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# Table of Contents

Table of Contents .................................................................................................................................................. 2  
Introduction .......................................................................................................................................................... 3  
Description of the Defined Forest Area ................................................................................................................... 5  
Management Objectives and Strategies .................................................................................................................. 10  
Timber Supply Analysis ......................................................................................................................................... 10  
Proposed Operational Activities ............................................................................................................................ 12  
Management System, Harvesting Systems, and Equipment .................................................................................... 12  
References ............................................................................................................................................................. 14  
Appendix 1 Proposed Operating Areas for the Current 5-Year Operating Plans .................................................... 15
Introduction

Corner Brook Pulp and Paper Limited’s (CBPPL) policy is to carry out forest management activities to provide and maintain long-term natural biodiversity, while supplying the fibre requirements for the Corner Brook mill. Committed to responsible and sustainable forest management, CBPPL is certified to the International Standards Organization (ISO) Environmental Management System standard, the Canadian Standards Association (CSA) Sustainable Forest Management standard, and Forest Stewardship Council® (FSC®) Boreal standard.

The Sustainable Forest Management Plan applies to the forested land on insular Newfoundland for which CBPPL has management responsibility, described as the Defined Forest Area (DFA). The environmental and forest management standards of the ISO, the CSA and the FSC are implemented on CBPPL’s DFA.

CBPPL has produced a number of documents based on forest management activities on the DFA and the requirements of environmental and forest management standards on these activities. The FSC Boreal Standard requirements for forest management planning documentation are outlined in Principle 7 Forest Management Plan. Rather than duplicate information in a new document, CBPPL has decided to reference the required information in the existing documentation, as is deemed acceptable by the Boreal Standard. The contents of CBPPL’s Forest Management Plan as required by FSC can be found in the documents listed below. The first two are key documents. Figure 1 shows the relationships between these documents.

- 5-Year Operating Plans for each Forest Management District (FMD)
- Sustainable Forest Management Plan
- Annual Operating Plans for each FMD
- Socio-Economic Impact Assessment Report
- Standard Operating Procedures and Significant Environmental Aspects
- High Conservation Value Forest Assessment Report HCVF Report
- CSA Public Involvement Report
- Sustainable Forest Management Indicator Reports (2004-present)
- Monitoring Plan
- The Pre-Industrial Condition of the Forest Limits of Corner Brook Pulp and Paper Limited
- Report of Past Annual Operations
- Provincial Sustainable Forest Management Strategy 2014-2024
Figure 1. Documents containing the requirements of the FSC Boreal Standard Principle 7

Forest Management Plan
Description of the Defined Forest Area

The Forest
CBPPL manages approximately 1.5 million hectares of Crown land on the Island of Newfoundland. These timber limits span from the Codroy Valley on the southwest corner of the island, to Sop’s Arm on the Northern Peninsula, and east to Gander in central Newfoundland (Figure 2). These limits are within provincial Forest Management Districts 5, 6, 9, 14, 15, and 16.

The landscape of Newfoundland is naturally fragmented, composed of forest, scrub (nonproductive forest), bog, barren, and water. The land classes present on CBPPL limits can be seen in Figure 3. The island is characterized by rolling hills, and mountainous areas which make it challenging for forest management operations.
The forests of Newfoundland belong to the boreal forest which spans much of the northern hemisphere. Boreal forests are characterized by periodic, catastrophic, stand-replacement natural disturbances such as fire and insect outbreaks, resulting in an even-aged forest of few, primarily conifer species. Additional forest disturbances include harvesting and blow down (often occurring when another disturbance, like insect damage, has weakened a stand). The dominant species on CBPPL timber limits are balsam fir and black spruce, with smaller amounts of white birch, trembling aspen and others (Table 1). Wildfires have established black spruce as a characteristic species across much of central Newfoundland while the forests of the west coast are predominantly balsam fir.
Table 1. Tree species composition for the total CBPPL timber limits 2015, Forest Resource Inventory

The age distribution of the forests on CBPPL limits (Figure 4) is typical of that of the island, with an abundance of area in the young and old age classes and much less area in the intermediate age classes. Forest age classes are categorized as regenerating: age class 1 (0-20 years); immature: age class 2 (21-40 years); semi-mature: age class 3 (41-60 years); mature: age class 4 (61-80 years); and over mature: age class 5 (81-100 years), age class 6 (100-120 years), and age class 7 (120+ years). Age classes 5, 6, & 7 are combined in Figure 5 as 81+ years.
A detailed description of the forest in the management area can be found in *The Pre-Industrial Condition of the Forest Limits of Corner Brook Pulp and Paper Limited* and in the 5-Year Operating Plans for each FMD.

Ownership and Management Responsibilities

All of the timber limits of CBPPL are on Crown land, as are the adjacent lands. While CBPPL prepares its own specific forest management plans, the Newfoundland and Labrador Department of Natural Resources (DNR) is responsible for the planning, development, and use of the forest resources of the province. CBPPL has exclusive ownership of the timber resource on their timber limits. This right originates from several sources, including a series of agreements, purchases, deeds, grants, and licenses dating from 1922 to 1994. However, to facilitate economic development of the hardwood timber resources in FMDs 9 and 14, CBPPL transferred the management rights to this hardwood timber to DNR. CBPPL has also entered into several other agreements with DNR concerning the transfer or exchange of cutting rights. These agreements were made at the request of DNR, to obtain the right to fibre in various areas. Transfer agreements allow the harvest of a specified annual allowable cut (AAC) of operable softwood stands (i.e. >60 years in Class I or Class III), and any hardwood trees encountered during the harvest of operable softwood. Exchange agreements allow the harvest of all operable timber, both hardwood and softwood, on the exchange areas, tracked against the applicable AAC figures. There is no intent to balance the volume of the harvest between transfer or exchange areas. In 2010, CBPPL sold some of their timber limits back to the Crown (incorporated into CBPPL’s DFA in Figure 1), to be used as protected areas, or as sources of fibre for Crown operators, sawmills, a pellet plant, and domestic cutters.
**Socioeconomic Profile**

There are many communities of varying sizes within or in close proximity to the DFA that benefit from the forest resource. CBPPL Woodlands employs ~ 200 employees from nearly 50 Newfoundland communities. This total includes workers for harvesting and road-building operations and seasonal forestry workers who carry out silviculture operations in the summer and fall. CBPPL employs another 315 people at the Mill in Corner Brook and 25 in the Deer Lake Power Company.

In addition to this direct employment, the operation of the mill has indirect and induced impacts. Indirect impacts are realized by employees working for firms supplying CBPPL with goods and services. Induced impacts are generated by the direct and indirect income earners spending their earnings in the local economy. (See Social Economic Impact Assessment Report).

In 2010, CBPPL sold some of its timber limits to the Crown (incorporated into CBPPL’s DFA in Figure 2); some to be used as protected areas, others as sources of fibre for Crown operators, sawmills, the pellet plant, and domestic cutters. These areas can be sorted into three groups.

One group consists of areas where harvesting has been restricted. Rodney Pond Reserve (District 6) and Little Grand Lake Provisional Ecological Reserve (Districts 14 & 15) are two examples where CBPPL had already agreed to no harvesting whatsoever. However, these areas could not legally become ecological reserves while CBPPL held timber rights, even if no harvesting occurred. Two other areas in District 15 & 16 will become primarily viewshed corridors. A designated portion of the Humber Valley, from near the mouth of the Humber to the tip of Deer Lake, will be set aside for aesthetic purposes, and for agricultural development (a section on the north shore of Deer Lake). A corridor from Cormack to Gros Morne, along highway 430 and Bonne Bay Road, will also be designated a viewshed. Finally in this group, the Main River Management Area (watershed surrounding the Waterway Park), previously restricted to a partial harvest to conserve old-growth forest, has been handed over to the provincial government to be developed at its discretion.

A second group of areas that were previously CBPPL limits and have been sold to the Crown will be used to supply fibre to Crown operators, sawmills, the pellet plant, and domestic cutters. A large block of forest south and southwest of Gander Lake and another block around Notre Dame Junction (both in District 6) will be set aside for Crown operators and sawmills. All of CBPPL limits in District 17 have been transferred to Crown to be used for Crown operators and domestic cutters. CBPPL has also relinquished “absolute right of refusal” on any Crown wood in District 17 and “first right of refusal” on any Crown wood in District 18 to allow wood to go to the pellet plant in Roddickton.

A third group of areas has also been included in this recent agreement – blocks of CBPPL limits where Crown currently had control. The Rodney Pond Exchange and Dead Wolf block in District 6 will be used for Crown operators, and all of CBPPL limits in District 8 will be used for Crown operators and sawmills in central and eastern Newfoundland.

A detailed description of the socioeconomic profile and a framework for including this aspect in forest management planning is contained in the *Socio-Economic Impact Assessment Report.*
Management Objectives and Strategies

While a primary objective of our forest management plan is to provide a sustainable supply of high-quality raw material to the mill at a competitive cost, Corner Brook Pulp and Paper Woodlands recognizes that forests offer a multitude of economic, environmental, and social values and benefits. The Company is committed to managing the forests under its stewardship in a sustainable manner, to ensure that a full range of forest values and benefits are respected. Management objectives for CBPPL timber limits follow the objectives developed by the Forestry Services Branch for all forest resources on Crown land. These ecological, economic and social objectives, found in the 5-Year Operating Plans for each forest management district, are based on the Canadian Council of Forest Ministers (CCFM) Six Criteria of Sustainable Forest Management. These criteria define broad sustainable forest management values that have been accepted across Canada: biodiversity; ecosystem condition and productivity; soil and water; global ecological cycles; economic and social benefits; and society’s responsibility. The direction of the 2014-2024 Provincial Sustainable Forest Management Strategy is “environmentally sustainable forest management that ensures the integrity of the province’s forests, and the sustainability of the forest sector”. The Strategy identifies activities, goals and indicators for numerous ecological values as well as social and non-timber economic values:

- Large Intact Landscapes
- Connectivity of Forest Habitat
- Aquatic Ecosystems
- Late-Succession Forests
- Rare Species and Species at Risk
- Climate Change
- Forest Protection
- Silviculture
- Forest Health
- Tourism and Outdoor Recreation

CBPPL has developed its own objectives based on the CCFM Six Criteria of Sustainable Forest Management, which are outlined in the Sustainable Forest Management Plan. These objectives correlate with those contained in the 5-Year Operating Plans, but include additional objectives for over 40 targets specific to CBPPL. There are also management strategies for High Conservation Values on CBPPL limits contained in the High Conservation Value Forest Assessment Report.

Timber Supply Analysis

The Province reviews its timber supply every five years in order to determine sustainable timber supplies while respecting a multitude of social, economic, and environmental objectives. The result of this analysis is an AAC for each FMD. These AAC’s are defined as the maximum annual rate at which timber can be harvested at a sustainable level indefinitely into the future.

The determination of supply (represented as AAC’s) involves computer models that forecast the sustainability of possible AAC levels. These models require three basic inputs: 1) a description of the current state of the forest (forest characterization and availability); 2) the growth rates associated with the current forest; and 3) the management strategies applied to the forest. The determination of these basic inputs requires careful and detailed consideration of a broad range of timber and non-timber values, as listed in the previous section.

A current description of the forest resource is determined through the Provincial Forest Inventory. An inventory is conducted on each FMD every 10 years and the inventory for each district is updated every
year to account for all natural and man-made disturbances such as fire, insects, and harvesting, and any enhancement programs such as tree planting and pre-commercial thinning. Each stand in the forest inventory is also updated to reflect any yield changes that may have occurred since the previous inventory update. Availability for harvest is also incorporated into the current forest description.

Growth rates for the current forest are determined using yield curves. Two growth models (using data generated from the Forest Inventory Program) are used, one for projecting stand development under natural conditions and the other for projecting growth under managed conditions i.e., silviculturally enhanced. These models are checked against data from thousands of temporary plots established throughout the Island.

The management strategies applied to the models take into account a variety of factors: i.e., harvest flow constraints, spatial analysis of the harvest schedule, a planning horizon of 160 years, an operable growing stock of two times the harvest level on the landscape, the presence of at least 15% of the forest being old growth across the landscape, time frame in which a stand can be harvested, and silvicultural tools such as precommercial thinning and planting.

The key underlying principles that guide the timber supply analysis are: 1) the AAC must be sustainable; 2) the level of uncertainty (risk) associated with the AAC must be minimized by using empirical information wherever possible; 3) there must be conformity between information and assumptions used in the analysis and actions and decisions taken on the ground; 4) the analysis must be consistent with other forest values and objectives; and 5) the timber supply calculation must consider economic factors, not solely the physical supply of timber.

Timber supply analysis is conducted separately for each FMD, and as the districts are on different five-year rotations, the AAC levels are reported for each of the six forest management districts on CBPPL limits (Table 2).

<table>
<thead>
<tr>
<th>Forest Mgmt. District (5-Year Plan Period)</th>
<th>Total Class I &amp; Class III AAC (m³) 2016-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (2017-2021)</td>
<td>53,326</td>
</tr>
<tr>
<td>6 (2017-2021)</td>
<td>69,342</td>
</tr>
<tr>
<td>9 (2017-2021)</td>
<td>169,248</td>
</tr>
<tr>
<td>14 (2014-2018)</td>
<td>122,262</td>
</tr>
<tr>
<td>16 (2017-2021)</td>
<td>139,400</td>
</tr>
<tr>
<td>Total</td>
<td>837,009</td>
</tr>
</tbody>
</table>
Proposed Operational Activities

All proposed operating areas for the current 5-Year Operating Plans by the Crown and by CBPPL can be viewed from a landscape perspective across all ownerships for each district (Appendix 1). Maps of individual operating areas and summary sheets are presented in Appendix 3 of each 5-Year Operating Plan. The summary sheets give a brief description of each area and the type of activities that will occur.

Five-Year Operating Plans are developed following a public consultation process that invites input from all stakeholders, including the general public. This process involves multiple stakeholder group meetings, during which participants contribute to and help make decisions on the forest management activities to take place over the next five years. Once the Five-Year Operating Plan is completed it is registered with the Department of Environment and Conservation and undergoes an environmental assessment. During this process, government departments and the public are consulted, and submissions are reviewed. A Plan released by the Minister of Environment is subject to any terms and conditions the Minister may set. Mitigative measures are employed to satisfy issues raised during the consultative and assessment processes.

Management System, Harvesting Systems, and Equipment

Silvicultural systems are classified according to the method used to harvest the mature stands, with a view to the regeneration. The primary silvicultural system for harvesting employed by CBPPL is the clearcut system, which is designed to regenerate even-aged forest stands. The entire merchantable volume is harvested in one operation, leaving unmerchantable trees, non-target species, snags, and wildlife trees. The clearcut system is most appropriate for tree species such as balsam fir and black spruce that naturally form large, even-aged stands after disturbance. In areas where balsam fir is the predominant species, natural regeneration after harvesting is more than sufficient, so much so that precommercial thinning is often applied. In areas where black spruce predominates, site preparation and planting are typically conducted. These species are the predominant species on CBPPL limits.

Harvesting operations are conducted to minimize environmental impacts identified in the ISO Environmental Management System: visual quality, potential for fuel or oil spill, potential for soil disturbance, water quality, fibre recovery, and waste management. CBPPL has developed Environmental Work Instructions and Standard Operating Procedures to prevent or minimize these impacts. All CBPPL harvesting operations must also adhere to regulations outlined in Environmental Protection Guidelines for Ecologically Based Forest Resource Management (Stand Level Operations).

CBPPL uses the shortwood harvesting method, whereby trees are felled, delimbed, cut into 2.5m lengths on the cutover, and then transported to roadside. Seventy percent (70%) of wood on the DFA is cut by a feller buncher, then delimbed and cut to length by a processor, and 30% is felled, delimbed and processed by harvesters. Forwarders are used by all cutting systems to carry the wood to roadside, and
they vary in size and wheel configuration. Corner Brook Pulp and Paper Woodlands currently uses 6- or 8-wheel forwarders ranging in capacity from 8 to 16 tonnes. All forwarders have low ground-bearing pressure appropriate for wet and sensitive sites.
References

Appendix 1 Proposed Operating Areas for the Current 5-Year Operating Plans*

* Maps for Districts 5, 6, 9 & 16 for the period 2017-2021 will be updated when they have been approved by the provincial government and are available.