of its staff time used to work with the Forest Information Portal, probably because the bulk of the work is undertaken by the recipient (MNRF). It was observed that it can be very frustrating when a large document is being uploaded and the Portal either experiences a fault part way through or it rejects a document due to some error, which could be as trivial as incorrect formatting.

Discussion: The FI Portal (and eFMP website) is in the process of being overhauled; the current version represents an older technology. MNRF is not likely to put significant resources into upgrading the current system, instead the Ministry will concentrate on developing and introducing its renewed Portal, or equivalent. As a result, users will likely have to continue with the current technology for a couple of years at the minimum.

In some respects, the FI Portal technology has not made the work of MNRF staff easier or more efficient – instead it has had the opposite results and the Forest Information Portal is avoided whenever possible.

Conclusions: Based on discussions with MNRF District staff, the audit team concludes that when control of the new electronic file transfer system shifts to ROD, it would be appropriate for ROD to hold a series of workshops (or some other means of engagement) with District and potentially Company Portal users to gain a better appreciation of the limitations of the current system. Besides being useful to help with the design of the next technological generation, the feedback may also stimulate some modifications to the current system if the changes do not require significant overhaul and will yield a significant benefit.

Recommendation: MNRF's Regional Operations Division shall engage with Forest Information Portal users in the MNRF Districts to gain an improved understanding of the issues and shortcomings associated with the FI Portal and use the results to improve the efficiency and effectiveness of electronic file transfer.

Recommendation # 12
Principle 6: Monitoring **Procedure 6.2.1: SFL Holder Compliance Planning and Monitoring**
Background Information and Summary of Evidence: The Company FOIP reporting timelines were outlined in the 10 year compliance strategy in the Phase 2 FMP based on the 2010 Forest Compliance Handbook. The deadline to report FOIP inspections with no operational issues was within 20 days of inspection. This was not achieved for 65 of 100 SFL inspections and for 16 of 34 MNRF Inspections. Water crossings with no operational issues were to be reported within 10 days of inspection. There were 11 water crossing inspections by industry and 4 by MNRF that did not meet these deadlines. Non-significant Operational issues were to be reported within 10 days of inspection, while significant operational issues were to be reported verbally within one day of inspection and a written report was to be filed within 5 days of inspection. The timelines for reporting operational issues was difficult to assess as the functionality to query the database is not built into FOIP for operational issues. From inspections of individual reports it was ascertained that reporting of operational issues (i.e. 26 SFL and 12 MNRF) also did not always meet the required timelines and operational issues normally took a couple months to inspect, review and close. The one non-compliance was reported within 8 days of inspection.
Discussion: Timely FOIP reporting helps ensure compliance issues are identified and addressed in an efficient and timely manner which can improve action, auditing and closure of FOIP reports.
Conclusions: FOIP reporting timelines were outlined in the 10 year compliance strategy in the Phase 2 Operating plan based on the 2010 Forest Compliance Handbook are not being achieved by MNRF or the Company.
Recommendation: MNRF District and the Company shall ensure that the FOIP reporting timelines outlined in the Forest Compliance Handbook are being met.

Recommendation # 13
Principle 6: Monitoring **Procedure 6.3.2:** Assess whether the management unit assessment program (SFL and District) is sufficient and whether it provides the required information to assess progress towards achieving the management strategy.
Background Information **and Summary of Evidence**: This recommendation has been carried forward from the 2009 IFA - Recommendation #9.
Discussion: During the audit period the rate of regeneration success (area declared free-to-grow compared with total area assessed) was 88.8%. However, the rate of silvicultural success (area meeting the Future Forest Unit forecast by the associated SGR compared with the total area surveyed) was 25.1%. A similar trend (low silvicultural success rate) was observed in the 2005-2009 IFA
Conclusions: Since there has not been an FMP developed since the 2005-2009 IFA, and because a continuing low rate of silvicultural success has been observed in the 2009-2013 IFA, this recommendation is carried forward.
Recommendation: During the development of the 2018-2028 FMP, the Company and District MNRF shall review the Free-to-grow survey data collaboratively to determine if any changes to the post-renewal succession rules used in strategic modeling, and/or the silvicultural standards associated with Silvicultural Ground Rules are warranted.

Recommendation # 14
Principle 6: Monitoring **Procedure 6.3.2:** Assess whether the management unit assessment program (SFL and District) is sufficient and whether it provides the required information to assess progress towards achieving the management strategy.
Background Information and Summary of Evidence: During the audit period the rate of regeneration success was 88.8%. However, the rate of silvicultural success was 25.1%.
Discussion: The silvicultural success rate is calculated as the proportion of renewed sites that meet the very specific silvicultural standards associated with SGRs at a single point in time, i.e. the proportion of sites that have achieved the long-term forecast for Future Forest Unit at the age of the free-to-grow assessment. At first glance, the low rate of silvicultural success on the Caribou Forest appears to indicate that there is insufficient renewal. However, there are many issues of data quality and interpretation associated with this metric. For example, it does not anticipate future successional changes after free-to-grow, nor does it assess long-term changes in forest composition at a broad scale, as would be required to validate strategic modeling assumptions related to successional pathways.
Conclusions: On the Caribou Forest, the low rate of silvicultural success does not indicate widespread unsatisfactory regeneration. Instead, these results illustrate that the manner in which silvicultural success rate is currently determined is of limited value for assessing long-term management direction. The Company and MNRF are aware of these limitations of the silvicultural success metric. More appropriate methods and metrics need to be developed that are specific to this requirement; the provincial Silvicultural Improvement Initiative Committee is currently reviewing the entire provincial SEM program, but further consultation and analysis is required to complete this process.
Recommendation: Corporate MNRF shall develop appropriate metrics and methodologies to validate strategic modeling assumptions related to successional pathways, and to assess progress towards achieving long-term management direction.

APPENDIX 2 – ACHIEVEMENT OF FMP MANAGEMENT OBJECTIVES

Achievement to date of 2008 Caribou Forest FMP Objectives and Targets

No.	Objectives& Targets	Achievement	Explanation/Comments
Forest Diversity: Emulation of Natural Disturbance Patterns			
1a	Objective: The frequency distribution of forest disturbances by size class should show movement towards the natural template. Target: To achieve 60-80% (4 out of 6) of the size classes of the planned new clearcuts by frequency moving towards the natural template at the year 2018.	Section 3.9.3 of the 2008 FMP discusses the development of the natural disturbance template for the Caribou Forest, and evaluates the progress towards Objective 1a during the plan period. Table FMP-12 shows the projected progress towards the template during the 2008-17 period, and in the selected management option, only two of the six disturbance size classes are moving toward the natural disturbance template. The 2012 AR reports that 95% of the harvest area to date is contributing to clearcuts greater than 260 ha. However, given that the level of actual harvest is so low relative to planned, it is difficult to determine whether any progress is being made towards the template of disturbance sizes, since it is not known what areas that were considered as disturbances during 2008 FMP development have grown out of the "disturbance" stage. The Trend Analysis assessment is that it is unlikely that there has been any change in the template distribution due to the very low harvest levels and the lack of natural disturbances of any size. The audit team agrees with this appraisal, noting that the FMP suggests that the target is only to be assessed in 2018. At this time, there has been little progress towards the objective.	Should there be a significant increase in harvesting as the Ignace and Atikokan mills start and ramp up production, some progress could be made towards meeting this objective during the remaining years of the FMP term.

No.	Objectives& Targets	Achievement	Explanation/Comments
Forest Diversity: Provision of Wildlife Habitat			
2a	Objective: To maintain10-20% of the forest which has the capability to produce marten, in suitable conditions as described in the Forest Management Guidelines for the Provision of Marten Habitat. Target: To maintain 10-20% of the capable forest in suitable conditions in core areas over the next 60 years.	Achieved. Due to the Caribou mosaic on this forest, maintaining Marten habitat has not been a problem in modeling. Table AR 14 considers Caribou Blocks as appropriate surrogates for core areas. In addition, the lack of harvesting on this forest means the age of the forest is suitable for marten over a wide area. The objective has been met.	The future use of the marten core areas is now replaced by the change to using the Boreal Landscape guide.
2b	Objective: To maintain a continuous supply of suitable, mature, year-round habitat distributed both geographically and temporally across the landscape in such a manner as to ensure permanent range occupancy of Woodland Caribou. Target: To maintain 50% of the Forest in a suitable condition within habitat tracts over the next 60 years.	Woodland Caribou are managed by the Dynamic Caribou Habitat Schedule, which is the management direction approved by MNRF based on the expert opinion of MNRF biologists. Within the time frame of this audit, the current levels for Woodland Caribou indicators are high relative to the SRNV: • current used winter habitat is above the 75th percentile of the SRNV; • current preferred winter habitat is above the median SRNV; • current refuge habitat is above the 75th percentile. Over the long term, the achievement of this objective is uncertain because there is a very high amount of harvesting required to bring this indicator into line with the FMP forecast.	It is premature to assess whether the DCHS, also called the mosaic, will successfully maintain habitat over the long term. The Ontario Integrated Range Assessment for Caribou is planned for release within a few weeks of the end of this audit. There should be more useful information about the state of the range after that is available. The Trend Analysis (AR 14) understates the situation "...may result in a delay in the achievement of completion of the caribou mosaic A blocks (scheduled for harvest during 1998-2018).
5a	Objective: To ensure that forest management activities do not threaten the area of habitat for	As the model predicts (this is only a modelled indicator) several species decline over the long term as a result of the aging and ultimate	Fire prevention, and the low level of harvesting are the root causes of the modelling prediction. It is very difficult to

No.	Objectives& Targets	Achievement	Explanation/Comments
	forest-dependant provincially and locally featured species Target: To maintain a minimum number of hectares of habitat based on the lowest value in the natural benchmark SFMM run over the long term (100 years by species) (including protected areas) minus 20%.	renewal of the forest over several decades. The objective has been achieved in the short term.	achieve these indicators without more disturbance and renewal occurring. The planning team made reasonable efforts to modify the future forest. Use of a 20% of benchmark for a target for max decline has been standard, but in future the landscape guide uses variation from the Range of Natural Variation an improved benchmark.
6a	Objective: To ensure that forest management activities do not threaten the critical breeding habitat for forest-dependant eagles, osprey, heron, and other forest raptors. Target: To maintain 90-100% compliance with Area of Concern prescriptions and conditions over time 15 (minor infractions), with zero moderate and significant infractions	Achieved target of compliance with AOC for nest site protection. There were no incidence of non-compliance related to critical breeding habitat for raptors and herons reported on the Caribou Forest.	The risk of this is low, and there was relatively little activity. The Company has a good training program and there were instances of nest being reported during operations, which is at least anecdotal evidence of effective training.
7a	Objective: To ensure that forest management activities do not threaten habitat for forest dependant species at risk. Target: To maintain 50% of the Forest in a suitable condition within habitat tracts over the next 60 years.	This objective appears to refer to caribou so this is a duplicate of indicator 2b. Within the time frame of this audit, more than 50% of the landscape is in suitable condition in online habitat tracts, due to its relatively low proportion of disturbance. Over the long term, the achievement of this objective is uncertain.	As with 5 a and 2 b, lack of harvesting plus fire prevention are the root causes of an aging forest that will ultimately renew itself. It is premature to assess whether the DCHS also called the mosaic will successfully maintain habitat over the long term.
Forest Diversity: Protection of Other Environmental Values			
4a	Objective: To provide for old growth forest ecosystems (as defined in the Old Growth Policy for Ontario's Crown Forests and the Old Growth	Achieved. There is an abundance of forest of all types because of the lack of harvest at the same time as effective fire control. Of more concern is the long term decline of forest as natural aging	It should also be noted that the FMP and other sources clearly document the impact of ongoing fire *suppression* efforts. The northern SFLs in this region are less

No.	Objectives& Targets	Achievement	Explanation/Comments
	Forest Definitions for Ontario) within the bounds of natural variation (BNV). Target: To maintain at least a minimum amount of old growth forest units and to maintain at least a Minimum number of hectares of habitat for wildlife species that prefer old growth habitat for portions of their life.	occurs.	disturbed than the areas to the north, where fire suppression does not occur. This corroborates the general conclusion that the Caribou Forest is older and less disturbed than would occur naturally. The main concern is that in the long term the decline in the amount of old forest will be unavoidable. Forests do swing widely beyond BNV at times. Forest management is not doing much to stabilize the wood and habitat supply and the breadth of its "swing" in the Caribou Forest.
4b	Objective: To maintain the amount of old growth red and white pine forests relative to amount on the management unit identified by the 1995 red and white pine conservation strategy. Target: No target	Not applicable. There is no target for the Caribou forest since there is no working group, and there has not been one since the first intense FRI in 1975. These species occur only in small groups or individuals.	Not applicable due to the small occurrence. Attempting to increase rare species when they occur is an appropriate management approach.
8a	Objective: To minimize significant increases in road density on the management unit. Target: To limit road density to between 0.1 and 0.5 km of road/km2 of forest.	Too early to assess. The Company is assuming that it is too early to assess this. This would be true during the term of the audit, but the time is near. The Trend analysis states" at this time it is premature to assess the impacts to this objective until further evaluation occurs during the preparation of the year-seven and the year-ten annual reports."	The auditors agree that it is SLIGHTLY early to assess, certainly too early within the term of the audit. However the imminent release of the Integrated Range Assessment will mean it is time to calculate the road densities, and the disturbance footprint.
14a	Objective: To ensure that forest operations maintain compliance with prescriptions for the protection of	Achieved. Limited only to compliance, and there were no relevant incidents of non-compliance reported on the Caribou Forest	A target of 90% compliance with relevant AOC prescriptions is not difficult to achieve.

No.	Objectives& Targets	Achievement	Explanation/Comments
	water quality and fish habitat. Target: To maintain at least 90% compliance with Area of Concern prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.		
Social and Economic: Protection of Non timber Social and Economic Values			
8b	Objective: To provide recreational opportunities to access the forest by maintaining road access on the management unit. Target: To maintain a minimum road density of 0.2 km of road open to the public per square km of forest for the ten year Plan	Too early to assess. This is the corollary to 8a, as it requires a minimum (not maximum) number of roads. See discussion of 8a above.	As with 8a the auditors agree that it is SLIGHTLY early to assess, certainly too early within the term of the audit. Anglers, hunters and tourism businesses will be interested to know the long term road access situation. Determining this should occur soon, arguable prior to the start of the 2018 plan.
10a	Objective: To ensure that forest operations maintain compliance with prescriptions for the protection of natural resource features, land uses or values dependent on forest cover. Target: To maintain 90% compliance with AOC prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions:	Achieved. Limited only to compliance and there were no relevant incidents of non-compliance reported on the Caribou Forest.	A target of 90% compliance with relevant AOC prescriptions is not difficult to achieve.
11a	Objective: To ensure that forest operations maintain compliance with prescriptions for the protection of resource- based tourism values. Target: To maintain 90% compliance with Area of Concern prescriptions and conditions over time (minor	There were no non-compliances during the audit period related to areas of concern of any type, including those related to the protection of resource based tourism values. The year 1 AR (for the 2008-09 fiscal year) reported that there were two incidents of non-compliance, both related to silviculture. This objective has	Although the Phase II Planned Operations indicates that there were problems in this regard in the past, prior to the audit period, they have not occurred during the last five years. In general, a target of 90% compliance with AOC prescriptions is not difficult to

No.	Objectives& Targets	Achievement	Explanation/Comments
	infractions), with zero moderate and significant infractions.	achieved to date during the audit period, and the target has been exceeded.	achieve.
13a	Objective: To ensure that forest operations maintain compliance with management practices that minimize or mitigate site damage. Target: To maintain 90% compliance with Area of Concern prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	This objective was achieved during the 2008-2012 FMP term.	Although there were some scattered instances of minor rutting on low, wet areas, the audit team did not observe any instances of significant site damage during site visits.
16a	Objective: To minimize non-compliance in forest operations. Target: To maintain 90% compliance with Area of Concern prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	The objective and target was achieved. During the audit term, 134 inspections were undertaken and a total of 38 operational issues were reported. There was only one non-compliance during the audit period related to merchantable timber left in roadside slash that was addressed by a warning letter and burning the slash. This reflects significant improvement over the prior audit term which had 31 non-compliances.	.
Social and Economic: Provision and Maintenance of Economic Benefits from Forestry			
12a	Objective: To provide a continuous supply of available harvest area (ha/year) over the long-term (and short term) (next 100 years). Target: To maintain the 2008-2018 available harvest area levels by forest unit for the plan term (measured in 2008).	Table FMP 9 shows the projected AHA from 2008 forward to the 2128 period. The AHA for the 2008-2017 period is 51,911 ha, and in the 2108-2117 period, it is 52,150 ha. During the intervening periods, the 10-year AHA ranges from 33,660 ha to 36,858 ha. Table FMP-13 reports that the target is met for 2008 but thereafter the AHA declines by forest unit because future caribou blocks are smaller than those designated as A and AE blocks (which are intended to be harvested in the 2008-2027	The AHA in each twenty-year period is driven by the cycle of the caribou mosaic areas, which have been placed on a 100-year rotation. As discussed below under objective 12c, the actual harvest area has fallen well short of the planned level, suggesting near future AHA's, and potentially mid-term AHA's, may be higher than projected in the 2008 FMP. Yet there is some possibility that the long

No.	Objectives& Targets	Achievement	Explanation/Comments
		period). The objective is met in the very short term (i.e. for 2008) and over the long term. The 2018 and 2028 targets were not projected to be met in the 2008 FMP, however they may turn out to be achievable for many of the forest units in the 2018 FMP period, and perhaps beyond. The analysis undertaken by MNRF to address recommendation #12 from the 2009 IFA models the impact of revising the post-renewal succession assumptions used in developing the 2008 FMP. The succession assumptions were revised in order to reflect the trends observed in MNRF's SEM work and the FTG assessments undertaken by the Company. The key differences between the modelled results and observed results are less harvested area from the SPU, MC1, and BF1 forest units moving to SPU than expected, and more MC2 being created than expected. As a result, by Term 11, there is considerably more MC1 and MC2 than expected in the 2008 FMP, and considerably less SPU. It is noted that some proportion of the MC1, and a lesser proportion of the MC2 and PJ1 forest units, may naturally succeed to SPU so that the amount of area in SPU may turn out to be higher than forecast in the MNRF assessment. Nevertheless, it is highly likely that there will be considerably less SPU present in the forest than forecast in the FMP. As a result, the target of maintaining available harvest by forest unit is unlikely to be met for the SPU forest unit, but is likely to be exceeded in the case of the MC1 and MC2 forest units.	term under-harvest on the Caribou Forest, relative to planned levels, may be rectified once Resolute's Ignace and new Atikokan mills begin to operate. Start up dates are expected in October 2014 and January 2015, respectively. The Company's business plan calls for the Caribou Forest to be the main source of supply for the Ignace mill – it remains to be seen what long-term average harvest level will be attained on the Caribou Forest

No.	Objectives& Targets	Achievement	Explanation/Comments
12b	Objective: To provide a continuous supply of available harvest volume (m3/year) over the long term (and short term) (next 100 years) for the six major species groups as identified in the regional wood supply strategies. Target: To maintain the 2008-2018 available harvest volumes for all species groups for the plan term (measured in 2008).	Similarly to Objective 12a, the available harvest (shown in FMP 10) is 6.1 million m3 over the 2008-2017 period, and it is projected to be 5.9 million m3 during the 2108-2117 period. During the intervening periods, the available volume is significantly lower at 3.6 million m^3. Therefore, the target is met in the very short term and in the long term, but not within the majority of the planning period. Table FMP-13 provides a similar assessment of this Objective – it is met in the 2008 period and in the long term, but not in the 2018 and 2028 periods. However, the 2018 FMP may upwardly revise the available volume in the 2018 and 2028 periods due to the under harvest that persisted through the plan period to date. As discussed in the assessment of Objective 12a, the volume of spruce is likely to be lower than forecast by the 2008 FMP, however to the extent that the deficit is made up by jack pine, the percentage of the harvest composed of SPF may not differ markedly from the planned levels.	As with Objective 12a, caribou mosaic scheduling is the key driver for available volume. As discussed below under objective 12d, the actual harvest volume has fallen well short of the planned level, suggesting near future available harvest volumes, and potentially mid-term available volumes, may be higher than projected in the 2008 FMP.
12c	Objective: To increase the actual area harvested in comparison to the planned/ forecast (hectares by forest unit). Target: To harvest at least 90% of the planned harvest area (including bypass) by forest unit for 2008-2013 and 2013-2018.	The Company is well short of the planned harvest during the first five years of the 2008 plan period, having harvested 3,894 ha during the first five years (versus a planned harvest area of 25,758 ha). This represents 14.9 % of the planned level. The 2013-14 harvest area data have not been finalized however the preliminary estimates show a continuation of low harvest levels. This objective has not been achieved to date, and neither has the first-term target.	While the financial crisis and ensuing collapse of the US housing market have been responsible for the very low harvest during the 2008 FMP period, it is noted that the actual harvest area on this Forest has never exceeded 60% of planned level over a plan period, even when the industry was operating at strength. As discussed above under Objective 12a, the new mill being built by Resolute at Atikokan and the revamped mill at Ignace are scheduled to open very soon, and the

No.	Objectives& Targets	Achievement	Explanation/Comments
			start-up of these mills will increase the level of harvest on the Caribou Forest, likely by a significant level. However, it is not clear at present whether the increase will take the harvest back to the pre-recession levels, or meaningfully higher.
12d	Objective: To increase the actual volume harvested in comparison to the planned/ forecast (volume by species group). Target: To harvest at least 90% of the planned harvest area (including bypass) by forest unit for 2008-2013 and 2013-2018.	The Company is well short of the planned harvest during the first five years of the 2008 plan period, having harvested 430 M m3 during the first five years (versus a planned harvest area of 3049 M m3). This represents 14.1 % of the planned level. The 2013-14 harvest volume data have not been finalized however the preliminary estimates show a continuation of low harvest levels. This objective has not been achieved to date, and neither has the first-term target.	While the financial crisis and ensuing collapse of the US housing market have been responsible for the very low harvest during the 2008 FMP period, it is noted that the actual harvest volume has only once reached as high as 61% of the planned level over a plan period (during 2002-07), even when the industry was operating at strength. As discussed above under Objective 12a, the new mill being built by Resolute at Atikokan and the revamped mill at Ignace are scheduled to open very soon, and the start-up of these mills will increase the level of harvest on the Caribou Forest, likely by a significant level. However, it is not clear at present whether the increase will take the harvest back to the pre-recession levels, or meaningfully higher.
12e	Objective: To better utilize the forecast harvest volume by mill. Target: To utilize 80% of the forecast harvest volume by mill from 2008-2018.	As one might expect based on the assessment of Indicator 12d, this objective has not been achieved. Indeed, many of the planned recipient mills are no longer in existence, and all stopped operations or curtailed production for some periods of time during the audit period.	See comment for Objective 12d.
15a	Objective: To maintain the managed Crown forest available for timber	The area of the managed Crown forest available for timber production is expected to be maintained over the long term – the only	Table FMP-1 shows that in 2008, the area of Crown managed productive forest (i.e. the forest available for timber

No.	Objectives& Targets	Achievement	Explanation/Comments
	production. Target: To maintain at least 90% of the total Crown managed productive forest available for timber production as per FMP-1 over the period of the FMP with a short, medium and long-term desirable level of 483,000 ha.	forecast reduction is a loss of 2% of the harvested spruce upland area during terms 1 - 7 due to new roads. If there are no other losses, the available area will remain above 483,000 ha, the identified desirable level and target for the objective.	production) was 483,992 ha.
Social and Economic: Involvement of First Nations and the Local Citizens Committee			
15b	Objective: To provide opportunities for Aboriginal communities to be involved in plan development through Aboriginal consultation, planning team participation and incorporation of Aboriginal values. Target: During the development of the FMP, provide Aboriginal communities with information, opportunity to participate, membership on the planning team, inclusion of Aboriginal values.	Achieved. Because this indicator only refers to protection of values through Aboriginal consultation, planning team participation, this has been achieved.	Although the values protection is achieved, it is mainly due to lack of harvest. Discussion with the Company, they acknowledged that once harvest starts, there will be a challenge with some aspects of management such as spraying, site prep and harvest methods. In the absence of a significant benefit to the community from harvest, there will be some challenging discussions with Mishkegogamang. in particular.
15h	Objective: To provide opportunities for the Local Citizens Committee (LCC) to be effective in plan development.	The FMP text does not make it clear whether the indicator was intended to apply only to the development of the 2008 FMP or whether it was relevant to other aspects of FMP development. The LCC actively participated in the development of the 2013 Phase II Planned Operations, and the LCC statement in the supplementary documentation of that plan indicated that the LCC felt it has been effective at meeting its mandate and it was supportive of the Phase II plan. The LCC did note their opinion that the caribou management approach required by the province unduly emphasized	This indicator was also evaluated during the 2009 IFA with respect to the LCC's involvement in the 2008 FMP. The previous auditors stated that the LCC was effectively involved in the development of the 2008 FMP. The LCC did support the 2008 FMP without stating any reservations.

<table>
<tr><th>No.</th><th>Objectives& Targets</th><th>Achievement</th><th>Explanation/Comments</th></tr>
<tr><td></td><td></td><td>ecological values at the expense of social and economic benefits. The LCC also noted their opposition to decommissioning of roads or water crossings that provided “essential access for public use”.

The audit team agrees with the LCC’s most recent contention that it had been effective in plan development, thereby achieving the objective.</td><td></td></tr>
<tr><td colspan="4">Silviculture</td></tr>
<tr><td>3a</td><td><u>Objective:</u> To provide for a forest composition within the bounds of natural variation (BNV), while minimizing hardwood and maintaining/increasing the conifer composition.

<u>Target:</u> To remain within the range defined by the natural benchmark SFMM run (specifically, the maximum value +20% and the minimum value -20%) over the long term (100 years).</td><td>Long-term monitoring will be required to fully assess this objective, but the results of forest management activities appear to be tracking toward this objective. The currently available assessment data indicates that in the near term, there are some changes in species composition at the stand level, but the relative proportions of conifer versus hardwood dominated Forest Units are being maintained.</td><td>The following table summarizes free-to-grow data from assessments conducted in the 2008-2013 period.

<table>
<tr><th>Forest Unit</th><th>Disturb. Forest Unit Area (ha)</th><th>Free-to-grow Forest Unit Area (ha)</th><th>Change in Area</th></tr>
<tr><td>BW1</td><td>45</td><td>4</td><td>(41)</td></tr>
<tr><td>MC1</td><td>3,764</td><td>5,155</td><td>1,391</td></tr>
<tr><td>MC2</td><td>712</td><td>1,155</td><td>443</td></tr>
<tr><td>MH1</td><td>261</td><td>418</td><td>157</td></tr>
<tr><td>OC1</td><td>0</td><td>27</td><td>27</td></tr>
<tr><td>PJ1</td><td>1,334</td><td>3,165</td><td>1,831</td></tr>
<tr><td>PO1</td><td>111</td><td>61</td><td>(50)</td></tr>
<tr><td>PR1</td><td>0</td><td>26</td><td>26</td></tr>
<tr><td>SPL</td><td>1,739</td><td>1,173</td><td>(566)</td></tr>
<tr><td>SPU</td><td>4,036</td><td>462</td><td>(3,574)</td></tr>
</table>

It is apparent that at the time of free-to-grow assessment, there have been some</td></tr>
</table>

No.	Objectives& Targets	Achievement	Explanation/Comments
			changes in species composition in these stands, as indicated by migration of areas between Forest Units. In the case of the spruce and pine dominated Forest Units, this is largely attributable to a greater rate of jack pine ingress due to natural regeneration than was predicted by the SGRs. However, as indicated below the relative proportions of conifer versus hardwood dominated Forest Units has remained essentially the same. Note that areas harvested and treated during the audit period will not be assessed until future FMP terms. Field observations do not indicate any trends towards significant changes in forest composition in areas harvested and treated during the audit period.
3b	Objective: To provide for a forest composition in the near and long term that maintains the distinctive dominance of conifer forest types while minimizing post harvest hardwood in-growth within conifer dominated forest units within the bounds of natural variation (BNV). Target: To remain within a range defined by the natural benchmark SFMM run (specifically, the maximum value +20% and the minimum value (-20%) over the long term (100 years).	Assessment of this objective is ongoing, but the currently available assessment data indicates that the relative proportions of conifer versus hardwood dominated Forest Units are being maintained.	A summary of all free-to-grow assessment data collected during the 2008-2013 period, which consists of areas harvested and treated in previous FMP terms, shows that the total area classified as conifer dominated Forest Units (i.e., MC1, MC2, PJ1, SPL and SPU) at the time of disturbance was 11,229 ha. At the time of free-to-grow assessment, the area of conifer-dominated Forest Units was 11,163 ha, a change of 66 ha, or less than 1% of the area surveyed. All areas harvested and treated during the audit period will not be assessed until future FMP terms. However, the field

No.	Objectives& Targets	Achievement	Explanation/Comments
			audit of treated sites indicated that the silvicultural prescriptions were suitable for the site conditions and showed generally good results, and that tending was being conducted to control hardwood species as appropriate to site conditions.
3c	Objective: To increase the presence of rare (infrequently occurring) tree species (e.g. red pine, white spruce) on the Forest. Target: To plant 10,000 seedlings of red pine and 50,000 seedlings of white spruce per year.	After five years, accomplishments for this objective are on track with respect to white spruce but not for red pine.	During the 2008-2013 FMP term, 50,880 white spruce were planted, or 20.3% of the target. No red pine was planted during the FMP term. However, the harvest level within the FMP term was only 15%, meaning that fewer areas were available for planting, thus the target for white spruce was achieved in proportion to this lower harvest level.
3d	Objective: To maintain genetic diversity through the use of natural regeneration methods where appropriate site conditions exist. Target: 95-100% of forecast natural regeneration areas to be naturally regenerated during plan period (within 10 years).	After five years, accomplishments for this objective are on track.	Natural regeneration was declared on 2,828 ha, or 27% of planned. Given that the actual harvest level during the FMP term was only 15%, the target for the period was achieved in proportion to the lower level of harvesting, and areas from previous FMP terms were also declared for natural regeneration. Natural regeneration was forecast to be implemented on 40.9% of sites, and the actual percentage was 31.3%. A higher proportion of sites than expected required artificial regeneration during the FMP term. This must be taken in the context of the low harvest level during the period. The field audit of naturally and artificially regenerated sites indicated that the silvicultural prescriptions were suitable for the site conditions and showed generally

No.	Objectives& Targets	Achievement	Explanation/Comments
			good results.
9a	Objective: To ensure harvested areas are successfully regenerated and free-growing in a timely manner. Target: to have 95-100% successful regeneration rate.	The target was underachieved during the 2008-2013 period, but regeneration success rates have been back on track for the past two years.	During the FMP Phase I term, the regeneration success rate was 79.3%; during the audit period it was an improved 88.8%. Most areas that were not declared free-to-grow had not achieved sufficient height growth or density to meet silvicultural standards. Changes to SGRs were made for the 2013-2018 Operating Plan to modify the list of acceptable species for most Forest Units, and to extend the time before free-to-grow surveys, allowing for further stand development. The silvicultural success rate in the final year of the 2008 FMP Phase I term was 98.8%, and in the first year of the 2013-2018 Operating Plan, 97.3%.
9b	Objective: To ensure harvested areas are successfully regenerated such that the hardwood component of stands is minimized and conifer composition is maintained or increased. Target: 5% or less of the harvested area that regenerates to a forest unit containing more hardwood than the original forest unit.	This objective cannot be assessed until areas treated during the FMP term have been surveyed for free-to-grow / inventory update. However, there do not appear to be indications of any significant issues in meeting the target.	During the 2008-2013 FMP term, silvicultural prescriptions were implemented in proportion to planned levels given the lower than planned level of harvesting. Observations from site visits indicated that the prescriptions were suitable for site conditions and generally appeared to have been effective in meeting silvicultural objectives. Tending to control hardwoods was being implemented where appropriate. The audit team did not observe instances of widespread hardwood ingress onto conifer sites.

APPENDIX 3 - COMPLIANCE WITH CONTRACTUAL OBLIGATIONS

Licence Condition	Licence Holder Performance
Payment of Forest Renewal Trust, Forestry Futures and Ontario Crown charges	As of March 31, 2014, aside from current charges of $26,862.32, there was no money owed by the SFL to the Forest Renewal Trust, Forestry Futures Trust, or for Ontario Crown charges. At March 31, 2014, total arrears by other parties to the two trust funds and for Ontario Crown charges totaled $238.90. This indicates that all parties owing stumpage to the Crown for the Caribou Forest are largely up-to-date with payments of all types.
Wood supply commitments, MOAs, sharing arrangements, special conditions	The current version of the SFL document lists four wood supply commitments in Appendix E, however the SFL is being revised by MNRF and it is anticipated that none of the commitments will remain on the revised licence. The commitments to Longlac Wood Industries and Mackenzie Forest Products have been cancelled by MRNF since both companies went out of business, although the Mackenzie mill has re-started having been brought out of creditor protection. No wood has flowed to Ainsworth since 2008-09, and their commitment was also cancelled. Finally, MNRF informed Resolute by letter that MNRF no longer recognized the requirement for Resolute to provide hardwood to the Dryden mill. In early 2009, the Dryden mill changed its furnish mix to 100% conifer, eliminating any need for hardwood. During the first three years of the audit period, all harvested wood was used by Resolute's mills in Thunder Bay and Fort Frances, except for a minor amount cut for personal use. In the 2012-13 fiscal year, softwood flowed to Domtar's mill in Dryden and hardwood to the Weyerhaeuser OSB mill in Kenora. In 2013-14, draft statistics show the number of mills receiving wood from the Caribou Forest expanded further as the forest sector began to come back to life, with Levesque Plywood and the recently re-opened sawmill in Hudson becoming recipient mills. Resolute is in the process of signing an agreement to supply 70,000 GMT/yr of poplar primarily from the Caribou and English River Forests to Weyerhaeuser's OSB mill in Kenora, and is in discussions with MNRF and Mackenzie Forest Products to enable wood from the Trist block to go to Hudson. There were no other relevant agreements or special conditions that were part of the licence. In terms of future wood flows, Resolute's business plans are based on SPF roundwood (sawlog material) being sent to Ignace, with the resulting chips going to Thunder Bay

Licence Condition	Licence Holder Performance
	Pulp and Paper mill. Pulpwood from the Caribou will be bush chipped and sent to Thunder Bay, or Domtar in Dryden as part of a potential exchange agreement. The business plan is based on using all available SPF volumes from the Caribou SFL.
Preparation of FMP, AWS and annual reports; abiding by the FMP, and all other requirements of the FMPM and CFSA	Planning team activities during the audit period included preparing the Phase 2, 2013-18 operating plan, five Annual Work Schedules (2010-11 to 2014-15) and five Annual Reports (2009-10 to 2012-13). All planning products were of reasonably good quality, were submitted and approved on time with the exception of the delays in the Year 3 annual report and phase 2 operating plan and had comprehensive MNRF reviews completed. This contractual obligation has been met.
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM	The Company has a good program for silvicultural effectiveness monitoring in place to support its field operations, which includes post-harvest forest operations prescription (FOP) surveys to determine treatment needs and the most appropriate prescriptions, quality assessment programs for site preparation and tree planting, tending needs and effectiveness surveys for chemical tending treatments, regeneration surveys conducted one year following artificial regeneration, and regeneration condition surveys conducted on all treated areas (including naturally regenerated areas) 2 to three years following treatment, and finally free-to-grow surveys. During the audit period, digital maps and associated information on silvicultural treatments and free-to-grow assessments were provided to MNRF according to the appropriate FIM standards. During the 2008-2012 FMP term, the Company completed the assessment of a total area of 9,603 ha for free-to-grow status. This effort represented 27% of the 5-year forecast area of 36,265 ha. In the first year of the 2013-2018 FMP term, an additional 4,195 ha were assessed. Less area than forecast was assessed because i) the length of time for assessment following treatments was increased to allow greater time for stand development; and ii) the level of harvesting in current and past FMP terms has been well below the forecast levels, meaning that less area than planned was available for survey. However, the free-to-grow assessment program is keeping pace with harvesting and renewal activities such that there is effectively no backlog of sites needing assessment. The Company does a good job of inventory updating in preparation for forest management planning, including the data management of harvesting, silvicultural and free-to-grow records. In 2009, District MNRF and the Company received a complete set of digital imagery to be used in the production of an updated eFRI for use in operational planning. The updated FRI is expected to be delivered by the end of the year 2014.

Licence Condition	Licence Holder Performance
Wasteful practices not to be committed	The Company generally did a good job using the marketable wood that was harvested. The only non-compliance incident during the audit period (excluding the one pending issue) occurred in 2009-10 when a considerable amount of merchantable tree length conifer (longer than 2.5 m) was found in slash piles; a warning letter was issued by MNRF for this infraction. The Company paid stumpage on the wood and it was later burnt with the slash since it was not financially feasible to return to pick up the wood.
Natural disturbance and salvage SFL conditions must be followed	There were few salvage opportunities available on the Caribou Forest during the audit period since there were not many natural disturbances of any size that created salvage opportunities. The exception was that the 2009-10 Annual Report identified 1170 ha of sawyer beetle damage. Of this, 417.5 ha was identified for salvage harvesting in the 2010-11 AWS, however the anticipated user did not request the wood and the salvage opportunity was passed up.
Protection of the licence area from pest damage, participation in pest control programs	No insect pest control was required or implemented during the audit period.
Audit action plan and status report	The 2009 IFA report was submitted on November 26 and accepted on December 7, 2009. The 2009 IFAPP stipulated that the District Manager would submit the Action Plan two months after the receipt of the audit report, but it was not until August 25, 2010 that it was submitted, 7 months late. It was fully approved on September 28, 2010. The Status Report is to be submitted by the District Manager two years after approval of the Action Plan – in this case, the Status Report was approved by the Regional Director on October 31, 2012, and accepted by MNRF on November 5, 2012. The Ontario-wide history of contumacy regarding the timely delivery of IFA Action Plans and Status Reports[3] continued with the 2009 IFA Action Plan but fortunately the Status Report was submitted closer to the scheduled time. With this improvement, the audit team did not feel that a recommendation was warranted.
Forest Renewal Trust eligible silviculture work	Auditors reviewed in the field a total of 438 ha (23.2%) of eligible silviculture work that was charged to the Forest Renewal Trust for the year 2012-2013. All treatments were in place as reported, appeared to be appropriate for the field conditions, and were observed to be of good quality. Auditors also assessed in the field 277 ha of areas on which free-to-grow surveys had been completed in 2012-2013 (20.4% of the total area). Auditors confirmed the free-to-grow status of these areas and verified the stand description information recorded by the assessors.

[3] Analysis completed by MNR in 2012 indicated that only 24% of action plans submitted within a five-year period were provided on time, although an additional 16% were submitted less than one month late. Approximately 40% of action plans were submitted more than 100 days late.

Licence Condition	Licence Holder Performance
Forest Renewal Trust forest renewal charge analysis	The Forest Renewal Trust forest renewal charge analysis was done as required by the Company and MNRF. During the audit period the renewal rates were reviewed annually by the Company and MNRF. Changes were made to all species categories at various times during the audit period. At the time of the audit, renewal rates for all species categories were at higher levels than in the past or were equal to previous maximum rates for the Caribou Forest. The renewal rates that were in place during the audit period were appropriate and generated sufficient funds to implement the planned silviculture program.
Forest Renewal Trust account minimum balance	The minimum balance requirement was met for all 5 years of the audit period.
Silviculture standards and assessment program	For the 2008-2012 FMP term, the total renewal effort on the forest was 9,046 ha. This represented 35% of the planned five-year effort, based on the FMP forecast area. However, the actual area harvested during the 2008-2012 FMP term was only 15% of the planned area (in the previous 2002-2007 and 2007-2008 FMP terms the harvest level was also lower than planned at 50%), thus an area equivalent to the 5-year harvest area was treated, plus an additional 5,152 ha. The additional area consisted of treatments that were implemented on areas carried over from previous FMP terms. This effort has essentially eliminated the backlog of untreated sites from prior FMP terms. The audit team's review of a sample of these treatments indicated that the silvicultural prescriptions implemented by the Company were appropriate for the site conditions, were generally of good quality, and appeared to have been effective. Despite the generally positive assessment, there is some concern that the silvicultural success rate was very low at 25% during the audit period. As discussed in section 4.6.3, the audit team concluded that this did not suggest that there was an undesirable shift in forest composition taking place. Nevertheless, **Recommendation # 13** and **Recommendation # 14** were issued to ensure further consideration of the situation. There are no outstanding silvicultural treatment or survey obligations with respect to Class Y and Z Lands on the Caribou Forest. For the above reasons, the auditors believe that the Company has met its contractual obligations with regard to the silvicultural standards and assessment program.
Aboriginal opportunities	The Company has made efforts to provide opportunities with both of the communities that are located directly on the forest. The Ojibway Nation of Saugeen community is engaged and good progress is being made. Efforts by the Company with Mishkeegogamang during the term were unsuccessful but sincere. The Company has not kept up the effort

Licence Condition	Licence Holder Performance
	in the last two years and this was the subject of **Recommendation # 1 and Recommendation # 2.** Several factors provided obstacles, (distance to community and contacting community leaders) but the Company should be able to overcome these challenges. Two other communities off the SFL have had contact with the Company, but their aspirations for opportunities on the Caribou Forest are minimal. The Company needs to keep the communication open with Métis, in consideration of the recent court decisions that may affect the Métis rights. At this time there is no clear direction on the Company responsibility. For Métis, and the two communities off the Caribou Forest, the contractual responsibilities are met.
Preparation of compliance plan	The Company has prepared a comprehensive 10 year compliance strategy which met the 2009 FMPM requirements and was updated in the 2013 FMP to outline the compliance program to be implemented. It includes a good review of the compliance history and issues. Simple annual compliance plans are included in the AWSs however there is no compliance schedule included as MNRF and Company deemed start-up notification and ongoing communication regarding block status would be better approach. This contractual obligation has been met.
Internal compliance prevention/ education program	Overlapping Licensees (OLLs) and contractors complete their own FOIP inspections which are approved by the Company. A total of 15 certified inspectors performed inspections during the audit term. Company training is provided at an annual operations training session. A pre-start up meeting and map sign off is held to review all blocks prior to starting operations. The Company reviews the status of all OLLs and contractors once a year to ensure they have they maintain “qualified logging professional” status including a review of training records, core certification, fire training, first aid, and Environmental Management System. SAR training was provided through the local college. An operations handbook is prepared and distributed with work instructions. This contractual obligation has been met.
Compliance inspections and reporting; compliance with compliance plan	During the audit term a large number of compliance inspectors (i.e. 20) completed 100 SFL and 34 MNRF inspections on a limited amount of operations resulting in 36 operational issues that were closed and only one non-compliance Most operational issues were related to wood utilization, however others were related to a small stream trespass, the fire plan and equipment, garbage, a new value, improper culvert installation, slash and an oil leak. The compliance program implemented was appropriate to the lower level of operations, the lower risk of non-compliances owing to the good compliance

Licence Condition	Licence Holder Performance
	record. FOIP reporting timelines were not always achieved, which has been addressed by **Recommendation # 12**.
SFL forestry operations on mining claims	This audit procedure was determined to be low risk and was not audited.

Review of Previous Audit's Recommendations

The 2009 IFA provided 12 recommendations, as well as the licence extension recommendations. Of the 12 recommendations, eight were satisfactorily addressed.

Three of the previous recommendations applied to the development of a new FMP, which did not occur during the period of this current audit. These recommendations were reviewed for applicability, and one was found to be no longer applicable and so was combined with a second. In total, two recommendations in the present IFA have been carried forward from the 2009 IFA.

There was also one recommendation from the previous IFA that the Company should monitor stand development and implement appropriate silvicultural practices to ensure stand composition objectives are achieved. The Company and MNRF have both undertake renewal surveys annually during the audit period, and changes were made to the SGR's in the Phase II Planned Operations to reflect observations to date, including modifications to the lists of acceptable species, and increases in the length of time after treatments to free-to-grow assessments, to allow natural ingress to proceed and to permit greater height growth.

The Company and MNRF also plan to use data gathered from the Company's free-to-grow survey program and the MNRF's SEM program in the review of strategic model inputs for the next 2018-2028 FMP. Thus, the audit team concluded that the recommendation has been partially completed however the completion of it will be effective with the development of the next FMP.

APPENDIX 4 – AUDIT PROCESS

Overview

The Crown Forest Sustainability Act (CFSA) directs the Minister of Natural Resources and Forests to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. The Independent Forest Audit (IFA) contributes to this mandate, as well as complying with the direction to the Ministry laid out in the 1994 Class EA decision, subsequently confirmed in the 2003 Declaration Order[4]. Regulation 160/04 under the CFSA prescribes the minimum qualifications required by the audit team and sets out direction related to the timing and conduct of IFA's, the audit process and reporting.

The Independent Forest Audit Process and Protocol (IFAPP) sets out in detail the scope and process requirements of an IFA, and contains approximately 190 individual audit procedures. The IFAPP, which is reviewed and updated annually by the MNRF, states that the purpose of the audits is to:

- "*assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the [Crown Forest Sustainability] Act;*
- *assess to what extent forest management planning activities comply with the Act and with the forest management plans, the manuals approved under the Act, and the applicable guides;*
- *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;*
- *compare the forest management activities carried out with those that were planned;*
- *assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit;*
- *review and assess a licensee's compliance with the terms and conditions of the forest resources licence; and*
- *provide a conclusion regarding the sustainability of the Crown forest*"

There are two key types of audit findings – recommendations and best practices. A recommendation is explained in the IFAPP as: "*a high level directional approach to addressing [a] non-conformance. In most cases, recommendations follow from the observation of material non-conformances. In some instances, however, auditors may develop recommendations to address situations where they perceive a critical lack of effectiveness in forest management activities, even though no non-conformance with law or policy has been observed.*"

Recommendations can be directed towards the Company and/or at the appropriate administrative level of the Ministry of Natural Resources (District, Region or Corporate). Auditees must address all recommendations through follow-up actions.

If the Audit Team feels that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP states that "*Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly,*

[4] Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1389/03 on June 25, 2003.

applications of established management approaches which achieve remarkable success may represent best practices." In contrast, "*situations in which forest management is simply meeting a good forest management standard*" do not qualify.

Audit Procedures and Sampling

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. The procedures, which are the basis for assessing the auditees' compliance and effectiveness, are organized according to eight principles. A positive assessment of the procedures under each principle results in the principle being achieved. A negative assessment of a procedure typically leads to a recommendation.

The IFAPP segregates the procedures into three classes based on the risk to forest sustainability should the management aspect covered by the procedure not be achieved:

- "low risk" – procedure is strictly administrative in nature;
- "moderate risk" – procedure has an administrative component but also a bearing on sustainability; and
- "high risk" – procedure is related to sustainable forest management.

For each principle, the audit team is required to sample 20 – 30% of the procedures identified as low risk, 50 – 75% of the procedures considered to be moderate risk and all the procedures identified as high risk. This risk-based approach is intended to reduce the auditor and auditee workload and focus the audit on more significant issues. The table below identifies, for each principle, the number of procedures in each risk class, the number audited, and the proportion that were audited. Because the Caribou Forest has been certified to a third-party certification standard, the IFAPP does not require the IFA to assess compliance with Principle #1 (commitment) and the Human Resources part of Principle 5 (System Support).

The audit commenced with the preparation of a detailed audit plan[5], which described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held in Sioux Lookout between the lead auditor, the Company and the MNRF. The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and make a preliminary selection of sites to inspect in the field during the audit. Subsequently, some adjustments were made to the selected sites due to access issues, to improve the balance of operations and sites, and attain an appropriate proportional representation of sites related to the extent of operations.

[5] ArborVitae Environmental Services Ltd. Caribou Forest Audit Plan, August 19, 2014.

Table 4. Audit procedures by principle and risk category.

Procedures Audited, by Risk Category								
Principle	**Low Risk**			**Medium Risk**			**High Risk**	**Comments**
	Applicable (#)	**Selected (#)**	**% Audited**	**Applicable (#)**	**Selected (#)**	**% Audited**	**Audited (#) (100% Audited)**	
1. Commitment	0	N/A	0	2	N/A	0	0	This principle was not audited because the Forest has been certified to a third-party standard.
2. Public Consultation and Aboriginal Involvement	0	N/A	N/A	7	6	86	2	We opted not to assess whether public notices of inspections were issued, since MNRF usually ensures that this is done properly. All aspects of Aboriginal Involvement were audited.
3. Forest Management Planning	4	2	50	9	5	55	14	Many procedures in this principle were not relevant as they apply only to Phase I FMPs. Low risk procedures regarding the SEV briefing note and the plan contributors page were not assessed. Medium risk procedures not assessed related to review certification, amendment documentation, and changes to AOC's and FOP's made during FMP implementation.
4. Plan Assessment & Implementation	1	0	0	1	1	100	9	All procedures under this principle except for the low risk procedure were audited.
5. System Support	0	N/A	N/A	1	1	100	1	Criterion 5.1 was not audited because the Forest has been certified to a third-party standard.
6. Monitoring	2	1	50	5	3	60	11	One low risk procedure related to submission of FOIP reports was not audited. Medium risk procedures not audited related to internal compliance/education plans and methodology for field collection of indicator data.
7. Achievement of Objectives and Forest Sustainability	0	N/A	N/A	0	N/A	N/A	15	All procedures are high risk and so were addressed.
8. Contractual Obligations	0	N/A	N/A	6	4	67	14	Two medium risk procedures on lands withdrawn from the licence and forestry operations on mining claims were not assessed.
Totals	7	3	43	29	4	69	66	

The focus of the audit was an intensive five-day site visit (September 8-12), which included document review, interviews and inspections of a variety of sites throughout the Forest where activities had been undertaken during the audit period. There was a reasonable amount of follow up during the preparation of the draft audit report. After the draft report was submitted and reviewed by audit participants, a key conference call was held to go over the comments and provide an opportunity for discussion and debate. The lead auditor also presented the draft findings to the LCC. The draft final report was submitted and was again reviewed, although there were far fewer comments this time. Based on these comments, the final audit report was prepared.

Sampling and Sample Intensity

The IFAPP requires that at least 10% of each major activity be sampled. **Table 5** shows the total amount of each key activity that took place during the audit period, and the sample size and sampling intensity in the IFA. Most sites were pre-selected during the pre-audit meeting although a small number were added ad hoc during the field visits.

For all entries or area managed in the table, the data are extrapolated to five years, as only four years of information are available, given that the annual report for the final year of the audit has not yet been produced, consistent with the mandated schedule for its production. The audit exceeded the minimum sample size specified in the IFAPP for all activities, with the overall level of sampling ranging from 12.7 to 26.2% for key activities.

The IFAPP directs the auditors to verify in the field at least 10% of the areas reviewed in a specified procedures assessment undertaken by KPMG for the 2012/13 fiscal year. We verified in the field 22% of the eligible silvicultural activities undertaken by Resolute and its contractors.

Examples of operations were examined in each major forest unit present on the Forest, representing a range of harvesting systems, year of harvest, season of operation, and silvicultural treatment packages. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were site prepared, seeded, planted, and tended, and those for which natural regeneration treatments were prescribed.

Table 5. Sampling intensity of the field operations, by key feature investigated.

Feature	Total in Audit Period	Total Sampled	Sample Intensity %
Harvest (ha)	2,635	690	26.2
Natural Regeneration (ha)	1,954	248	12.7
Mech Site Preparation (ha)	2,932	463	15.8
Planting (ha)	3,426	464	13.6
Seeding (ha)	941	179	19.0
Aerial Tending (ha)	4,094	577	14.1
Free-to-Grow Assess (ha)	10,929	1,436	13.1
2012/13 FRT Areas (ha)	3,245	715	22.0

The table is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the table. Although we viewed many individual harvest and/or treatment blocks during the field inspection portion of the audit, more than one aspect of forest management was inspected at some sites. For example, at sites where harvesting had taken place, harvest practices, compliance issues, road construction, Area of Concern (AOC) protection, site preparation, and regeneration activities may all have been inspected. Finally, of the area figures shown above, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

Input to the Audit from First Nations Communities

Mishkeegogamang First Nation (MFN), located adjacent to the northern part of the Caribou Forest, is on Highway 599 which is the future road to the Ring of Fire mining development. This situation has drawn much of the attention of the community. Other mining ventures and a new transmission corridor venture all are seeking engagement processes with MFN. These well funded enterprises are developing benefit and impact agreements with the community. At the same time, the community leaders are aware of the soon to be opened Ignace sawmill and are hopeful of some benefits. They made it clear they are interested in training in preparation for future work and expressed that the community needs this activity urgently. Off reserve members may also benefit from employment there. Previous efforts by the Company to train community members in road construction did not work out due to some community problems. The Community leaders are seeking opportunities for their members particularly through road construction and heavy equipment operation. The community operates a licensed gravel pit and has a partnership with Pikangikum FN which also has some equipment for aggregate production.

The Company has not met with or spoken to the Community leaders in more than a year and a half. Forestry does not have the same level of funding as other industries to engage in consultation with the community. The audit team found that MNRF and the Company expressed willingness to engage on forestry issues but given the competing ventures, and logistics, engagement is not easy to achieve. In short – there have been few meetings in recent years. There are two aspects to this: continuity of the relationship and direct communication with the leadership.

As noted in **Recommendation #1** (Appendix 1), the lack of continuity in the discussions with MFN is part of the problem. This was expressed as just keeping in touch between

planning exercises in order to build trust. There are no regularly scheduled meetings for forestry. MNRF is in a difficult position of seeking consultation only when there is a process or a problem. One comment was made that friends are not people who only show up when they need something. MNRF funding arrangements for forestry center on the FMP process and it does not lend itself to ongoing meetings.

As noted in **Recommendation #2** (Appendix 1), the communications challenge is hindering both MNRF and the Company from providing benefits. Recently money made available by the Company for assessing values was not used. Logistics is part of the problem. The Company office is in Thunder Bay, six hours by road from the community. As well, making contact and setting meeting times with the MFN leaders is difficult. Finding a way to fix this communications problem has not yet been explored. For example, the audit team noted when arranging a visit to the Band Office that telephone communications with the leaders can be difficult. There has not been an exploration of the cell service by Bell that is now available for the community; most people outside the community seem unaware of this. Ironically, this cell service is not accessed by the MFN leadership (apparently due to contracts and pricing, typical of the cell phone industry). There are other examples in the province of mechanisms that may help to solve the communications problem.

Under the requirements of Condition 34 (Class Environmental Assessment), the MNRF District Manager is required to “negotiate” for benefits from forestry. Although the main concern from the audit point of view is the lack of progress in providing some direct benefits to MFN members, the root cause of some of the problems is the difficulty of contacting the community.

Ojibway Nation of Saugeen (ONS) has had a considerable amount of contact with the Company. They have made progress in working out an overlapping license arrangement that will provide some benefit. The details are still being worked out. ONS is in the southern part of the forest that is most likely to be harvested in the near future. MNRF have been in touch with the community regularly.

Lac Seul First Nation (LSFN) and Slate Falls First Nation. These First Nations have traditional territory on Caribou Forest. Discussion with LSFN indicated there had been a meeting with the Company, but they were not related to benefits from the forest. LSFN has made a number of investments in non forestry enterprises, and they also hold a five year license on the Lac Seul Forest through Obishikokaang Resources Corporation. This is important because it puts them into a reciprocal position with the Company -- both need to consult with each other for forest management activities. Slate Falls has little interaction with the Caribou Forest. They have not had any issues raised by community members in the recent past. Overall, the Caribou Forest does not figure prominently on the agenda of these two communities. Although the Company should keep them informed in a more regular fashion, a recommendation is not warranted.

The Métis Nation of Ontario (MNO) is in discussions with the Province of Ontario about a new relationship. The Caribou Forest does not have a community with Métis members within its boundaries. There was some discrepancy between the position of MNRF and MNO about the interest of the Métis on this forest. The audit team did not feel an audit recommendation would provide any further clarification of this situation on the Caribou Forest given that talks at a high level are occurring.

Input to the Audit from LCC members

Approximately half of the LCC membership was interviewed during the course of the audit, primarily in-person during the week of the site visit. There was general agreement on a number of topics, including that the LCC has become more effective during the course of the audit period, that it is well supported by the MNRF (" the DM is very pro-LCC") and the Company ("the Company is excellent at responding to LCC requests"), and that it is well-resourced. Although one interviewee noted that the annual Christmas dinner used to be very nice and you could bring your wife whereas recently it is pizza.

One member indicated that there is interest on the LCC in expanding its mandate rather than waiting for FMP development to become fully active; for example, through the LCC letters were written to MTO requesting that they clean up garbage in some of their aggregate pits near town. He thought that "we did OK" regarding the provision of input to the Phase II FMP – they pushed hard for a clean-up of wood in the Kiwi bock and wrote a letter to Rainforest Alliance recently in support of Resolute.

The LCC is looking for ideas to get people to participate, and efforts have included the development of a brochure that can be picked up at various locations in Sioux Lookout and presentations on topics of interest, including wildlife protection, cut-to-shore, etc.

One member said that the LCC votes on issues but there is usually consensus, where more than 90% agree. But everyone knows it is a democratic system and so there are no hard feelings when someone is out-voted. People are very respectful of each other. There was some concern expressed about conflict of interest on the part of members, and that many members have some connection to the forest industry. However, other LCC members felt that this was a non-issue.

There was some comment that caribou management was a waste of time and it would be better to manage moose, for which there is more economic benefit.

Input through Public Comment

In response to the mail-out, one outpost operator responded that they have not had any luck getting an RSA developed but there are no issues at this point.

Provincial non government organizations that submitted comments during the development of the 2008 Phase 1 FMP (and were recorded in the documentation) about the strategic direction were notified of this IFA. One response was received. The respondent noted that there are examples of harvesting, regeneration and road de-commissioning on the Forest that meet a high standard, and felt that the Company staff are both knowledgeable and seem genuine in their desire to manage Resolute's tenures to meet multiple goals. However, concerns were expressed regarding strategic issues relevant to the Caribou Forest and woodland caribou range, especially the high level of disturbance on the caribou ranges that overlap in part the Caribou Forest.

This organization also expressed concern regarding the protection of other SAR, and asked whether appropriate AOC prescriptions for SAR that were encountered on the Forest were amended into the FMP, as the FMP stated would happen.

Input from MNRF

MNRF staff had comments and provided information on many of the issues discussed in this report, including the more extended discussions in the Recommendations and Best Practices write-ups.

MNRF District staff said that the Phase II plan is silent on some of the good things that are being done – a lot of best practices as identified in the Stand and Site Guide are being implemented. The MNRF District forester hosted a CIF workshop to look at various slash and chipper debris management approaches – the harvest contractor (Hollyer) is now doing an excellent job managing slash.

Input from Resolute FP Canada

MNRF staff had comments and provided information on many of the issues discussed in this report, including the more extended discussions in the Recommendations and Best Practices write-ups.

Resolute staff made the point that the low harvesting level was the key factor in the audit period, and that was not only driven by the absence of demand from local mills until the last couple of years of the audit period, but just as much by the high cost of wood from the unit, especially on the east side of the Forest.

APPENDIX 5 – LIST OF ACRONYMS

ACOP	Annual Compliance Operations Plan
AHA	Allowable Harvest Area
AOC	Area of Concern
AR	Annual Report
AVES	ArborVitae Environmental Services Ltd
AWS	Annual Work Schedule
BPFL	Buchanan Forest Products Limited
BNV	Bounds of Natural Variation
CFSA	Crown Forest Sustainability Act
Class EA	Class Environmental Assessment for Timber Management on Crown Lands in Ontario
COSSARO	Committee on the Status of Species at Risk in Ontario
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CRO	Conditions on Regular Operations
DCHS	Dynamic Caribou Habitat Schedule
DM	MNRF District Manager
EBR	Environmental Bill of Rights
eFMP	Electronic Forest Management Plan
eFRI	Enhanced Forest Resource Inventory
EMS	Environmental Management System
ESA	Endangered Species Act
FI	Forest Information
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FN	First Nation
FOIP	Forest Operations Inspection Program
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FTG	Free-to-Grow
FRT	Forest Renewal Trust
GMT	Green metric tonne
ha	hectares
km	kilometres
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
LCC	Local Citizens Committee
LSFN	Lac Seul First Nation
LTMD	Long-Term Management Direction
m3	cubic meters
MFN	Mishkeegogamang First Nation
MNO	Métis Nation of Ontario
MNRF	Ontario Ministry of Natural Resources and Forests
MOA	Memorandum of Agreement
MTO	Ministry of Transportation for Ontario
OLL	Overlapping Licensee
OSB	Oriented Strandboard
ONS	Ojibway Nation of Saugeen

PSP	Permanent Sample Plot
ROD	Regional Operations Division
RPF	Registered Professional Forester
SAR	Species at Risk
SEM	Silvicultural Effectiveness Monitoring
SFL	Sustainable Forestry Licence
SGR	Silvicultural Ground Rules
SPF	Spruce – Pine - Fir

APPENDIX 6 – AUDIT TEAM MEMBERS AND QUALIFICATIONS

Auditor	Role	Responsibilities	Credentials
Dr. Jeremy Williams, RPF	Lead auditor, Harvest and Wood Supply Auditor, Consultation Auditor	• overall audit coordination; • oversee activities of other team members; • liaise with Company & MNRF; • review and inspect harvesting records and practices; and management related to forest economics and social impacts; • reviews FMP modeling inputs and activities • review documentation related to forest management consultation and Interview stakeholders, LCC, regarding forest management issues.	B.Sc.F., Ph.D. (Forest Economics); more than 24 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in 27 previous IFA assignments; certified as an auditor by the Quality Management Institute.
Mr. Tom Clark, CMC Forestry Consulting	Wildlife and Consultation Auditor	• review and inspect Areas of Concern Documentation and Practices; • review and inspect aspects of forest management related to environmental practices and wildlife management integration; • review documentation related to forest management consultation and interview First Nations regarding forest management issues.	M.Sc. Zoology (wildlife ecology). Tom is an experienced auditor and has participated in more than 24 Independent Forest Audits from 1996 to 2013.
Mr. Rob Arnup. R.P.F. (Associate)	Silvicultural Auditor	• Review and inspect silvicultural practices and related documentation; • review and inspects selected environmental aspects of forest management.	B.Sc. Senior forest ecologist with 33 years' experience in silviculture, forest management applications and environmental consulting in boreal Canada and elsewhere. Completed 26 IFAs. .
Mr. Mark Fleming R.P.F.	Planning Auditor	• review FMP and related documents to ensure compliance with FMPM and other regulations; • review plan development process for conformity with FMPM; • review compliance monitoring program	Hon. B.Sc.F., R.P.F. 26 years experience in forest management in Ontario as a consultant, working as a regional MNRF planning specialist, and operations forester with industry. Completed over 42 IFA, FSC, ISO 14001 audits.
Mr. Chris Wedeles R.P.F. (Associate)	Audit Administrator	• assist in administration of the audit, collating and organizing report	B.Sc., M.Sc. completed 37 previous independent forest audits; certified as an auditor by the Quality Management Institute.

APPENDIX 7 – TREND ANALYSIS/YEAR 10 ANNUAL REPORT

The Comparison and Trend Analysis Report contained in this Appendix was produced by Resolute. Although the Report was reviewed by the Audit Team, the Audit Team had no role in writing it.

2014
Caribou Forest
IFA Trend Analysis

Prepared by Joel Gerry, RPF

RW Forestry Inc

Contents

List of Figures

List of Tables

4.0 Additional Requirements for Year Ten Annual Report

4.1 Implementation of Forest Operations - Trend Analysis

The purpose of this report is to evaluate the forest management operations on the Caribou Forest over the term of the 2008-2018 FMP, comparing planned versus actual operations, to discuss trends observed in management activities over the last three planning terms, and to assess the achievement of management objectives for the Caribou Forest 2008-2018 Forest Management Plan (FMP). Please note the 2008-2018 Caribou Forest had a phase I term extension adding a sixth year in the Phase I term of the plan. This trend analysis will cover the first five years of the phase I plan and discuss trends over the last three terms; therefore the time period covered in this trend analysis spans from the beginning of the 1997/1998 fiscal year to end of the 2012/2013 fiscal year.

A previous IFA trend analysis for the majority of the time period covered by this annual report was completed by Resolute Forest Products in 2009 and formed Appendix 7 of the "Caribou Forest Independent Forest Audit 2002-2008". Where applicable the information used in the tables and figures in this report came from the 2009 report completed. The rationale for the use of the information in this trend analysis is as follows:

- Very little has changed on the forest since 2009 and it is accepted that no historic data has changed either
- The report was thorough and accurate; therefore duplication of effort or possible contradictory analysis is counter productive and unnecessary.

The degree of forest management activity on the Caribou Forest during the term of this report (2008-2013) has been relatively small compared to that which was planned in the 2008-2018 FMP. This is due to the unprecedented economic downturn in the forest industry in Northwestern Ontario between 2008 and 2012. This downturn resulted in the idling and/or closure of several sawmills, pulp mills and trus joist mills in the vicinity of the Caribou forest.

Due to the downturn of the forest sector, specifically to the wood receiving facilities of the Forest, there has been little harvest activity over the first five years of the FMP, with 15% of five year planned harvest area being depleted to date.

The information used in this report was obtained from the 2008 Caribou Forest FMP and includes all approved FMP amendments and Annual Reports (ARs) for the first five years of the term.

This report presents the following tables, accompanied by discussion of the achievement of objectives and forecasted projections set forth by the 2008-2018 FMP:

- AR-7: Summary of Planned & Actual Harvest Area (annualized)
- AR-8: Summary of Planned & Actual Harvest Volume (annualized)

- AR-9: Summary of Planned & Actual Renewal, Tending and Protection Operations (annualized)
- AR-10: Summary of Harvest and Regeneration Trends
- AR-11: Summary of Forest Condition for the Available Managed Crown Productive Forest
- AR-12: Summary of Habitat for Species at Risk & Selected Wildlife Species
- AR-13: Summary of Assessment of Regeneration & Silvicultural Success
- AR-14: Assessment of Objective Achievement

History of Licensing

Resolute Forest Products Inc. and its predecessors (Great Lakes Paper, Great Lakes Forest Products, Canadian Pacific Forest Products, Avenor Inc., Bowater Canadian Forest Products Inc., Abitibibowater and AbiBow.) have held a license for the an area north of the CN mainline since 1957. Although the original license was dated 1957 actual development on the license area began only as a result of mill expansion in the late 1970's. In 1964, an amended area was licensed in two parcels, and on April 1, 1983, separate licenses were issued to the company for Caribou West Management Unit and Caribou East Management Unit.

The following summary gives the license history of the Caribou East and West land base.

1957: Licence D-1697 issued, including part of the Caribou East.

1963: Licence D-2058 issued, combining several parcels, including D-1697.

1964: Licence D-2390 issued, to include the area west of D-2058 which was amended to delete 2,331 square kilometers near Armstrong.

1971: Licence D-2058 re-issued as 328100 and D-2390 as 328200.

1983: Licence 460600 issued, covering all of Caribou East.

1983: Licence 328200 issued, covering all of the Caribou West.

1996: Licence 542186 issued, covering all of the Caribou East for 1996-97.

Licence 542037 issued, covering all of the Caribou West for 1996-97.

1997: Sustainable Forest Licence 542 481 covering the amalgamated Caribou Forest April 1, 1997.

In 1995, Wabakimi Provincial Park was proposed for expansion after the OMNR accepted a new proposed park boundary, submitted by the Wabakimi Park Boundary Review Committee. As a result, the Caribou East Management Unit's land base was reduced by approximately two thirds of its former area. Because of the significant land base reduction, the OMNR and Bowater began work in 1996 to add the western portion of the remaining Caribou East Management Unit to the adjacent Caribou West Management Unit. This single management unit was of the size

and configuration that was practical to manage on a long-term sustainable basis. The amalgamation took effect on April 1, 1997. A small portion of the former Caribou East Forest lying east of the expanded Wabakimi Park was amalgamated with the Black Sturgeon Forest.

The Sioux Lookout District of the Ministry of Natural Resources, Northwest Region, administers the entire Caribou Forest Licence (1997).

History of Forest Management Planning

Prior to 1996, and the signing of Sustainable Forest Licenses, the Caribou forests were operated as Company Management Units. Resolute FP Canada Inc. was responsible for planning and implementing access and harvesting operations, while the OMNR was responsible for planning and implementing renewal and maintenance, renewal support, compliance and renewal assessment aspects of forest management. After 1996 Resolute FP Canada Inc. became responsible for all forest management activities. Preparation of Timber Management Plans and Forest Management Plans for the period of this comparison and trend analysis report was the responsibility of Resolute FP Canada Inc.

Summary of Total Land Area

Figure 1 below shows that changes have occurred to the managed Caribou Forest land base during the period of this trend analysis report.

Changes in total land area between 1997-2002 and 2002-2007 can be attributed to three factors:

- a land base reduction as a consequence of the introduction of the St. Raphael Waterway Park,
- changes in the classification of areas as managed and unmanaged between the two terms,
- a change in projection from Lambert to North American Datum 27

The combination of these factors resulted in a reduction of the total land area of the Caribou Forest by 8.7% between 1997 and 2007.

Important to forest management and the development of future direction in subsequent forest management plans, is an assessment of changes in working group representation over the three terms. However, the 2004 Forest Management Planning Manual (FMPM) changed the requirement for the FMP-2 breakdown from working group to forest unit. Therefore direct comparisons between the 2007-08 and 2008-2013 term and the two previous terms is not directly possible. However, FMP tables show that the area of jack pine working group was reduced from 106,030 ha to 61,502 ha between the 1997 and 2002 terms. Additionally, the PJ1 provincial forest type for the 2008-2013 term represented only 50,803 ha in comparison to the 1997-2002 term where the Jack Pine forest unit represents 120,954 ha.

The numbers for Non-Productive B&S / NSR and Depleted over time have also changed significantly for "non-productive" in the 2007-2008 term. This was due to a change in which the

land classifications changed in the new 2004 FMPM and the area was actually included in the Crown Other land type.

The increase in the B&S / NSR category between the 1997-2002 and the 2002-2007 are a consequence of the implementation of a new base inventory for the 2002-2007 term. Area identified as FTG in the 1997-2002 term under the older Lambert inventory were not used to update the new base inventory of 1996. The result is an area figure of B&S / NSR larger then would be expected. Photo interpreters would have experienced difficulty in applying forest typing to the younger regenerating stands and applied the B&S / NSR label to these areas. The transfer of FTG information from the old Lambert inventory to the new NAD inventory has alleviated this anomaly in the planning inventory in the 2007-08 and 2008-2013 planning terms.

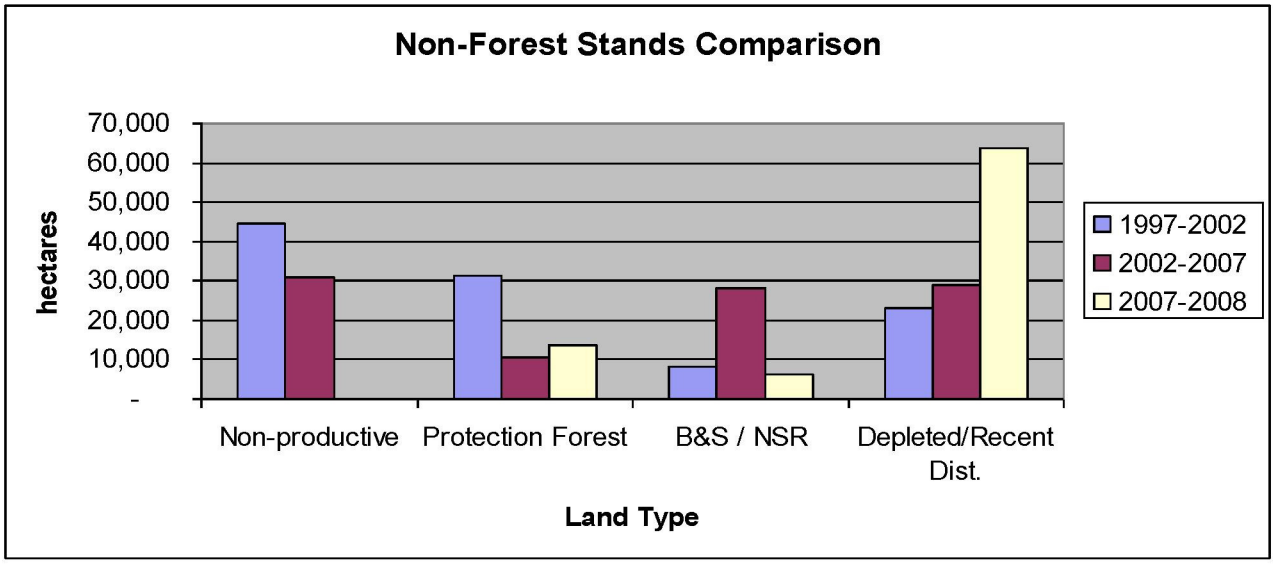


Figure 1. Managed Caribou Forest Land Base.

The increase in the Depleted/Recent Disturbance category between 2002-2007 and 2007-2008 (28,886 vs. 63,936 hectares respectively) is comprised of natural disturbance or recently harvested area that has not been updated with new stand information based on either inventory update or free-to-grow survey). Again this is due to the change in the classification requirements in the new 2004 FMPM. Based on the changes, a large proportion of the area classed as B&S in 2002 is more accurately classed as recent disturbance in the 2007-08 term. The remaining area deemed below regeneration standards describes those areas that are truly low stocked as a result of site limitation (i.e. true B&S).

In the 2002-2007 term B&S comprised 28,052 hectares and the Depleted comprised 28,886 hectares totaling 56,934 hectares. In the 2007-08 term the Recent Disturbance area is 63,936 hectares and the Below Regeneration Standards area is 6,207 hectares totaling 70,143 hectares. The additional 13,205 hectares corresponds inversely with most of the area classed as Forest Stands which has decreased from 409,385 ha in 2002 to 400,173 ha in 2007 (a difference of 9,212 ha).

Inventory Updates for Forest Management Planning

The FRI used for the preparation of the 1997-2017 plan used a base inventory of 1976 inventory year with updates for depletions (harvest and natural), the addition of areas declared Free-To-Grow (FTG), and the aging of the forest stands to the start of the forest management planning term.

The FRI used in the development of the 2002-2022 Forest Management Plan consisted of a new base inventory of 1996 updated to the year 2002 with updates for actual harvest and natural depletions (wildfire and windthrow) between 1996 and 2002. In addition all harvest allocations included in the 1997-2002 (which had not yet occurred) were assumed to have taken place and were termed hypothetical depletions.

Removing both the actual and hypothetical depletions from the base inventory and aging the forest stands by 6 years results in an inventory updated to 2002.

The planning inventory in the development of the 2007-2008 Contingency Plan Forest Management Plan was based on the 2002 inventory and updated to reflect actual harvest and natural depletions between 2002 and 2007. Additionally, accruals (FTG surveys) that were collected prior to 1996 were used to update inventory stands that were less than 20 years old as it was felt that the surveys would provide better information than the interpreted attributes. Again, all harvest allocations included in the 2002-2008 (which had not yet occurred) were assumed to have taken place and were termed hypothetical depletions.

The FRI used in the development of the 2008-2018 Forest Management Plan consisted of a base inventory of 1996 the same as the 2002 inventory and aged the forest stands to the year 2008 with updates for actual harvest and natural depletions

As stated in the 2008 FMP one change in area is related to changes in classification between the 2002 FMP and the 2008 FMP. 'Recent disturbance' and 'below regeneration standards' are two new terms used in the 2008 FMP. In the 2002 FMP, the terms 'depleted' and 'barren and scattered' (B&S) were used, respectively, although the terms are not synonymous. This is clear based on the changes that have occurred between 2002 and 2008:

- In 2002, 28,886 hectares were classed as 'depleted' and in 2008 'recent disturbance' accounts for 64,149 hectares of the Crown managed production forest;
- In 2002, 28,052 hectares were deemed 'barren and scattered' versus only 6,193 hectaresclassed as 'below regeneration standards' in 2008.

Obviously, based on the magnitude of change described above, a large proportion of the area classed as B&S in 2002 is now more accurately classed as 'recent disturbance'. The remaining area deemed 'below regeneration standards' describes those areas that are truly low stocked as a result of site limitation (i.e. true B&S).

Forest Unit Changes Over Time

The forest units used for the compilation of the 1997-2002 Forest Management Plan were indicative of a move in forest management towards a more ecologically based delineation of forest units. Forest units were derived and the representative ecosites for the forest units were provided. In the 1997-2002 Forest Management Plan the former, singular, forest unit of spruce was separated into three classes of spruce. The rationale being that there were ecological differences and responses to treatment between the three classes of spruce. Three classes of spruce included SP1 which were upland spruce dominated sites with moderate to high productivity, SP2 which were fresh-wet sites of moderate productivity, and SP3 which were lowland sites of low productivity.

The forest units used for the compilation of the 2002-2007 Forest Management Plan, which were the basis for the 2007-2008 Contingency Plan, represent experience in the development of ecologically based forest units across northwestern Ontario and are similar to the OMNR Regional Benchmark Forest Units (Standardized Forest Units). There are no differences between the 2002-2007 and 2007-2008 forest units, since the 2007-08 Contingency Plan's strategic direction was based on the 2002-2007 forest management plan.

Forest units used in the 2002-2007 forest management plan include the introduction of mixed forest units and a red and white pine forest unit. Mixed conifer 1 (MC1) forest units are a grouping of those stands that are conifer dominated but not dominated by a singular conifer species and may also have a component of hardwood associated with them but no greater than 30%. The Mixed conifer 2 (MC2) forest unit represents a forest condition where the stand is conifer dominated, but not to a singular species, and the hardwood component growing in association with the conifer is between 31% and 50%. The mixed hardwood forest captures those sites that are hardwood dominated but not by a singular hardwood species. The red and white pine forest unit was developed to capture stands with a minor component of red pine or white pine and to track the development of future stands. While there are no red or white pine stands on the managed forest land base for the Caribou at present, the forest unit and associated silviculture ground rules allow for the potential to regenerate red or white pine on the license.

The forest units for the 2008-2018 FMP adopted the provincial forest type classification. The Caribou Forest is dominated by mixed conifer uplands, which cover approximately 54% of the landbase (~53% of the Crown Managed forest). Mixed conifer lowlands cover approximately 22% of the landbase (~23% of the Crown Managed forest), mixedwoods cover approximately 11% of both the landbase and of the Crown Managed forest, and jack pine covers approximately 11% of both the landbase and the Crown Managed forest. Poplar constitutes about 2% while birch, red and white pine forest types combined cover less than 1% of the landbase and Crown Managed forest

Table FMP-2 in the 2002 FMP used working groups for classification versus the provincial forest types used in the 2008-2018 FMP. As a result, analysis of change between the FMPs is difficult and would not be meaningful.

4.1.2 Harvest Area

Table AR-7 presents a summary of the planned and actual harvest area by forest unit for the four FMP terms during the 1997-2013 period. Variables affecting planned harvest area over the last 15 years include, but are not limited to:

- a land base reduction as a consequence of the introduction of the St. Raphael Waterway Park;
- changes in the classification of areas as managed and unmanaged between the terms;
- a change in projection from Lambert to North American Datum 27.

The annualized planned regular harvest area compared to actual annualized harvest area over the last 15-year period. Actual harvest area ranged from 15% to 56% of that which was planned in each of the four terms for an overall average of 43% of planned harvest area actually being harvested.

Figure 2 presents the achieved harvest area versus the planned area over the last four FMP terms.

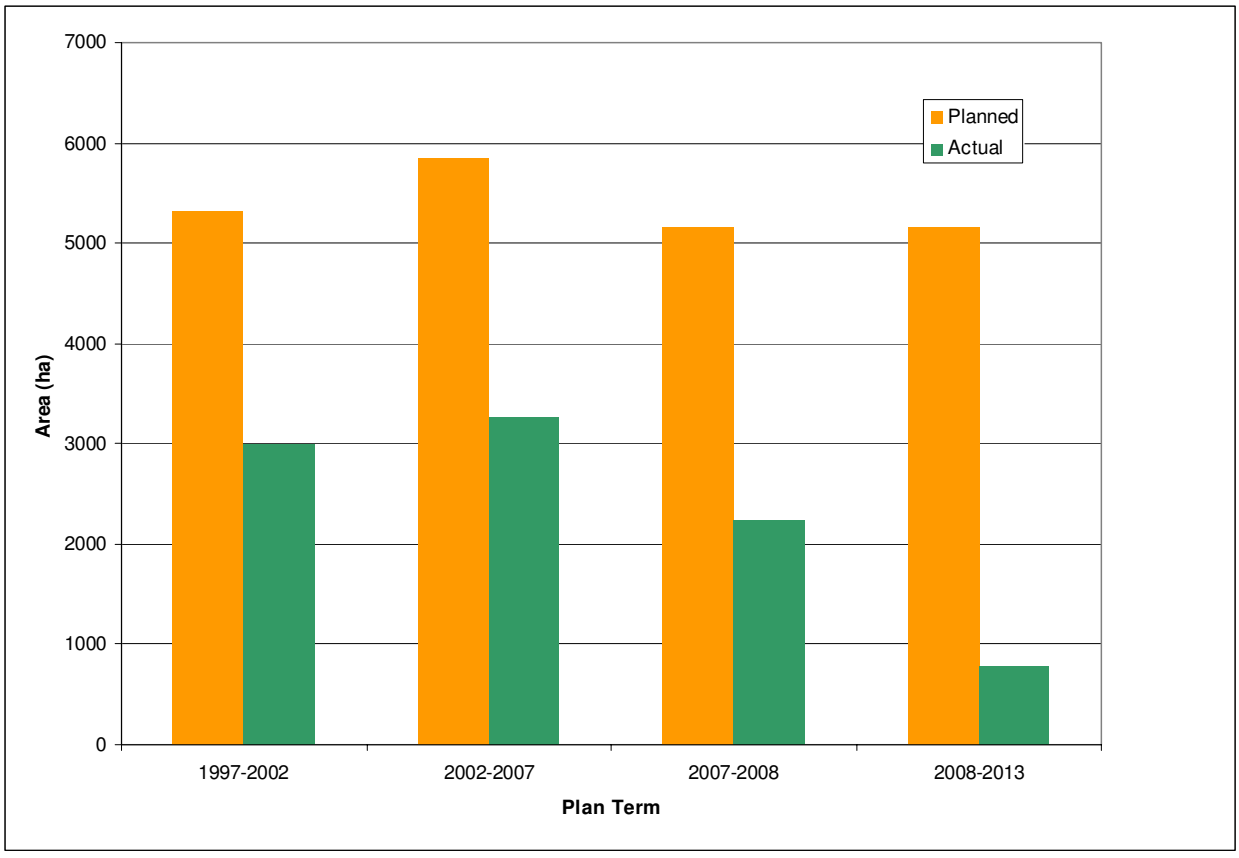


Figure 2. Annualized planned harvest versus actual harvest.

A total of 3,894 hectares of the planned 25,756 hectares was actually harvested (15%) in the 2008-2013 planning term, as illustrated in Table 1. This is due to the extraordinary downturn in the forest industry in Northwestern Ontario between 2008 and 2013, which resulted in the idling and/or closure of several sawmills and pulp mills in the vicinity of the forest. The remaining mills that did operate during the downturn, including the entire 2008-2013 period, were supplied with wood from other forests which offered a lower delivered wood price.

Table 1. 2008-2013 planned versus actual harvest area by Forest Unit and fiscal year for the 2008-2013 term.

	FMP-15	**2012**	**2011**	**2010**	**2009**	**2008**	**5 year total**	
	Phase I (5yr)						Total	
	Total	Total	Total	Total	Total	Total	Ha	percent of five years
BF1	11			0	0		0.0	0%
BW1	12			0	0		0.0	0%
OC1	116			0	0		0.0	0%
MC1	3,745	3	17	246.8	45.3	448.4	760.5	20%
MC2	1,031	73		57.6	25.0	112.2	267.9	26%
MH1	1,786	20		138.5	31.9	76.7	267.1	15%
PJ1	2,045	103		40.2	0.0	144.9	288.1	14%
PO1	484	49		43.4	0.0	0.0	92.4	19%
SPL	5,683	283	20	96.8	23.6	760.6	1,184.1	21%
SPU	10,843	336	67	338.4	49.8	243.2	1,034.5	10%
Grand Total	**25,756**	**867**	**1,04**	**9,61.7**	**1,75.7**	**1,786.1**	**3,894.4**	**15%**

Salvage Harvest Area

No salvage harvest was achieved in the 2008-2013 term.

General Trends

- Total actual harvest area is significantly lower than the planned harvest area over the last 15 years and over the most recent FMP period (2008-2013);
- The actual harvest of the various Forest units is fairly even across all forest units over the last 15 years and over the most recent FMP period (2008-2013); and,
- Poor market conditions particularly for hardwood over the last 15 years, and the extraordinary downturn during the 2008-2013 period is the driving force of the lack of overall harvest.
- During this audit period there has been enough of a demand for Poplar to allow for the utilization of the incidental Poplar that is harvested when harvesting mixedwood stands on the forest. A proportional amount of Poplar area (19%) compared to the total harvest area of (15%) has been utilized during this audit period.

Implications

The implications of not harvesting the planned area over the last 15 years can be construed as negative for those expected to benefit socio-economically directly and indirectly from the provision of forest management services, from timber harvest, road building through to renewal and tending.

The reduced harvest levels on the Caribou Forest were a concern that was identified during the 2009 Independent Forest Audit. Recommendation #12 of the 2009 Independent Forest Audit pertains to the LTMD, and the potential impacts of reduced harvest levels:

2009 IFA Recommendation #12

"AbitibiBowater and the OMNR District Office should undertake an assessment of the viability of the 2008 FMP caribou mosaic strategy, and its related silviculture and access management strategies, prior to the preparation of the Year 3 AR. Elements of this assessment should include an analysis of the impacts of varying levels of harvest on the achievement of the FMP long term management direction with respect to the provision of caribou habitat, future wood supply and habitat supply for other featured wildlife species."

A "Scoping-Analysis for Phase II Planning" was carried out by MNR Sioux Lookout District to satisfy this IFA recommendation and the following conclusion was drawn. *Although SEM and FTG surveys show a trend that is not consistent with our assumptions made in the development of the 2008 LTMD, the negative effects of those forest unit shifts are not translating into loss of caribou habitat – in the model. The model did not reduce the overall AHA based on any of the scenarios modeled. Currently with the extremely low harvest levels reported recently, the impacts of proceeding with the current model for Phase II planning are likely not going to affect the overall sustainability of the forest. As the district continues to collect and analyze SEM data this data will be incorporated into the 2018 plan. However the planning team should be aware of the silvicultural effectiveness of past treatments and be cognizant of how operations proposed in the second term of 2008-2018 FMP will affect the desired future forest condition.*

The MNR Scoping-Analysis was also done to; "test the viability of the 2008 LTMD by analyzing the effects of lower harvest levels on wood supply and habitat supply, specifically Caribou winter habitat and to analyze the viability of the Caribou mosaic silviculture strategy using a broad range of post renewal trends to determine the sensitivity levels/thresholds with respect to the provision of caribou habitat, future wood supply and habitat supply"

The results of the Scoping Analysis show that:

- *although SEM and FTG surveys show a trend that is not consistent with the assumptions made in the development of the 2008 LTMD, the effects of those forest unit shifts are not translating into loss of caribou habitat – in the model;*
- *the model did not reduce the overall AHA based on any of the scenarios modeled; including a drastic reduction in the harvest level.*

The results of the Scoping Analysis shows that current harvest levels and proportionally related silviculture levels for the first three years of the plan will not affect the sustainability of the forest. The conclusion of the Scoping Analysis was that with the reduced harvest levels after three years into the FMP term, moving forward with the LTMD was still valid.

The lack of harvest, may delay the achievement of the desired future forest condition and benefits, such as future conifer wood supply and specific wildlife species habitat abundance, as post-harvest succession and silvicultural treatment cannot occur if stands are not harvested. In addition, movement toward the desired frequency distribution of forest disturbances by size class may be delayed if portions of the planned harvest area are not harvested.

4.1.3 Harvest Volume

Table AR-8 presents the annualized planned and actual harvest volume by species for the four FMP terms during the 1997-2013 period. Variables affecting the achievement of planned harvest volume over the last 15 years are much the same as those influencing the previously discussed achievement of planned harvest area.

Data for the 1997-2002 term was compiled from approved annual reports. During the 1997-2002 term, 55% of the planned conifer and 35% of the planned hardwood volume was realized. Overall volume utilization was 53% of planned. The under-utilization of hardwood through 1997-2002 was a consequence of surplus hardwood available across northwestern Ontario and in closer proximity to wood utilizing facilitates. The lack of conifer utilization was identified as an issue in the Independent Forest Audit conducted for the 1999-2004 period.

Data for the 2002-2007 term was also compiled from approved annual reports. During the 2002-2007 term, 63% of the planned conifer and 47% of the planned hardwood volume was realized. Overall volume utilization was increased to 61% of planned. A number of initiatives were implemented to move towards greater utilization of available volumes during the 2002-2007 period. These included the addition of a second harvest contractor conducting operations for Resolute FP Canada Inc or Bowater as it was known at the time. utilizing both hardwood and conifer as well as the construction of a hardwood processing facility at the Hudson sawmill site. The increased usage of hardwood between terms can also be attributed to increased demand for hardwood across northwestern Ontario.

In addition the recent economic downturn in the forest industry in the latter part of the 2002-2007 term, was not conducive to increasing wood utilization on any forests in Ontario. This was evident in 2007-2008 with 46% of the planned conifer and 0.2% of the planned hardwood volume realized. In 2007-2008 overall volume utilization decreased to 38% of planned.

Most recently in the current term 2008-2013 the entire global economic downturn has had the most significant affect on wood utilization on the Caribou forest, with 15% of the planned conifer and 10% of the planned hardwood volume realized. From 2008 to 2013 overall volume utilization has decreased to 14% of planned.

Figure 3 illustrates a comparison of annualized planned versus actual harvest volume over the last 15-year period. Total actual harvest volume was 15% to 60% of that which was planned in

each of the four terms; for an overall average of 43% of planned volume actually harvested. In general conifer species tend to have higher achievement of planned utilization, while actual hardwood utilization tends to be lower.

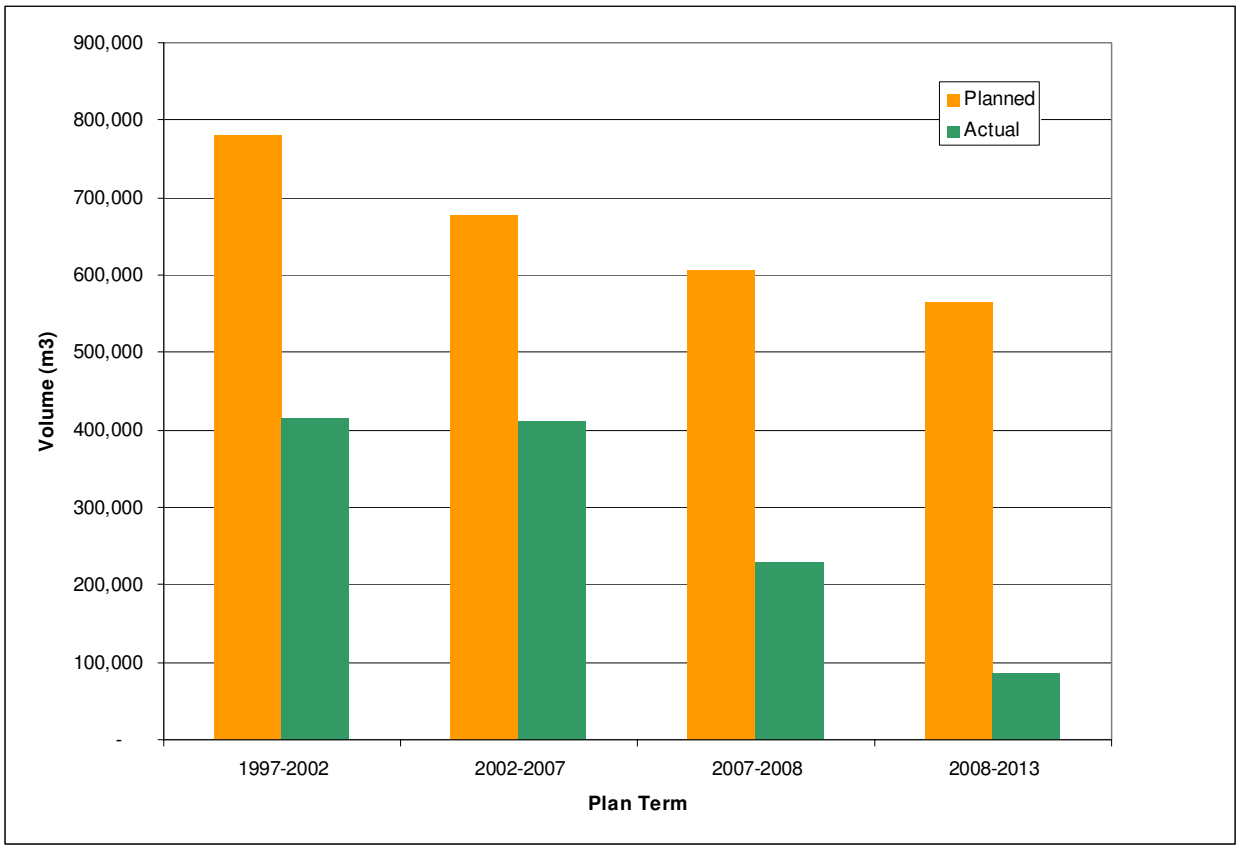


Figure 3. Comparison of annualized planned vs. actual volumes.

Factors contributing to the low achievement of actual harvest volume mirror those regarding the achievement of actual harvest area. In addition, the average planned volume versus actual volume higher and lower on a 'per hectare' basis over the terms. As presented in Table 2, the average actual volume per hectare harvested, as a percentage of planned volume per hectare ranged from 87% to 109%; with an overall 15-year period average of 101%.

Table 2. Comparison of planned versus actual stand volume.

	FMP Term				
	1997-2002	**2002-2007**	**2007-2008**	**2008-2013**	**15 year Average**
Average Planned Volume per ha (m^3)	146	115	117	109	122
Average Actual Volume per ha (m^3)	138	125	102	109	123
Actual volume as a % of planned	95%	109%	87%	99%	101%

It can be expected that a minor amount of volume is left unharvested per hectare due to residual/wildlife tree requirements (5-10 m^3/ha). However, in the absence of a detailed evaluation of the actual characteristics of stands selected for harvest compared to the average stand characteristics used to calculate planned volumes in each FMP term (usually based on the average yield curve used for strategic modeling), one cannot determine if the estimated planned volumes are too high, or lower than average stands that were selected for harvest. Differences as little as 10% composition for some larger tree species (e.g. Poplar), the selection of younger or older stands, etc., can readily culminate to the differences noted in Table 2. With the differences being rather insignificant it can be inferred that the planned volume used in the strategic modeling is realistic.

General Trends

- See the above general trends for harvest area, Section 4.1.2 as harvest volume is directly correlated to harvest area.

Implications

As with harvest area, the implications of not harvesting the planned volume over the last 15 years can be construed as negative for those expected to benefit socio-economically directly and indirectly for the provision of forest management services, from timber harvest, road building through to renewal and tending. Furthermore, local mills have not required the available hardwood from the Caribou Forest, which, in turn can constrain the availability of conifer from mixedwood stands. The lack of harvest, particularly of hardwood and mixedwood forest units may potentially delay the achievement of the desired future forest condition and benefits, such as future conifer wood supply and specific wildlife species habitat abundance, as post-harvest succession and silvicultural treatment cannot occur if stands are not harvested. With Resolute opening both the Ignace sawmill and a sawmill in Atikokan it is predicted that the harvest area and volume can get back on track with the planned amounts prior to the end of the 2008-2018 plan.

4.1.4 Renewal Tending & Protection

Table AR-9 presents a summary of the annualized planned and actual renewal, tending and protection operations for the 1997-2013 period. The principle reason for the under-achievement of the planned renewal and tending operations is the lack of achievement of planned harvest on the forest.

Below are descriptions of the natural and artificial regeneration activities on the Forest.

Natural Regeneration

Figure 4 presents a comparison of planned versus actual natural regeneration area (annualized) over the past four terms. Very little of the planned extensive treatment occurred during the 1997-2013 period; averaging only 33%. Primary reasons for the low level of achievement of natural regeneration treatments include:

- Lower than planned area actually harvested, particularly for hardwood-dominated forest units, directly affecting the area being prescribed for natural regeneration treatment;
- Post-harvest site evaluation may indicate that the site may not be conducive to successful natural regeneration to the desired future forest unit. As the focus of harvest operations was in conifer dominated stands due to marketability, these sites are generally regenerated using artificial treatments.

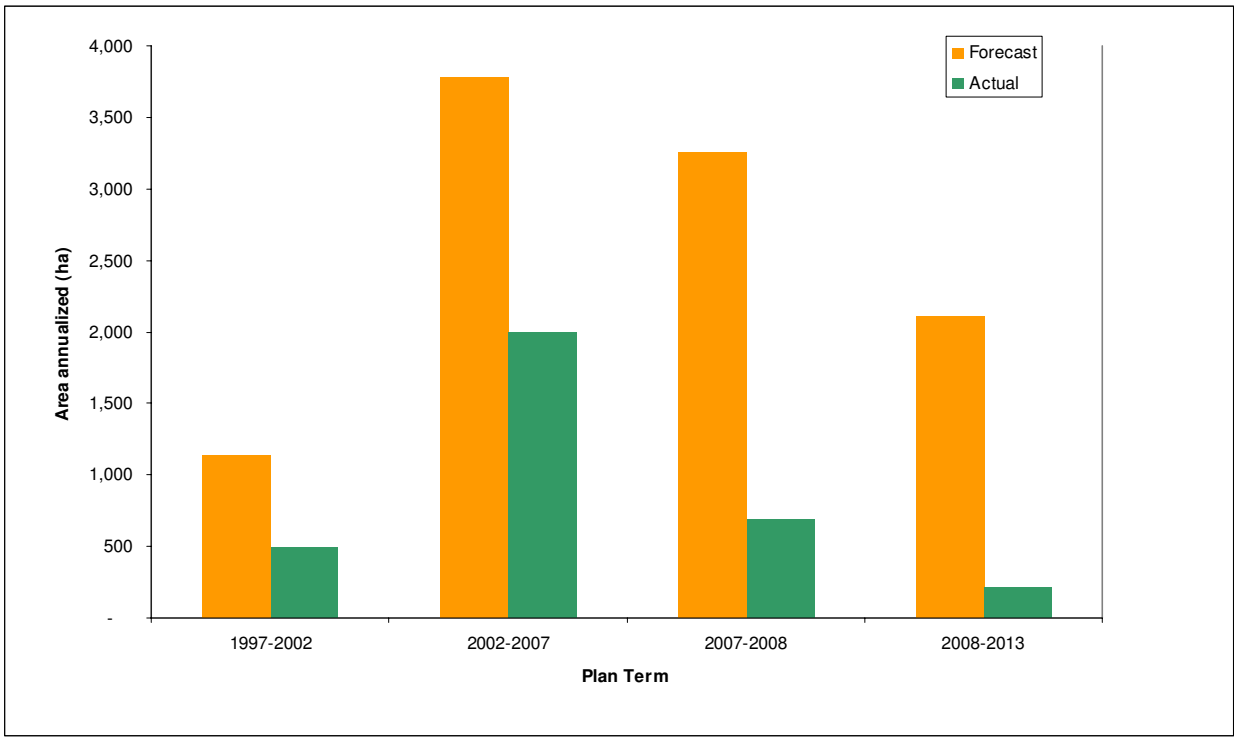


Figure 4. Comparison of planned versus actual natural regeneration – annualized.

Within the most recent term (2008-2013), only 10% of the planned natural regeneration occurred, which is consistent with the generally low level of actual harvest area of forest units likely to be prescribed extensive renewal treatments (e.g. PO1, BW1, MH1, SPL). Very little area was reported the 2008-2013 operating term due to lack of harvest and/or lack of harvest in areas appropriate for natural regeneration. In addition, surveys are conducted one to two field seasons post-harvest to confirm appropriate treatment prescriptions. In addition natural area is not reported within a block that is also receiving artificial treatment until after the artificial treatment has been executed. This is to make for more accurate delineation of reporting areas.

Artificial Regeneration

Tree Planting and seeding

Figure 5 presents a comparison of planned versus actual artificial regeneration area (annualized) over the past four terms. 80% of the harvested area over the last four terms has

been regenerated using artificial regeneration. The actual artificial regeneration has been 19% of the forecast level for the 2008-2013 term. This is due to the fact that most of the area harvested has been upland conifer sites.

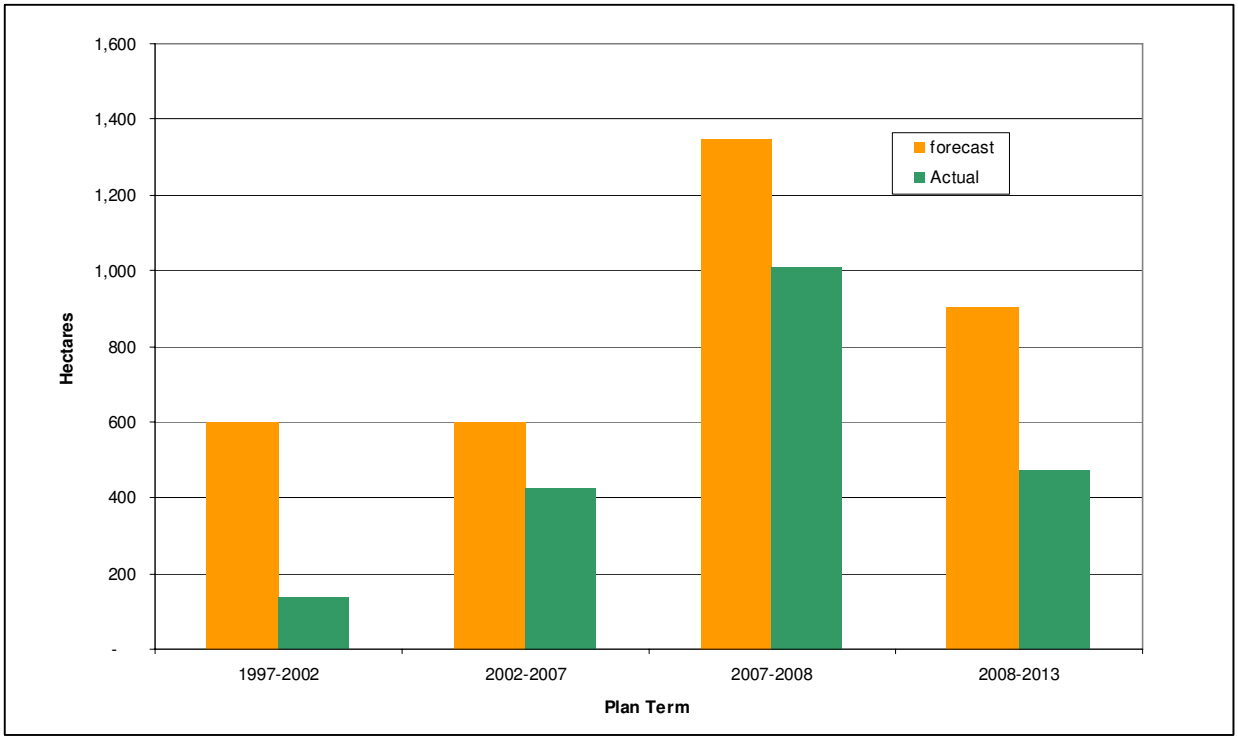


Figure 5. Planned versus Actual Renewal, Tending & Protection Operations

Tending

Tending established regeneration and conifer plantations is a means of securing the silvicultural investment and facilitating the achievement of the desired future forest unit.

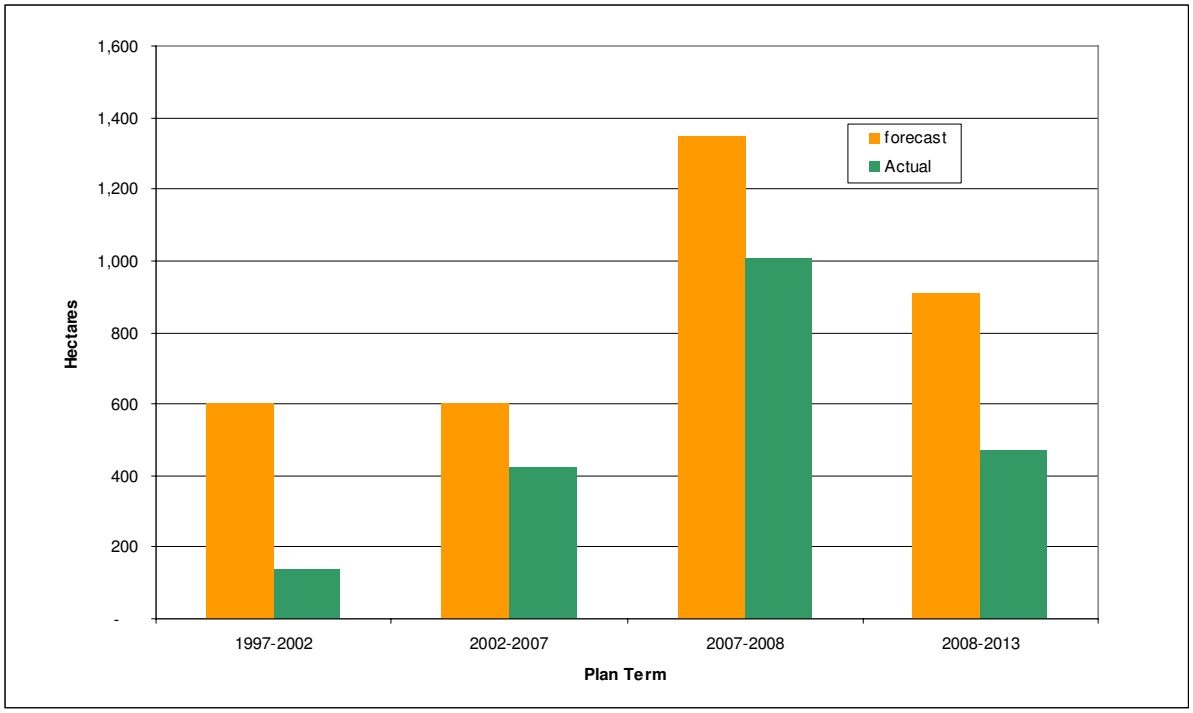


Figure 6. Disturbance Forest type versus Free-to-Grow Forest type 2008-2013 term.

Figure 6 presents a summary of the annualized planned versus actual tending area. On average, 60% of the planned area scheduled for tending was tended over the last 15 years. Reasons for this include, but are not limited to:

- Once artificial regeneration sites have been established an assessment for the requirement of tending is conducted (typically one year post plant). Based on the results of this assessment, tending treatments are scheduled as necessary. This is done in an effort to maximize the efficiency of tending programs and likely contributes to an overall reduction in tending applications where FMP projections may be more broadly applied.
- Lower than planned area harvested actually harvested, directly affecting the area being renewed and subsequently requiring tending. 43% of the planned harvest was actually achieved;
- Sites harvested may not be in need of tending activity to reach FTG requirements. As the focus of harvest operations was in conifer dominated stands due to marketability, some sites may have less need for competition control

2008-2013 Planned versus Actual Renewal, Tending & Protection Operations

Over the 2008-2013 planning term, 19% of the planned tree plant and seeding activities occurred, 52% of the planned tending activities occurred. When compared against the actual harvest that occurred over the same timeframe there has been a higher than expected amount of renewal achieved. The achievement of area planted and seeded is understandable given that more upland conifer-dominated forest unit area was harvested and these forest units are normally regenerated via artificial treatment. The high percentage of tending achieved compared to the planned could be a result of the forecasted level being too low. Even though the forest is in general not highly competitive almost all artificial treatments require tending to reduce the hardwood component in order to keep them as pure conifer forest units.

General Trends

- The level of achievement for silviculture operations is directly related to harvesting; as the harvest level decreases, so does the area requiring silvicultural treatment. Overall, actual harvest area has been declining since the 2002-2007 FMP term, as has the area available for silvicultural treatment;
- Very little of the planned extensive treatment occurred during the 2008-2013 period; averaging only 10%. and,
- Of the area harvested over the last 15 years, approximately 80% is treated artificially, which coincides with the generally higher level of harvest of upland conifer forest units.

Implications

As with harvest area, the implications of not being able to conduct the planned renewal and tending operations over the last 15 years can be construed as negative for those expected to benefit socioeconomically directly and indirectly from the provision of renewal and tending services. Without the complete harvest of the planned areas in each FMP, there will be a delay in the achievement of the desired future forest condition and the associated wood supply and preferred wildlife habitat area that would result from post-harvest renewal activities. As previously identified, with the opening of two sawmills in the vicinity of the Caribou forest it is expected that the harvest levels will be brought in line with the planned levels in the coming years.

4.1.5 Assessment of Harvest & Regeneration

Table AR-10 presents a summary of areas of harvest and regeneration for the last eight terms. The intent of this table is to track each specific hectare harvested and its regeneration status. However, it is difficult to correlate specific areas harvested by forest unit with the area surveyed for regeneration for several reasons:

- Updates to forest resource inventories prior to an area being free-to-grow resulted in the changing of stand characteristics and often a loss of information related to the harvested forest unit;

- Inconsistencies in forest unit classification between planning periods complicate the evaluation (For purposes of the table the former Sp3 forest unit has been amalgamated with the current SPL forest unit. In addition the Sp1/Sp2 former forest units have been amalgamated with the SPU forest unit.)

As a general principle, it is desirable to annually assess the regeneration of least one year's worth of harvest area. Based on the average annual harvest since 1976, this would approximate 1,689 hectares per year. The actual FTG survey to date has been 1,213 hectares per year.

Although not listed in Table AR-10, it can be expected that a small proportion, approximately 1-2% of harvested area may not be available for regeneration due to roads, landings, or slash piles that cannot be treated. Over the last 38 years, there has been a total of 64,206 hectares of harvest and salvage area.

Keeping in mind that it requires 8 to 12 years to reach Free-to-Grow status, 46,126 hectares (72%) have been deemed successfully regenerated. It is important to note that this does not imply that regeneration activities have not been initiated on the remaining 28% of area harvested but rather the balance of the area either has been surveyed and annual report details are in preparation; or there may be a need for additional silvicultural intervention; or simply more time is required to reach the desired regeneration standard (e.g. height growth).

During the 2008-2013 period, there were 3,895 hectares harvested. Of the 12,897 hectares assessed for FTG in that same period, 11,515 hectares or 89% were deemed regenerated.

In total, 46,126 hectares have been surveyed (72% of harvested area over the last 38 years). This is reasonable given that the remaining 28% of harvest area over the last 38 years would be now nearing an age eligible for assessment. In addition, some area assessed over the last 38 years could have been harvested prior to 1976.

General Trends

- As formally reported through annual reports, the equivalent of 72% of the area harvested since 1976 has been surveyed, of which 89% was deemed regenerated and free-to-grow;
- As forest operation prescriptions were not tracked prior to the late 1990's, it is difficult to differentiate the proportion of silvicultural successes from the regeneration successes where the initial prescription was not recorded
- Given the average annual rate of harvest on the Caribou Forest (1,689 hectares) and the approximate 8 to 12-year timeframe between harvest and free-to-grow assessment, it can be expected that on average, 16,890 hectares of forest would be in a "pending assessment" condition at any given time.

Implications

With respect to tracking of harvest and regeneration, it is imperative to maintain a database that facilitates the evaluation of regeneration and silvicultural success over the short to medium

term. As digital records accrue over the next two planning periods, more robust evaluation can be made as to the regeneration status of older harvest areas by year of harvest and forest unit harvested. Based on the evaluation that can be made at this time, it appears that the assessment of harvested areas is right in line with the annual level of harvest over the last 38 years, given the 8-12 year timeframe between harvest and assessment.

4.1.6 Forest Condition

Table AR-11 presents a summary of forest condition for the available managed Crown productive forest, by forest unit and age class. Given the significant changes in forest unit classification over the last 15 years, it is not possible to evaluate trends in forest condition by forest unit and age class in any meaningful manner. The forest unit classification for the post 2002 FMP terms were relatively consistent with each other, based on species composition aggregations; but were dramatically different from that used for the pre 2002 FMP terms, which were based on working group species. For these reasons only the post 2002 FMP terms have been displayed in Table AR-11. The 2013 plan end data has not been included as a result of the planning inventory and applicable FMP tables for the next plan have not been prepared as of yet.

The area of available forest by forest unit and more importantly the age class distribution at year 2008 was based on the assumption that all area planned for harvest during the 2002 to 2008 timeframe occurred, as this needed to be forecasted for the preparation of the 2008-2018 FMP. Actual harvest of planned areas was only 50% during that period.

Table 3. Available Managed Forest Condition

Conifer Composition			
Forest Units	**1997-2002**	**2002-2007& 2007-2008**	**2008-2018**
	Area (ha)	**Area (ha)**	**Area (ha)**
Sp1, Sp2, Sp3	314,009	-	-
Jack Pine	120,954	-	-
SPU, SPL	-	238,140	268, 766
PJ1	-	44, 498	50,803
MC1, MC2	-	96,083	113,480
Total Conifer	**438,380**	**378,721**	**433,049**
Conifer Proportion	**90.7%**	**97.3%**	**97.6%**
Hardwood Composition			
Poplar, Birch	37,000	-	-
Birch	7,437	-	-
PO	-	9,853	-
BW	-	417	-
PO	-	-	9,920
BW	-	-	278
Total Hardwood	**44,437**	**10,270**	**10,198**
Hardwood Proportion	**9.2%**	**2.6%**	**2.3%**
Total Conifer + Hardwood	**482,817**	**388,991**	**443,247**

In terms of conifer composition, Table 3 above shows that the area of SPU and SPL forest units have increased slightly (12%) between 2002 and 2008, although the Sp1, Sp2 and Sp3 was higher totaling 314,009 hectares. The area of PJ1 forest unit has increased slightly between 2002 and 2008 (13%), although the Jack Pine forest unit in 1997 was higher at 120,954 ha. The overall conifer as a proportion of the total conifer and hardwood has increased from 90.7% in 1997-2002 to 97% in both the 2002-2007 and 2008-2018 terms.

In terms of hardwood composition, Table 3 shows that the area of Poplar forest unit has remained stable between 2002 and 2008. Similarly, the area of Birch forest unit has remained stable between 2002 and 2008. The hardwood as a proportion of the total conifer and hardwood has ranged from an overall high of 9.2% in 1997-2002 to 2.2% in 2007-2008 term to 7.3% in the current term.

Again, it is important to note that the landbase area and the forest unit definitions changed significantly (especially the introduction of the mixed conifer forest units) between 1997 and 2002. However, it can be generally stated that the level of forest management activity has not resulted in major changes to forest unit representation on the Caribou Forest. The forest

continues to be conifer dominated with spruce upland and lowland as the major species and tends to be in the mature to over-mature seral stages.

The implementation of the caribou mosaic for the management of caribou habitat, in combination with encouraging a conifer-dominated landscape for caribou habitat should result in this forest condition continuing through time. The maintenance of an older growth conifer dominated forest is consistent with the objectives associated with all three forest management plans, including the maintenance of long term caribou habitat and maintaining the managed Crown forest available for timber production.

In general, changes in available area by forest unit and age class are the result of harvest and natural depletions, as well as through post-harvest regeneration activities and free-to-grow assessments. However, there have been some changes to overall available managed Crown productive forest as a result of planning or administrative decisions as well. The most notable differences in available area by forest unit between recent planning terms are:

- An increase in SPU forest unit area occurred between the 2002 term and the 2008 term increasing the SPU forest unit area by 16,005 hectares.
- There is a 16% increase in the available SPL forest unit area between the 2002 term and the 2008 term.
- Between 1997 and 2008, a considerable portion of the available forest was reclassified resulting in the hardwood proportion decreasing from 9.2% of the total forest to 2.3%. This was mainly a factor of adding an MC1 and MC2 forest unit. To note the MC2 forest unit can have up to 50% hardwood in it.

4.1.7 Habitat for Species at Risk and Selected Wildlife Species

Wildlife habitat area is considered through strategic-level forest management planning and operational level management plan implementation.

Non-Spatial Wildlife Habitat Area

Non-spatial habitat is the cumulative habitat area for selected wildlife species on all Crown forest (including parks and protected areas), based on forest/habitat unit type and age, regardless of its spatial location. On the Caribou Forest, the area of preferred habitat for selected wildlife species is addressed through strategic-level planning using current forest resource inventory information and projections of future forest condition. Strategic-level planning decisions are made as to the long-term desirable range of area of specific habitat, and modeling provides projections of habitat areas based on the planned and projected harvest and silvicultural activities. These desirable wildlife habitat area ranges are generally derived on the basis of observations of the natural benchmark scenario – the natural forest in the absence of human intervention and wildfire suppression. Overall, the planned operations are derived from the constraints in strategic modeling to not compromise the desired area of short and long-term wildlife habitat.

The area of non-spatial wildlife habitat at 2008 was based on the projected forest condition as of 2008 (forest unit and age class distribution). As previously discussed, projected forest condition at year 2008 was derived on the assumption that all area planned for harvest during the 2002 to 2008 timeframe occurred, as this needed to be forecasted for the preparation of the 2008-2018 FMP.

Table AR-12 presents a summary of the habitat area for species at risk and selected wildlife species. The implementation of habitat area targets for 20 selected wildlife species was initiated in the 2002-2022 Forest Management Plan (FMP). This was greatly reduced to only 11 for the development of the 2008-2018 FMP. The drastic reduction in habitat types evaluated stems from the Crown's direction that the habitat needs for most wildlife species can be addressed through the sustainable management of fewer key habitat types used by a few selected wildlife species (e.g. caribou, marten, moose, lynx, pileated woodpecker, etc.)

Spatial Wildlife Habitat Area

Spatial wildlife habitat area encompasses the area that either currently and/or is projected to geographically exist on the forest. Three main examples where wildlife habitat needs have been considered spatially through forest management planning over the last 15 years is for Moose, Marten and more recently Woodland Caribou. Management guidelines provided direction for forest management planning teams to address the spatial habitat needs for these species. Meeting the spatial habitat needs for moose was generally conducted at a stand or group of stands level (e.g. travel corridors, winter cover; summer thermal cover, etc.); whereas that for marten and caribou was accommodated by deferring harvest from aggregations of generally conifer-dominated stands from a few to tens of thousands of hectares in size, depending on spatial availability of suitable habitat. The entire Caribou forest falls within the continuous caribou population range. As such, strategic and operational planning for the 2008-2018 FMP adheres to the direction presented in Ontario's Woodland Caribou Conservation Plan (CCP).

Further to addressing the maintenance of habitat at the stand and multi-stand level, area of concern prescriptions in forest management plans for use during the implementation of harvest, road construction, renewal and tending have provided protection to identified wildlife values such as raptor stick nests, heron colonies, critical fish habitat, moose aquatic feeding areas, etc.

Species at Risk

The 2008-2018 FMP considered the potential impact of forest management operations on listed flora and fauna species at risk, of special concern or which are provincially rare. Wildlife species and their habitats considered were:

Bald Eagle *Taiga Alpine Butterfly* *Great Grey Owl*
Woodland Caribou *Wolverine*

General Trends

- Due to differences in preferred habitat types evaluated between terms, and the short duration of tracking of habitat area, limited information can be gleaned from Table AR-

12 with respect to the changes in area of preferred non-spatial wildlife habitat. However, given that the strategic planning for the 2002-2021 and 2008-2018 FMPs projected achievement of non-spatial wildlife habitat area objectives, coupled with the fact that not all planned area in each FMP has been harvested, it can be surmised that there is little if any impact on the non-spatial habitat areas. However, not completing harvest as planned may delay the achievement of the desired future forest condition and projected specific wildlife species habitat abundance, as post-harvest succession and silvicultural treatment cannot occur if stands aren't harvested;

- Identified habitat values (e.g. stick nests) have been considered over the last 15 years and the protection of critical habitats addressed by area of concern operational prescriptions.
- The only species' non-spatial habitat area consistently evaluated since 2002 are marten, moose (winter) and the woodland caribou. Each of these species preferred habitat areas were projected to meet desired levels over the long-term; and,
- Habitats for species at risk, of special concern or provincially rare have been addressed through strategic and operational planning over the last 15 years.

Implications

With respect to the achievement of objectives related to non-spatial habitat area over the last 15 years, preferred habitat levels have been considered and maintained in accordance with provincial direction either through the application of guideline direction in area of concern prescriptions or through strategic modeling (maintaining habitat area at the desired level over time). Spatial habitat objectives have, in general, been achieved on balance with other objectives for desired future forest condition and benefits. Forest management plans over the last 15 years have considered and addressed as required by the Crown the habitat needs of species at risk, of special concern or which are provincially rare.

Continued diligence is needed with respect to the protection of water quality and fish habitat as it pertains to forest management operations adjacent to lakes and streams, and in the construction of roads and water crossings.

4.2 Renewal & Tending Activities

4.2.2 Trends in Renewal & Tending

As previously discussed in detail in the assessment of renewal, tending and protection operations, the level of achievement for silviculture operations is directly related to harvesting; as the harvest level decreases, so does the area requiring silvicultural treatment. Overall, actual harvest area has been declining since the 2002-2007 FMP term, as has the area available for silvicultural treatment.

Very little of the planned extensive treatment (natural regeneration) occurred during the 1997-2013 period; averaging only 33%. This is a function of actual forest units being harvested, with

those being harvested more often requiring artificial regeneration. Of the area harvested over the last 15 years, approximately 76% is treated artificially, which coincides with the higher level of harvest of conifer forest units. Most recently in the 2008-2013 period 80% of harvested area was treated through artificial regeneration treatments of planting or seeding.

On average, 60% of the planned area scheduled for tending was tended over the last 15 years. When compared to the fact that only 43% of the planned harvest area was actually harvested, achieving 60% of the planned tending area over the last 15 years is more than expected. Reasons for the relatively high tending % include, but are not limited to;

- A relatively high proportion of the actual stand harvested were upland conifer which required artificial treatment including tending.
- The fact that the area is managed under the caribou strategy which puts emphasis on regenerating pure conifer stands.
- There may be a greater degree of crop tree competition and natural hardwood regeneration in the conifer stands than was used to forecast the planned tending area in each of the FMP's
- Each block is assessed on the ground to determine whether or not tending is required.

As previously stated artificial renewal treatments are inline with the actual harvest levels achieved. With an approximate average of 76% of the area harvested being treated artificially which is higher than the planned percentage of intensive treatment for any of the FMP's to date.

4.3.3 Trends in Harvest & Regeneration

Table AR-10 presents a summary of areas of harvest and regeneration for the last eight terms. The intent of this table is to track each specific hectare harvested and its regeneration status. The table shows that over the time period for which data is available there has been an appropriate quantity of Free-to-Grow (FTG) surveys conducted. Essentially almost all of the area harvested prior to 2002 has been assessed for FTG and the majority has been declared successfully regenerated or Free-to-Grow.

Based on an aggregate review of the 26 year period from 1976-2002, it appears that the assessment of harvested areas is not significantly off pace with the annual level of harvest over the last 26 years, with 96% of the area being declared regenerated. For the period between 2002 and 2013 only 20% of the harvested area has been declared regenerated this is expected given the 8-12 year time delay between harvest and FTG assessment.

4.2.3 Trends in Silviculture & Regeneration Success

Table AR-13 presents a summary of assessment of regeneration and silvicultural success for the current term of 2008-2013. 90% of the survey data is from harvested areas that were depleted between 1998 and 2003.

Historical data, prior to the 2008-2013 term has not been used in Table AR-13. One reason is that historical documentation of forest operation prescriptions for areas harvested prior to 1996 and the requirement to assign a silvicultural ground rule. There is no reliable means of distinguishing the proportion of silvicultural successes from regeneration successes without the documented planned prescription (e.g. establish a PJ1 future forest unit plantation with an intensive silvicultural intensity). As such, one can only assume that the regeneration success achieved was what was intended based on the level of silvicultural intervention, but it is technically unknown if it was a silvicultural success to the projected forest unit. Over the next few years, this issue will resolve itself as silvicultural ground rule prescriptions have been documented since the late 1990s, and the stands being assessed will be 8 to 12 years of age. Of the 13,096 hectares assessed in the 2008-2013 period, 11,646 hectares (90%) were deemed successfully regenerated and free-to-grow. The remaining 1,449 hectares were not FTG generally due to not meeting height or stocking requirements. Supplemental treatments or more time will bring these stands to FTG status.

Based on Table AR-13 the silviculture success rate, where the FTG forest unit matches the prescribed forest unit on the same piece of land is at 26%. The regeneration success rate is 89%.

In recent Year 3 approved Annual reports in the Northwest Region, a more in depth and meaningful analysis of FTG data has been adopted and accepted. Further analysis has been done and the results are shown below.

Figure 7 shows an amalgamation of forest units into Forest types. The Conifer Dominated forest type consists of (MC1, SPU, SPL, PJ1, OC1 and PR1). The Conifer Dominated Mixed forest type consists of the forest unit MC2. The Hardwood Dominated forest type consists of (BW1, MH1 and PO1). The disturbed type comes from the forest unit for the stand in the planning inventory at the time of harvest and the FTG type is the forest unit given to the stand at the time of FTG survey. By grouping the forest units into these forest types it represents a more accurate description of the forest at a landscape level.

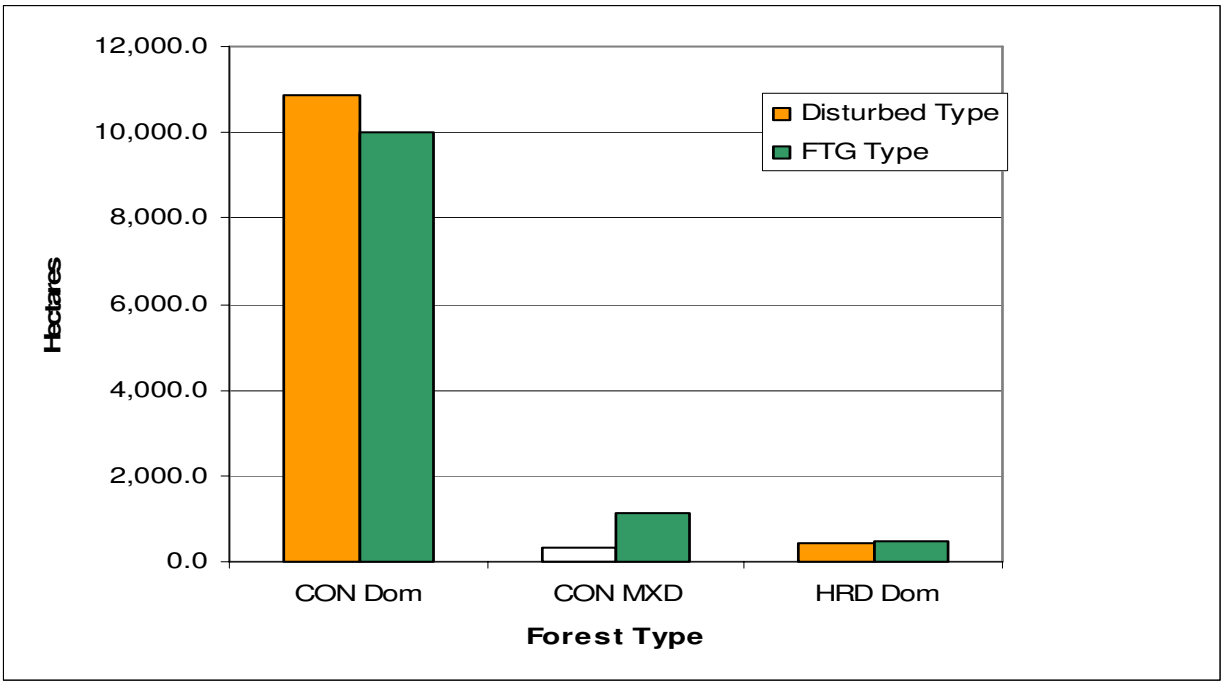


Figure 7. Disturbance Forest type versus Free-to-Grow Forest type 2008-2013 term.

Figure 7 shows that there has been a 7% decline in the amount of conifer dominated stands harvested when compared to the ones declared FTG. There has been an equal 7% increase in the Conifer dominated Mixed wood forest type (MC2). MC2 is defined in the 2008 FMP table FMP-3 using the following parameters; Sb+Sw+Bf+Pj+Pr+Pw+Ce+La>=60% Or Sb+Sw+Bf+Pj+Pr+Pw+Ce+La>= 50%, and working group in (Sb,Sw,Pj,Bf,Ce,La,Pr,Pw,Oc). Essentially all of the area declared FTG as MC2 had either a working group of Pj or Sb. The Hardwood dominated forest type has remained virtually unchanged with a 0.6% increase. The silviculture success rate when using the amalgamated forest types is 92% success for the Conifer Dominated forest type.

Figure 7 uses the same data as Figure 6 but presents the data by Forest Unit instead of by amalgamated forest type. The general trend is that the SPU forest unit was used over optimistically when writing Forest Operation Prescriptions. The loss of SPU forest unit area has been replaced almost equally by a gain in MC1 and PJ1 forest unit area. An examination of the species composition for the FTG MC1 forest unit reveals that the movement to MC1 is not due to an increase in Bf but rather is almost exclusively due to Pj ingress. From experience on the forest and analyzing the planning inventory; two contributing factors have been determined to cause the increase of MC1. Spruce has existed on the landscape for an uncharacteristically long period of time without disturbance, which may be causing there to be an over typing of area of SPU forest unit in the planning inventory. It is suspected that at maturity these stands were likely MC1 stands with a higher component of Pj in them which has since become over mature and fallen down. In many instances the spruce was actually found to be off-site. With disturbance, in the form of harvesting, there is a surprisingly heavy and rapid response of Pj natural ingress in MC1, SPU and PJ1 disturbed forest units.

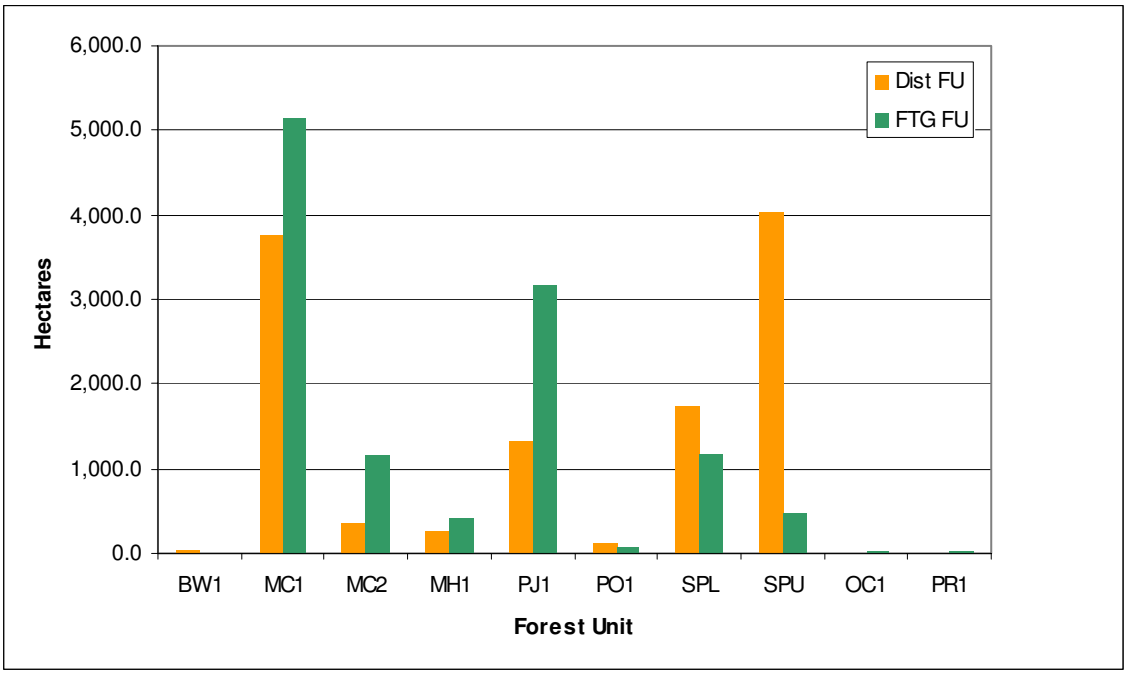


Figure 8. Disturbance forest unit versus the FTG forest unit by forest unit for the same period of time 2009-2013.

Table 4 presents the 2008-2013 FTG data in tabular form for a clearer and transparent view of the data.

Table 4. Free-to-Grow data for the 2008-2013 period.

	Free-to-Grow Forest Unit										
Disturbance Forest Unit	**BW1**	**MC1**	**MC2**	**MH1**	**OC1**	**PJ1**	**PO1**	**PR1**	**SPL**	**SPU**	**Grand Total**
BW1						45.0					45.0
MC1	4	1,771	474	129		1,309			46	31	3,764
MC2		120	128	75		33					356
MH1		90	26	56		30	59				261
PJ1		588	65	70		528			28	55	1,334
PO1			9	37		63	2				112
SPL		482	176		27	85			875	94	1,740
SPU		2,104	277	51		1,072		26	224	282	4,036
Grand Total	4	5,155	1,156	418	27	3,164	61	26	1,174	461	11,647

An examination of the FTG MC2 forest unit shows that the majority of the time if the Bw content were to be reduced by as little as 10% to 15% the area would be an MC1 forest unit. The presence of Bw is likely due to the fact that the area did not receive a tending treatment. Of the 1,156 hectares declared FTG as MC2 only 60 hectares was sprayed. The reasons for not spraying could be that the presence of Bw was low or non-existent at the time of spray survey,

one to two years post renewal treatment than it was at FTG survey. It is commonly accepted that Bw has the ability to continue to regenerate through seeding many years post harvest.

4.3 Review of Assumptions in Modeling

At this point in time, with only one year of harvest achieved to date it is not appropriate to do a review of modeling assumptions. It is suggested that the planning team review the Post Renewal Succession table in SFMM in preparation of the next plan.

4.4 Assessment of Objective Achievement

The assessment of objective achievement is presented in Table AR-14. The table presents the management objectives, indicators, desirable levels, targets, results and projections as needed/available, along with an assessment of objective achievement. For each objective, a discussion is provided in the table. In general it has been determined that it is too early to assess most of the objectives in the plan due to the fact that only 15% of the planned area has been harvested to date. In the FMP most objectives were planned to be assessed at year 7 or after which time approximately 70% of the planned area would be harvested.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-7: Summary of Planned and Actual Harvest Area

	Area (ha) - Annualized									
	PLANNED HARVEST			ACTUAL HARVEST						
	Past Plans			Past Plans			Current Plan			
									Projections	
Forest Unit	1997-2002	2002-2007	2007-2008	1997-2002	2002-2007	2007-2008	Planned Harvest 2008-2013	Actual Harvest 2008-2012	Medium-Term 2028	Long-Term 2108
Balsam Fir	9		-	-	-		2	0.0	37	46
Jack Pine	1,305	224	208	932	119	62	409	57.6	255	693
Spruce 1	2,351	N/A	N/A	1,335	N/A	N/A	N/A	N/A	N/A	N/A
Spruce 2	1,130	N/A	N/A	511	N/A	N/A	N/A	N/A	N/A	N/A
Spruce 3	169	N/A	N/A	55	N/A	N/A	N/A	N/A	N/A	N/A
Birch	44	0	-	24	-	-	2	0.0	3	16
Poplar	319	31	19	138	21	2	97	18.5	32	178
Mixed Conifer 1		1,828	1,607		1,232	943	749	152.1	540	309
Mixed Conifer 2		588	569		351	241	206	53.6	236	153
Mixed Hardwood 1		305	256		208	85	357	53.4	132	59
Other Conifer		24	24		3	-	23	0.0	0	37
Spruce Lowland		1,636	1,283		601	218	1,137	236.8	421	1,852
Spruce Upland		1,213	1,188		730	689	2,169	206.9	1,710	1,871
Total	5,328	5,848	5,155	2,993	3,264	2,239	5,151	778.9	3,365	5,214

Sources:
1997, 2002, 2007 Past Planned data: 2009 IFA Trend Analysis
1997-2002, 2002-2007, 2007-2008 Actual data: 2009 IFA Trend Analysis
2008 current term planned data: FMP-15
2008 term actual data: 2008,2009,2010,2011, 2012 approved AR's.

Note: Forest units are 2008 FMP units for the current plan.
Current plan forest units do not include the Spruce 1, 2 and 3 FU.
Historic data from the Caribou Forest 2009 IFA Trend Anaysis has been used.
Currrent Plan projections from 2008-2018 FMP, Table FMP-9

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-8: Summary of Planned and Actual Harvest Volume

	Volume ('000 m^3) - Annualized									
	PLANNED HARVEST VOLUME			ACTUAL HARVEST VOLUME						
	Past Plans			Past Plans			Current Plan 2008-2018			
									Projections	
Species	1997-2002	2002-2007	2007-2008	1997-2002	2002-2007	2007-2008	Planned Harvest 2008-2013	Actual Harvest 2008-2012	Medium-Term 2028	Long-Term 2108
Spruce	507,185	413,442	359,149	254,722	222,981	155,544	365,734	52,038		
Balsam Fir	6,405	19,599	17,808	2,824	3,961	7,609	17,183	1,588		
Jack Pine	194,305	117,381	112,196	133,034	129,541	65,917	94,324	23,309		
Cedar	2,000	935	1,051	25	4	-	1,012			
Larch	1,224	13,912	9,667	1,062	1,114	752	8,859	202		
Poplar	59,202	82,507	77,683	21,392	42,647	196	61,073	7,901		
Birch	10,140	29,796	28,127	2,699	10,368	104	17,573	13		
Total	780,461	677,572	605,681	415,757	410,616	230,122	565,758	85,051		

Source: 1997-2002, 2002-2007, 2007-2008 planned and actual data from 2009 IFA Trend Analysis, Table 3.
2008-2013 planned data from the 2008-2018 Caribou Forest FMP, Table FMP-17.
2008-2012 actual data from the approved AR-1 tables.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-9: Summary of Planned and Actual Renewal, Tending and Protection Operations

Operation	Area (ha) - Annualized							
	PLANNED			ACTUAL			PLANNED	ACTUAL
	Past Plans			Past Plans			Current Plan	Current Plan
	1997-2002	2002-2007	2007-2008	1997-2002	2002-2007	2007-2008	2008-2013	2008-2013
Renewal								
Natural Regeneration								
Clearcut Silvicultural System (even-aged)	697	1,323.0	3,252.0	155	1,546.0	588.0	965.4	209
Strip Cut (even-aged)	397				0.0			
CLAAG (natural seeding)	44	2,457.8		256	408.0	102.4	1,137.5	-
Group Seed Tree Cut					36.0			
Clearcut Natural Seeding				78				
Shelterwood Silvicultural System (even-aged)								
Selection Silvicultural System - Selection Harvest (uneven-aged)								
Artificial Regeneration								
Planting	2,541	1,357.6	1,115.0	1,216	1,942.0	1,736.0	2,152.7	485
Seeding	352	600.0	678.0	146	338.0	1,063.0	1,067.8	137
Scarification	426	140.0						
Total Renewal	4,458	5,878.4	5,045	1,851	4,270	3,489	5,323	831
Site Preparation (mechanical, chemical, prescribed burn)								
Mechanical	4,038	2,098	2,018	1,439	1,328	1,733	2,792	378
Chemical					50	97		
Prescribed Burn								
Total Site Preparation	4,038	2,098	2,018	1,439	1,378	1,830	2,792	2,792
Tending								
Cleaning	600	600	1,348	138	425	1,008	907	471
Spacing, Pre-Commercial Thinning, Improvement Cutting								
Clearcut and Shelterwood Silvicultural Systems (even-aged)	400	500		101	296		234	-
Selection Silvicultural System (uneven-aged)								
Total Tending	1,000	1,100	1,348	239	721	1,008	1,141	471
Protection (Insect Pest Control)								

Source: 1997-2002, 2002-2007, 2007-2008 planned and actual values as reported in approved 2009 IFA Trend Analysis Report Table 6.
2008-2013 planned data from FMP-21, Caribou Forest FMP 2008-2018 Phase I.
2008-2013 actual data from 2008-2009, 2009-2010, 2010-2011, 2011-2012 and 2012-2013 approved annual reports.

Management Unit Name: Caribou Forest
Plan Period: April 1, 2008 to March 31, 2013
Annual Report:

AR-10: Summary of Harvest and Regeneration Trends

Forest Unit		Term							
		1976-1982	1982-1987	1987-1992	1992-1997	1997-2002	2002-2007	2007-2008	2008-2013
SPL (Sp3)	Harvest/Salvage (ha)	1308	1217	6	286	3,030	3,005	218	1,184
	Surveyed (ha)	1308	1217	6	263			0	0
	Regenerated (ha)	1308	1217	6	263	1,554	580		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
SPU (Sp1/Sp2)	Harvest/Salvage (ha)	1451	1720	39	2837	7,265	3,650	689	1,035
	Surveyed (ha)	1451	1720	39	2774			0	0
	Regenerated (ha)	1451	1720	39	2774	3,437	148		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
PJ1	Harvest/Salvage (ha)	1500	2704	525	1863	2,529	595	62	288
	Surveyed (ha)	1500	2704	525	1863			0	0
	Regenerated (ha)	1500	2704	525	1863	2,774	1,696		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
PO1	Harvest/Salvage (ha)	6	6	4	384	162	105	2	92
	Surveyed (ha)	6	6	4	374			0	0
	Regenerated (ha)	6	6	4	374	158	0		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
BW1	Harvest/Salvage (ha)	6	0	0	0	50	0	0	0
	Surveyed (ha)	6	0	0	0		0	0	0
	Regenerated (ha)	6	0	0	0	49	0		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
BF1	Harvest/Salvage (ha)	10	0	0	0	0	0	0	0
	Surveyed (ha)	10	0	0	0	0	0	0	0
	Regenerated (ha)	10	0	0	0	0	0		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
OC1	Harvest/Salvage (ha)	8	8	0	3	23	15	0	0
	Surveyed (ha)	8	8	0	2	0	0	0	0
	Regenerated (ha)	8	8	0		27	0		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
PWR	Harvest/Salvage (ha)	14	12	0	0	0	0	0	0
	Surveyed (ha)	14	12	0	0	0	0	0	0
	Regenerated (ha)	14	12	0	0	26	0		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
MC1	Harvest/Salvage (ha)	4528	1296	5	484	1,342	6,160	943	761
	Surveyed (ha)	4528	1296	5	481			0	0
	Regenerated (ha)	4528	1296	5	481	4,346	1,628		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
MC2	Harvest/Salvage (ha)	1911	686	40	209	967	1,755	241	268
	Surveyed (ha)	1911	686	40	208			0	0
	Regenerated (ha)	1911	686	40	208	1,326	471		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
MH1	Harvest/Salvage (ha)	799	104	10	25	370	1,040	85	267
	Surveyed (ha)	799	104	10	24			0	
	Regenerated (ha)	799	104	10	24	512	127		
	Unavailable for Regeneration (ha)								
	Un-surveyed (ha)								
	Percent FU Successfully Regenerated								
TOTAL	**Harvest/Salvage (ha)**	**11,541**	**7,753**	**629**	**6,091**	**15,738**	**16,320**	**2,239**	**3,895**
	Surveyed (ha)					**15,508**	**4,708**	**0**	**0**
	Regenerated (ha)	**11,541**	**7,753**	**629**	**5,987**	**14,209**	**4,650**		
	Unavailable for Regeneration (ha)	**231**	**155**	**13**	**122**	**315**	**326**	**45**	**78**
	Un-surveyed (ha)	**0**	**0**	**0**	**-18**	**-85**	**11,286**	**2,194**	**3,817**
	Percent FU Successfully Regenerated								

Source: 1976-1997 data from the approved 2006 AR-16 table.
1997-2007 data is from the 2006 AR-16 table and has been updated using the 2008,2009,2010,2012 and 2013 approved Annual Report FTG data.
area unavailable for Regeneration was calculated at 2%

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-11: Summary of Forest Condition for the Available Managed Crown Productive Forest

		Area (ha)						
		Past Plans			Current Plan 2008-2013			
							Projections	
Forest Unit	Age/Condition Class	1997-2002	2002-2007	2007-2008	Plan Start 2008	Plan End 2013	Medium-Term 2028	Long-Term 2108
SPU	Depleted							
	Below Regen Standard							
	0-20		25370.2	25,370	27,116		34,421	41,649
	21-40		291.0	291	1,548		28,416	32,342
	41-60		3416.9	3,417	2,737		6,673	38,220
	61-80		35342.3	35,342	24,417		5,175	45,590
	81-100		39443.1	39,443	54,392		23,624	25,678
	101-120		25938.7	25,939	33,427		51,448	19,870
	121-140		15243.2	15,243	17,221		26,506	5,914
	141-160		2651.9	2,652	3,100		11,834	1,747
	161-180		287.5	287	216		1,376	940
	181-200		319.6	320	113		291	1,254
	201+			-	21			
	Forest Unit Subtotal		148,304	148,304	164,310	-	189,765	213,203
SPL	Depleted			-				
	Below Regen Standard			-				
	0-20		10029.9	10,030	17,344		27,250	15,649
	21-40		207.1	207	1,197		16,013	20,279
	41-60		1501.1	1,501	1,335		1,434	17,591
	61-80		19677.7	19,678	17,298		1,518	15,073
	81-100		18806.6	18,807	22,297		20,637	26,124
	101-120		19353.4	19,353	23,054		17,799	13,746
	121-140		14479.1	14,479	15,898		17,742	4,357
	141-160		4425.8	4,426	4,959		12,717	2,896
	161-180		871.7	872	601		2,033	1,328
	181-200		484.4	484	466		791	1,114
	201+			-	6			
	Forest Unit Subtotal		89,837	89,837	104,456	-	117,934	118,157
PJ1	Depleted			-				
	Below Regen Standard			-				
	0-20		11780.0	11,780	11,859		23,471	26,379
	21-40		1892.7	1,893	4,821		12,839	16,627
	41-60		1046.1	1,046	730		5,574	16,824
	61-80		15519.3	15,519	11,079		1,534	16,388
	81-100		13487.6	13,488	21,336		11,680	14,313
	101-120		692.0	692	905		14,531	1,189
	121-140		54.5	55	46		598	470
	141-160		0.0	-	27		1	65
	161-180		26.4	26			25	
	181-200		0.0	-				
	201+			-				
	Forest Unit Subtotal		44,499	44,499	50,803	-	70,252	92,256

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-11: Summary of Forest Condition for the Available Managed Crown Productive Forest

		Area (ha)						
		Past Plans			Current Plan 2008-2013			
							Projections	
Forest Unit	Age/Condition Class	1997-2002	2002-2007	2007-2008	Plan Start 2008	Plan End 2013	Medium-Term 2028	Long-Term 2108
BF	Depleted			-				
	Below Regen Standard			-				
	0-20		24.9	25	65			
	21-40		0.0	-	6		62	928
	41-60		0.0	-	42		576	205
	61-80		16.3	16	230		349	1,194
	81-100		9.2	9	204		402	2,009
	101-120		0.0	-	129		354	1,859
	121-140		0.0	-	11		77	713
	141-160		0.0	-				45
	161-180		0.0	-			11	0
	181-200		0.0	-				1
	201+			-				
	Forest Unit Subtotal		50	50	687	0	1,830	6,954
MC1	Depleted			-				
	Below Regen Standard			-				
	0-20		4982.6	4,983	12,159		12,340	12,352
	21-40		2661.8	2,662	5,415		10,698	11,466
	41-60		1796.7	1,797	984		5,641	11,394
	61-80		25129.5	25,130	16,776		3,890	10,967
	81-100		25008.9	25,009	33,363		17,639	7,647
	101-120		9761.4	9,761	13,055		25,787	2,254
	121-140		4976.4	4,976	4,746		9,010	1,512
	141-160		476.8	477	516		3,696	662
	161-180		18.1	18	41		503	94
	181-200		34.4	34	8		47	279
	201+			-				
	Forest Unit Subtotal		74,847	74,847	87,063	-	89,251	58,628
MC2	Depleted			-				
	Below Regen Standard			-				
	0-20		1854.0	1,854	5,578		2,375	2,182
	21-40		1395.7	1,396	2,338		5,202	3,809
	41-60		435.0	435	197		2,373	3,206
	61-80		6006.2	6,006	3,506		2,851	2,816
	81-100		7222.8	7,223	9,101		3,368	2,398
	101-120		3258.1	3,258	4,525		7,276	1,442
	121-140		948.1	948	1,030		3,587	1,584
	141-160		117.1	117	143		276	75
	161-180		0.0	-			122	53
	181-200		0.0	-				99
	201+			-				
	Forest Unit Subtotal		21,237	21,237	26,417	-	27,431	17,664

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-11: Summary of Forest Condition for the Available Managed Crown Productive Forest

		Area (ha)						
		Past Plans			Current Plan 2008-2013			
							Projections	
Forest Unit	Age/Condition Class	1997-2002	2002-2007	2007-2008	Plan Start 2008	Plan End 2013	Medium-Term 2028	Long-Term 2108
OC1	Depleted			-				
	Below Regen Standard			-				
	0-20		57.8	58	266		681	300
	21-40		0.0	-	20		325	295
	41-60		10.5	11	203			300
	61-80		123.1	123	437		24	373
	81-100		182.2	182	453		335	657
	101-120		127.5	128	846		397	365
	121-140		237.4	237	93		339	212
	141-160		55.5	55	14		759	120
	161-180		0.0	-	36		102	112
	181-200		18.6	19	0		11	17
	201+			-				
	Forest Unit Subtotal		813	813	2,366	-	2,973	2,750
PO1	Depleted			-				
	Below Regen Standard			-				
	0-20		2924.5	2,924	3,102		4,083	2,922
	21-40		27.2	27	19		3,420	2,606
	41-60		141.6	142	72		28	1,847
	61-80		3371.5	3,371	2,651		51	2,329
	81-100		2829.7	2,830	3,877		2,492	2,925
	101-120		282.5	283	192		3,837	659
	121-140		6.0	6	7		148	4
	141-160		0.0	-				1
	161-180		0.0	-				
	181-200		0.0	-				
	201+			-				
	Forest Unit Subtotal		9,583	9,583	9,920	-	14,059	13,294
BW1	Depleted			-				
	Below Regen Standard			-				
	0-20		213.7	214	70		391	287
	21-40		53.3	53	4		70	127
	41-60		38.6	39	67		4	162
	61-80		111.8	112	80		103	169
	81-100		0.0	-	57		108	270
	101-120		0.0	-			108	14
	121-140		0.0	-				2
	141-160		0.0	-				
	161-180		0.0	-				
	181-200		0.0	-				
	201+			-				
	Forest Unit Subtotal		417	417	278	-	785	1,030

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-11: Summary of Forest Condition for the Available Managed Crown Productive Forest

		Area (ha)						
		Past Plans			Current Plan 2008-2013			
							Projections	
Forest Unit	Age/Condition Class	1997-2002	2002-2007	2007-2008	Plan Start 2008	Plan End 2013	Medium-Term 2028	Long-Term 2108
MH1	Depleted			-				
	Below Regen Standard			-				
	0-20		1145.6	1,146	2,477		5,825	3,627
	21-40		1845.7	1,846	870		2,366	2,685
	41-60		1171.6	1,172	1,505		931	2,429
	61-80		9228.6	9,229	7,629		1,473	2,343
	81-100		7451.3	7,451	10,914		5,984	2,608
	101-120		692.5	693	543		8,109	49
	121-140		12.2	12	0		457	69
	141-160		0.0	-			0	24
	161-180		0.0	-				27
	181-200		0.0	-				
	201+			-				
	Forest Unit Subtotal		21,548	21,548	23,938	-	25,146	13,862
PWR	Depleted			-				
	Below Regen Standard			-				
	0-20			-	6		2	15
	21-40			-	29		5	13
	41-60			-	8		27	2
	61-80			-				4
	81-100			-			8	1
	101-120			-				
	121-140			-				1
	141-160			-				
	161-180			-				2
	181-200			-				
	201+			-				
	Forest Unit Subtotal			-	43	-	42	39
NFG	Depleted			-				
	Below Regen Standard			-				
	0-20		264.7	265				
	21-40			-				
	41-60			-				
	61-80			-				
	81-100			-				
	101-120			-				
	121-140			-				
	141-160			-				
	161-180			-				
	181-200			-				
	201+			-				
	Forest Unit Subtotal		265					
	Total		411,399	411,134	470,280	-	539,468	537,836

Note: Rounding errors may occur.
Source: 2002-2007 data from the 2002 FMP-9.
data for the 2007-2008 term is the same as the data for the 2002-2007 term as it was a contingency plan.
Current Plan data from FMP-4
Projection data from FMP-7 (the projection data is for crown productive forest.
No End Plan data is currently available

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-12: Summary of Habitat for Species at Risk and Selected Wildlife Species

Wildlife Species	Area of Habitat (ha)						
	Past Plans			Current Plan 2008-2018			
				Plan Start	Projections		Plan End
	1997-2002	2002-2007	2007-2008	2008	Short-Term 2028	Medium- Term 2048	Long-Term 2108	
Black-backed Woodpecker (BBWO)				283,530	225,532	157,170	131,102	
Black Bear (forage) (BLBEf)				216,683	214,865	151,183	105,282	
Lynx (denning) (CALYd)				210,143	199,609	142,258	103,653	
Fisher (FISH)				753	1,159	2,288	5,658	
marten		168,662		284,037	226,552	159,466	136,595	
moose foraging		96,022		63,217	74,947	69,103	72,515	
moose winter		267,639		313,147	278,238	288,694	273,954	
white-tailed deer - foraging		32,821						
white-tailed deer- winter		25,400						
woodland caribou		297,697		432,896	397,001	405,631	388,081	
woodland caribou winter		23,884		116,814	104,289	76,163	49,957	
boreal red-backed vole		78,360						
northern flying squirrel		149,214						
snowshoe hare		24,944						
American Kestrel		1,246						
great grey owl		132,852		281,903	224,316	156,344	130,086	
boreal chickadee		88,112						
white-throated sparrow		145,337						
Swainson's thrush		25,909						
spruce grouse		160,003						
American redstart		20,401						
Connecticut warbler		80,576						
golden-crowned kinglet		51,377						
pileated woodpecker		5,642		5,637	15,155	9,999	3,035	

Source:Current term data was from FMP-8
Past years are from approved AR's
No plan end data available as the planning inventory for the next plan has not been done.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-13: Summary of Assessment of Regeneration and Silvicultural Success

		Area Assessed				
		Area Successfully Regenerated			Area Not Successfully Regenerated	Total Area Assessed
Forest Unit	Silvicultural Ground Rule	Projected Forest Unit	Other Forest Unit	Total		
	Harvest					
BW1	BW1BW1E	0.0	45.0	45.0	8.4	53.4
	Forest Unit Subtotal	0.0	45.0	45.0	8.4	53.4
MC1	MC1MC1B	87.5	71.2	158.6	12.4	171.0
MC1	MC1MC1E	163.5	521.9	579.1	106.3	685.3
MC1	MC1MC1I	0.0	20.8	20.8	17.8	38.7
MC1	MC1MC2B	6.9	0.0	6.9	0.0	6.9
MC1	MC1MC2E	13.8	0.0	13.8	0.0	13.8
MC1	MC1PJ1B	414.9	324.6	739.5	58.3	794.8
MC1	MC1PJ1I	253.1	241.4	494.5	0.0	494.5
MC1	MC1SPUI	0.0	1780.8	1780.8	34.4	1815.2
	Forest Unit Subtotal	939.7	2960.6	3794.0	229.1	4020.3
MC2	MC2MC2E	20.9	29.6	50.5	4.8	55.3
MC2	MC2MH1E	5.3	66.3	71.6	3.9	75.5
MC2	MC2PJ1I	0.0	52.8	52.8	0.0	52.8
MC2	MC2SPUI	0.0	180.6	180.6	0.0	180.6
	Forest Unit Subtotal	26.2	329.3	355.5	8.7	364.2
MH1	MH1MC1I	2.8	0.0	2.8	0.0	2.8
MH1	MH1MH1E	31.4	85.4	116.8	11.6	128.4
MH1	MH1PJ1I	29.7	0.0	29.7	0.0	29.7
MH1	MH1PO1E	0.0	111.4	111.4	0.0	111.4
	Forest Unit Subtotal	63.9	196.8	260.7	11.6	272.3
PJ1	PJ1MC1E	58.1	42.8	100.9	0.0	100.9
PJ1	PJ1MC1I	31.2	0.0	31.2	0.0	31.2
PJ1	PJ1PJ1	0.0	57.6	57.6	0.0	57.6
PJ1	PJ1PJ1B	219.9	268.2	488.1	0.0	488.1
PJ1	PJ1PJ1E	3.6	56.6	60.2	49.7	110.0
PJ1	PJ1PJ1I	262.3	324.7	587.0	0.0	587.0
	Forest Unit Subtotal	575.1	749.9	1325.0	49.7	1374.8
PO1	PO1MH1E	37.4	0.0	37.4	0.0	37.4
PO1	PO1PJ1B	62.5	0.0	62.5	0.0	62.5
PO1	PO1PJ1I	0.0	9.5	9.5	0.0	9.5
PO1	PO1PO1E	2.1	0.0	2.1	4.1	6.2
	Forest Unit Subtotal	102.0	9.5	111.5	4.1	115.6

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-13: Summary of Assessment of Regeneration and Silvicultural Success

		Area Assessed				
		Area Successfully Regenerated			Area Not Successfully Regenerated	Total Area Assessed
Forest Unit	Silvicultural Ground Rule	Projected Forest Unit	Other Forest Unit	Total		
SPL	SPLSPLB	851.4	865.0	1716.4	534.9	2251.3
SPL	SPLSPLE	3.0	0.0	3.0	0.0	3.0
SPL	SPLSPLI	4.2	0.0	4.2	0.0	4.2
	Forest Unit Subtotal	858.6	865.0	1723.6	534.9	2258.5
SPU	SPUMC1B	0.0	19.2	19.2	31.0	50.1
SPU	SPUMC1E	103.1	25.5	128.6	17.0	145.6
SPU	SPUMC1I	6.7	0.0	6.7	0.0	6.7
SPU	SPUMC2E	8.4	0.0	8.4	0.0	8.4
SPU	SPUMCIE	5.7	0.0	5.7	0.0	5.7
SPU	SPUPJ1B	61.5	226.2	287.7	5.3	293.0
SPU	SPUPJ1E	1.2	0.0	1.2	0.0	1.2
SPU	SPUPJ1I	76.6	218.1	294.7	25.9	320.6
SPU	SPUSPU12E	0.0	0.0	0.0	23.1	23.1
SPU	SPUSPUB	50.5	726.1	776.6	266.5	1043.0
SPU	SPUSPUE	86.0	0.0	86.0	0.0	86.0
SPU	SPUSPUI	75.4	2210.1	2285.5	169.0	2454.5
	Forest Unit Subtotal	475.1	3425.2	3900.3	537.8	4437.9
Overall Total		**3040.6**	**8581.3**	**11515.6**	**1384.3**	**12897.0**

Note: data is for the 2008-2013 term only. All data is from approved Annual reports.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-14: Assessment fo Objective Achievement

	Management Objective	Indicator	Desirable Level	Target (how much, when)	Plan Start Level (2008)	Year 5 AR Achievement
1a	"Frequency distribution of forest disturbances by size class should show move towards the natural template."	Forest Disturbances (NDPEG) - frequency distribution (%) of forest disturbances by size class	60 - 80% (4 out of 6) of the size classes of the planned new clearcuts by frequency should be moving towards the natural template over time.	60 - 80% (4 out of 6) of the size classes of the planned new clearcuts by frequency should be moving towards the natural template at the year 2018.	Frequency (%) of Forest Disturbances by Size Class at Year 2008 (see FMP-12 and charts): At Year 2008 without Planned 101-200 ha = 29 201-500 ha = 29 501-1,000 ha = 16 1,001-5,000 ha = 18 5,001-10,000 ha = 4 >10,000 ha = 4	At this time (Year 5 of the 2008-2018 FMP, with approximately 1 year of wood harvested to date), there have been relatively no natural disturbances on the forest and only a very small proportion of the planned harvest areas for Phase I harvest have occurred. To-date, the completion of planned clearcuts scheduled for Phase 1 are not on track, due to the lack of harvesting on the forest over the first five years of the FMP. It is likely that the percent frequency distribution of forest disturbances by size class observed at plan start in 2008-2018 FMP remains unchanged at this time. Movement towards the establishment of harvest disturbances on the landscape consistent with the natural frequency distribution of disturbance size classes template is still possible upon a resurgence of harvest activity. However, at this time it is premature to assess whether there are significant changes to the percent frequency distribution of forest disturbances by size class.
2a	"To maintain 10-20% of the forest which has the capability to produce marten, in suitable conditions as described in the *Forest Management Guidelines for the Provision of Marten Habitat*, 1996 (i.e. in core areas 3000-5000 ha in size)."	Interior - Marten Core Habitat - Percent of capable habitat in suitable condition within core areas. Caribou mosaic blocks were considered to be an appropriate surrogate for core areas.	Maintain 10-20% of the capable forest in suitable conditions in core areas over time.	Maintain 10-20% of the capable forest in suitable conditions in core areas over the next 20 years (2008-2028).	60 % of capable habitat in suitable condition within core areas	At this time (Year 5 of the 2008-2018 FMP with approximately 1 year of area harvested to date), there have been relatively no natural disturbances on the forest and only a very small proportion of the planned harvest areas for Phase I harvest have occurred. There are relatively no changes to the mature forest composition during the first five years of the 2008-2018 FMP. It can be assumed that the lack of harvest and/or the lack of natural disturbance over the first five years of the 2008-2018 FMP would maintain marten habitat as per the desired levels and targets for this objective. However, it is premature to assess the implications on marten habitat at this point in time.
2b	"To maintain a continuous supply of suitable, mature, year-round habitat distributed both geographically and temporally across the landscape in such a manner as to ensure permanent range occupancy (p17 Forest Management Guidelines for the Conservation of Woodland Caribou, 1999")."	Interior - Woodland Caribou Winter or Summer Habitat - Percent of forest area in suitable condition (conifer dominated, over 60 years old) within habitat tracts, which are arranged spatially on the landscape so as to connect important calving areas with used or potential wintering areas.	50% of forest in suitable condition within habitat tracts over time.	50% of forest in suitable condition within habitat tracts over the next 60 years.	79% of forest area in suitable condition within habitat tracts.	At this time (Year 5 of the 2008-2018 FMP), there have been only a very small proportion of the planned harvest areas for Phase I harvest realized. This may result in a delay in achievement towards the completion of the caribou mosaic A blocks (scheduled for harvest during 1998-2018), depending on the level of completion of forecast harvest in the next few years. A resurgence in harvesting on the Caribou Forest will provide opportunities for this objective to be met, and at this time it appears that demand for fibre from this forest will increase in the next few years. However, at this time it is premature to assess the impacts to this objective.
3a	"To provide for a forest composition within the bounds of natural variation (BNV), while minimizing hardwood and maintaining/increasing the conifer composition."	Forest Composition - Area (ha) by forest type (forest unit)	a) Maintain a range of based on the +/- 20% of minimum of Natural Benchmark SFMM run over time.	a) Maintain a range of based on the +/- 20% of minimum of Natural Benchmark SFMM run over the long term (100 years) for the next 20 years.	**FU** / **Year 2008** SPL 117,885 SPU 188,260 PJ1 60,102 PO1 12505 BW1 450 BF1 889 OC1 3,022 PWR 43 MC1 98,679 MC2 30,300 MH1 27,925	At this time (Year 5 of the 2008-2018 FMP), there has been only a very small proportion of the planned harvest areas, approximately 10%, of the FMP depleted to date. Acknowledging that the 2008-2018 FMP is only five operating years into the plan and considering that within five years only one year of harvest area has been realized, it is premature to assess whether the distribution of forest units are on track to being achieved at this point in time. However, it can be assumed that the composition of forest units as per the Natural Benchmark SFMM run have been maintained over the past five years. As illustrated in this trend analysis and aproved year 3 annual reports intensive renewal program has been implemented over the past five terms. The company has consistently renewed more landbase than would be expected relative to the reduced harvest levels. The company has also maintained a tending program to meet the needs of minimizing hardwood on the SFL.
3b	"To provide for a forest composition in the near and long term that maintains the distinctive dominance of conifer forest types while minimizing post harvest hardwood ingrowth within conifer dominated forest units within the bounds of natural variation (BNV)."	Forest Age Class Structure - Area (ha) by forest type (forest unit) and seral stage	b) Maintain a range of based on the +/- 20% of minimum of Natural Benchmark SFMM run over time.	b) Maintain a range of based on the +/- 20% of minimum of Natural Benchmark SFMM run over the long term (100 years) for the next 20 years.	**FU** / **Year 2008** SPL 0-40 18,475 41-80 21,036 81+ 78,375 SPU 0-40 31,744 41-80 30,706 81+ 125,810 PJ1 0-40 19,497 41-80 15,718 81+ 24,887 PO1 0-40 3,651 41-80 3,126 81+ 5,727 BW1 0-40 79 41-80 256 81+ 115 BF1 0-40 72	At this time (Year 5 of the 2008-2018 FMP), there has been only a very small proportion of the planned FMP harvest areas depleted. Acknowledging that the 2008-2018 FMP is only five operating years into the plan, it is premature to assess whether the distribution of forest units and age classes are on track to being achieved at this point in time. However, it can be assumed that the composition of forest units and age classes as per the Natural Benchmark SFMM run have been maintained over the past five years, with an aging of forest units by five years since 2008. As illustrated in this trend analysis and aproved year 3 annual reports an intensive renewal program has been implemented over the past three terms. The company has consistently renewed more landbase than would be expected relative to the reduced harvest levels. The company has also maintained a tending program to meet the needs of minimizing hardwood on the SFL.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-14: Assessment fo Objective Achievement

	Management Objective	Indicator	Desirable Level	Target (how much, when)	Plan Start Level (2008)	Year 5 AR Achievement
					41-80: 279 81+: 538	
					Plan Start Level OC1 0-40: 345 41-80: 294 81+: 2,384 PWR 0-40: 34 41-80: 8 81+: 0 MC1 0-40: 17,301 41-80: 20,592 81+: 60,785 MC2 0-40: 8,008 41-80: 4,321 81+: 17,971 MH1 0-40: 3,491 41-80: 10,744 81+: 13,691	
3c	"To increase the presence of rare (infrequently occurring) tree species (e.g. red pine, white spruce) on the forest."	Regeneration of Rare Tree Species - number of seedlings/year	c) Increase the presence of rare tree species (e.g. red pine, white spruce) over time.	c) Increase the presence of rare tree species (e.g. red pine, white spruce) by planting a minimum of 10,000 seedlings/year of red pine and 50,000 seedlings/year of white spruce. Note that red pine seed from Caribou Forest is not available, and seed from adjacent forests is limited.	Plant 10,000 seedlings/year red pine. Plant 50,000 seedlings/year white spruce.	At this time (Year 5 of the 2008-2018 FMP), 50,880 White spruce trees or rare tree species (red pine or white spruce) have been planted on the Caribou Forest over the past five years (2008-2013). The volume of Sw trees planted are less than the target in the FMP. These tree species must be planted on suitable sites. As suitable sites for these species are identified they will be treated accordingly.
3d	"To maintain genetic diversity through the use of natural regeneration methods where appropriate site conditions exist."	Amount of Natural Regeneration - (forecast versus actual) (percent achievement)	d) 95-100% of forecast natural regeneration areas to be naturally regenerated over time.	d) 90% of forecast natural regeneration areas to be naturally regenerated during plan period (within 10 years).	na	At this time (Year 5 of the 2008-2018 FMP), artificial regeneration is at approximately 25% of the planned levels for 2008-2013 period. Area declared as naturally regenerated during the reporting period is 10% of the annual FMP forecast. The lower than planned natural regeneration levels are a direct result of reduced harvest levels throughout this reporting period. In addition a proportionally higher than planned area of upland conifer has been harvested to date which for the most part requires artificial treatment as the renewal method. The natural renewal percentage of 10% of the planned amount can be explained by the fact that the actual harvest level to date is at 10% fo the planned level as well. A resurgence in harvesting on the Caribou Forest will provide opportunities for this objective to be met.
4a	"To provide for old growth forest ecosystems (as defined in the Old Growth Policy for Ontario's Crown Forests and the Old Growth Forest Definitions for Ontario) within the bounds of natural variation (BNV)."	Old Growth - Area (ha) of old growth forest by forest unit	a) i) Maintain a range based on the +/- 20% of minimum of Natural Benchmark SFMM run over time as per the Old Growth Forest Definitions for Ontario. * Include protected areas.	a) i) Maintain a range based on the +/- 20% of minimum of Natural Benchmark SFMM run over the long term (100 years) as per the Old Growth Forest Definitions for Ontario. * Include protected areas.	**FU** / **Year 2008** SPL: 14,144 SPU: 23,133 PJ1: 195 PO1: 220 BW1: 0 BF1: 362 OC1: 1,301 PWR: 0 MC1: 10,113 MC2: 2,156 MH1: 787	At this time (Year 5 of the 2008-2018 FMP), the lack of harvest translates to achieving the desired levels and targets for maintaining the old growth forest condition. However, it is premature to assess the impacts to this objective and further evaluation will occur during the preparation of the year-seven and the year-ten annual reports and this information will be used for the preparation of the 2018-2028 FMP.
		Old Growth - Area (ha) of habitat for wildlife species that prefer old growth * Include protected areas.	a) ii) Maintain a minimum number of hectares of habitat for wildlife species that prefer old growth habitat for portions of their life based on the +/- 20% of minimum of Natural Benchmark SFMM run over time.	**Wildlife Species (-20% of null):** / **Year 2008** black-backed woodpecker BBWO (74,653 ha): 283,530 black bear - foraging BLBEf (67,333 ha): 216,683 lynx - denning CALYd (67,904 ha): 210,143		At this time (Year 5 of the 2008-2018 FMP), the lack of harvesting translates to achieving the desired levels and targets for maintaining the old growth forest for old growth wildlife habitat. However, at this time it is premature to assess the impacts to this objective and further evaluation will occur during the preparation of the year-seven and the year-ten annual reports and this information will be used for the preparation of the 2018-2028 FMP.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-14: Assessment fo Objective Achievement

	Management Objective	Indicator	Desirable Level	Target (how much, when)	Plan Start Level (2008)	Year 5 AR Achievement
4b	"To maintain the amount of old growth red and white pine forests relative to amount on the management unit identified by the 1995 red and white pine conservation strategy. "	Old Growth - Red and White Pine Forest Unit (PWR) (ha)	b) Not applicable, as none identified for the Caribou Forest.	b) Not applicable, as none identified for the Caribou Forest.		
5a	"To ensure that forest management activities do not threaten the area of habitat for forest-dependant provincially and locally featured species"	Wildlife Habitat - Area (ha) of habitat for forest-dependant provincially and locally featured species. Species determined by the planning team are: marten, pileated woodpecker, moose (cover/winter), white-tailed deer (cover/winter), caribou (winter/refuge), great grey owl, fisher.	Maintain a minimum number of hectares of habitat for wildlife species based on the +/- 20% of minimum of Natural Benchmark SFMM run over time. * Include protected areas.	**Wildlife Species (-20% of null):**	**Year 2008**	At this time (Year 5 of the 2008-2018 FMP), the lack of harvesting translates to achieving the desired levels and targets for maintaining habitat for wildlife species that utilize non-seral stage age classes of forest. All of the wildlife species listed in this objective with the exception of moose foraging will benefit from the recent lack of harvesting from 2008-2013. However, at this time it is premature to assess the impacts to this objective and further evaluation will occur during the preparation of the year-seven and the year-ten annual reports and this information will be used for the preparation of the 2018-2028 FMP.
				caribou -refuge CARI (279,585 ha)	388,081	
				caribou -winter CARIw (35,387 ha)	49,957	
				fisher FISH (533 ha)	5,658	
				marten MART (78,720 ha)	136,595	
				moose foraging MOOS (50,574 ha)	72,515	
				moose winter MOOSw (185,307 ha)	273,954	
				pileated woodpecker PIWO (1,797 ha)	3,035	
				great grey owl - GGOW (74,221 ha)	130,086	
6a	"To ensure that forest management activities do not threaten the critical breeding habitat for forest-dependant species (i.e. eagles, osprey, heron, and other forest raptors).	Wildlife Habitat - Area (ha) of habitat for forest-dependant species (i.e. eagles, osprey and heron). No negative impacts on critical breeding habitat for forest-dependent species (eagle, osprey, heron, other raptors).	Maintain 90-100% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	Maintain 90-100% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	na	As indicated in Table AR-6 there were no incidence of non-compliance reported on the Caribou Forest during this period. Therefore, the objective is on track to be achieved.
7a	"To ensure that forest management activities do not threaten habitat for forest-dependant species at risk"	Wildlife Habitat - Area (ha) of habitat for forest-dependant species at risk (woodland caribou)	see Objective 2b (caribou habitat above)	see Objective 2b (caribou habitat above)	see Objective 2b (caribou habitat above)	see Objective 2b (caribou habitat above)
8a	"To minimize significant increases in road density on the management unit."	Road Densities - Kilometres of road per square kilometre of Crown forest. (Calculate to include forest management roads, highways, cottage roads, pipelines, hydro lines, railines).	Limit road density ranging from 0.1 to 0.5 km of road/sq km of forest.	Limit road density ranging from 0.1 to 0.5 km of road/sq km of forest over the next 10 years. (Calculate non-FMP roads separately).	0.253 km of road/sq km	At this time (Year 5 of the 2008-2018 FMP), the lack of harvesting has limited the construction of roads. Therefore, it can be assumed that these limited road densities are moving towards achieving the desired levels and targets. Additionally, road decommissioning is progressing which should also assist in achieving this objective. However, at this time it is premature to assess the impacts to this objective until further evaluation occurs during the preparation of the year-seven and the year-ten annual reports.
8b	"To provide recreational opportunities to access the forest by maintaining road access on the management unit."	Roads Available for Public Use - Kilometres of drivable primary and branch roads per square kilometre open for public use on the Crown forest	Maintain a minimum road density of 0.2 km of road/sq km of forest	Maintain a minimum road density of 0.2 km of road/sq km of forest over the next 10 years. (Calculate non-FMP roads separately).	0.221 km of road/sq km	At this time (Year 5 of the 2008-2018 FMP), the lack of harvesting has limited the construction of roads. These limited road densities may be moving this objective away from the desired levels and targets in the short term, although it is unclear what the impacts will be in the next ten years. At this time it is premature to assess the impacts to this objective until further evaluation occurs during the preparation of the year-seven and the year-ten annual reports.
9a	"To ensure harvested areas are successfully regenerated and free-growing in a timely manner."	Prompt Regeneration of Harvest Areas - Percent of harvested forest area assessed as free-growing	Maintain 90-100% successfully regenerated, not including landbase changes to non-productive (e.g. roads) over time.	Maintain 95-100% successfully regenerated, not including landbase changes to non-productive (e.g. roads).	na	At this time (Year 5 of the 2008-2018 FMP), it is premature to assess the impacts to this objective until further evaluation occurs during the preparation of the year-seven and the year-ten annual reports (future table AR-13). Recently efforts have been made to improve the FTG survey methodology which should improve the silviculture success percentage on the forest.
9b	"To ensure harvested areas are successfully regenerated such that the hardwood component of stands is minimized and conifer composition maintained or increased"	Successful Regeneration of Harvest Areas - Percent of harvested forest area that regenerates to a more hardwood dominated forest unit than the original forest unit	No increase in the percent of harvested forest area that regenerates to a more hardwood dominated forest unit.	No more than 5% increase in the percent of harvested forest area that regenerates to a more hardwood dominated forest unit.	na	At this time (Year 5 of the 2008-2018 FMP), it is premature to assess the impacts to this objective until further evaluation occurs during the preparation of the year-seven and the year-ten annual reports (future table AR-13). Recently efforts have been made to improve the FTG survey methodology which should produce a more accurate inventory.
10a	"To ensure that forest operations maintain compliance with prescriptions for the protection of natural resource features, land uses or values dependant on forest cover."	Compliance - with prescriptions for the protection of natural resource features, land uses or values dependant on forest cover (% of inspections in compliance)	Maintain 90-100% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	Maintain 90% compliance with forest operations prescriptions and conditions (minor infractions), with zero moderate and significant infractions.	na	To-date, no non-compliances have been reported related to AOC prescriptions developed for the protection of natural resource features, land uses or values dependent on forest cover. Therefore, the objective is on track to be achieved.
11a	"To ensure that forest operations maintain compliance with prescriptions for the protection of resource-based tourism values."	Compliance - with prescriptions for the protection of resource-based tourism values (% of inspections in compliance)	Maintain 90-100% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	Maintain 90% compliance with forest operations prescriptions and conditions (minor infractions), with zero moderate and significant infractions.	na	To-date, no non-compliances have been reported related to the protection of resource-based tourism values. Therefore, the objective is on track to be achieved.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-14: Assessment fo Objective Achievement

	Management Objective	Indicator	Desirable Level	Target (how much, when)	Plan Start Level (2008)		Year 5 AR Achievement
12a	"To provide a continuous supply of available harvest area (ha/year) over the long-term (and short term) (next 100 years)."	Long and Short Term Harvest Area - Projected available harvest area (ha/year) by forest unit	Maintain the 2008-2018 FMP available harvest area levels by forest unit over time.	Maintain the 2008-2018 FMP available harvest area levels by forest unit for the 2008-2018 year term.	**FU**	**Year 2008**	The closure of the McKenzie Forest Products mill has had a significant impact on the utilization of conifer fibre from the Caribou SFL during the first five years of the 2008-2018 Caribou FMP. An average of 10% of the planned harvest level was achieved each year of the first five years of the FMP period (2008-2012). However there are still five years in the current FMP to complete the planned harvest, and market conditions are expected to rebound. Starting in 2014, Resolute has announced the start-up of the Company's sawmill in Ignace Ontario, which will create a market for conifer volumes from the Caribou SFL. Therefore, the objective is on track to be achieved.
					SPL	1,137	
					SPU	2,173	
					PJ1	411	
					PO1	97	
					BW1	3	
					BF1	5	
					OC1	32	
					PWR	0	
					MC1	766	
					MC2	208	
					MH1	358	
12b	"To provide a continuous supply of available harvest volume (m3/year) over the long term (and short term) (next 100 years) for the major species groups as identified in the regional wood supply strategies."	Long and Short Term Harvest Volume - Projected available harvest volume (m3/year) by species group	Maintain the 2008-2018 FMP available harvest volume levels for all species groups over time.	Maintain the 2008-2018 FMP available harvest volume levels for all species groups for the 2008-2018 year term.	Species Group	**Year 2008**	The closure of the McKenzie Forest Products mill has had a significant impact on the utilization of conifer fibre from the Caribou SFL during the first five years of the 2008-2018 Caribou FMP. An average of 15% of the 5-year planned harvest volumes was achieved each year of the first five years of the FMP period (2008-2012). However there are still five years in the current FMP to complete the planned harvest, and market conditions are expected to rebound. Starting in 2014, Resolute has announced the start-up of the Company's sawmill in Ignace Ontario, which will create a market for conifer volumes from the Caribou SFL. Therefore, the objective is on track to be achieved.
					SPF	519,089	
					Intol	79,734	
					misc	12,575	
12c	"To increase the actual area harvested in comparison to the planned/forecast (hectares by forest unit)."	Harvest Area - Planned versus actual harvest area by forest unit	Harvest at least 90% of the planned harvest area (including bypass) by forest unit over time.	Harvest at least 90% of the planned harvest area (including bypass) by forest unit for 2008-2013 and 2013-2018.	na		The closure of the McKenzie Forest Products mill has had a significant impact on the utilization of conifer fibre from the Caribou SFL during the first five years of the 2008-2018 Caribou FMP. An average of 10% of the planned harvest level was achieved each year of the first five years of the FMP period (2008-2012). However there are still five years in the current FMP to complete the planned harvest, and market conditions are expected to rebound. starting in 2014, Resolute has announced the start-up of the Company's sawmill in Ignace Ontario, which will create a market for conifer volumes from the Caribou SFL. Therefore, the objective is on track to be achieved.
12d	"To increase the actual volume harvested in comparison to the planned/forecast (volume by species group)."	Harvest Volume - Planned versus actual harvest volume by species group	Harvest at least 90% of the planned harvest volume (including bypass) by species group over time.	Harvest at least 90% of the planned harvest volume (including bypass) by species group for 2008-2013 and 2013-2018.	na		The closure of the McKenzie Forest Products mill has had a significant impact on the utilization of conifer fibre from the Caribou SFL during the first five years of the 2008-2018 Caribou FMP. An average of 15% of the 5-year planned harvest volumes was achieved each year of the first five years of the FMP period (2008-2012). However there are still five years in the current FMP to complete the planned harvest, and market conditions are expected to rebound. Starting in 2014, Resolute has announced the start-up of the Company's sawmill in Ignace Ontario, which will create a market for conifer volumes from the Caribou SFL. Therefore, the objective is on track to be achieved.
12e	"To better utilize the forecast harvest volume by mill."	Wood Utilization by Mill - Percent of forecast harvest volume utilized, by mill	Utilize at least 80% of the forecast harvest volume by mill for 2008-2018.	Utilize at least 80% of the forecast harvest volume by mill for 2008-2013.	na		The closure of the McKenzie Forest Products mill has had a significant impact on the utilization of conifer fibre from the Caribou SFL during the first five years of the 2008-2018 Caribou FMP. All harvesting operations on the forest are fully mechanized and wood is brought to roadside in full tree form. At roadside it is processed into either roundwood for area mills, primarily Resolute's sawmill in Thunder Bay or into chips primarily for the Resolute pulp/paper mill complex in Thunder Bay. The closure of the McKenzie Forest Products mill has had a significant impact on wood utilization from the Caribou SFL. Traditionally, the McKenzie sawmill consumed approximately 50% of the available volume from the forest. Starting in 2014, Resolute has announced the start-up of the Company's sawmill in Ignace Ontario, which will create a market for conifer volumes from the Caribou SFL. This objective is on track to be achieved, despite the downturn in the forest industry and the closure of the McKenzie Forest Products mill.
13a	"To ensure that forest operations maintain compliance with management practices that prevent, minimize or mitigate site damage"	Compliance - with management practices that prevent, minimize or mitigate site damage (% of inspections in compliance)	Maintain 90% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	Maintain 90% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	na		To-date, no non-compliances have been reported related to site damage. Therefore, the objective is on track to be achieved.
14a	"To ensure that forest operations maintain compliance with prescriptions for the protection of water quality and fish habitat."	Compliance - with prescriptions developed for the protection of water quality and fish habitat (% of inspections in compliance)	Maintain 90% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	Maintain 90% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	na		To-date, no non-compliances have been reported related to AOC prescriptions developed for the protection of water quality and fish habitat. Therefore, the objective is on track to be achieved.
15a	"To maintain the managed crown forest available for timber production."	Managed Crown forest available for timber production (ha)	Maintain 90-100% of the total Crown Managed "Productive Forest" available for timber production as per FMP-1 over time.	Maintain 90% of the total Crown Managed "Productive Forest" available for timber production as per FMP-1 for the period of the plan (compared between 2008 and 2018).	483,000 ha		At this time (Year 5 of the 2008-2018 FMP), the lack of harvesting and the associated roads, chipper pads, slash piles, etc have limited the impacts to the Crown Managed Productive Forest available for timber production as per table FMP-1 in the 2008-2018 FMP. Therefore, it can be assumed that that we are achieving the desired levels and targets over the last five years. Additionally, road decommissioning is progressing which should also assist in achieving this objective. However, at this time it is premature to assess the impacts to this objective until further evaluation occurs during the preparation of the year-seven and the year-ten annual reports.

MANAGEMENT UNIT NAME: Caribou Forest
PLAN PERIOD: April 1, 2008 to March 31, 2018
FIVE YEAR PLAN TERM: April 1, 2008 to March 31, 2013
ANNUAL REPORT:

AR-14: Assessment fo Objective Achievement

	Management Objective	Indicator	Desirable Level	Target (how much, when)	Plan Start Level (2008)	Year 5 AR Achievement
15b	"To provide opportunities for Aboriginal communities to be involved in plan development through Aboriginal consultation, planning team participation and incorporation of Aboriginal values."	1. Aboriginal community's) contacted by the MNR District Manager at least six months prior to the commencement of the formal public consultation process for the preparation of the forest management plan to discuss the opportunities to be involved in the planning and implementation of the forest management plan; and	same as target	1. Each identified Aboriginal community was contacted at least 6 months prior to commencement of public consultation process and implementation of FMP were discussed (yes/no).	na	The objective is on track for providing opportunities for Aboriginal communities to be involved in plan development through Aboriginal consultation, planning team participation and incorporation of Aboriginal values. Local aboriginal communities impacted by the Caribou Forest have been contacted annually during the implementation of the 2008-2018 FMP. All targets and desirable levels were met as part of the development of the 2008-2018 FMP. Ongoing dialogue and meetings continue to occur with local aboriginal communities, after the approval of the 2008-2018 FMP.
15c		2. Ongoing efforts to provide information to and receive information, comments and concerns from aboriginal communities in the development of the forest management;	same as target	2. Efforts did occur with each identified Aboriginal community (yes/no).	na	
15d		3. Each aboriginal community on the forest was offered a separate native consultation process;	same as target	3. Each aboriginal community on the forest was offered a separate native consultation process (yes/no).	na	
15e		4. Each aboriginal community on the forest was provided an opportunity to have a member on the planning team.	same as target	4. Each aboriginal community on the forest was provided an opportunity to have a member on the planning team (yes/no).	na	
15f		5. MNR District Manager invites the Aboriginal community to participate in the review and update of the Aboriginal Background Information Report and the community demographic profile at the beginning of public consultation, and invites the Aboriginal community to participate in the planning of operations to address identified Aboriginal values; and	same as target	5. MNR District Manager provided opportunities at appropriate stages of planning process (yes/no)	na	
15g		6. The Aboriginal community is requested to: review and provide comments on the draft Aboriginal Background Information Report and the preliminary Report on the Protection of Identified Aboriginal Values; and inspect the Aboriginal Background Information Report and the final Report on the Protection of Identified Aboriginal Values.	same as target	6. Each Aboriginal community was provided with opportunities to review and provide comments of draft Aboriginal Background Information Report and preliminary Report on Protection of Identified Aboriginal Values and to inspect the Aboriginal Background Information Report and the final Report on the Protection of Identified Aboriginal Values (yes/no).	na	
15h	"To provide opportunities for the Local Citizen's Committee (LCC) to be effective in plan development."	Local citizens committee's self-evaluation of its effectiveness in plan development	Results of questionnaire at end of plan development should average a target score of 75% or more.	Results of questionnaire at end of plan development should average a target score of 75% or more.	na	Not applicable.
16	"To minimize non-compliance in forest operations."	Non-compliance - in forest operations inspections (% of inspections in non-compliance, by category) (minor, moderate and significant as determined by MNR)	Maintain 90-100% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	Maintain 90-100% compliance with forest operations prescriptions and conditions over time (minor infractions), with zero moderate and significant infractions.	na	To-date, no non-compliances have been reported related to forest operations prescriptions. Therefore, the objective is on track to be achieved.