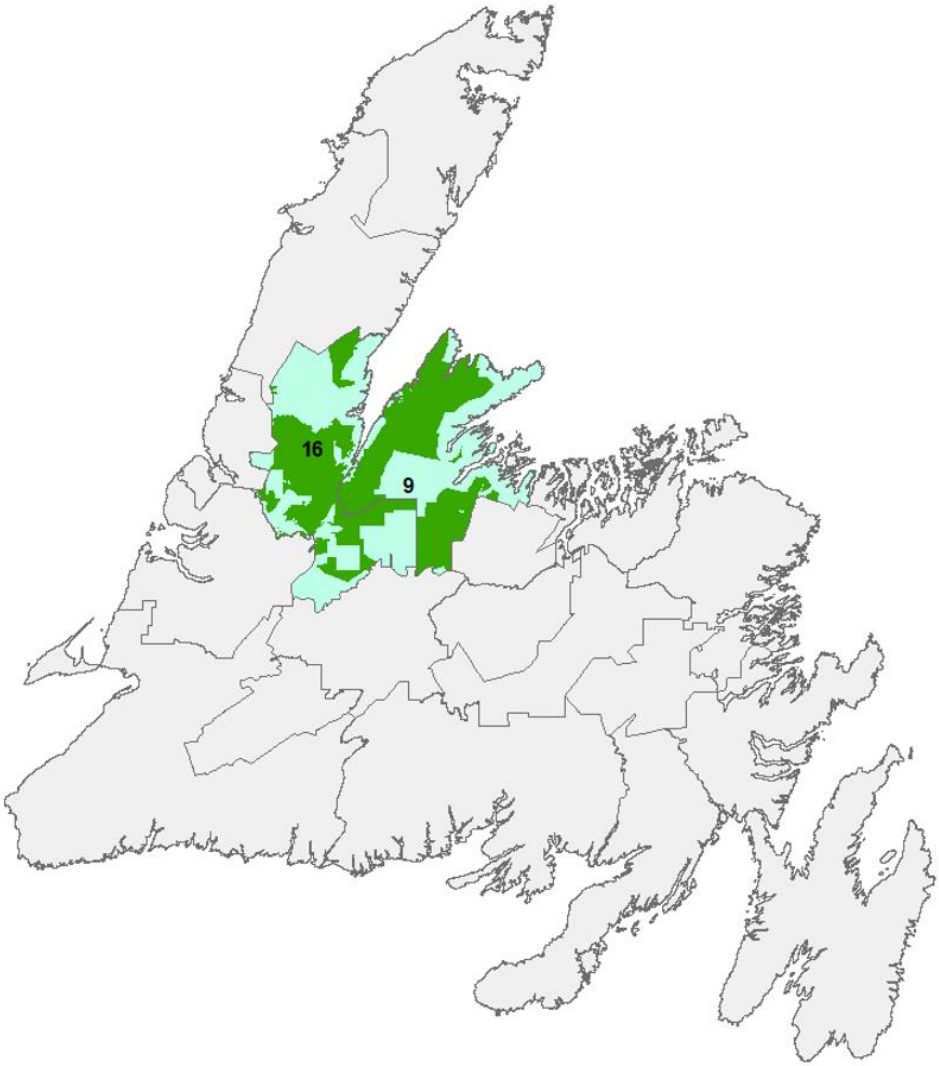
Kruger
Pulp and Paper

Corner Brook Pulp and Paper Limited

Five Year Operating Plan
Zone 7
Timber Limits within Forest Management Districts
9 & 16
January 1, 2027 – December 31, 2031



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Introduction

This five-year operating plan covers the period from January 1, 2027, to December 31, 2031, and outlines proposed forestry activities on Corner Brook Pulp and Paper Limited (CBPPL) timber limits within Forest Management Districts 9 and 16. Management of these lands will be carried out in accordance with the strategies and management philosophies applied across all CBPPL-managed districts throughout the province.

This five-year operating plan is compliant with established provincial planning requirements, Environmental Protection Guidelines (EPGs), and standard operating procedures developed under a stringent Environmental Management System (EMS) which is registered under the ISO 14001 Standard and the Sustainable Forestry Initiative ® SFI® 2022 Forest Management and Fibre Sourcing Standards.

Forest Management Districts (FMD) 9, and 16 are adjacent, share common ecoregional characteristics, and together form Planning Zone Seven. For the purposes of submission to the Forestry, Agriculture and Lands (FAL) department and Environmental Assessment, a single five-year operating plan is required for each landowner within the zone. Planning Zone Seven includes both Crown land and private tenure; therefore, there will be one submission by the Crown and one by CBPPL. Throughout this five-year plan, the individual Districts (9, and 16) will be referred to separately where necessary, but collectively they will be referred to as Planning Zone 7 or the Zone.

This document will attempt to fully integrate the presentation of information and discussions for CBPPL tenure in the zone. Discussion and information may be presented separately for each district where warranted based on unique and distinct differences in scope and content, with the focus being on Districts 9 and 16. The more descriptive sections of this plan will be generic in nature and give information for the entire zone as well as some broad comparative statistics.

This document builds on previous five-year plan submissions. Information has been updated and new sections have been added to address requirements identified in past plan conditions. Content from earlier plans has been retained where it remains relevant.

SECTION 1. DESCRIPTION OF THE LANDBASE

1.1 General

1.1.1 Location

Planning Zone 7 encompasses Forest Management Districts 9 and 16 (Figure 1). It extends from Deer Lake in the west to Cat Arm in the north and includes all of the Baie Verte Peninsula. Major towns located within the zone include Deer Lake, Hampden, Sops Arm, Springdale, and Baie Verte. District 16 is administered from Pasadena while District 9 is administered from Springdale with depots in Baie Verte and Millertown.

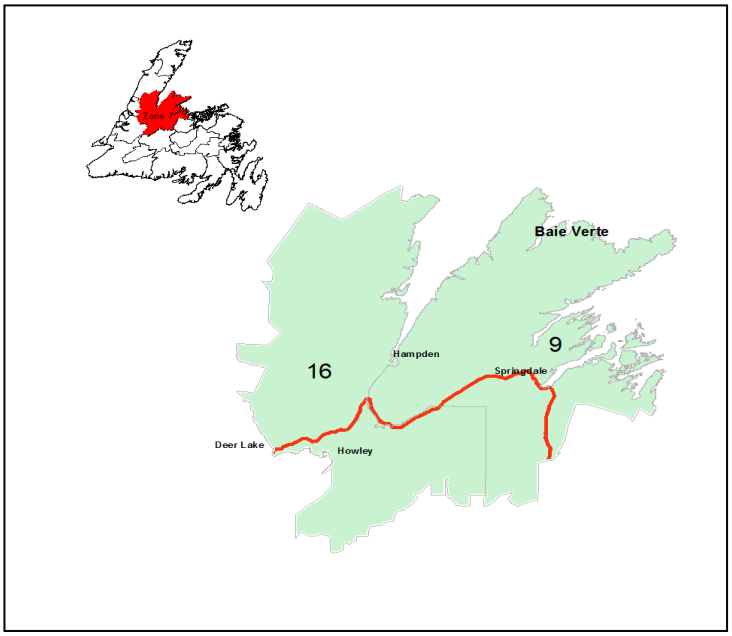

Figure 1 Planning Zone/District Map, Zone 7

1.1.2 History

The natural resources of the zone have played a major role in the wellbeing of the residents. Since the earliest settlement, the forest and fish resources were the mainstay of the economy. Generally, settlement occurred around the coastal areas where the fishery was prevalent. Initially the forest was used as a source of fuelwood as well as construction materials for houses and fishery related items (stages, lobster pots, boats etc.). Sawmills developed to supply the local demand for lumber and construction timber and there was a small export market for pulpwood. In the interior of the zone, logging towns such as Howley and Deer Lake developed as a result of the pulp and paper mill in Corner Brook. Today pulpwood and pulp chips are shipped to the mill in Corner Brook. As well, there is a major integrated sawmill in Hampden that produces lumber for both the local and export market and pulp chips which are sold to Corner Brook Pulp and Paper Limited (CBPPL).

1.1.3 Ownership

There are two major ownerships in the zone: Crown and CBPPL (Figure 2). Crown land accounts for 51.8% of the area and is located around the extremities of the zone. Corner Brook Pulp and Paper timber rights account for 48.2%. These timber holdings are in the form of long-term licenses that are not up for renewal until 2037.

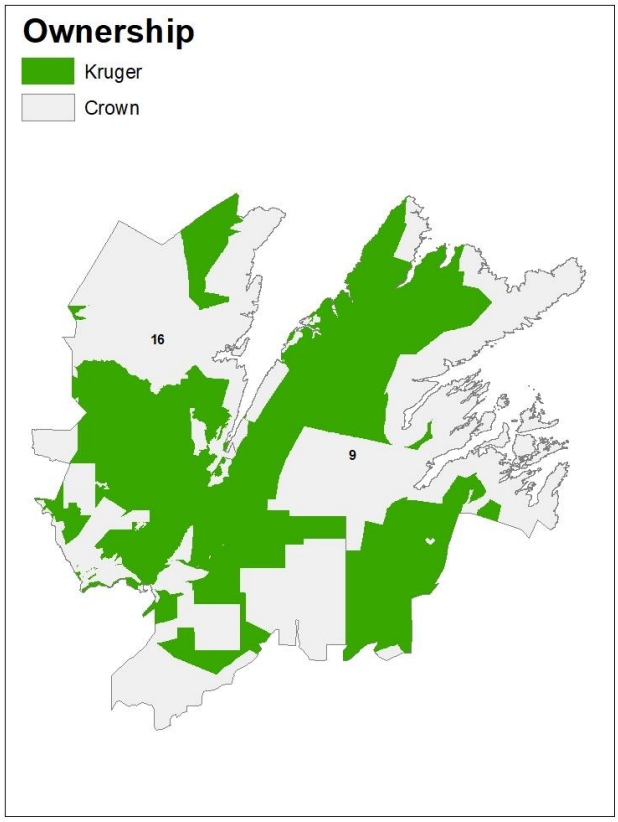

Figure 2 Timber ownership Zone 7

1.2 Physical Description

The planning zone is a large area (approx. 1.3 million ha) covering much of northeastern Newfoundland. Physical features vary a great deal over such a large landscape. The following descriptions apply generally to the districts in the planning area.

1.2.1 Topography and Hydrology

The topography of the area varies ranging from coastal lowlands to broadly rolling uplands to undulating plateaus to hilly, mountainous regions. Bogs with wooded ridges can be found throughout.

The northern part of FMD 16 includes the southern extent of the Long-Range Mountains while in the southern portion the Topsails form several prominent hills that rise above undulating plateaus that extend over 460 meters above sea level. The northern edge of these plateaus is dissected by a number of valleys. Between these two extents lies a large lowland region extending northeast from Deer Lake.

The coastal areas of FMD 9 are hilly and mountainous with flat areas of bog containing woody ridges. These areas fall steeply into the lowland and coastal areas forming a rugged coastline. The central and southern portions of this district consist of broadly rolling uplands with low, parallel, northeasterly trending ridges.

The area contains several large drainage basins which flow in a general easterly or northerly direction and empty into the Atlantic Ocean. The main exception is in the southwest portion of FMD 16 which forms the upper reached of the Humber River watershed and empties into the Gulf of St. Lawrence. Other prominent rivers include the Main, Indian River, South Brook and Taylors Brook. These rivers have sources from lakes along their courses plus other feeder streams and ponds. Other small streams and ponds feed directly from the higher elevations into the ocean. Major watersheds include the Humber, Main, South Brook and Indian River.

1.2.2 Geology

The area is underlain by areas of contrasting geology and varying mineral potential. Five different geological terrains are exposed at various locations.

The oldest rocks in the zone consist of metamorphic rocks (gneisses) that are part of the ancient Canadian Shield and are approximately 1.2 billion years old. These rocks have been intruded by younger granite and gabbroic rocks. They are referred to as the Long Range Complex or the Long Range Inlier. This complex forms the core of the Great Northern Peninsula and is exposed in the northwestern part of District 16.

Sandstone, limestone and marble overlie the basement rocks of the Long Range Complex. These are of Cambrian to Ordovician age and correlate with similar rocks that form an extensive carbonate platform that

was deposited along the ancient margin of the North American continent. Within District 16, these rocks are exposed in the Great Coney Arm area and southwards close to the Jackson's Arm - Sop's Arm highway.

Rocks of oceanic affinity are exposed between Coney Head and Frenchman's Cove and extends to the southwest as narrow thrust slices. These rocks consist of gabbro to granite and deformed basaltic, volcanic and sedimentary rocks. They are from the Cambrian to Ordovician age and were thrust from the eastern oceanic area westwards over the ancient continental margin. Correlative rocks occur within the oceanic terrain southwest of Grand Lake.

Terrestrial volcanic and sedimentary rocks overlie the Cambro-Ordovician platformal and oceanic rocks in the Sop's Arm area in the west and between Springdale and Grand Lake in the southeast and are of Silurian age. The volcanic rocks consist of rhyolitic and basaltic flows, tuffs and braccia. The sedimentary rocks are widespread in the Sop's Arm area and consist of conglomerates, sandstones, silt stones and shales. Southwest of Springdale, sedimentary rocks are less widespread and consist of red sandstones and pebble conglomerates. These volcanic and sedimentary rocks were deposited in a sub-aerial to shallow sub-aqueous environment in large caldera complexes. Equivalent granitic rocks occur in the Topsails area and probably were sub-volcanic magma chambers that fed the overlying volcanic pile.

The youngest rocks are of Carboniferous age and occupy the central part of the zone. They extend southwards from White Bay through the area between Deer Lake and Grand Lake. This area is known as the Deer Lake Basin. The rocks consist of red, grey and brown sandstones, conglomerates, shale and limestones. They were deposited in a non-marine environment on lakes and rivers.

The whole area has been glaciated by an ice sheet in the Wisconsin age. On the whole, erosion by the glaciers has exceeded deposition and the greater part of the upland areas consist of ice scoured bedrock exposures, thinly littered with stones and boulders ranging from rhyolite and porphyry to granite gneiss and greenstone.

In the lowland areas there is however, a considerable amount of drift deposit. This occurs chiefly in the form of till consisting of the harder rocks such as granite, rhyolite, diorite, and quartzite. It is, therefore, full of large stones and boulders as this material has been resistant to mechanical abrasions and chemical weathering. There are, however, considerable deposits of marine deltaic, lacustrine, and outwash materials in the lower valleys of the major rivers. In some areas, till deposits composed largely of slate, shale, and

sandstone occur. These materials have been pulverized and weathered and are far less stony than deposits composed of harder rock.

1.2.3 Soils

The soils of the area can be identified by three separate modes of deposition: morainal (till), glaciofluvial/fluvial (water deposited), or organic (bogs/fens).

The majority of the soils in the zone have developed on morainal tills. These soils range in thickness from thin veneers over bedrock to thick extensive deposits. The textures range from silty loam to loamy sand and are usually stony. These soils are found throughout the area with the thinner veneers usually found in the higher elevations such as the Whites River/Silver Mountain areas. The predominant soil classification of these tills would be orthic humo ferric podzols and in poorly drained areas, gleyed orthic humo ferric podzols. In areas such as the Topsails, ortstein humo ferric podzols (cemented) are common.

Other soils have developed on glaciofluvial/fluvial deposits with greatest occurrence being in the Sandy Lake/ Grand Lake areas. The textures range from coarse sand to sandy loam and can be stone free to very stoney. The predominant soil classification associated with these types of deposits would be ortstein humo ferric podzols as well as orthic humo ferric podzols. Where poor drainage occurs these soils will be "gleyed." Organic depositions occur throughout the entire zone. These deposits vary in depth from less than one meter to more than five meters. They are derived from sphagnum moss and sedges. The most common organic deposits are blanket bogs and sloping fens. The predominant soil classification is typic fibrisols and terric mesisols.

In addition to the mineral and organic soils, some areas can be referred to as rockland. Rockland consists of very shallow soils (< than 10 cm.) and exposed bedrock, enough to be dominant over the soils.

1.2.4 Climate

The climate of the area is variable as a result of differences in topography and the proximity to the sea. January mean temperatures average about -14ºC, and July mean temperatures range from over 15.5ºC in the valleys to less than 13ºC in the mountains. The frost-free period averages 110 days at lower elevations. The growing season (mean daily temperature above 6ºC) is more than 160 days at Deer Lake and less than 130 days in the mountains and begins between May 10 and 30. Annual precipitation ranges from 1020 to

1400 mm and is lowest in the Deer Lake valley. Summer rainfall normally accounts for 250-300mm while the balance is snow. Generally, snowfall on the Baie Verte Peninsula is the highest in the zone, 5.0 to 6.0 meters compared to 3.0 to 3.5 meters in the southern part. The average potential evapotranspiration ranges from less than 430 to more than 510mm.

The forests in the zone are directly related to climatic influences. The Baie Verte Peninsula has mostly balsam fir forest because of the abundance of moisture. The southern part has mainly black spruce and hardwoods due to drought and fires. The central part of the zone forms a transition area between of these two extremes with a mixture of these two main species plus white birch and trembling aspen. (from Meades, 1990)

1.3 Ecosystems

1.3.1 Forest Ecosystems

An ecosystem is a community of interacting and interdependent plants, animals and microorganisms, together with the physical environment within which they exist. It is important to remember that within an ecosystem, the interactions between the biotic and abiotic components are at least as important as the component themselves. Another critical characteristic of ecosystems is their overlapping boundaries. While each is definable in time and space, and distinguishable from adjacent ecosystems, each is intimately integrated with other local ecosystems. Additionally, each local ecosystem is nested within increasingly larger ecosystems. The scale at which an ecosystem is viewed is contingent on the species or abiotic characteristic under consideration. While planet Earth represents the ultimate global ecosystem, complex ecosystems also exist under fallen logs and rocks.

A forest ecosystem, as the term implies, is an ecosystem dominated by tree cover. At the coarsest level, the forests of Planning Zone 7, like all forests on the island, form part of the boreal forest ecosystem. The boreal forest is a green belt, which spans much of the northern hemisphere. It stretches from the Atlantic shores of Scandinavia through Russia, across Alaska, through the mid latitudes of Canada until it reaches the Atlantic Ocean again in Newfoundland and Labrador.

One of the distinguishing characteristics of the boreal forest is the phenomenon of periodic, catastrophic stand replacement natural disturbances such as fire and insect outbreaks which typically give rise to uniform, even aged forests dominated by a few tree species. The tree species, which characterize the Canadian boreal forest, include black spruce, white spruce, balsam fir, eastern larch, trembling aspen, yellow and white birch and jack pine. All of these, apart from jack pine, commonly occur on the island.

However, by far the dominant species are black spruce and balsam fir; together they represent more than 90 percent of the growing stock on the island. Spruce is most abundant in north central Newfoundland where a climate characterized by relatively dry, hot summers has historically favored this fire-adapted species. In western Newfoundland the climate is somewhat moister, and fires are far fewer in this region resulting in the ascendance of balsam fir, a species that is poorly adapted to fire. Like the rest of the province, the forests of Planning Zone 7 are part of the larger boreal forest ecosystem.

1.3.2 Ecoregions and Subregions

With the evolution of an ecosystem approach to forest resource management, it would be advantageous to have a standard framework to classify combinations like general climate and regional physiography, as well as the other components of an ecosystem, into distinguishable regions. Fortunately, such a framework exists, in a publication entitled Ecoregions and Sub regions of Insular Newfoundland (Damman, 1983).

Damman defined ecoregions as areas where a comparable vegetation and soil can be found on sites occupying similar topographic positions on the same parent material, provided that these sites have experienced a similar history of disturbance. Thus, an ecoregion cannot be defined in isolation from the physical landscape, but vegetation toposequence, vegetation structure; floristic composition and floristic distributions can provide the primary criteria (Damman, 1979). According to Damman, Newfoundland consists of 9 ecoregions, which can be further divided into several sub regions. Labrador has ten ecoregions. Each of the Newfoundland and Labrador ecoregions and sub regions contain many of the same ecosystem variables. It is the dominance and variance of these variables (e.g., vegetation and climate) that determine their classification.

Figure 3 depicts Planning Zone 7 relative to Damman's ecoregion classification system. The North Central Subregion of the Central Newfoundland Forest encompasses the majority of District 9 and a large portion of District 16. The North Shore Forest Ecoregion covers the remainder of District 9 primarily in a narrow band along the north and east coasts of the Baie Verte Peninsula. The Western Newfoundland Forest, Northern Peninsula Forest and Long Range Barrens Ecoregions cover the remainder of District 16.

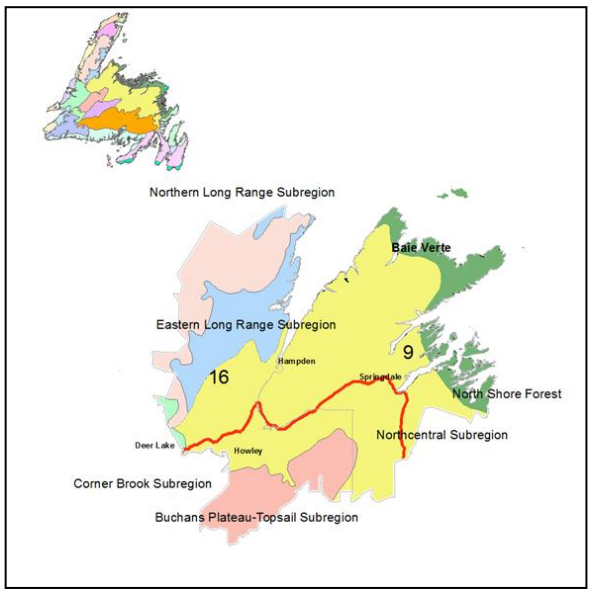

Figure 3 Ecoregions/Subregions Occurring Throughout Zone 7

Table 1 depicts the percentage of the ecoregions and subregions that are represented in the zone. It describes each ecoregion and subregion as a percentage of the total in the province as well as the relative importance within each District and in both Districts combined.

Table 1 Ecoregions/subregions within Zone 7

	Eco/Subregion	District 9		District 16		Zone 7 (D9 & 16)
Zone 7 Eco/Subregions	Area (ha) in Province	Total % Area Occupied in District	Relative % of Subregion in District	Total % Area Occupied in District	Relative % of Subregion in District	Relative % of Subregions in Zone
Western Newfoundland Ecoregion						
Corner Brook Subregion	515,637	83%	76%	2%	1%	77%
Section Sub-total	*515,637*					
Northern Peninsula Forest						
Eastern Long Range Subregion	268,058			29%	48%	48%
Section Sub-total	*268,058*					
North Shore Forest						
North Shore Forest	550,662	17%	14%			
Section Sub-total	*550,662*					
Long Range Barrens Ecoregion						
Buchans Plateau-Topsail Subregion	369,811			11%	14%	14%
Northern Long Range Subregion	689,562			26%	17%	17%
Section Sub-total	*1,059,373*					
Central Newfoundland Forest						
Northcentral Subregion	2,310,744			33%	6%	6%
Section Sub-total	*2,310,744*					
Grand Total	***4,704,474***					

The following is a detailed description of each ecoregion and subregion (from Meades, 1990) in both Districts.

1.3.2.1 Central Newfoundland Ecoregion

This ecoregion is located in the north-central part of the Island with a small outlet near Bay D'Espoir. The topography is gently rolling to hilly with most elevations between 150 and 450 meters. It has the most continental climate in insular Newfoundland with the warmest summers and coldest winters. It has the least wind and fog of any ecoregion and a growing season of 140-160 days and average precipitation of 900-1300mm.

This ecoregion is heavily forested and is the most distinctly boreal part of the Island. Balsam fir, black spruce, and to a lesser extent white birch are the dominant tree species. There is an extensive fire history thus fire origin stands of black spruce and white birch cover extensive areas particularly in the northern and eastern portions. Trembling aspen forms local stands after fire but is restricted to the central and northern portion.

Hylocomium-balsam fir is the zonal forest type and is dominant in areas not disturbed by fire. Kalmia-black spruce and pleurosium-balsam fir forests are also common. The kalmia-black spruce-lichen forests, which occur on outwash sands and gravels, are unique to this ecoregion. Red pine also occurs but is restricted to extremely dry sites.

1.3.2.1.1 North Central Subregion

This sub region has the highest maximum temperatures, lowest rainfall and highest forest fire frequency than anywhere else in Newfoundland. The sub region extends from Clarenville to Deer Lake with a mostly rolling topography of less than 200m (asl.). The history of fire is evident by the pure black spruce forest and trembling aspen stands that dominate the subregion.

1.3.2.2 Northern Peninsula Ecoregion

This ecoregion differs from most other forested parts of the Island by the shortness of the growing season, 110-150 days compared to 145-170 days for other areas. The frost-free period is comparable to most other areas and somewhat better than in central Newfoundland. Precipitation is lower, but, because of low summer temperatures and a shorter growing season, soil moisture supply is probably adequate at most times. The soils are comparable to those of western Newfoundland. Limestone underlies most of the region, with acidic rocks more common on the eastern side of the Great Northern Peninsula.

Balsam fir is the dominant forest cover except at high elevations (300-400 m) on the eastern side of the peninsula where black spruce appears to be a natural component of the stands. There is very little fire history in this ecoregion. White pine, red maple, yellow birch and trembling aspen are conspicuous by their absence. One of the most obvious changes is the replacement of speckled alder by green alder, satiny willow and balsam willow in swamps. Also, tall shrubs such as mountain-holly, wild raisin and rhodora are sparse or lacking in the scrub bog-border forests. Silviculturally, they are similar to western Newfoundland with hardwoods rather than ericaceous shrubs being the most common brush problem on understocked cutovers. Skunk currants, swampy red currant and red-osier dogwood appear to be a more common component of seral vegetation on cutovers. Raspberry is also very abundant in the early years of succession. Eastern Long Range Subregion. This subregion includes the productive but inaccessible forest on the eastern slopes of the Long Range Mountains up to 450 m elevation. The forests tend to be somewhat open balsam fir-black spruce mixtures. The tree line decreases towards the northern end of the subregion.

1.3.2.2.1 Long Range Barrens Ecoregion

This ecoregion comprises the highlands which extend from the southwestern coast to the northern part of the Northern Peninsula. It consists of three distinct subregions, the Southern Long Range, the Buchan's Plateau-Topsails, and the Northern Long Range. They are separated by areas of more or less continuous forest. Fire is of little importance and has played no role in the formation of these barrens. Cool summers and cold winters are typical of this ecoregion. It has a relatively short growing season due to the persistence of the heavy snow cover late into spring.

This area is covered by mostly barren vegetation with shallow, ribbed fens and tuckamoor dominating the landscape. Sheep laurel heath is the predominant dwarf shrub vegetation and covers large areas. Arctic-alpine vegetation is common on all highlands and exposed sites. Snow bank species like moss heather, mountain sorrel and dwarf bilberry are common in areas with persistent snow cover. Forests dominated by balsam fir occur only in deep, sheltered valleys. Extensive areas of black spruce tuckamoor occur on slopes and in valleys.

1.3.2.3 Buchan's Plateau-Topsails Subregion

A small part of the Buchan's Plateau-Topsails subregion occurs in District 16. The northern extensions of the Topsails and possibly White Bay Downs are also part of this subregion. Most of the ecoregion is barren. Dwarf shrub heaths, shallow patterned peatlands, and areas with low "Krummhotz" or tuckmoor dominate the landscape. Small patches of forest occur in some sheltered valleys.

Figure 3 and Table 1 show the ecoregions and subregions and the percentage area occupied in each of the zone's districts.

1.3.2.3 Northern Long Range Subregion

The northern portion of District 16 is encompasses by the southern extent of this subregion. The best developed snow bank vegetation occurs in this subregion. Mountain alder thickets are characteristic of alluvial soils in deep valleys. Many northern plant species occur in the forested valleys.

1.3.2.3 Western Newfoundland Ecoregion

This ecoregion just touches District16 and is characterized by a humid climate with a relatively longer frost-free period. It contains some of the most favourable sites for forest growth although there is considerable variation due to altitude and proximity to the coast. The dryopteris-hylocomium-balsam fir forest type is the zonal forest for this region. The zonal soils are nutrient rich humic podzols with a very dark podzolic B horizon due to humus enrichment. The absence of prolonged dry periods appears to have excluded fires from all but the coarsest textured soils. Consequently, balsam fir rather than black spruce is the dominant forest cover. Yellow birch is common and it displays its best growth in protected valleys below 200m elevation. This species also occurs in less vigorous forms in the Maritime Barrens and Avalon Forest Ecoregions, but it is absent at higher elevations and north of Deer Lake. Red maple is also most common and robust in this ecoregion.

As a general rule overstocking is a more common silvicultural problem than understocking in western Newfoundland. Localized regeneration failures can occur in forests with a very dense fern and herb stratum such as the rubus-balsam fir and the dryopteris-balsam fir forest types. On these types, hardwoods, particularly mountain maple on seepage slopes, can form semi-stable thickets. These thickets may eventually develop into hardwood forest types. The development of ericaceous heath after logging or fire is only observed on very small areas of coarse textured till. This is in stark contrast to central Newfoundland where succession to kalmia heath is a common occurrence. The Western Newfoundland Ecoregion is subdivided into six subregions.

1.3.2.3 Corner Brook Subregion

This subregion is characterized by hilly to undulating terrain from Bonne Bay to Stephenville and east to Grand Lake. The parent materials in this subregion are dominated by slates and limestone till. Areas with

calcareous till are distinguished by the occurrence of light-colored marl deposits around ponds and in valleys. The parent material consists of shallow, stony silt loam underlain by limestone bedrock or calcareous basal till. The rugged topography is dominated by the taxus-balsam fir and dryopteris-rhytidiadelphus-balsam fir forest types.

The hilly, non-calcareous terrain in this subregion is dominated by shallow loamy soils over shale bedrock. However, the shallowness of the till does not adversely affect forest growth since nutrient rich seepage waters are held in the rooting zone by bedrock or a fragipan layer. The steep topography is dominated by the dryopteris-balsam fir forest and supports some of the most productive stands in Newfoundland.

1.3.2.4. North Shore Forest Ecoregion

This ecoregion includes the coastal zone along the north side of the Island extending from the Bonavista Peninsula to the tip of the Baie Verte Peninsula. This ecoregion is mainly forested and black spruce stands are common. Increased wind exposure causes a decrease in the quality and height of the forest towards the coast therefore coastal headlands are dominated by barrens. Overall, vegetation is similar to the Central Newfoundland Ecoregion, however, white spruce is more abundant and aspen is less common.

The topography is irregular along the coast with many bays and inlets extending inland and is rolling to hilly. Elevations in this ecoregion are highest on the Baie Verte Peninsula reaching 315m. The climate is the driest on the Island with warm coastal summers and cold winters. High summer temperatures can cause moisture deficiencies. The growing season is approximately 150 days and precipitation ranges from 900-1200mm.

1.4 Ecosystem Dynamics

1.4.1 Ecosystem Condition and Productivity

Landscape patterns determine the variety, integrity, and interconnectedness of habitats within a region. These landscape patterns are a direct result of the relationship amongst physical landforms and soils, disturbance history, and relationships among various species that make up the ecosystem communities. These factors, while listed separately for clarity, are unavoidably interrelated. Landscape patterns play a pivotal role in determining the current conditions and health of forest ecosystems. These variables are evaluated in terms of productivity, stability and resilience.

Another important variable determining the condition of a forest is change. Forests are an ever-evolving entity, resisting stagnation, and constantly moving through their cycles of life, death, and renewal. The process of change over time is the essence of nature itself. It has been nature's underlying storyline since time began and will continue to be until time ends.

The main forces of change in our natural forest ecosystems are disturbance and succession. A definition of disturbance would indicate that it initiates a change in a community structure which often ends up in the replacement of one set of species by another. However, replacement is not always the result (e.g., a species like black spruce is aided in germination by disturbances like forest fire).

Disturbances range from the fall of a single tree to the destruction of thousands of hectares by forest fires. While disturbances may be very destructive, they can often rejuvenate ecosystems and diversify landscapes.

Succession involves changes in both community composition and in the ecosystem structure and process. Succession is the orderly change whereby the dominant species is replaced by another species, then another etc., until a new dominant species establishes a relatively stable community.

The following sections will discuss each of these concepts in more detail as they relate to the ecosystems of Planning Zone 7. For the most part this section will be descriptive and explanatory in nature.

1.4.1.1 Productivity

Productivity is the accrual of matter and energy in biomass. In simple terms, primary productivity is the sum of all biomass produced through photosynthesis. Secondary productivity occurs when this "primary" biomass is ingested and is added to that organism's biomass. Since secondary productivity is directly dependent on primary productivity, it is this primary productivity component that drives the system.

The level of primary production is dependent on the ability to produce biomass. This in turn is dependent on landscape features, soil, climate etc. In general terms, the more productive (ability to grow trees, and rate of growth) a site is, the higher level of primary productivity. For example, a forested stand would have a higher primary productivity than a bog, or a good site would have a higher potential than a poor site.

Overall, the landscape in Planning Zone 7 has approximately 50 percent productive forest. As well, the relative proportion of site types is 8.5 percent good, 80 percent medium and 11.5 percent poor with a Mean Annual Increment (MAI) of 2.6, 1.7, and, 0.8 m3/ha/yr respectively. The distribution of productive sites

across the landscape and range of productivity within these sites is largely dependent on landscape patterns, climate, and soils.

The more productive areas of the zone occur in the lowlands. These areas have deeper soils and less exposed bedrock. The landscape patterns are more consistent, and the growing season is longer. In the northern part of District 16 and along the coast in District 9 the soils are shallower with bedrock at or near the surface. The terrain in much rougher and the growing season is shorter (130 as opposed to 160 days).

In practice, it is nearly impossible to measure the amount of biomass produced in an ecosystem, or the energy consumed in the process. However, in the Provincial Sustainable Forest Management Strategy, criteria and indicators to monitor productivity have been identified. One method outlined is tracking mean annual increment in m3/ha/yr of tree species by ecoregion. This can be readily measured over time and manipulated through silviculture treatments or affected by poor harvesting practices which increase soil compaction. An example of secondary productivity is the number of moose per unit area. One must also recognize the forests inherent biological limits however, when attempting to measure or manipulate site productivity.

1.4.1.2 Resilience

Ecosystem resilience reflects the ability of the ecosystem to absorb change and disturbance while maintaining the same productive capacity and the same relationships among populations. Healthy forest ecosystems maintain their resilience and adapt to periodic disturbances. The renewal of boreal forest ecosystems often depends on these disturbances. Resilience is characterized by the forest's ability to stabilize vital soil processes and maintain succession whereby the system is returned to a community composition, and the productivity level is consistent with the ecosystems' physical constraints. To a large degree, forest ecosystems' resilience is controlled by properties such as climate, parent soil, relief, and flora.

The potential for populations to recover from low levels following disturbance by having adequate regeneration capacity and a balanced distribution of forest types and age classes provides a reliable measure of resilience at the landscape level. Other measures include the percentage and extent of area by forest type and age class and the percentage of disturbed areas that are successfully regenerated. Measuring and monitoring these parameters determines resilience.

Forest activities must be carefully planned to not upset the natural balance and lower an ecosystem's resilience. An example is harvesting on the more fragile sites where steep slopes and shallow soil over bedrock increase the potential of site degradation beyond repair.

1.4.1.3 Stability

Nature is constantly changing and going through the unending processes of disturbance, growth, senescence, and decay. Therefore, stability of a forest ecosystem does not refer to one fixed position without variation. Ecosystem stability is more accurately defined as the maintenance of ecosystem changes within certain boundaries and the functional continuation of important potentials and processes such as energy capture. There are three levels of stability: species stability, structural stability, and process stability.

Species stability is the maintenance of viable populations or meta-populations of individual species. Structural stability is the stability of various aspects of ecosystem structure such as food web organization or species numbers. Process stability is the stability of processes such as primary productivity and nutrient cycling. To put stability in perspective, it must ensure that the system does not cross some threshold from which recovery to a former state is either impossible, (extinction) or occurs only after long time periods or with outside inputs (loss of topsoil).

Some indicators of stability which can be monitored are: area of forest converted to non-forest use, area, percentage and representation of forest types in protected areas, percentage and extent of area by forest type and age class and change and distribution and abundance of various fauna. These indicators can be measured and monitored to ensure stability is maintained and to evaluate the impact, if any, of forest activities on ecosystem stability.

1.4.1.4 Disturbance Regimes and Successional Patterns

There are four main driving forces that cause disturbance in the boreal forest. Commercial and domestic harvesting does account for disturbances in the zone and occurs on a managed, regular and consistent basis. Fire and insect damage are the major disturbances that occur but are more irregular or cyclic. Apart from a major atypical windstorm, wind throw usually occurs after some other agent like insects and/or disease weakens a stand. For this reason, successional patterns after insect damage and wind throw will be discussed together. The following is a brief synopsis of the typical successional patterns that occur in the zone after each major disturbance type.

1.4.1.4.1 Commercial and Domestic Harvesting

Regeneration patterns in the black spruce type after harvesting is generally back to the black spruce type with a minor component of balsam fir and some white birch on the better sites. There is a higher component of black spruce regeneration in the Central and Long Range Barrens Ecoregions (CLRBE) than in the Western and Northern Ecoregions (WNE). There is substantial regeneration failure in this forest type with average NSR (not-satisfactory regeneration) rates at 25 percent in CLRBE and 45 percent in WNE. Another general trend is that the poorer the site quality the higher the NSR rate. These sites would be candidates for planting with black, white, or Norway spruce. An exception to this trend occurs when the pre harvest crown density is class 2 or denser. On these areas, black spruce layering is prevalent and is responsible for the majority of stocking. In some instances where balsam fir does regenerate on black spruce sites it becomes very chlorotic at a young age and is highly susceptible to attack from the balsam woolly adelgid.

In the balsam fir types, regeneration success back to balsam fir is much higher averaging 75 percent in CLRBE and 85 percent in WNE. Regeneration rates to balsam fir are higher on the poor sites and fall off somewhat as site quality increases. There is also some regeneration to black spruce and softwood hardwood mixed wood types with the former being more prevalent in the CLRBE. Regeneration failure is relative constant across all ecoregion types at 10 percent.

Regeneration pattern in the mixed wood types is generally back to mixed wood that is dominated by balsam fir and white birch. In the CLRBE there is a larger component of black spruce regeneration after harvesting than in the WNE. There is a higher component of white birch regeneration after harvesting in types that had a higher percentage of hardwood before harvest. Usually, the more productive the site class the more hardwood regeneration. Regeneration failure on the mixed wood types is highest in poor sites and lowest on the better sites.

There are few pure hardwood stands in the zone. Anecdotal evidence from domestic cutting in these types indicates that they will regenerate to mixed wood types dominated by balsam fir and white birch.

1.4.1.4.2 Fire

Since black spruce is a semi serotinous species (requiring heat to open its seed cones), it is not surprising that it is the most prolific regeneration species after fire across all forest types, site types and ecoregions within the zone. It regenerates as pure stands or in combination with white birch. Balsam fir is conspicuously absent after fir because most advanced regeneration in the under story is killed by the fire.

Black spruce regeneration is somewhat correlated with the amount present in the pre fire stand. Generally, the higher the component of black spruce in the original stand, the higher the percentage of regeneration to black spruce. In mixed wood stands a higher component of white birch and sometimes trembling aspen is present after fire. Fire in pure hardwood stands can sometimes regenerate to trembling aspen in certain areas. Regeneration failure after fire is on average 20 percent across all forest types and is higher as sites get poorer.

1.4.1.4.3 Insect/Wind Throw

Balsam fir is highly susceptible to insect attack from the hemlock looper, balsam woolly adelgid, balsam fir sawfly, and spruce budworm, whereas black spruce is hardly impacted by these insects. For this reason, stands with a high component of balsam fir are more susceptible to insect attack and subsequently wind throw. Mature balsam fir types usually regenerate to balsam fir or to balsam fir hardwood mixtures. Balsam fir are also generally more prone to windfall due to their very shallow rooting system. Mature balsam fir types usually regenerate to balsam fir or to balsam fir hardwood mixtures.

Disturbance by insect kill in young balsam fir stands can cause succession to white spruce. Regeneration patterns in mixed wood types usually depend on the type of mixture. If black spruce is a component, then it will persist and form part of the new stand. Otherwise, balsam fir and balsam fir/hardwood mixtures regenerate after insect attack. Regeneration failure occurs approximately 20 percent of the time particularly if pure stands of immature balsam fir are killed.

1.4.2 Biodiversity

Biodiversity is a term used to describe the variety of life on earth. A basic definition of biodiversity includes the variety of animals, plants and microorganisms that exist on our planet, the genetic variety within these species and the variety of ecosystems they inhabit.

Some scientists estimate the total number of species on earth between two and 100 million, however, the best estimate is considered to be within the range of 10-30 million. This is remarkable considering only 1.4 million species have actually been given names. The largest concentration of biodiversity on the planet is found in the tropical areas of developing countries. Small areas of rainforest often contain species that are found nowhere else on earth. Mishandling even small tracts of land could lead to extinction of several species, one of which may hold the key for the prevention or cure of some disease.

While the boreal forest does not have the extent of biodiversity that some of the equatorial regions possess, Canada does have just over 70 000 species of plants, animals, and micro organisms in its boreal and other forest regions. An equivalent number remain un-described or unreported by science. While the boreal forest has less diversity of large plants than many other forest regions, it has greater biological diversity in some micro organisms. For example, the boreal forest has fewer tree species than the tropical rainforest but 500 times as many mycorrhizal fungi. Despite the large number of organisms contained within the boreal forest, only five percent are actually plants and vertebrates. The other 95 percent remain largely unrecorded and unstudied. As a result, we need to conduct more surveys and studies and manage with caution so that species are not inadvertently wiped out. Biodiversity provides such essential services for humans as climate control, oxygen production, purification of freshwater supplies, carbon dioxide removal from the atmosphere, soil generation, and nutrient cycling. Without the species that provide these processes, humanity would be unable to survive.

There have been several international initiatives during the 1900's directed at developing strategies to protect Earth's biodiversity. Canada signed the United Nations Convention on Biological Diversity in 1992 at the Rio de Janeiro earth summit. All governments at both the federal and provincial level have agreed to meet these objectives through implementation of the 1995 Canadian Biodiversity Strategy: Canada's Response to the Convention on Biodiversity.

The three components of biodiversity are species diversity, genetic diversity, and ecosystem diversity.

1.4.2.1 Species Diversity

Species diversity describes the overall range of species in a given area or ecosystem. Species are groups of animals, plants, and microorganisms capable of producing fertile offspring. An example would be that all breeds of domesticated dogs are of the same species, while dogs and cats are members of different species. Species extinction is the most dramatic and recognizable form of reduced biodiversity. The prevention of species extinction is a key factor in the conservation of biodiversity. Changes in species population levels indicate the potential for serious changes in ecosystem integrity.

1.4.2.2 Genetic Diversity

Genetic diversity describes the range of possible genetic characteristics found within and among different species. Hair and eye colour, weight and height, are examples of genetic diversity found in humans. Genetic diversity within species is the foundation of all biodiversity. Assessing genetic diversity does not mean tracking every gene in the zones forests. Responsible planning should design and implement measures

which maintain or enhance viable populations of forest vegetation species, and which use the genetic diversity of commercially important species to a maximum benefit. The genetic diversity of commercially important species can also be managed to increase economic benefit from some portions of the landscape while allowing other portions to provide greater social and ecological values. Genetic diversity is the basis by which populations (flora and fauna) can adapt to changing environmental conditions.

1.4.2.3 Ecosystem Diversity

Ecosystem diversity describes the range of natural systems found throughout a region, a country, a continent, or the planet. Wetlands and grasslands are examples of ecosystems in Canada. A complex and intricate mix of plants, animals, microorganisms and the soil, water, and air they occupy create virtually limitless ecosystems around the world.

A forest interspersed with barrens, marshes, lakes and ponds provides for diversity across the landscape. Each ecoregion in the province should have representative areas protected which displays the diversity where such exists. These areas can serve as a benchmark from which to measure and guide management decisions. These representative areas protect the integrity of the ecoregion and are vital for guiding management actions. As benchmark areas, they will illustrate the multi-species mosaic that planning actions must maintain. One unique aspect of landscape diversity in Planning Zone 7 is the presence of an old growth forest in the northern part of District 16.

1.5. Forest Characterization

1.5.1. Land Classification

There are six broad categories that currently represent how the land within a forest management district is classified;
1) Regulatory alienations, 2) Non-harvestable inventory types, 3) Water features, 4) Operational alienations, 5) Non-Timber Values and 6) Productive forest. The sixth category represents the harvestable landbase and is further subdivided into Core, Operational and Domestic.

Regulatory alienations are areas which have a legal restriction which prevents harvesting. Non-harvestable inventory types are areas such as bog or scrub forest. Water features are simply bodies of water (lakes, ponds, rivers etc.). Operational alienations are areas which cannot be harvested due to a physical impediment (i.e. extreme steep slopes). Non-Timber Values represent areas in which harvesting is not permitted due to a use other than harvesting such as agriculture or aesthetics. In this case productive forest

is any forested area that is not restricted from harvest and can produce at least 60 m3/ha of merchantable timber.

The total landbase for Zone 7 is approximately 1.3 million hectares. Up until now the landbase descriptions, ecosystem description, discussion on biodiversity and general forest characterization have been at the Zone level. From this point forward information presented will specifically to CBPPLs tenure in FMD's 9 and 16.

Represented below and in Figure 4 is the CBPPL portion of Districts 9 and 16 broken down into the 6 landbase categories.

Regulatory alienations	75,657 ha
Non-harvestable inventory types	225,703 ha
Water features	60,173 ha
Operational alienations	33,766 ha
Non-Timber Values	1,342 ha
Productive forest	
Core	211,315 ha
Operational	18,026 ha
Domestic	110 ha

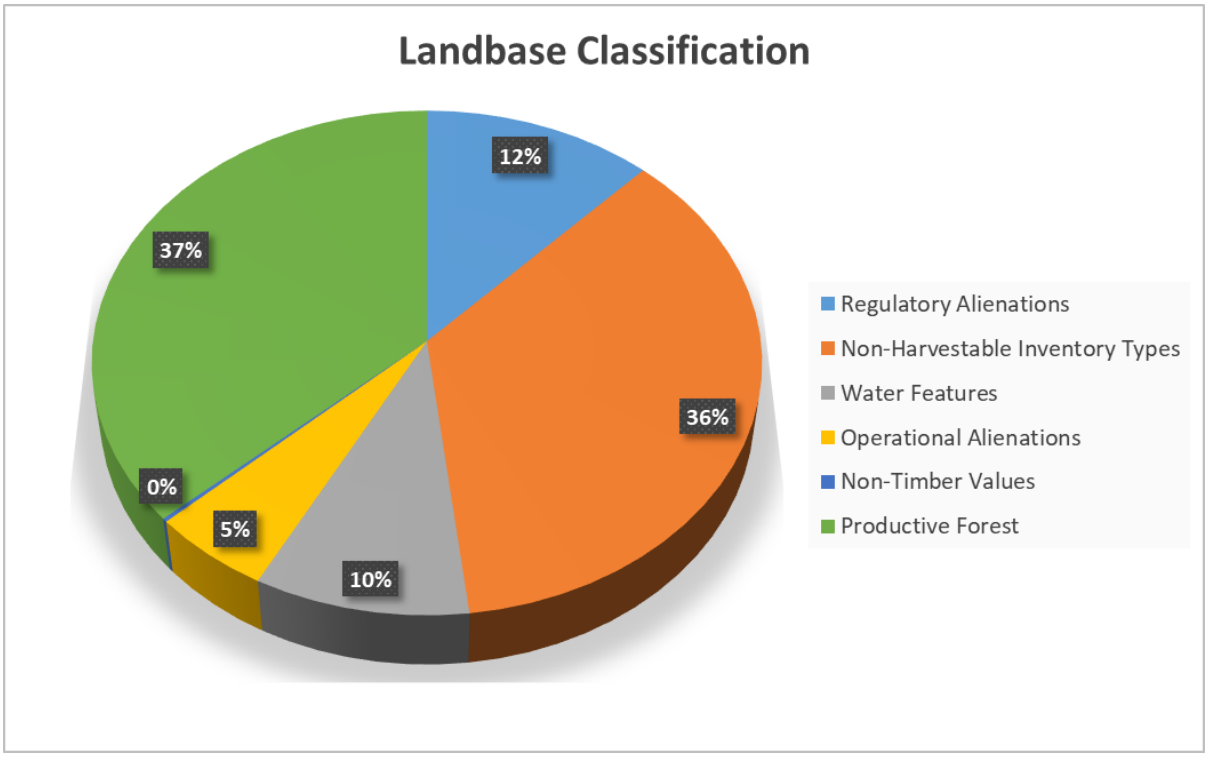

Figure 4 Landbase Classification on CBPPL Tenure

Table 2 Landbase Classification Table for Zone 7 on CBPPL Tenure

		Zone 7 2025 Landbase					
	Landbase Classification	Forested Area (ha)	Non Forested (ha)	Forested Area (ha)	Non Forested (ha)	Total Area (ha)	% Of Total
1	**Regulatory Alienations**	**District 9**		**District 16**			
1.a	***Parks***						
1.a.1	Federal	0	0	0	0	0	0.0%
1.a.2	Provincial	62	26	48	22	158	0.0%
1.a.3	Private	0	0	0	0	0	0.0%
1.a.4	Natural Areas System Plan	0	0	0	0	0	0.0%
1.b	***Reserves***						
1.b.1	Ecological	0	0	0	0	0	0.0%
1.b.2	Wilderness	0	0	0	0	0	0.0%
1.b.3	Others	807	217	0	0	1,024	0.2%
	Other						
1.c.1	Agricultural Areas	391	102	386	149	1,028	0.2%
1.d.1	Cottage Development Areas	263	56	207	23	549	0.1%
1.d.2	Crown Lands Other	1,110	833	984	707	3,634	0.6%
1.d.3	Private Land	841	316	333	125	1,615	0.3%
1.e.1	Wildlife Exclusions	8	0	0	0	8	0.0%
1.f.1	Permanent Sample Plots (PSP's)	109	7	118	6	240	0.0%
1.f.2	Regulation Buffers Water (30m)	24,831	10,611	23,376	8,344	67,162	10.7%
1.g.1	Protected Water Supply Areas	0	0	0	0	0	0.0%
1.h.1	Research Areas	84	96	52	8	240	0.0%
	Section Sub-total	*28,506*	*12,264*	*25,504*	*9,384*	*75,658*	*12.1%*
	Non-Harvestable						
2	**Inventory Types**						
2.a.1	Coniferous Scrub	64,981		69,018	0	133,999	21.4%
2.b.1	Deciduous Scrub	1,544		1,291	0	2,835	0.5%
2.c.1	Vegetated Non-forested		35,149	0	28,294	63,443	10.1%
2.d.1	Non Vegetated		12,608	0	11,653	24,261	3.9%
2.e.1	Cleared Land		703	0	160	863	0.1%
2.f.1	Residential Land		163	0	125	288	0.0%
2.g.1	Agricultural Land		3	0	11	14	0.0%
	Section Sub-total	*66,525*	*48,626*	*70,309*	*40,243*	*225,703*	*36.0%*
3	**Water Features**						
3.a	***Water Bodies***						
3.a.1	Lakes/Ponds		27,053		30,190	57,243	9.1%
3.a.2	Double Sided Rivers		971		1,959	2,930	0.5%
	Section Sub-total		*28,024*		*32,149*	*60,173*	*9.6%*
4	**Operational Alienations**						
4.a	***Roads***						
4.a.1	Right Of Way (Roads)	0	817	0	506	1,323	0.2%
4.a.2	Resource Roads (6m buffer)	1,353	68	864	61	2,346	0.4%
4.b	***Stand Level***						
4.b.1	NSV Stands	7,147	0	12,046	0	19,193	3.1%
4.b.2	Islands	23	0	12	0	35	0.0%
4.b.3	Steep Slopes	4,601	276	2,544	243	7,664	1.2%
4.b.4	Isolated Stands	3	0	301	0	304	0.0%
4.b.5	Other Stand-level Constraints	1,236	0	1,662	0	2,898	0.5%
4.b.6	Area Not Interpreted	0	0	0	0	0	0.0%
4.b.7	Area Not Assigned Net Label	0	0	4	0	4	0.0%
	Section Sub-total	*14,363*	*1,161*	*17,433*	*810*	*33,767*	*5.4%*
5	**Non-Timber Values**						
5.a.1	Plant Habitat	0	0	0	0	0	0.0%
5.b.1	Wildlife Habitat	0	0	553	562	1,115	0.2%
5.c.1	Tourism Values	0	0	0	0	0	0.0%
5.d.1	Administration	0	0	0	0	0	0.0%
5.e.1	Mines and Quaries	0	0	0	0	0	0.0%
5.f.1	Agriculture	0	0	0	0	0	0.0%
5.g.1	Parks and Reserves	0	0	0	0	0	0.0%
5.h.1	Protected Water Supplies	0	0	0	0	0	0.0%
5.i.1	Scenic Coastal Routes	0	0	0	0	0	0.0%
5.j.1	Visual Quality	6	0	182	32	220	0.0%
5.k.1	Wilderness Coridor	0	0	0	0	0	0.0%
5.l.1	Proposed Protected Area	0	0	0	0	0	0.0%
5.m.1	Protected Road Buffer	2	3	0	0	5	0.0%
	Section Sub-total	*8*	*3*	*735*	*594*	*1,340*	*0.2%*
6	**Domestic Landbase**						
6.a.1	Domestic Coniferous	0		64		64	0.0%
6.a.2	Domestic Coniferous/Deciduous	0		45		45	0.0%
6.a.3	Domestic Deciduous/Coniferous	0		0		0	0.0%
6.a.4	Domestic Deciduous	0		0		0	0.0%
6.a.5	Domestic Unclassified	0		0		0	0.0%
	Section Sub-total	0		109		109	0.0%
7	**Harvestable Landbase**						
7.a.1	Core Coniferous	110,655		66,303		176,958	28.3%
7.a.2	Core Coniferous/Deciduous	9,383		5,492		14,875	2.4%
7.a.3	Core Deciduous/Coniferous	2,536		646		3,182	0.5%
7.a.4	Core Deciduous	844		396		1,240	0.2%
7.a.5	Core Unclassified	8,867		6,194		15,061	2.4%
	Section Sub-total	132,285		79,031		211,316	33.8%
7.b.1	Operational Coniferous	9,385		5,609		14,994	2.4%
7.b.2	Operational Coniferous/Deciduous	1,059		308		1,367	0.2%
7.b.3	Operational Deciduous/Coniferous	237		60		297	0.0%
7.b.4	Operational Deciduous	83		10		93	0.0%
7.b.5	Operational Unclassified	1,076		198		1,274	0.2%
	Section Sub-total	11,840		6,185		18,025	2.9%
	Section Sub-total	*144,125*		*85,325*		*229,450*	*36.6%*
	Grand-total	*253,527*	*90,078*	*199,306*	*83,180*	*626,091*	*100.0%*

1.5.2 Age Class

Individual tree ages in a stand can all be the same after disturbance such as fire or harvesting; however, in most cases the ages vary. Forest managers describe stand ages in terms of age classes which generally encompass 20 year classes. The age classes present in the zone are described in Table 3 below.

Table 3 Age Class Description

Age Class	Age	Description	Age Class	Age	Description
1	0-20	Regenerating	5	81-100	Over mature
2	21-40	Immature	6	101-120	Over mature
3	41-60	Semi-mature	7	121-140	Over mature
4	61-80	Mature	8	141-160	Over mature

161 + (represents uneven-aged stands)

The age class distribution in Districts 9 & 16 for the productive forest on CBPPL tenure is shown in Figure 5 and 6. In general terms, a continuous timber supply is limited by the lower age class. This means a more balanced age class distribution within a district would yield a greater opportunity for an even flow sustained yield of timber as well as habitat availability. A good analogy is the human population demographics of a community. A balanced demographic could be considered most healthy and resistant with a mix of youth, young workers, experienced workers and retirees and seniors. If the communities were all seniors or youth the community and succession would be out of balance and have issues.

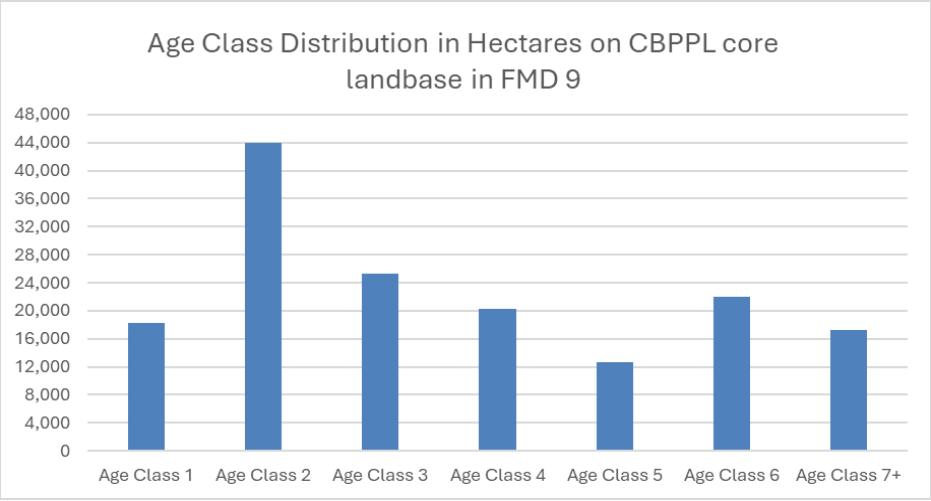

Figure 5 Age Class Distribution District 9 on CBPPL Tenure

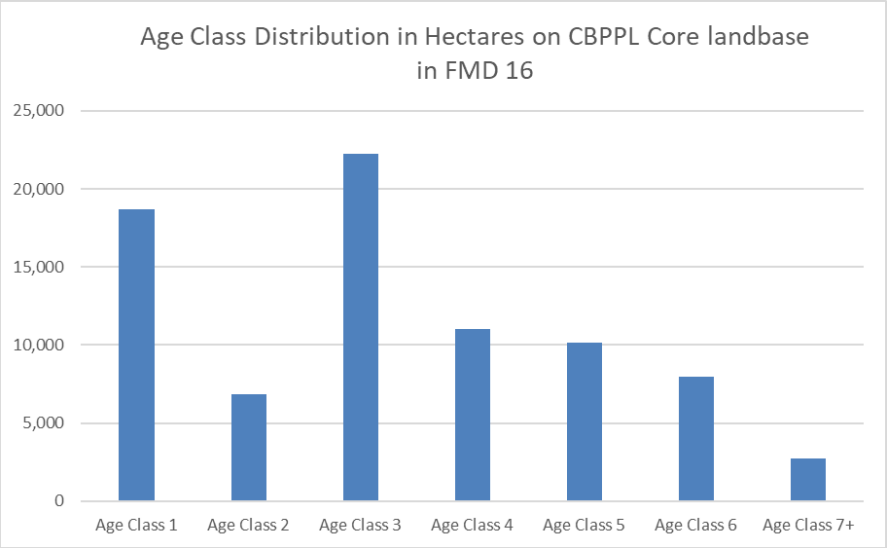

Figure 6 Age Class Distribution District 16 on CBPPL Tenure

The age class distribution in Districts 9 & 16 for the core productive forest on CBPPL tenure is shown in Figures 5 and 6. In general terms, a continuous timber supply is limited by the lower age class. This means a more balanced age class distribution within a district would yield a greater opportunity for an even flow sustained yield of timber as well as habitat availability. The age class structure for Districts 9 & 16 does differ. In District 9 has a relatively even age class structure, excluding age class 2. In District 16 there is more area occupied by younger age classes (1 and 3). Strategies to rectify any age class imbalances or impacts on wood supply are developed during the timber supply analysis.

1.5.3 Site Class

The productive forest in the zone is further sub-divided along a gradient of productivity ranging from poor to good site class. The site class is determined through air photo interpretation supplemented with field checks and is based primarily on the sites ability to produce timber. Site capability is determined by several factors including soil fertility, moisture regime and geographic (slope) position. The distribution of productive forest area by site class for Districts 9 and 16 is shown in Figure 7 and 8. On average, good sites can produce 2.6 m3/ha/yr, medium sites 1.7 m3/ha/yr, and poor sites 0.8 m3/ha/yr.

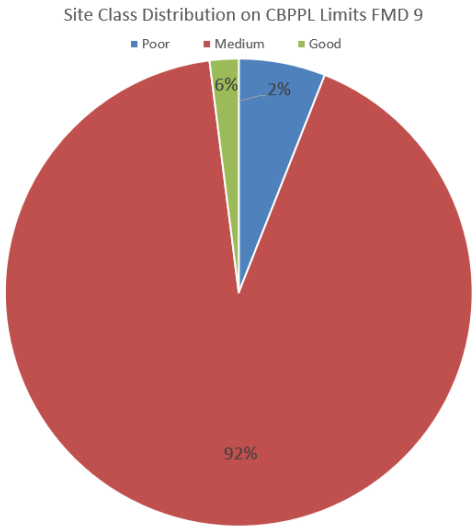

Figure 7 Site Class Distribution FMD 9

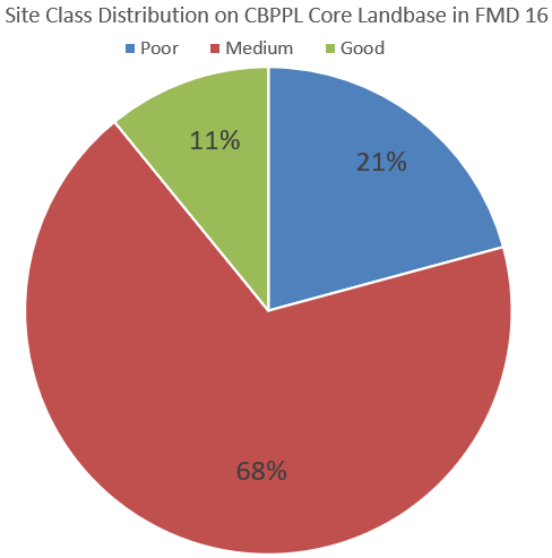

Figure 8 Site Class Distribution FMD 16

Both Districts 9 and 16 have similar productivity distributions. Most of the area is medium growth conditions with tails of poor and good areas on each end of the spectrum.

1.5.4 Species and Working Group

Working group describes the dominant tree species present in a forest stand. This species may occupy 100 percent of crown closure of a stand or may be present in association with other species. The working group designation describes the stand in general terms based on the prevalent species whereby species

composition describes specifically, the relative proportion of each individual tree species that make up a stand.

In the zone, the softwood working groups dominate accounting for over 85% of the productive forest. Balsam fir (bF) is by far the most prolific accounting for 55% of the working groups in the zone. Balsam fir can occur in pure stands or in association with one or more of black spruce, white spruce, white birch, trembling aspen, or larch in varying species compositions. The black spruce (bS) working group is the second most abundant accounting for 43% in the zone. As with balsam fir, black spruce can occur as pure stands or in association with other species listed above. Softwood hardwood working groups occupy 9% percent of the productive forest area in the zone. The remainder is a mix of hardwood dominated stand types.

The following provides a more detailed outline for some of the larger groups, with additional descriptions of the selected accompanying forest types, as described by Meades and Moores, 1994.

A) Black Spruce - Picea marina (Mill.) B.S.P. Within this working group there are three main forest types that characteristically represent black spruce. These include: black spruce forest, black spruce fen, and kalmia-black spruce forest.

Black spruce forest includes a forest that has a thick humus layer with mainly black spruce as the dominant tree species. The sites within this forest type have a wide range of moisture from dry to wet and the fertility ranges from very poor to rich. Because there is such a wide range in both moisture and fertility, this forest type had to be broken down into six specific forest types. These include: sphagnum-black spruce, black spruce feathermoss/ bedrock, black spruce-feathermoss/very dry, black spruce feathermoss/ dry, black spruce-feathermoss/bog, and black spruce-feathermoss/moist. This forest types produce merchantable timber. Most of these forest types are common throughout the four districts.

Black spruce-fen is characterized by an abundance of understory that is usually described as fertile but poorly drained. Due to this poor drainage the black spruce in this forest type are usually stunted. These forests are considered important wildlife and plant habitats because of the high fertility and usually grow in open settings. As a result of the open grown, stunted trees, this forest type is not usually merchantable from a commercial harvesting perspective. This forest type is divided into two forest types: carex-black spruce and osmunda - black spruce, both of which are not common in the four districts.

Kalmia-black spruce represents a black spruce forest that is associated with bogs. The trees are open grown with black spruce as the dominant tree, which is usually stunted with abundant shrubs and mosses growing throughout its understory. These sites are normally infertile but range from dry to very moist. This forest type, because of small variations, can be broken down into four forest types: nemopanthus-kalmia black spruce, sphagnum-kalmia-black spruce, kalmia-black spruce, and cladonia-kalmia-black spruce. These forest types are usually considered unmerchantable and are common throughout the districts. All three of these forest types are the result of regeneration in areas burned a number of times over the years. The natural succession following fire in Newfoundland's Boreal Forest is towards black spruce with limited amounts of certain pioneer species such as white birch and trembling aspen. Sites occupied by black spruce are usually away from river valleys and any flood plains in these valleys. Most black spruce occupy hillsides, ridges, and open barrens. Areas that are generally made up of rock outcrops contain black spruce as well.

B) Balsam Fir - Abies balsamea (L.) Mill. Another major forest type is the balsam fir forest. In some districts of the province this type is the dominant species, but in Zone 3 it is not. This species occupies sites that are usually fertile and moist but because these districts have a recurring history of fire, balsam fir cannot become established as they do not naturally occupy burned areas. Due to the complexities of the balsam fir forest type, it can be divided into several types. These are: equisetum-rubusbalsam fir, rubus-balsam fir, clintonia-balsam fir, taxus-balsam fir, dryopterishylocomium- balsam fir, dryopteris-balsam fir, dryopteris-rhytidiadelphusbalsam fir, dryopterislycopodium- balsam fir, hylocomium-balsam fir, gaultheria-balsam fir, pleurozium-balsam fir, carex-balsam fir, and sphagnum-balsam fir. They normally occupy river valleys and flood plains as pure stands or mixed with hardwoods, along with side slopes to these valleys. This working group is not as prevalent as spruce in the four districts with many of the thirteen forest types not present.

Some are found in limited locations throughout the four districts, which include: rubusbalsam fir, dryopteris-lycopodium-balsam fir, hylocomium-balsam fir, pleurozium - balsam fir, carex-balsam fir, and sphagnum-balsam fir. All balsam fir forest types have balsam fir as the main tree species, with white birch usually abundant throughout. The rubus-balsam fir forest type is found in low to mid-sloped areas that are moist. This forest type has an abundant herb layer but is limited to certain types which differentiate it from the equisetum-rubus-balsam fir forest type, which has a more diverse herb layer. The dryopterislycopodium- balsam fir forest type has narrow moisture regime from moist to somewhat moist that is nutrient rich. This forest type has ground cover that is dominated by ferns and certain moss types and plants that are specific to this type. The hylocomium balsam fir forest type is also moist to somewhat moist

but is dominated by a layer of moss instead of the ferns. The pleurozium-balsam fir forest type has balsam fir and black spruce as the main tree species with few white birch. The moss layer is made up mainly of pleurozium schreberi and is found on dry to well drained areas such as dry ridges and outwash deposits. The carex-balsam fir forest type has willow found in it. The sphagnum-balsam fir is dominated by sphagnum moss on the forest floor and is poorly drained.

C) White Birch - Betula papyifera Marsh. This working group represents the major hardwood component for the forests of the province, and FMDs 9 and 16. White birch is normally found on the fertile sites along streams and rivers, as well as flood plains. It can also be found on fire origin locations as it is a pioneer species that seeds into an area once the forest cover is removed by fire. Pure white birch stands are not that common in the province, especially in the four districts. There are several white birch forest types, all depending upon the understory growth and the associated soil type.

1.5.5 Forest Disturbances

Forest harvesting, fire, insects and windthrow (blowdown) are considered the major forest disturbance types within the zone. High summer temperatures combined with low summer precipitation and prolonged dry spells make the zone susceptible to fire. In recent years, loss has been minimal due to weather conditions, fire prevention activities and enhanced fire suppression capability. However, a major fire can occur in any year depending on weather conditions.

SECTION 2. PAST ACTIVITIES

2.1 Harvesting

2.1.1 Commercial Activity

Table 4 summarizes the commercial and domestic harvest (in metres cubed) in FMD9 and 16 for 2022 – 2025. Data for 2026 could not be included at the time of this plan submission.

Table 4 District 9 and 16 Harvest Summary

AAC Tracking

SOFTWOOD

FMD 9		CORE					OPERATIONAL			
		Harvested		Remaining			Harvested		Remaining	
	AAC	M3	%	M3	%	AAC	M3	%	M3	%
2022	150,500	135,046	90	15,454	10	8,500	0	0	8,500	100
2023	150,500	155,673	103	-5,173	-3	8,500	438	5	8,062	95
2024	150,500	100,101	67	50,399	33	8,500	711	8	7,789	92
2025	150,500	105,096	70	45,404	30	8,500	2,844	33	5,656	67
2026	150,500	0	0	150,500	100	8,500	0	0	8,500	100
Totals	752,500	495,916	66	256,584	34	42,500	3,994	9	38,506	91

HARDWOOD

FMD 9		CORE					OPERATIONAL					INCIDENTAL			
		Harvested		Remaining			Harvested		Remaining			Harvested		Remaining	
	AAC	M3	%	M3	%	AAC	M3	%	M3	%	AAC	M3	%	M3	%
2022	2,500	34	1	2,466	99	260	0	0	260	100	13,700	1,736	13	11,964	87
2023	2,500	707	28	1,793	72	260	0	0	260	100	13,700	1,363	10	12,337	90
2024	2,500	638	26	1,862	74	260	0	0	260	100	13,700	8,847	65	4,853	35
2025	2,500	638	26	1,862	74	260	0	0	260	100	13,700	6,100	45	7,600	55
2026	2,500	0	0	2,500	100	260	0	0	260	100	13,700	0	0	13,700	100
Totals	12,500	2,017	16	10,483	84	1,300	0	0	1,300	100	68,500	18,046	26	50,454	74

SOFTWOOD

FMD 16		CORE					OPERATIONAL			
		Harvested		Remaining			Harvested		Remaining	
	AAC	M3	%	M3	%	AAC	M3	%	M3	%
2022	82,000	94,707	115	-12,707	-15	12,000	664	6	11,336	94
2023	82,000	50,381	61	31,619	39	12,000	0	0	12,000	100
2024	82,000	53,807	66	28,193	34	12,000	53	0	11,947	100
2025	82,000	44,930	55	37,070	45	12,000	681	6	11,319	94
2026	82,000	0	0	82,000	100	12,000	0	0	12,000	100
Totals	410,000	243,824	59	166,176	41	60,000	1,398	2	58,602	98

HARDWOOD

FMD 16		CORE					OPERATIONAL					INCIDENTAL			
		Harvested		Remaining			Harvested		Remaining			Harvested		Remaining	
	AAC	M3	%	M3	%	AAC	M3	%	M3	%	AAC	M3	%	M3	%
2022	400	0	0	400	100	20	0	0	20	100	6,900	2,775	40	4,125	60
2023	400	0	0	400	100	20	0	0	20	100	6,900	4,048	59	2,852	41
2024	400	219	55	181	45	20	0	0	20	100	6,900	3,205	46	3,695	54
2025	400	0	0	400	100	20	0	0	20	100	6,900	2,575	37	4,325	63
2026	400	0	0	400	100	20	0	0	20	100	6,900	0	0	6,900	100
Totals	2,000	219	11	1,781	89	100	0	0	100	100	34,500	12,603	37	21,897	63

2.1.2 Domestic Activity

CBPPL does not manage its landbase for domestic harvesting with segregated blocks. Incidental harvest is allowed on the landbase through permitting. Domestic cutters can harvest hardwoods, downed and dead wood on this permit. The allowable cut per permit was 25m3 and in 2024 reduced to 15m3 to match Crown cut allowances. The incidental cut recorded is the maximum cut as per the permits issued during that year, as CBPPL does not collect past volumes cut. Estimation of cut can be found in Table 4 above.

2.2. Silviculture

The only silviculture activity proposed from 2022-2026 has been tree planting. Proposed vs completed can be seen in Table 5 below.

Table 5 Summary of silviculture activity (2022-2026)

	FMD 9		FMD 16	
Treatment Type	**Area (ha)**		**Area (ha)**	
	Proposed	Treated	Proposed	Treated
Pre Commercial Thinning	0.00	0.00	0.00	0.00
Planting	1755.00	1527.89	1135.00	860.34
Scarification	0.00	0.00	0.00	0.00

Note: 2026 data is not included as it was not available at the time of plan submission.

2.3 Forest Access

The primary road proposed in the last five-year plan was not constructed as primary but there was secondary and winter road construction over the past 5 years. The summary of this construction can be seen in Table 6.

Table 6 Road Construction Activity (2022-2026)

Roads		
District	Type	Constructed (km)
9	Primary	0.0
	Secondary	78.8
	Winter	16.3
16	Primary	0.0
	Secondary	12.0
	Winter	25.8
Total		132.9

Note: 2026 data is not included as it was not available at the time of plan submission.

2.4 Natural Disturbances

2.4.1 Fire

Districts 9 and 16 have had a very infrequent fire history due to its relatively long winters and abundant precipitation. There were no significant fires during the last planning period on CBPPL tenure. Historical data can be found on the gov.nl website.

2.4.2 Insects

Over the past five years, FMDs 9 and 16 have been significantly affected by the ongoing spruce budworm outbreak. Following rising population detections beginning in 2018, moderate to severe defoliation became increasingly widespread after 2021, particularly in balsam fir–dominated stands, with repeated defoliation raising concerns about growth loss and tree mortality in mature forests. In response, provincial forest managers intensified monitoring and implemented the Spruce Budworm Early Intervention Control Program, including targeted aerial applications of Bacillus thuringiensis kurstaki (Btk) across tens of thousands of hectares in and around FMDs 9 and 16 to suppress populations and protect priority timber supplies. While the outbreak has continued to expand and intensify in places—especially near Gros Morne and further up the Northern Peninsula, the combined use of surveillance, treatment, and adaptive management has been central to limiting impacts on managed forest lands in these districts over the last five years. In 2026 and going forward the Early Intervention Strategy has been discontinued, and the current plan is to begin a salvage harvest with possible foliage protection spray.

With respect to other stand disturbing insects, there has been no significant defoliation and no treatment for either the hemlock looper or balsam wooly adelgid in the last 5 years.

SECTION 3. TIMBER SUPPLY ANALYSIS

The annual allowable cuts for Districts 9 and 16 will be in effect from January 1, 2027, to December 31, 2031.

3.1 Methodology

Using updated forest inventory, contemporary policies, legislation societal view, forest managers leverage the best data available and proven technology to calculate sustainable harvest levels for defined areas. The

province reviews its timber supply every five years to reflect any changes in forest land base, growth rates, and management strategies. This schedule is consistent with the Forestry Act, with oversight by forest management districts, and timber license owners, and mandates that a wood supply analysis be completed every five years. The result of this analysis is the establishment of annual allowable cuts (AAC's) for each forest management district. These AACs are defined as the maximum annual rate at which timber can be harvested at a sustainable level into the future (applicable for a period of 180 years). Annual allowable cuts must be calculated on a district basis, however when "rolled up" provide us with the annual allowable harvest level for the timber limits.

3.2 Guiding Principles and Policy Direction

The key underlying principles that guide this analysis are:

(i) the AAC must be sustainable;
(ii) the level of uncertainty (risk) associated with the AAC must be minimized by using empirical information wherever possible;
(iii) there must be conformity between information and assumptions used in the analysis and actions and decisions taken on the ground;
(iv) the analysis must be consistent with other forest values and objectives; and
(v) the timber supply calculation must consider economic, environmental and social factors and not solely the physical supply of timber.

n addition to the establishment of sustainable timber harvest levels, the legislation also requires that actual forest harvesting not exceed the total five-year plan established AACs.

It is very likely that the AACs will change in each succeeding five-year period. There is a downward trend as competing development occurs. The loss of productive forest land has a 1:1 effect on the AAC, improvements in silviculture methods and tree improvement can offset some of the effects of land base loss.

3.3 Factors Affecting Timber Supply

The forests of insular Newfoundland are variable in terms of age distribution. Typically, there are significant amounts of mature/over-mature forest and regenerating forest and limited intermediate age forests. This imbalance is not unusual in a boreal forest where large areas experience natural cyclic disturbances. Wind and harvesting are disturbances that occur in overmature sites and mature sites. Insect infestation commonly occurs on overmature sites; however, it can spread into mature stands. Fire commonly occurs in overmature sites; however, when conditions are dry, it can extend into all age classes.

This imbalanced age class structure of intermediate age forest within insular Newfoundland is one of the most important factors influencing AACs and is therefore the basis for much of the Provincial forestry department's forest management strategies. Essentially, the department utilizes a matrix of management techniques designed to minimize the imbalance in age structure. These techniques range from an aggressive forest protection program (insect control and fire suppression), forest harvesting programs that attempt to exclusively target harvesting the oldest stands first, and pre-commercial thinning of the regenerating forest so that it becomes merchantable and ready for harvest at an earlier age.

Another important aspect of the province's forest posing a challenge to forest managers is the natural fragmentation of the resource. The province's landscape is characterized by many ponds, bogs, rivers, streams, and rock outcrops resulting in relatively small pockets of timber scattered across the landscape. These conditions are very challenging when determining the economic availability of timber supply.

Arguably the most important factor affecting present and future AACs is the available productive land base. However, this productive land base available for forest activity is constantly being evaluated by the demands/requirements of other stakeholder values. Therefore, it is important that we manage relationships with other users to minimize loss to the forest land base, while considering these other values. Also, to mitigate losses to the productive land base, we must continue to explore ways for growing more volume on the existing land base.

Reduction of the forest land base is unavoidable. There will be loss for agriculture, urban areas, mining, other development needs, loss of land base for the protection of riparian areas (buffers), and for other values.

Professional foresters are trained in forest management systems that must be considered in the management of protected areas. Non-management is not good resource management. The establishment of fixed width buffers and unmanaged areas reduces the land base and without professional oversite may also increase risk. Overmature forest areas created in buffers are subject to increased windthrow and fuel loads, resulting in increased wildland fires, fire intensity, and release of stored carbon.

3.4 Timber Supply Analysis

The timber supply analysis is structured to determine sustainable timber availability, while respecting social, economic, and environmental objectives. Timber supply, in this context, refers to the rate at which timber is made available for harvesting on a sustainable basis. The determination of supply (represented as

AACs) involves the use of computer models to forecast the sustainability of possible AAC levels. These models require three basic inputs as described below:

1. A description of the current state of the forest (forest characterization and availability),
2. Growth rates associated with the current forest, and
3. Management strategies applied to the forest.

These basic inputs require careful and detailed consideration of a broad range of both timber and non-timber values. The following topics in this chapter are considered when determining the sustainable timber supply.

3.4.1 Land Characterization

To get a current description of the forest resource (or stock), the province has invested significant resources into creating and maintaining a Provincial Forest Inventory. This program accounts for all natural and man-made disturbances such as fire, insects, harvesting, and any enhancement programs, including tree planting and pre-commercial thinning. Also, each stand in the forest inventory is updated to reflect any yield changes that may have occurred since the previous inventory update.

The Provincial Forest Inventory also holds a vast wealth of information related to the provincial forested and non-forested land base, including wetlands, streams, lakes, and non-commercial vegetation. Such information aids in the management of other landscape values such as wildlife habitat assessments, carbon sequestration and overall forest health.

3.4.2 Land Availability

The updated forest inventory was reviewed and classified at the stand level based on the availability of each stand for harvest. The classification system consists of two broad classes being available for the AAC calculation.

Core - available for harvest under normal conditions, and;
Operational - has restrictions on harvesting due to economic constraints.

The remaining productive forest has been removed for varying social/legislative reasons. The major removals are listed below.

3.4.2.1 Non-Timber Related

Consideration of non-timber values has a direct impact on Provincial AACs. It is obvious that as the amount of productive forest land available for timber management drops, so too will the AAC. With the current restrictions, the AAC land base (area where harvesting operations can occur on CBPPL tenure) is only 57% of the total productive forest land base in the zone. On average, in any year, less than .5% of the productive forest land base is influenced by harvesting operations.

3.4.2.1.1 No-Cut Buffer Zones

The province has guidelines that require all water bodies (visible on a 1:50,000 map sheet) be given a minimum 30-meter uncut buffer (from waters edge). In addition to these legislated water buffers, District Managers, in consultation with various stakeholders, have increased buffer zone widths beyond the minimum to protect special values such as salmon spawning areas, cottage development areas, aesthetic areas, wildlife habitat, outfitting camps, etc. Corner Brook Pulp and Paper are also registered to a forest management certification through SFI®. We have placed our own buffers and no-grub zones in certain areas that would be above and beyond the legal requirements.

3.4.2.1.2 Pine Marten and Caribou Habitat

Habitat specialists are working in consultation with industry to study both species and ensure adequate habitat will be available for pine marten and caribou into the future. This work examines the quantity and quality of habitat, as well as the connectivity of habitat. With respect to caribou, both the Forest Agriculture and Lands Branch, Corner Brook Pulp and Paper and the Wildlife Division work together on an annual basis. A caribou management strategy has been put in place which identifies core habitat and outlines the requirements for harvesting in restoration/conservation herd habitat.

3.4.2.1.3 Protected Areas

All established and proposed protected areas are removed from the harvestable landbase for AAC calculations.

3.4.2.2 Timber Related

The potential AAC within a Forest Management District is also further impacted by taking into account other potential losses of landbase or timber as indicated below.

3.4.2.2.1 Insect/Fire/Disease Losses

The department reduces AACs to account for anticipated future losses resulting from insects, disease and fire using historical information.

3.4.2.2.2 Logging Losses

Surveys of recent harvested areas are conducted each summer throughout the province to determine the quantity and quality of fiber remaining. The estimates of loss from these surveys are used to reduce the AAC.

3.4.2.2.3 Operational Constraints

Areas that are inaccessible (surrounded by bogs or hills), timber on steep slopes, and low volume stands are removed from the AAC calculation up front. Also, significant adjustments are applied to the Provincial Forest Inventory for stands deemed operable in the timber analysis but left unharvested within operating areas. The reasons for this are linked to the character of Newfoundland's forests; low volume, steep slopes, rough terrain, and excessively wet ground conditions etc. Again, all these timber and non-timber related issues are applied directly in the AAC calculation to ensure harvest levels do not exceed the sustainable level. With the introduction of new values and the broader application of current values, the pressure on future AACs will continue to increase.

3.4.3 Growth Forecasting

A key requirement for forecasting future wood supply is an understanding of how forest stands grow and develop through time. That is, as a forest stand develops, how much merchantable (i.e. harvestable) volume does it carry at any given point? These yield forecasts (referred to as yield curves) are required for each type of forest stand (called a stratum) comprising the forest. In Newfoundland, there are dozens of distinct forest stratum for which separate yield curves are required. These are defined by the tree species in question (e.g., balsam fir, black spruce), the site quality (e.g., good, medium, poor), the geographic region (e.g., the Northern Peninsula, Western Newfoundland) and other factors likely to affect yield.

Yield curves are a key element in a wood supply analysis. In fact, the validity, or "usefulness", of the wood supply analysis is determined by the truth, or "correctness", of the yield forecasts. While there is no way of predicting with one hundred percent certainty how stands will actually grow in the future, care must be

taken to ensure that the yield projections are realistic and reasonable. Respecting the sensitivity and importance of these forecasts, the department has directed a large portion of its resources and time into developing realistic yield curves. Two growth models were used, one for projecting stand development under natural conditions and the other for projecting growth under managed (i.e., silviculturally enhanced) conditions. Tree and stand development data generated from the department's forest inventory program were used to make stand growth predictions. These projections were then evaluated against empirical data from thousands of temporary plots established throughout the island. If the projections varied from real-life evidence, the curves were adjusted to make them more accurate where supporting data was available.

In this analysis, yield curves were developed on an ecoregion basis. Also, special yield curve sets were developed for defined geographic areas with demonstrated uniqueness. These include areas where chronic insect activity is ongoing and areas that have unique growth characteristics.

3.4.4 Modelling Management Strategies

With the current state of the forest described and the yield forecasts developed, the next step was to design a management strategy for each sector of the forest. The key objective was to maximize long term AAC while at the same time considering other forest values. This involved developing strategies that minimized fiber losses and enhance forest sustainability.

CBPPL Woodlands key objectives and principles include:

- Supply Newfoundland's three major sawmills with spruce and fir sawable and on spec logs
- Utilize fresh sawmill residual chips
- Furnish the pulp mill with 25% black spruce content to meet customer specifications
- Avoid stream crossings whenever possible

3.4.4.1 Harvest Flow Constraints

An even-flow harvest constraint strategy is utilized in wood supply analysis. This strategy produces the maximum even flow harvest but results in less than optimum economic use of the forest resource. Conversely, if this strategy was not applied, harvest levels are permitted to fluctuate, which may result in increased harvest potential of the forest at specific intervals. However, applying the even-flow constraint provides stability within the forest industry.

3.4.4.2 Spatial Analysis

The provincial wood supply analysis implements a technique of computer-generated block generation followed by manual harvest block scheduling. The blocking software (Stanley) uses rules such as adjacency and minimum block size to create initial harvest block areas.

All the operational restrictions within a forest management district cannot be input into the Stanley optimizer. Professional forest managers utilize training, experience, and local knowledge to modify the Stanley output. District staff can identify specific ground conditions that restrict commercial harvesting, which are then incorporated into a spatial harvest schedule. The proposed harvest schedule is then vetted back through the modeling software to ensure sustainable and non-timber objectives are met. In most cases, this process must go through several cycles before an acceptable harvest schedule can be implemented. The spatial arrangement of areas for timber harvesting is especially challenging in this province because of the natural fragmentation of our forests. This model provided forest planners with the ability to mimic realistic timber harvest schedules based on current practices and to identify other forest stands that are not as accessible for harvesting, without incurring higher costs to access these blocks. The process allows the plan to be realistic and the harvest levels to be economically attainable.

Spatial harvest scheduling has several major benefits. First, it fosters the long-term sustainability of our AACs by mimicking current harvest practices and accounting for actual on the ground conditions that delay or restrict the harvesting of stands. Historically, even with the use of computers, spatial restrictions were largely unaccounted for. Spatial schedules have narrowed the gap between modelling and real-world application with respect to sustainable AAC. Secondly, the mapped harvest schedules build credibility into the forest management process.

Having the ability to visualize the timber that will be harvested in the future helps reassure the resource is being used in a responsible manner. Next, harvest scheduling helps integrate the management of other forest resource values into timber management planning. Specific forest values can be directly related to forest areas, which can be mapped and potential issues can be addressed. Finally, the harvest schedule maps developed for the wood supply analysis can be a starting point for a 5-year operational planning process. Worthy to note is that harvest scheduling is completed for Core land base only. Operable AAC, for the most part, is considered opportunistic if economic conditions become favorable.

3.4.4.3 Planning Horizons

Given the Corner Brook Pulp and Paper's commitment to long term sustainability of our forest resource, timber supplies were projected 180 years (equivalent to two forest rotations) into the future to ensure actions and strategies applied today will result in a sustainable forest in the future. Long term planning is fundamental in timber supply forecasting and ecosystem management as well.

3.4.4.4 Operable Growing Stock Buffer

The Province imposed an operable growing stock constraint in the analysis to ensure the sustainability of calculated timber supplies. The constraint imposes a condition that in any period there must be a minimum operable growing stock of two times the harvest level on the landscape. In other words, for every m3 of wood harvested another harvestable m^3 is left on the land base. The requirement for a growing stock buffer is based on several factors. First, some of our non-timber objectives are not explicitly accounted for in our planning process and therefore will require a growing stock buffer to achieve them. Second, we are unable to follow optimum harvest schedules explicitly due to operational restrictions on harvesting. Third, the Province is not willing to assume high risk with the sustainability of the timber supply. For these reasons a growing stock constraint of two times was used. This constraint was used in concert with harvest scheduling to help map out a reasonable harvest for the next 20 years.

3.4.4.5 Old Forest Targets

Consistent with our ecosystem policy, the Province introduced into the analysis an old forest target that at least 15% of forests are older than 80 years. While this is the minimum target, actual results are usually higher. This initiative was designed to provide a coarse filter approach to maintaining representative forest structure. It ensures the presence of certain amounts of old forest across the landscape in the future. With advances in modeling, this target can now be tracked across a district rather than a single ownership.

3.4.4.6 Operability Limits

Operability limits are the timeframe in which forest harvesting activity can be undertaken within specific forest stands. Stand growth development (merchantable timber volume) and individual piece size of trees are factors which determine a stands readiness for commercial harvest activity. To meet management objectives and maximize the total volume of wood harvested, the model schedules harvests inside the operability limit window defined as the period between the minimum harvest age and the maximum harvest age. Stands younger than the minimum harvest age have small trees that are uneconomical to harvest yet and stands older than the maximum harvest age have begun to break apart and have lost enough volume that

they too are no longer economical to harvest. Operability limits vary for different species types, growing on different site qualities and when growing at different tree densities.

3.4.4.7 Silviculture

Silviculture is one of the main forest management tools available to forest managers when they are analyzing the many different future forests that are generated using the wood supply modelling software. The silvicultural actions used in the 2026 analysis included:

FMD 9

- 23.9 ha plant/year
- 194.4 ha pre-commercial thinning/year

FMD 16

- 113.1 ha plant/year
- 28.5 ha pre-commercial thinning/year

3.5 Inventory Adjustments

One of the limitations of the current wood supply model is its inability to account for volume depletions outside of what is reported for harvesting operations. The model produces a gross merchantable volume (GMV) figure which needs to be adjusted to account for volume losses such as fire, insects/disease, timber utilization practices and the presence of stand remnants.

3.5.1 Natural Disturbances – Fire and Insects

An estimate of productive area loss because of fire was based on an analysis of the historical fire statistics maintained by the department of forestry. With respect to insect damage, an aerial mortality survey was completed in areas with historically high insect infestations. This information along with a GIS analysis of areas salvaged enabled the department to determine the area of productive forest lost to insect mortality each year.

3.5.2 Timber Utilization

Information for this adjustment was derived from a series of intensive on-the-ground surveys which measured the amount of wood remaining on cutovers following harvesting. This wood was comprised of solid merchantable wood (logging losses) and wood with inherent cull (butt/heart rot). Surveys were

conducted province wide and on all tenures where the information is analyzed by harvesting system and season.

3.5.3 Stand Remnants

For this plan submission there was no inventory adjustment built into the wood supply run or otherwise in predicted harvest levels found on the coversheets in Appendix 7. Through data collection from past harvest areas the actual harvest levels have been higher than predicted volume from inventory. For this reason, CBPPL has discontinued the previous 9% and up to 18% reductions in AACs.

3.6 AAC Results

The results of the 2027-2031 timber supply analysis for Districts 9 and 16 are shown in Table 7 below.

Table 7 Provincial Annual Allowable Cut Levels 2027-2031

Provincial Annual Allowable Cut (AAC) 2027-2031										
			Softwood Volume			Hardwood Volume			Incidental Volume	
Land Tenure	Zone	District	Core	Operational Constrained	Sub-total	Core	Operational Constrained	Sub-total	Non-AAC	Sub-total
CBPPL	7	9	159,000	14,500	173,500	3,700	360	4,060	17,900	17,900
		16	87,500	7,800	95,300	1,200	40	1,240	6,800	6,800
	Sub-total		246,500	22,300	268,800	4,900	400	5,300	24,700	24,700

SECTION 4. CARBON ANALYSIS

4.1. Introduction

Forests play an important role in the global carbon cycle by taking carbon dioxide (CO_2) out of the atmosphere. During photosynthesis, trees convert CO_2 into glucose and a variety of other organic molecules that support growth, metabolism, and the formation of structural tissues. This process—where atmospheric CO_2 is captured and turned into biological material—is known as carbon sequestration. Once that carbon becomes part of the tree's trunk, branches, leaves, and roots, it is referred to as carbon storage.

The stored carbon remains in the tree's biomass until a disturbance occurs. It is released back to the environment when the tree dies and decomposes, suffers damage from natural events, or is harvested. The way carbon behaves after a disturbance depends on the type of event; for example, decay, fire, or wood utilization all return carbon to the atmosphere at different rates.

A forest's age class structure, which develops over time as a result of its disturbance history, is the primary factor influencing how much, and the rate of, carbon it can capture and store. Young stands generally sequester and store the least carbon because they have limited leaf area and relatively little biomass. As forests reach the middle stages of development, they experience rapid growth and accumulate biomass quickly, making them highly effective at sequestering carbon. By this stage, their carbon storage capacity is increasing significantly.

Mature forests, although essential for long term carbon storage due to their substantial biomass, do not sequester carbon as rapidly as younger stands. Growth slows, and natural processes such as senescence begin to break up the stand, meaning that much of the carbon uptake is directed toward maintaining existing tissues rather than creating new ones. Because different age classes contribute to carbon sequestration and storage in different ways, maintaining a diverse distribution of stand ages is the most effective strategy for supporting strong, long term carbon benefits across a forest landscape.

When trees are used for products such as lumber, carbon can be stored for 100 years or the life of the product.

4.2. Carbon Modelling and Forest Management Planning

A clear distinction between the managed and unmanaged portions of the forest land base is essential for understanding how carbon behaves across the landscape. The managed land base—which consists of the

core, operational, and domestic zones—is the portion where harvesting, silviculture, and other forestry practices can actively influence forest structure and age distribution to achieve the objectives outlined in the forest management plan. In contrast, the unmanaged land base includes watercourse buffers, ecologically protected areas, and non-commercial forest stands. These areas remain constant across all forest management scenarios within a given Forest Management District (FMD), since no harvesting or silvicultural activity can be scheduled there.

Within the unmanaged land base, forest development follows natural successional patterns because these areas are neither created nor eliminated in the modelling process. Non-productive stands are assigned an age of 120 years and are excluded from the age class distribution figures, although their contribution to aboveground carbon storage is still represented in the model's "unmanaged forest" trendline for each district.

To understand how different management strategies influence long term carbon storage, four modelling scenarios were evaluated:

Scenario 1 (S1): No Management Activity

This scenario assumes no harvesting or silviculture, allowing forests to progress entirely through natural succession. It provides a reference point for understanding the natural range of carbon variability across the managed landbase. However, this scenario also reflects the highest potential for wildfire or insect outbreak because long periods without disturbance increase fuel loading. Meant to test the models forest dynamics in the absence of industry or domestic influence.

Scenario 2 (S2): Maximized Carbon Storage

In this scenario, harvesting and silviculture remain within all wood supply limitations, but the optimization goal is to maximize the amount of carbon retained on the landscape. Planting levels, harvest deferrals, and all other operational constraints remain in place. The model uses available management tools to adjust the age class structure toward an ideal balance, resulting in the highest achievable carbon storage under realistic policy and supply restrictions. This scenario is meant to see what is the upper potential limits that the forest is capable of producing.

Scenario 3 (S3): Fully Unconstrained Management

This scenario removes all limits on harvesting and silviculture for the entire 160-year modelling period. Because it eliminates every operational restriction, it depicts the absolute upper bound of carbon storage

potential achievable through management. Although it is useful for understanding theoretical limits, it is not practical for real world forest operations.

Scenario 4 (S4): Operational Harvest Scenario

This is the scenario used to produce harvest schedules that inform Managers in the development of five year operating areas. It represents the management approach that will actually guide forest operations. Comparing this scenario against S1, S2, and S3 allows managers to evaluate how the proposed harvest strategy affects overall carbon stocks and how its carbon trajectory differs from both the natural baseline and the theoretical upper limits of carbon storage.

CBPPL is using Scenario 4 because it is the only modelling option that reflects the real harvesting and silviculture activities planned for the district, rather than theoretical or idealized conditions. While the other scenarios help illustrate natural carbon dynamics (S1), maximum carbon storage under constrained management (S2), or the absolute upper limit of carbon accumulation under unrealistic conditions (S3), they do not represent what will actually occur on the landscape. Scenario 4 captures the operational harvest levels, spatial constraints, silviculture commitments, and wood flow requirements that District Managers rely on when developing their five-year Commercial Operating Areas. By using Scenario 4, CBPPL can evaluate how the proposed management regime affects aboveground carbon stocks, compare its carbon performance to the reference scenarios, and ensure that carbon outcomes are assessed within the context of feasible, sustainable, and policy compliant forest operations.

Accordingly, the carbon analysis for the districts within this planning zone will be completed by the Department of Forestry, Agriculture and Lands (FAL) using the modelling framework described above. The analysis will be conducted at the district level and will include the combined forest land base of both the Crown and Kruger management areas to provide a comprehensive assessment of aboveground carbon dynamics across the landscape. The carbon results presented are based on forest management model projections and represent the expected carbon outcomes associated with the selected management scenario over the planning horizon. These findings will be incorporated into the Crown's Five-Year Forest Management Plan submission, where they will be used to evaluate carbon storage trends, compare management alternatives, and support sustainable forest management decision-making within the districts.

SECTION 5. RESOURCE VALUES

5.1. Guiding Principles of Sustainability

There are five guiding principles of overall sustainability, which include environmental, economic, political, social, and cultural sustainability. Environmental sustainability looks directly at ecosystem health, both now and in the future. Ecosystem health is determined by such factors as ecosystem integrity, biodiversity, productive capacity, and resiliency. The five-year operating plan must ensure these factors are intact.

Economic sustainability demands that forest resources be managed and distributed efficiently and equitably among the stakeholders, within the capacity and limits of the forest ecosystem. Economic development has been given top priority by many of Newfoundland's people and their representative, the government. However, economic development does not proceed without the incorporation of the other factors into the decision-making process.

Political sustainability refers to goals and management objectives being applicable, administrable, and practical. These goals and objectives must maintain these qualities well into the future with the aid of public input and support. Social sustainability means fairness and equity to all stakeholders. Cultural sustainability is attained by incorporating both indigenous values and Newfoundland's culture to the planning process. A forest management strategy cannot be successful without allowances within the strategy for traditional access and use of the land. For generations, many of Newfoundland's public had free range in our pristine wilderness, a fact that cannot be ignored when planning for the zone. All are key interlocking components, and each must be maintained if sustainable development is to be achieved.

5.1.1. CBPPL Sustainable Forest Management (SFM) Plan Introduction

The forest industry in Canada has evolved from the management of the timber resource to the management of the forest ecosystem. Previously, forest managers developed forest management plans in isolation, focusing on timber. As key external stakeholders began requesting the inclusion of other values, consultations with the public and other resource managers evolved simultaneously with the incorporation of non-timber values. This has become a cornerstone of sustainable forest management paradigm.

Corner Brook Pulp and Paper Limited (CBPPL) have joined in this shift to sustainable forest management by incorporating social, cultural, environmental, and economic values in the sustainable development of Newfoundland's forests. Forestry, Agriculture and Lands and CBPPL have incorporated stakeholder

consultations in the forest management planning process since the 1980s, developing a positive relationship among the government, CBPPL, and the community. Public and stakeholder involvement in the identification of values and the development of management plans benefit present as well as future generations.

The Sustainable Forest Management (SFM) Plan for the forested land on insular Newfoundland for which CBPPL has management responsibility is described as the Defined Forest Area (DFA). It was originally developed with the cooperation of the Public Advisory Committee (PAC), a group of dedicated individuals and organizations interested in sustainable development of the forests of the DFA. The planning process involves public consultation and follows the principles of sustainable forest management.

CBPPL's first SFM Plan was developed over 16 months and released in July 2004. In late 2008, the Canadian Standard Association released a draft revised standard (CSA® Z809-08), and the PAC began updating CBPPL's plan to conform to the new standard, incorporating lessons learned and continual improvement. In 2012, CBPPL was also certified to Forest Stewardship Council (FSC®) Boreal Standard. In 2018 and 2019 both standards (FSC and CSA respectively) were not maintained and instead replaced with CBPPL's newest forest management standards. In July of 2019, certification to two Sustainable Forestry Initiative® Standards (SFI®), Forest Management and Fibre Sourcing, was achieved. The PAC committee, although a requirement of the CSA standard only, was kept intact to continue to aid public consultation for future planning inputs and to meet standard and government requirements.

CBPPL wishes to illustrate to the public (the landowners) and to its customers that the DFA is being managed on a sustainable basis. To this end, CBPPL seeks to maintain certification to SFI and Canada's national sustainable forest management (SFM) Standard. Forest certification gives organizations a system for continually improving their forest management performance and engaging interested parties in a focused participation process. Rigorous and regular independent third-party audits are involved in certification to both standards.

CBPPL Woodlands' Environmental Management System (EMS) is the vehicle that ensures fulfillment of the SFI Standards requirements. CBPPL's EMS is a registrant to the ISO 14001 Standard, a standard that incorporates environmental aspects and continual improvement into all forest operations. EMS applies to all Woodlands operations controlled by the company including management planning, road construction and maintenance, harvesting operations, transportation of fibre, silviculture, and support services. The

documented procedures of EMS will provide the system to satisfy all requirements of the ISO 14001 and SFI Forest Management and Fibre Sourcing Standards.

Throughout the SFM Plan, references are made to Indicator Profiles. The profiles, located in the final section of the plan (which can be found on CBPPL's website www.cbpplwoodlands.com), contain the background information, management strategy, and implementation details for each of the indicators of sustainable forest management and adapted to satisfy indicators for the SFI standards.

The auditing process, conducted by an independent third party, determines whether the requirements are implemented at the DFA level.

5.2 Values Structure

The forest ecosystems of the zone provide a wide range of values to different individuals and groups. These include consumptive values such as timber products, hunting, trapping, sport fishing, and berry picking, and non-consumptive values like skiing, snowmobiling, hiking, and bird watching. Also, there are intrinsic and intangible values such as a feeling of wilderness and peace which some people describe as spiritual. Although difficult to spatially describe or quantitatively measure, these spiritual values are a product or an accumulation of all values.

Other values such as water quality, parks and protected areas etc. provide for the protection of the forest ecosystems which can enhance the other values listed above. Many of the values in the zone were identified by this or previous planning teams. Presentations of pertinent information on each value by knowledgeable individuals or groups provided stakeholders with relevant information to make informed decisions. Other values, while not specifically outlined by the planning team, are also identified, and discussed to provide a more complete description of the range of values found in the zone. The following represents a framework for characterizing values in a clear and consistent manner. This approach consists of three components:

(a) Description of Value

- Why the value is important, types of activities, intensity, spatial extent, employment, etc.

(b) Critical Elements

- Forest Features: Elements at risk from harvesting or enhanced by harvesting (viewscapes, adjacency to water, mountains, habitat, wilderness ambiance, road access, etc.)

(c) Operational Prescription

The operational prescription is defined as "a fixed or predetermined policy or mode of action".

These ‘modes of action’ would be implemented in the five-year plan as:

1. Policies that should be in place to protect or enhance resource value.
2. Methods for negotiation or inclusion of other stakeholders in resolving potential conflicts.
3. Special management provisions/strategies - such as buffer zone consideration, temporal operating periods, modified harvesting, or a best management policy; and/or
4. Models and/or forecasting strategies to determine economic contribution, biodiversity impact, or community sustainability

The prescription may be specific to road building, harvesting, site remediation or silviculture. Where possible these specifics will be listed. Individual values were discussed both at the strategic and operational level. Strategic level information is the focus of discussion in this section. They provide a mechanism to resolve conflicts that might arise throughout or after the five-year planning process. Where possible, the physical location of the value on the landscape (operational level) was also identified during the discussion of values (Section 6). This helps facilitate the preparation of the five-year operating plan by identifying potential areas of conflicting use early in the process. In many instances, the Environmental Protection Guidelines (EPG’s, Appendix 1) can form the guiding principles for a value. Quite often the spatial extent or location of all values is not known (e.g., raptor nests). Specific guidelines are still listed to provide a direction or course of action when and if these values are encountered.

Each value has been grouped into one of six categories:

1. Indigenous Values
2. Cultural Heritage
3. Landuse and Recreational Value
4. Science and Research Values
5. Biological Values
6. Water Values

5.2.1. Indigenous Values

Characterization:

Indigenous values in Newfoundland and Labrador forests are rooted in a deep, long-standing relationship between people, land, and all living beings. For Indigenous Peoples such as the Mi’kmaq, Innu, and Inuit, forests are not simply resources but living systems that sustain cultural identity, spirituality, and community well-being. Traditional values emphasize respect, reciprocity, and stewardship—taking only what is needed, minimizing waste, and ensuring the forest remains healthy for future generations. Forests provide food,

medicine, materials, and travel routes, while also serving as places for teaching, storytelling, and passing on Traditional Knowledge. These values support a holistic approach to forest use and management, where ecological balance, cultural continuity, and intergenerational responsibility are inseparable.

Qalipu First Nation (QFN) houses a database of Traditional Land Use (TLU) within Trailmark that was historically collected and continually being collected through QFN led Traditional Use Studies (TUS). This is a confidential, internally managed collection of data that is utilized during consultation, environmental assessment and land stewardship purposes to inform decision making. It documents land and resource use across Ktaqmkuk (Newfoundland), highlighting the mi'kmaq traditions and areas of cultural significance within QFN territory and consists of multiple layers of areas and species of importance.

Below are some of the broader categories that are further refined within the dataset.

- Lodging areas – Built cabins, tilts, lean-tos, locations stayed overnight
- Hunting – Rabbit, moose, caribou, waterfowl
- Trapping
- Fishing
- Medicines/Edibles – harvesting wildberries and plant medicine

Critical Elements:

Forest harvesting can significantly affect Indigenous values in Newfoundland forests when it alters the balance between people, land, and living systems. Poorly planned harvesting can damage culturally important sites, reduce access to traditional foods and medicines, and alter wildlife habitat relied upon for hunting and trapping. It can also interfere with travel routes and gathering areas that are essential for teaching and passing on Traditional Knowledge. When harvesting prioritizes short-term economic gain over long-term stewardship, it conflicts with Indigenous principles of respect, reciprocity, and responsibility to future generations. However, when Indigenous voices are meaningfully included in planning and harvesting is done sustainably, forest management can better align with Indigenous values and support both cultural continuity and forest health.

Operational Prescription:

The inclusion of Indigenous values in forest harvesting plans helps ensure that forestry activities respect cultural relationships with the land while supporting long-term sustainability. This involves meaningful engagement with Indigenous communities in decision-making, incorporating Traditional Knowledge alongside scientific data, and recognizing culturally significant sites, species, and land uses. Harvesting plans that reflect Indigenous values often emphasize stewardship, balance, and intergenerational responsibility, leading to practices such as selective harvesting, protection of wildlife habitat, and preservation of traditional travel routes and gathering areas. By integrating these values, forest management can incorporate practices that further support ecological health, cultural continuity, and mutual respect between Indigenous communities and the forestry sector.

CBPPL will:

- Begin consultation as early as possible to focus on the entire district and not just the specific harvest sites
- Provide relevant information about the proposed harvesting activities such as maps, timelines, methods, and impacts
- Incorporate traditional knowledge where appropriate

- Identification through dialogue and mapping exercises, culturally important sites
- Use collaborative planning - Including timing, intensity, and techniques
- Continue to provide information on the plan on an annual basis
- Be respectful of the data that is shared and represent it in five-year plans as requested by First Nations

5.2.2. Cultural Heritage

5.2.2.1. Archaeological Sites

Characterization:

The provincial archeology office (PAO) is the agency responsible for the management and protection of archaeological sites and artifacts in Newfoundland and Labrador. This program is carried out under the Historic Resources Act which ensures that developments with potential to have adverse impacts on historic resources are investigated as and monitored by a qualified archaeologist through archaeological impact assessments.

Archaeological sites are non-renewable resources and play a vital role in understanding our heritage. Most often, archaeological sites are small in size, so it is important to protect these sites and professionally record as much information possible to fully understand its history. To do this properly, the site must not be disturbed.

Critical Elements:

Major threats to historic resources are projects involving activities which disturb soil layers and/or provide unintended public access to the archaeological resources. Forestry activities such as construction of access roads and bridges, harvesting and mechanical site preparation have the potential to destroy historic resources.

While forestry activities can have adverse impacts on historic resources there are also beneficial effects. When impact assessments are carried out and new sites are found, it adds to our understanding of Newfoundland and Labrador's heritage. When archaeological sites are discovered through impact assessments these resources are protected from damage or destruction and preserved.

Guiding Principles:

Any project involving land-use has the potential to adversely impact historic resources, therefore it is important that the Provincial Archaeology Office (PAO) be involved at the planning stage to ensure that mitigative measures to protect historic resources are developed at the earliest possible time. The PAO will review all five-year operating plans and provide feedback.

In order that known archaeological sites and potential unknown sites are protected from forestry activities, buffer zones will be necessary in some areas whereas archaeological assessments may be required in others. Known archaeological sites must be avoided, and ground disturbing activities are not to occur within 50m of them.

Buffers may also be required along all rivers and ponds, as well as along the coastline where there is potential for archaeological resources to be found.

As per the **Environmental Protection Guidelines**:

When an archaeological site or artifact is found, the **Historical Resources Act** requires that all development temporarily cease in the area and the discovery be reported to the Provincial Archaeology Office at (709) 729-2462. The Provincial Archaeology Office will respond immediately and will have assessment requirements and mitigation measures in place within seven days as agreed to by the Provincial Archaeology Office and the operator. Forestry activity can then continue.

5.2.3. Landuse and Recreational Value

5.2.3.1. Timber Resource

Characterization:

One of the resource values is harvesting of timber to provide forest products. Historically, timber has been harvested since the first inhabitants settled in the zone. Initial uses were mainly domestic in nature to supply timber to build houses, fishing sheds, heating and cooking. With the increase in population, more commercial uses have arisen for timber, which includes lumber, pulp and paper products, and value-added products. Domestic harvesting still provides fuelwood to heat many homes and sawlog material for residential home construction.

Commercial activities provide many jobs in harvesting, sawmilling, trucking, pulp and paper manufacturing and related spin-off industries for residents.

Silviculture treatments are important to the forest resource because it ensures a vigorous and healthy forest is maintained. Forest renewal activities ensure productive landbase is maintained by planting areas that are not sufficiently restocked. Forest improvement activities help improve and enhance the growing stock which can reduce harvest cost, enhance forest product options and increase sustainable timber supply.

Protection of the forest from various disturbances is also a major characteristic of resource management. Because of the long fire history in the zone, protection through well maintained and/or upgraded initial attack equipment (i.e. water bombers, pumps, hose and trucks) and well-trained fire management staff is required. A large fire today in the older softwood forest would be devastating to industry. While insect kill has not been a major disturbance in recent years, protection is still critical since there is a significant area of thinned balsam fir stands, which is paramount to future AAC's. Protection of other resource values through modification of activities and enforcement is also important.

Spruce and Fir

Black spruce, white spruce and balsam fir are the main sawlog and pulpwood species within the province. Within this planning zone, black spruce accounts for more than 90% of the softwood harvest. Black spruce fiber is valued for its strength properties in lumber and pulp and paper products. Newfoundland black spruce has received the highest strength rating in North America for use in the production of wooden I-beams. Additionally, spruce and fir-dominated stands comprise more than 84% of the available forested habitat in the zone. These species are managed for maximum sustainable harvest levels though the harvesting and silviculture strategies referred to later in section 8. Protection and long-term sustainability of these species will be achieved through strict adherence to AACs and refinements to future woodsupply analysis.

White Birch

Traditionally, white birch is a valued species for domestic fuelwood. White birch also benefits the cycling of nutrients, the structure of forest soils, and can help in the reduction of insect infestations and in the

decrease in spread rates of forest fires (Perry, 1994). White birch dominated stands comprise approximately 15% of the forested land base in the planning zone. With efforts to manage this species on a sustainable basis, in 2002 the first AAC's were developed for white birch. One of the criteria of species sustainability is its ability to regenerate.

Critical Elements:

The overall objective is to ensure the AAC is calculated using the latest information while considering other resource values and conducting environmentally sound operations. This is achieved by:

- maintenance or enhancement of productive land base
- planting of non-regenerating areas
- minimizing loss of land base to other users
- minimize losses to fire, insect and disease
- timely access road construction and maintenance
- enhancement of younger age classes through thinning to correct age class imbalance

Guiding Principles:

- enforcement of **Forestry Act**, regulations, guidelines and policies
- minimize loss of productive land base through spatial and temporal compromises and continuous dialogue with other resource users
- education (staff, public, operators)
- aggressively conduct silviculture, access road, and protection activities
- implement best management practices. The *EPG's* outline courses of action and mitigative measures for forest activities. These EPG's are outlined in their entirety in Appendix 1, with some highlighted subject areas listed below.
    - garbage disposal
    - fuel storage
    - mineral soil exposure
    - buffer requirements
    - road and bridge construction
    - silviculture and harvesting activities

5.2.3.2. Agriculture

Characterization:

Soil surveys show 100,000ha or 0.9% of the Island has mineral soils suitable for farming. There is a substantial agriculture industry in the zone, with considerable potential to expand and provide increased economic benefits.

Commercial agriculture is concentrated in Cormack, Reidville, Howley, Kings Point, Rattling Brook and Green Bay and the agriculture products produced represent a significant portion of the total agriculture industry in the province. Most of the major farming activities in the province are represented in the zone. In the livestock sector, dairy, beef, sheep, and fur contribute provincially approximately $145-150 million total farm gate value to the provincial output. Crop industry which consists of vegetables, small fruit, forages, Christmas trees and greenhouse production contributes another $18 million to the total provincial farm gate value.

Critical Elements:

It is difficult to identify and plan all sites for potential future agriculture use and often this will result in

conflicts with other land uses, particularly forestry because these sites are of high growing capability. Although a suitable landbase is the first critical element necessary for a successful agriculture operation, markets and the interest of individuals are also prime factors in the development and location of future farms. In the spirit of managing the ecosystem for multiple benefits, provisions will be available for the agriculture industry to expand.

Guiding Principles:

Lands designated for forest management can include areas with high potential for agriculture. The following will provide guidance for the development of agriculture within the zone:

- Home gardening leases should be confined to areas already developed for this activity.
- New agriculture leases should include a business plan approved by Forestry, Agriculture and Lands.
- Wood harvested on agriculture leases shall be completed under a crown cutting permit.
- Where possible forest operations are encouraged to clear identified land within the Agriculture Areas of Interest which are not included in the woodsupply calculations.

5.2.3.3. Mining Exploration and Quarrying

Characterization:

Within Planning Zone 7, there is a diverse geological environment which hosts a wide variety of both metallic and industrial minerals including, but not restricted to, copper, nickel, lead, bitumen, granite, gneiss, marble, gold, asbestos, silver, iron, limestone molybdenum, uranium and thorium.
In District 16 alone there are over 800 mineral exploration claims staked and registered. The majority being for metallic mineral potential with expenditures in the hundreds of thousands.

Exploration activities typically consist of prospecting, geological mapping, grid line-cutting, geochemical surveys, ground and airborne geophysical surveys, mechanized trenching and diamond drilling. In addition, there are many active quarries in the zone which generate significant royalties. These figures are included to illustrate the significant contribution that mining has made to the local and provincial economy. There are also several active mines in the province and mining represents a major component in the provincial economy.

CBPPL supports mineral exploration and quarry activities and uses the Crown Lands Referral Policy (Appendix 2) to administer permits as requested. Woodlands staff have reviewed, and requires, that permitted activity follow the Environmental Guidelines for Mineral and Quarry Exploration as found in Appendix 3.

Critical Elements:

To minimize the impact of mining and mineral exploration upon the forest ecosystem while providing a source of energy and aggregate material.
Mining: can have potential negative impacts to forest ecosystems and future wood supply calculations. Mining and quarrying represent permanent alterations to the landscape whereas mineral exploration activities at most involve temporary disturbance. It is also a requirement to rehabilitate after the mineral exploration is complete.

Timber Utilization: Mineral exploration where the cutting of trees is required:

a. Operators must attempt to extract the timber harvested. This can be delayed to winter months when access by snowmobile is possible.

b. It is permitted that the operator may use the harvested material as corduroy to lay down over sections of access trails constructed on wet or soft ground.

These activities may include: access trail construction, trenching, test pits, clearing drill pads and creating campsite or laydown areas.

Guiding Principles:

- Ensure that quarries and open-pit mines are rehabilitated. Ensure that the organic overburden is stockpiled and stored in a manner so that it can be used to rehabilitate the site. Rehabilitation requirements can change on a case-by-case basis and could include if warranted the requirement that sites return to a condition conductive to forest regrowth.
- Avoid planning silviculture activity in areas adjacent to mines or quarries. Annual correspondence of silviculture plans to the Mines Division to identify overlaps and mitigate if needed.
- Every attempt will be made to extract timber harvested as part of oil and mining exploration and development.
- Crown Lands Referral Policy Version 6 (Including Compensation Rate Schedule) can be found in Appendix 2. This outlines specific requirements for Mining Exploration and Development. Future updates to this policy are expected as CBPPL continues to work with Energy and Mines Department.
- Road decommission, bridge removal or upgrade work that may take place on CBPPL Tenure will be communicated to the IET division to mitigate potential negative impacts.
- Permitted activity by CBPPL and IET are to follow the Environmental Guidelines for Mineral and Quarry Materials Exploration, as provided by the Energy and Mines Department.

5.2.3.4 Wind Energy

Characterization:

Newfoundland and Labrador has some of the best wind energy potential in Canada because of its location along the North Atlantic, extensive coastline, and frequent storm systems that produce strong and steady winds both on land and offshore. These natural conditions make the province highly suitable for large-scale wind power development. The combination of rugged terrain and exposed coastal regions results in high average wind speeds, supporting both existing small wind projects and the potential for much larger developments. In recent years, interest in wind energy—especially for use in hydrogen production—has increased significantly, with large areas of land and several major projects being considered to take advantage of this resource. While wind energy currently makes up a relatively small portion of the province's electricity generation compared to hydroelectric power, it is seen as an important opportunity for future growth, helping to diversify the renewable energy sector, stimulate the economy, and strengthen Newfoundland and Labrador's position in clean energy.

Critical Elements:

The development of wind energy projects in Newfoundland and Labrador has several critical elements that directly relate to the forest industry, especially because proposed wind sites are located on Crown forest land. Key elements include:

- Land Use and Forest Tenure: Wind farms often require large areas of land for turbines, access

roads, and transmission corridors. Much of this land overlaps with forestry management units (FMUs) and licensed timber areas. This can lead to loss or reallocation of productive forest land. Conflicts with existing timber harvesting rights and planning schedules may occur.

- Timber Clearing and Fibre Loss: Construction of turbines, roads, and laydown areas requires clearing forest stands. This results in the direct loss of merchantable timber volume and the potential fragmentation of remaining forest stands. Depending on the project there could be opportunities for the forest sector to salvage and utilize cleared wood, offsetting some losses. These opportunities would be determined on a case-by-case basis.
- Access Infrastructure (Roads): Wind projects need extensive road networks, often in previously undeveloped forest areas. These roads can improve access for forestry operations (harvesting, silviculture, fire suppression) as well as reduce operational costs. However, they may also increase pressure on sensitive ecosystems and change long-term forest management dynamics
- Integrated Land-Use Planning: Coordination between energy developers and forestry planners is essential. Requirements may include alignment with forest management plans, and joint planning for land allocation, road use, and mitigation strategies.
- Policy and Regulatory Considerations: Both industries operate under provincial regulation, so Crown land allocation policies must balance timber vs. energy priorities
- Long-Term Land Use and Reclamation: Wind farms generally have long lifespans (20–40 years), affecting forest planning cycles. Some considerations include how land is managed during operation and the reclamation or reforestation requirements after decommissioning.

Guiding Principles:

- Ensure wind developments are incorporated into forest management planning early
- Engagement with companies at the planning level to avoid high-value timber stands, reducing the impact on the fibre supply impacts
- Develop agreements with Crown and/or windfarm companies to potentially harvest, merchandise and fully utilize the cleared timber
- Design access roads for dual use between the project construction and forestry operations. Establish agreements on road standards, maintenance responsibilities and access rights through Memorandums of Understanding or other signed documents
- Where CBPPL tenure is impacted, opportunities are provided for land transfers or compensation due to land base loss
- Review of Crown land referrals in a timely manner with respect to windfarm projects in the province.

5.2.3.4 Parks and Protected Areas

Characterization:

The mission statement of the provincial Natural Areas Program is to protect, in an unimpaired condition, large wilderness areas, representative examples of all of the province's ecoregions including their natural processes and features, and rare natural phenomena, so as to preserve the diversity and distinctiveness of the province's rich natural heritage and to support an ecologically sustainable future for the benefit of present and future generations.

There are several different types of conservation areas in the province contributing to the provincial system of protected areas, as recognized by the International Union for the Conservation of Nature.

- Wilderness Reserves and Ecological Reserves are established via the *Wilderness and Ecological Reserves Act*. Wilderness Reserves are generally large (>1000 km2) and are designed to protect complete ecological systems. Ecological Reserves may be established to protect representative samples of each of the province's natural regions (ecoregions) with a mid-sized reserve (50-1000 km2), or to protect exceptional natural features, occurring in an area <10 km2, such as rare species or areas of unusual biological richness.
- Provincial Parks established under the *Provincial Parks Act*, do play a conservation role, but are primarily established as sites for outdoor recreation and nature-based education.
- Wildlife Reserves may be established under the *Wildlife Act* for the protection of specific species or habitats.
- Public or Crown Reserves may be established for conservation reasons under the *Lands Act*.
- National Parks such as Terra Nova, Gros Morne and Torngat Mountains are established under the federal *National Parks Act*.

The benefits of protected areas are to preserve biodiversity, provide areas for scientific research, opportunities for environmental education, provide standards against which the effects of development can be measured, and provide natural venues for enjoyment of nature.

Critical Elements:

- preservation of biodiversity
- maintenance of protected area integrity
- maintain natural processes and features
- can be utilized as "control blocks" measured against similar areas were forest management activities has occurred.

Guiding Principles:

The type of activities encouraged or permitted within various protected areas in the province depends entirely on the type of protected area and the rational for its establishment. Generally, all non-consumptive activities are permitted; educational activities and scientific research within protected areas generally require a permit and are encouraged.

Protection

- in most protected areas, new development is prohibited such as mining activity, hydroelectric projects, forestry activity, agriculture activity, roads/trails, cabins and new structures.

Operational

- a 500 m no roads buffer is to be maintained around all existing and proposed protected areas to reduce access and minimize damage from motorized vehicles
- no roads are to be constructed within 500m of an established Provincial Park
- where forestry operations are scheduled within one kilometre of provisional and ecological reserves, wilderness reserves or provincial parks, modified operations may be necessary and any amendments to the forest plan may be required.

5.2.3.5 The Greater Gros Morne Ecosystem

Characterization:

The primary role of Canada's national parks is to maintain ecological integrity. Although enshrined in policy for many years, this role has been given prominence in legislation by the passing of the Canada National Parks Act in October 2000. The Report of the Panel on Ecological Integrity of Canada's National Parks (February 2000) noted that parks across the country (including GMNP) are under threat from stresses

both within and outside the national parks. Ninety percent of forested parks are under stress from external forestry activities.
The primary challenge for national parks in maintaining their ecological integrity is that most parks are part of larger ecosystems and the area set side for the parks is not large enough to protect the full integrity of that ecosystem. Large-scale changes on the landscape surrounding parks can isolate the park ecologically creating an "island". Parks Canada must work with adjacent land managers in striving to achieve its mandate.

Biodiversity goes beyond the range of wildlife and plant species to include the range of habitats and landscapes. Loss of special habitats such as the old-growth forest and associated species may impair the ecological integrity of GMNP in ways that are not currently understood.

While ecological integrity has prominence regarding the management of national parks, legislation and policy dictate broader responsibilities for national parks. These include providing opportunities for Canadians and others to have high-quality experiences in a natural setting. Currently, 61 percent of GMNP is classified as Zone II - Wilderness. The eastern area of this zone borders on District 16. The Long Range Traverse, a 3-4 day hike within GMNP, currently has a reputation as a high-quality wilderness experience due to its remoteness and difficult access. Increased access, as a result of forestry operations within District 16, threaten this wilderness quality.

Critical Elements:

- preservation of biodiversity
- maintenance of protected area integrity
- maintain natural processes and features
- can be utilized as “control blocks” measured against similar areas where forest management activities have occurred.

Guiding Principles:

The type of activities encouraged or permitted within various protected areas in the province depends entirely on the type of protected area and the rational for its establishment. Generally, all non-consumptive activities are permitted; educational activities and scientific research within protected areas generally require a permit and are encouraged.

Protection

- in most protected areas, new development is prohibited such as mining activity, hydroelectric projects, forestry activity, agriculture activity, roads/trails, cabins and new structures.

Operational

- a 500 m no roads buffer is to be maintained around all existing and proposed protected areas to reduce access and minimize damage from motorized vehicles
- no roads are to be constructed within 500m of an established Provincial Park
- where forestry operations are scheduled within one kilometre of provisional and ecological reserves, wilderness reserves or provincial parks, modified operations may be necessary and any amendments to the forest plan may be required.

5.2.3.6. Newfoundland T’Railway Provincial Park

Characterization:

The T’Railway is a linear park approximately 883 km in length, making it the longest linear park in Canada. Comprising the former Canadian National Railway right of way, which varies from 25 to 100 feet each side of the center line. It provides an all-season, multi-use recreation corridor and is developed and managed

with Parks and Natural Areas Division in conjunction with the T'Railway Council.

The *Provincial Parks Ac*t provides the legislative framework for the administration and management of the T'Railway and is protected for present and future enjoyment of the public. The T'Railway constitutes the province's contribution to the Trans Canada Trail System and is used primarily by snowmobile and all-terrain vehicles. Industrial or traditional uses such as commercial and domestic harvesting, quarry and mining access and cabin access are also granted with a special permit.

Critical Elements:

- protection of the historical landscape integrity of the T'Railway corridor
- preservation of the scenic quality along the corridor
- control of land usage adjacent to the T'Railway

Guiding Principles:

- co-ordination of activities with various other agencies responsible for land management outside the T'Railway corridor to ensure that the integrity of the park is maintained
- build partnerships with other stakeholders and user groups such as communities, industry and recreational organizations for the long-term maintenance and development of the T'Railway
- Establishment of a 100-meter buffer along the right-of-way corridor to preserve the natural value of the T'Railway. Also, consider viewscapes in forestry management plans.
- Where access is required, any landings or turnaround areas shall be 100 meters or more along the resource roads from the T'Railway.
- where feasible and possible, forestry activity utilizing the T'Railway will avoid peak snowmobile and ATV seasons.
- Applicable permits will be obtained to construct intersecting road crossings as needed.
- Applicable permits will be obtained for use of vehicle and heavy equipment on the T'Railway.

5.2.3.6. Recreation

Characterization:

The greater White Bay area has outstanding scenery, interesting topography, and opportunities for viewing wildlife and flora in a natural setting. These elements represent a small list of reasons why the zone is used extensively for recreational purposes. Hiking, skiing, canoeing and snowmobiling are major recreational activities in the area. Non-timber recreational values are expected to play an increasing role in forest management practices. Canoeing and kayaking on the Main and Indian Rivers, the Alexander Murray and many other hiking trails, numerous ski and snowmobile trails, and excellent hunting and fishing areas highlight some of the recreational opportunities in the zone.

Critical Elements:

<u>Wilderness</u>

Backcountry recreational activities are dependent on the existence of natural pristine wilderness areas. The temporary removal or alteration of this pristine wilderness through forest harvesting practices may result in decreased recreational activities for a given period.

<u>Accessibility</u>

An increase in forest access roads may increase accessibility to remote areas. In turn, this may increase the amount of traffic in an area (both vehicle and pedestrian) and increase or decrease the value of the

experience for many recreational activities. Most individuals involved in recreational activities are concerned about viewscapes. Many of the recreational activities occur because of particular viewscapes.

Guiding Principles:

To prevent negative ecological effects and provide positive experiences, access and levels of recreational activities can be monitored. Public surveys can be used to measure the experiences and the levels of recreation occurring in the zone.

Wilderness

If possible, forest operations should avoid wilderness areas where high concentrations of recreational activities occur. Where operations are necessary, stakeholder meetings could prevent conflicts through temporal scheduling.

Limiting Accessibility

Decommissioning forest access roads could be a possible option when forestry activities are completed. Where possible, harvesting should be conducted using winter forest access roads, which creates less traffic and better allows decommissioning. Where possible, the Crown Lands Division of the Department of Fisheries, Agriculture and Lands shall plan cottage development along newly developed forest access roads in conjunction with Forestry Services. This will allow for planned cottage development areas and potential Crown land reserves to help minimize potential land use conflicts.

Viewscapes

Aesthetic views using landscape design techniques will be utilized in areas where forest operations occur with high concentrations of recreational activities.

5.2.3.7. Tourism

Characterization:

The tourism industry in Newfoundland and Labrador is largely based on natural and cultural resources, where protection is important for the industry to survive and grow. The tourism industry in Newfoundland and Labrador has experienced significant growth since 1997 and contributes ~1.14 billion annually to the local economy.

There are many excellent tourist destinations in the zone. The Main River (designated as Canadian Heritage River), Gros Morne National Park, Fleur de Lys soapstone quarry (National Historic Site), Baie Verte self-guided geology tours, and Deer Lake insectarium are examples of the more prominent tourist attractions.
In previous five-year plans a Tourism Stakeholder Consultation Plan was required as a condition of plan release. All zones and districts have now had this condition of release and Stakeholder Plans exist for them. All plans have been approved.

CBPPL is committed to ensuring the interests of stakeholders are maintained on the Defined Forest Area (DFA). This is demonstrated in the pro-active method CBPPL takes when approaching stakeholders to discuss proposed forest management operations in the vicinity of their interests. This mainly occurs during the 5-year planning process. Cooperating with stakeholders on the DFA can help to ensure their interests are considered, mitigated or protected.

Forest Stakeholder Performance Indicator

As part of CBPPL's Sustainable Forest Management Plan various indicators are used to meet the requirements of forest certification objectives. One of these objectives from the SFI® Forest Management Certification is the Management of Visual Quality and Recreational Benefits. Specifically, from the certification documentation Indicator 5.4.1 states, "Evidence of open and respectful communications with

forest dependent businesses, forest users and local communities to integrate non-timber resources into forest management planning. When significant disagreement occurs, efforts towards conflict resolution are documented."

Our target for this indicator is to aim for the satisfaction of 100% of stakeholders inside CBPPL's five-year operating plan for each Forest Management District, with whom CBPPL has an agreement.
There are numerous stakeholders that have an agreement or Memorandum of Understanding with the company. We continue to engage and update our agreements annually.

Critical Elements:

- Viewscape
- Accessibility
- Wilderness ambiance
- Remoteness

Guiding Principles:

As indicated in the Recreation Values section, CBPPL will collaborate with other stakeholders in this five-year planning period, to implement strategies for minimizing the visual impact of harvesting operations near sensitive areas. This could mean that forest harvesting operations employ: treed buffers, tree retention methods or implement reforestation activity immediately to return the site to a forested condition. As well, temporal changes in harvest scheduling could minimize noise levels during busy seasons near adventure tourism locations.

5.2.3.8. Outfitting

Characterization:

The outfitting industry has been an integral component of the tourism industry in Central Newfoundland since the early 1900's. This region has always been a popular hunting and fishing destination because of the pristine environment and abundance of fish and wildlife species. There are many outfitters operating within the boundaries of the zone that operate and maintain main and/or line camps. These operations provide seasonal employment for many local individuals.

From an article published on January 14, 2022 on the Saltwire website titled "Outfitting industry keeping a close eye on gold mining plans in Central Newfoundland" it is cited; "In a normal year about 7,000 hunters and anglers book excursions with local outfitters, said Cory Foster, Executive Director with the Newfoundland and Labrador Outfitters Association (NLOA).The industry brings about $50 million to the province and employs approx. 1,300 people".

Over the past 10 years, a significant number of traditional hunting and fishing facilities have diversified into the non-consumptive areas of the tourism industry. Such activities include but are not limited to: snowmobiling, dog sledding, kayaking, canoeing, nature viewing, hiking, and wildlife photography. The ability to diversify has positively impacted the viability of outfitting operations and as such, increasing numbers of operators are considering these opportunities. Diversification can lengthen seasons of operation, increase and lengthen employment, and reduce dependency on a single sector of the tourism industry. Pristine wilderness settings are necessary for many of these types of diversification.

Critical Elements:

Remote outfitting camps are dependent on their remoteness. Though forest access roads originally opened access for outfitting camps, they can also inevitably impact the ability of a camp to maintain its remote

status. Increasing accessibility through increased access roads can also lead to increased hunting and fishing pressures in a given area. This can in turn lead to decreased success rates of tourists. This is of particular concern since Newfoundland is often the hunting destination of choice due to success rates upwards of 80 percent. An increase in access roads also tends to lead to increased cottage development that in turn can have an impact on both remoteness and game availability.

While clients of big game and fishing outfitters are primarily interested in hunting or fishing experiences, they also show a great respect and admiration for pristine conditions and a healthy-looking landscape. The landscape view experienced by clients plays a large role in leaving a lasting impression of the province. This view also has a direct impact on repeat client bookings and recommending the destination to others. Viewscapes become even more important once outfitters begin diversification into non-consumptive tourism activities. With these activities, there is no trophy to bring home and that which is taken away is that which has been experienced by the senses (i.e. sights, sounds, smells, etc.).

In some cases, past harvesting practices have resulted in increased levels of garbage (skidder tires, abandoned buses, heaps of oil containers, etc.). This can be frustrating for outfitters who concentrate on not leaving permanent marks on the landscape. Possible erosion caused by hillside logging and heavy equipment use is also a concern - particularly due to its possible effects on water quality for fish habitat.

Guiding Principles:

It is necessary that no harvest buffer zones be left around outfitting camps that are agreed to by all parties involved. Buffer zones can be difficult to negotiate due to varying ranges of activity from operator to operator. Some operators make use of areas that are 8 to 10 kilometers away from the main lodge.

- Consideration should be given to decommissioning roads and bridges (where possible) after harvesting is completed. This will eliminate damage to the hunting area by reducing the possibility of increased hunting pressure. When roads are in use actively for harvesting purposes, access to hunters should be restricted or limited.
- Where possible harvest in the winter. Winter roads are less passable in summer and fall and will help to reduce traffic. These roads will also be cheaper and easier to decommission.
- Construct new roads as far away from existing outfitting camps as possible. The benefits of this are obvious. Harvesting should be restricted around hunting and fishing camps during their season of operation. At these times, harvesting should occur as far away as possible from outfitters.
- Forest operations should be carried out in compliance with existing regulations.
- Efforts should be made to ensure that the integrity of the view from outfitter cabins is maintained when conducting forest operations.
- Forest operations should ensure that whatever is brought into an area is removed from the area once harvesting is complete.

5.2.3.9. Cabin Development Areas and Cabin License to Occupy Areas

Characterization:

In Newfoundland and Labrador, Cottage Development Areas (CDAs) are designated land-use areas intended primarily for seasonal recreational use rather than permanent residential or commercial development. These areas are typically planned and regulated by the provincial government to accommodate cottage development on Crown land while balancing environmental protection, public access,

and traditional land uses such as forestry, wildlife habitat, and recreation. Land-use controls within CDAs often restrict lot sizes, building footprints, servicing options (such as limits on year-round water and sewer systems), and road standards to reduce environmental impact and prevent conversion to permanent subdivisions. By clearly designating CDAs, the province helps manage shoreline development, protect sensitive ecosystems, and minimize land-use conflicts, while still supporting recreational cabin ownership and rural tourism opportunities.

The construction of small cottages or cabins on public lands as a base for outdoor recreational activities such as hunting, fishing, or snowmobiling is a long-held tradition in Newfoundland and Labrador. The Provincial Government issues Licenses to Occupy (LTO) Crown land to individuals for recreational cottage development on public lands throughout the province, including the DFA. A License to Occupy does not grant, convey, or transfer any exclusive right, title, or interest in, or to, a defined cottage lot or land area. It merely gives the licensee permission to occupy Crown Land and construct a cabin. All applications for LTOs on the DFA are referred to CBPPL for review and comment. CBPPL works with Crown Lands staff to accommodate these cottages on the DFA in areas where there is no conflict with the Company's operations or forest management activities.

An agreement between Crown Lands Division and CBPPL has been reached whereby Crown Lands Division will refuse (in most cases) applications that conflict with CBPPL forest management activities and in other cases hold approvals until CBPPL has been compensated (compensation to CBPPL is determined according to CBPPL Crown Land referral policy).

Critical Elements:

When planning forestry activity near cabin development and cabin areas, several critical elements must be carefully balanced to minimize land-use conflict and support sustainable multiple use. Shared forest access roads require coordinated management to ensure continued, safe use by both forestry operators and cabin owners, while avoiding unnecessary upgrades that could alter access patterns or encourage unplanned development. Appropriate buffer zones around cabins, shorelines, and travel corridors are essential to protect privacy, environmental values, and cabin enjoyment. Visual quality is a key consideration, as forest harvesting can significantly affect the recreational and scenic character that defines cabin areas; maintaining visual buffers and applying sensitive harvesting practices helps preserve this character. Public safety must be prioritized through safe operating distances, clear signage, traffic management, and timing of operations to reduce risk to cabin users. CBPPL will continue to manage in a way that does not compromise the continued availability of Licence to Occupy opportunities, ensuring that current and future access to Crown land for recreational cabin use remains viable and consistent with long-term land-use planning objectives.

Guiding Principles:

- Awareness of cabin development areas on five-year planning cycles through landbase reviews with provincial Crown Lands department during Annual Operating Plan development.
- Commitment to allow forest resource road access unless safety becomes an issue or infrastructure removal is planned.
- Commitment to continue reviewing LTO applications as referred by Crown Lands Division.
- Maintenance of operating area signage on active harvest and road building sites to inform the public and promote safety
- Rehabilitation of harvest sites when completed. Ensuring no garbage or remnants from operation remain.
- Placement of buffers on cabins on case-by-case basis.

5.2.3.10. Domestic Cutting

Characterization:

Domestic firewood harvesting in Newfoundland is a long-standing rural tradition that continues to play an important role in home heating and self-sufficiency. The scale of such rivals that of industry. Residents commonly harvest firewood for personal use, often from designated Crown lands, under conditions set by the province to ensure sustainability and forest health. Harvesting typically focuses on standing dead trees, windfall, or low-value species, helping reduce waste while minimizing environmental impact. For many households, especially in rural and remote areas, domestic firewood remains an affordable and reliable heat source during long winters, while also maintaining a strong cultural connection to the land and responsible forest stewardship.

Critical Elements:

Access to CBPPL landbase for Domestic cutting is permitted and managed by either the Crown (through Hardwood Management Agreement) or CBPPL. CBPPL has a large landbase which is near many towns where domestic cutting is popular and sometimes necessary for home heating. The company does not manage its landbase with domestic cutting blocks currently but understands the necessity to include access to volume for domestic purposes.

Benefits of Domestic Permits can include:

- Improved utilization of residual wood – slash, damaged stems, butt junks and blown down dead wood.
- Directing cutters towards cutovers may reduce the pressure on other mature stands.
- Supporting forest regeneration - though removal of slash and unmerchantable species.
- Reduced environmental impacts – existing road access and ground disturbance for access. Less new trail creation and soil disturbance.

Guiding Principles:

- Continue to provide access to CBPPL tenure for Domestic cutting through permitting process.
- Continue discussions regarding future Hardwood Management Agreements.
- Reporting of Domestic Permitting volumes by District through submission of Past Annual Report.

5.2.3.11. Canadian Boreal Forest Agreement Areas

Characterization:

The Canadian Boreal Forest Agreement (CBFA) was a conservation initiative between environmental organizations and forest companies that aimed to develop jointly supported conservation outcomes, including recommendations on protected areas, caribou conservation and forest practices.

In Newfoundland and Labrador, CBFA signatories are Corner Brook Pulp and Paper Limited and the Canadian Parks and Wilderness Society (CPAWS).

Other partnerships were established though the Newfoundland Regional Working Group (NRWG) which consisted of signatories and partners including Miawpukek First Nation, Qalipu First Nation, the Provincial Department of Forestry, the provincial department of Climate Change, Canadian Forest Service, Model Forest of Newfoundland and Labrador, and academics from Memorial University. The group undertook considerable research on protected areas, caribou conservation, forest practices and large intact landscapes.

Although considered inactive due to serious challenges by the mid-2010's, the CBFA areas on CBPPL tenure are still considered protected on a voluntary basis.

Critical Elements:

In Zone 7 there are 6 CBFA areas. Each will be described below for their conservation significance.

- Birchy Basin – 2102ha
    - Extensive, high-quality wetland complex in the Upper Humber River watershed
    - Adjacent to an important waterfowl site
    - Approx 22km of river frontage on Upper Humber and Adies Rivers
    - High abundance of waterfowl
    - Important caribou habitat
    - Diversity of ecosystem types, wetlands, riparian zones, forest islands, barrens)
- Upper Humber River – 1309ha
    - Approximately 61km of frontage on significant waterway (100m buffer on both sides of Upper Humber River
    - High quality harlequin duck habitat and known populations
    - Known occurrence of caribou
    - Transition zone between Northern Peninsula Forest and Long Range Barrens ecoregions
    - Extensive river islands, floodplains and riparian habitat
- Inner Loon Pond – 1,123ha
    - Intact forest landscape
    - Remote tenure block between Gros Morne National Park and Main River Waterway Provincial Park
    - Known caribou occurrences and habitat
    - Contains old balsam fir stands undergoing gap-replacement dynamics
- Sandy Lake – 767ha
    - Traditional use by Qalipu First Nation
    - Important riparian habitat and approximately 22km of lakeshore frontage
    - Significant occurrence of red pine and white pine
    - Known importance for caribou
    - High recreation value
    - Lakeshore beach ecosystems
    - Significant wetland complexes
- Hampden Downs – 25,494ha
    - Important caribou habitat supporting the Hampden Downs caribou herd. Includes both wintering and calving grounds
    - Large intact landscape
    - Stands of black spruce
    - Transition zone from lowland forested areas through slopes to higher elevation barren habitats
    - Extensive wetland, barren, forest habitat mosaic
- West Brook – 3,701ha
    - Contains one of the best examples of red pine forest on the Island of Newfoundland
    - Includes existing West Brook Ecological Reserve; connects two blocks into single, larger protected area
    - Scheduled Atlantic salmon river
    - Large intact forest landscape

- Supports caribou
- Known occurrence of several at-risk species of birds, including Olive-sided Flycatcher, Rusty Blackbird and Red Crossbill
- Site contains some of the most continental conditions on the Island of Newfoundland
- Approximately 24km of river frontage on West Brook
- Headwater lands
- Productive stands of black spruce and occurrences of trembling aspen

The figure below shows the location of the CBFA areas in Zone 7.

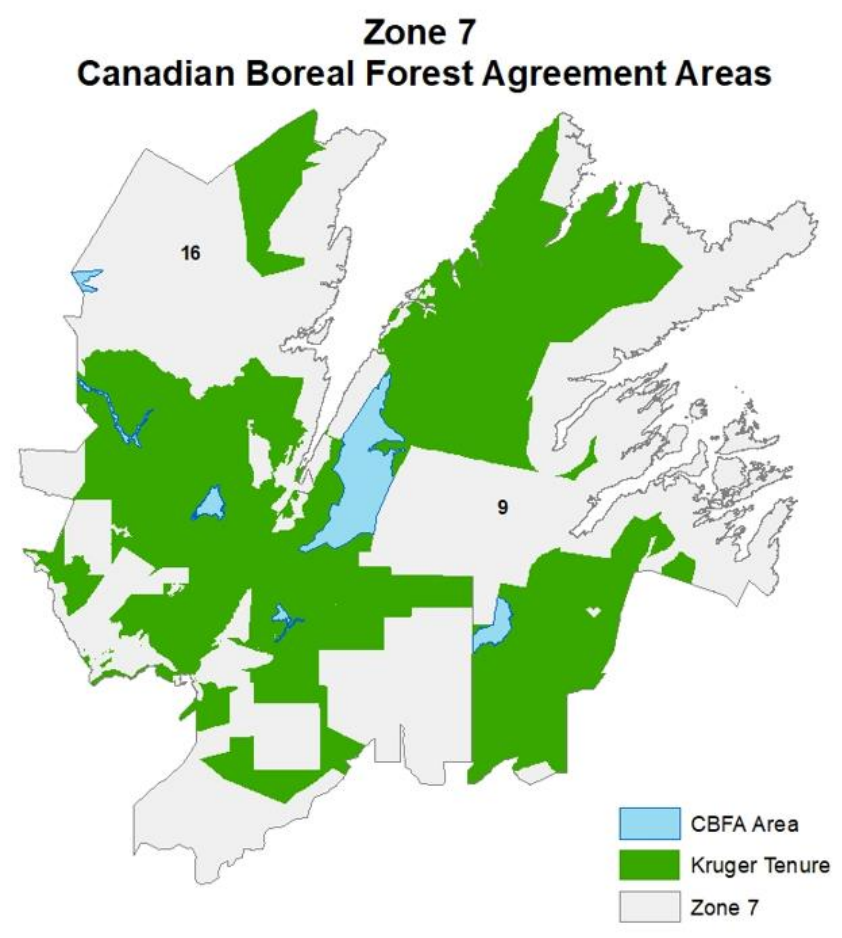

Figure 9 CBFA Areas in Zone 7

Guiding Principles:

CBPPL will maintain its voluntary agreement and protect this and all CBFA areas on its tenure.

5.2.3.12. CBPPL Special Places Program

Characterization:

CBPPL recognizes that the forest provides more than just a supply of fibre for our mill. Other ecological, historical, cultural, and sacred values exist and should be carefully managed. Through various partnerships, Woodlands staff as well as members of the public have developed a list of Special Places.

Each designated Special Places is considered significant for one or more of the following reasons:

- areas containing rare plants

- wetland areas
- areas of value to animal species (bird, fish, invertebrate, mammal)
- interesting or unique geological features
- areas of sacred, cultural or historical significance
- areas containing high quality, representative or unusual forest types
- areas with aesthetic appeal
- areas of education and public outreach

The list was reviewed with the goal of ensuring that controls are in place to manage them and preserve or maintain the attributes that make the areas special. Adding sites to this list in no way indicates that CBPPL will never operate there; it means these areas will be highlighted in our database so that appropriate management measures are taken to ensure contractors are fully aware of their existence and importance when operating near them.

The Special Places program was implemented in 2007 and launched via the CBPPL website. Some of the Special Places listed on our website may currently not be included in the tenure but were at one time part of CBPPL's timber limits. Several of the Special Places already have various forms of management strategies or protections in place.

Critical Elements:

Identifying areas that have special ecological, cultural or recreational significance with the help of organizations, groups or individuals.

Currently in Zone 7 there are 6 Special Places.

- Inner Loon Pond Forest
- Upper Humber Wetlands Complex
- Trailway Provincial Park
- Hampden Downs
- West Brook Ecological Reserve
- Spruce Trails Snowmobile Association

A full detailed writeup can be found on all identified Special Places on the CBPPL Website. www.cbpplwoodlands.com

Guiding Principles:

- Continue to identify and evaluate newly suggested sites
- Recording the location of each site and ensure that the information is in the Woodlands GIS database so it will appear when developing annual and five-year operating plans
- During pre-work meetings with contractors identify the significance of the special place(s) and include any requirements for the contractor to follow.

5.2.4. Science and Research Values

5.2.4.1. Tree Improvement Trials

Characterization:

Newfoundland and Labrador has had a formal tree improvement program since the early 1980s, led by the provincial forest service. The program is centred in Wooddale Research Facility. Early work involved province-wide plus-tree selection, where thousands of natural stands were surveyed to identify superior

phenotypes ("plus trees") based on:

- Height and diameter growth
- Stem straightness and branching
- Apparent disease resistance
- Site adaptation

Nearly 1,000 plus trees were identified across the island portion of the province. Tree improvement trials in NL have focused almost entirely on native boreal conifers, namely:

- Black spruce (*Picea mariana*)
- White spruce (*Picea glauca*)
- Balsam fir (*Abies balsamea*)
- Limited work on jack pine (*Pinus banksiana*)

These species dominate Crown forest land and are the backbone of regeneration programs, particularly on pulp and timber lands.

Critical Elements:

Maintenance of research site integrity

Guiding Principles:

- Protect current Tree Improvement Trial sites as identified by GovNL Forestry Division.
- Keep database as current as possible by requesting annual updates
- Provide proper mapping during contractor pre-works that identify these sites

5.2.4.2. Study Areas

Characterization:

Natural Resources Canada (NRCan), through the Canadian Forest Service (CFS), conducts a range of research projects in Newfoundland and Labrador focused on understanding, managing, and sustaining boreal forest ecosystems. These projects commonly address forest health issues such as spruce budworm outbreaks, wildfire risk, and the impacts of climate change on forest growth and disturbance patterns. CFS researchers also collaborate with industry, provincial partners, universities, and Indigenous groups to improve forest inventory, carbon accounting, and biodiversity conservation, supporting both sustainable forest management and climate mitigation objectives. In Newfoundland specifically, research often emphasizes the province's unique boreal forest conditions, including soil productivity, regeneration after harvesting or natural disturbances, and the role of forests in supporting rural communities and forest-based industries.

CBPPL have been industry partners on multiple projects and continues to support these efforts whenever possible.

Critical Elements:

Access to research sites through existing forest access road networks

Maintenance of research site integrity

Guiding Principles:

CBPPL will continue to work with groups such as NRCan/CFS and to stay informed of research areas that may exist on its managed lands.

- Use of tools such as TreeSource to gain further information into project locations that may overlap with potential harvest areas. Resource contains site location, and description and associated projects
- Appropriate mitigations will be made to protect research sites.

5.2.4.3. Hydrometric Stations

Characterization:

In Newfoundland and Labrador, hydrometric stations serve several critical and practical purposes related to water management, public safety, and resource development. They are part of a provincial–federal monitoring network operated jointly by the Government of Newfoundland and Labrador and the Water Survey of Canada (Environment and Climate Change Canada) under a long-standing cost-shared agreement dating back to 1975. Currently there are 253 locations on the GovNL geohub and five are located within the CBPPL tenure in Zone 7.

Station ID	Station Name	Lat_DD	Long_DD
02YM003	South West Brook Near Baie Verte	49.89361	-56.22278
02YK005	Sheffield Brook Near TCH	49.33639	-56.66556
02YK008	**Boot Brook at TCH**	**49.26639**	**-57.10389**
02YL008	Upper Humber River above Black Brook	49.61917	-57.29417
02YF002	Cat Arm Reservoir near Spillway	50.07500	-56.91611

Measurements typically include water level and streamflow, which are recorded in near real time by satellite from remote locations across the province. The data that is collected becomes important information that is inputted into flood forecasting models as well as supporting water resource management and permitting.

Boot Brook at TCH is the only location that is within a 5YP operating area boundary.

Critical Elements:

Maintaining hydrometric station integrity and data collection quality.

Guiding Principles:

- Road construction or harvesting will not occur within the 30m protective buffer around hydrometric stations.

5.2.4.4. Permanent Sample and Temporary Sample Plots

Characterization: Beginning in 1975, the Department of Forestry introduced a new forest management inventory to support the development of Forest Management Plans. This program relied on extensive field measurement, including more than 500 Temporary Sample Plots (TSPs) and nearly 100 Stand Monitor Plots (SMPs) measured or remeasured annually. While TSPs provided forest land and timber volume estimates, SMPs were used to update inventory cover types between inventory cycles. By the mid-1980s, as the second TSP cycle neared completion, the emphasis shifted toward better understanding forest growth and yield. This led to the establishment of a Permanent Sample Plot (PSP) database, initially focused on regenerating and immature stands, a focus that continued until 1991. In 1992, the program expanded into a province-wide 1,000-plot PSP initiative designed specifically to meet long-term growth and yield information needs, later incorporating additional ecological and wildlife measurements to support broader data requirements.

Technological advancements have continued to improve the PSP program's efficiency and data quality. In

2007, the Newfoundland Forest Service transitioned from paper-based data collection to digital data loggers, significantly reducing data entry time and allowing errors to be identified in the field. A major modernization followed in 2024, when the PSP database was fully redesigned and migrated to the Oracle Forestry Enterprise geodatabase within the ArcGIS Enterprise environment. Data collection now uses iOS and Android devices through ArcGIS Field Maps, replacing earlier loggers.

Critical Elements:

Maintenance of the PSP sites on CBPPL tenure is important to allow for the continuance of the data collection. Updated data from the Provincial Forestry is necessary to ensure the integrity of the sites is maintained and that contractors can be made aware of the location of these sites near harvesting areas.

Guiding Principles:

- PSP sites are mapped and field flagged with a 100m buffer.
- Planning department to continue to update their data with the most recent PSP locations on annual basis.
- If PSP's are no longer collecting data a plan amendment will be sent to Forestry requesting permission to harvest.
- TSP's currently do not require any protection.

5.2.5. Biological Values

5.2.5.1. Moose

Characterization:

Moose are not native to the island. They were introduced in 1878 (Gander Bay) and 1904 (Howley) and are now distributed throughout the island. Between 2012 and 2022, the overall population has been relatively stable with a 4% decline over 10 years. The 2022 population estimate was ~110,000 and in 2020 the population was estimated to be around 118,000 animals (Newfoundland and Labrador Moose Management Plan 2022-2026) Currently, moose are managed on an area/quota system in the province. The Island is divided into 46 Moose Management Areas (MMAs) and license quotas are set annually for each MMA. Quotas are set based upon the management objective for each area (i.e., whether it is desired that the population increase, decrease or stabilize). Generally, if an area has too high a moose population, managers will increase quotas to bring down the population to prevent damage to the habitat. However, if the habitat is in good condition and the area could support more animals, future quotas may be increased. All or portions of moose management areas 15-17, 20-25, 27,28 and 42 are located within the zone. From the Newfoundland and Labrador Moose Management Plan 2022-2026, the Wildlife Division is establishing a new Habitat Policy and Research Section which will focus on integrating habitat research with habitat management.

Critical Elements:

Harvesting is not expected to have a negative impact on moose populations in the zone because moose prefer the early serial stages of a forest and generally do well in areas after harvesting.

Guiding Principles:

The proposed forestry activity is reviewed by the staff at the Wildlife Division and recommendations are incorporated into the five-year plan.

5.2.5.2. Caribou

Characterization:

Caribou on the island of Newfoundland are part of the *Newfoundland woodland caribou population*, which has experienced substantial long-term declines since the mid-1990s, with several herds dropping by more than 60% from historical highs. Despite these declines, the island population is not currently listed as a Species at Risk under the federal *Species at Risk Act* (SARA); COSEWIC continues to assess it as *Not at Risk*, largely due to its still relatively large overall population size and cyclical, density-dependent dynamics. Recent estimates place the island population at approximately 27,000 animals, down from peak levels in the 1990s, with low calf survival identified as the primary driver of decline rather than habitat loss or hunting pressure. Predation—particularly by black bears and coyotes—has been consistently identified as a major limiting factor for calf recruitment. Vehicle collisions on paved roads are also another cause of mortality.

Caribou hunting remains tightly regulated on the island and is permitted only in selected Caribou Management Areas through a limited-quota licence draw, with several herds and regions fully closed to hunting due to low numbers. Hunting levels are considered a minor contributor to population declines compared to natural mortality and predation, but harvest is carefully monitored and adjusted following aerial surveys and herd assessments. Conservation and recovery efforts are guided by the province's Caribou Strategy, which emphasizes long-term population monitoring, predator-prey research, adaptive harvest management, and habitat assessment to stabilize and rebuild herds where needed. While Labrador's boreal caribou are legally listed as *Threatened* and subject to formal recovery plans, the island population is managed proactively to prevent further decline and avoid future listing under federal or provincial species-at-risk legislation.

In 2020, spatial data for caribou was revised and updated to reflect enhanced core ranges for those herds where data exists. The revised caribou model is based on identifying individual home-ranges, which, pending the degrees of overlap, define the new caribou core ranges. Based on a range of criteria those caribou herds have been divided into Conservation herds and Restoration herds. The conservation target for Conservation herds is to maintain habitat at status quo, with an objective to improve overall habitat conditions; whereas the general conservation target for restoration herds include activities that will restore habitat, especially within calving cores and migration paths.

Harvesting and road building activities in caribou habitat has been excluded or limited depending on the status of the herd.

Critical Elements:

It is unclear how forestry activities in the immediate vicinity of calving areas during the calving period may have an impact on caribou populations. Recent studies and anecdotal information have indicated that harvesting restriction zone around caribou calving zones may be significantly larger than first thought. It has also been shown that as roads are constructed and access is improved into remote areas, there is generally an increase in the number of animals which are killed due to roadkill and poaching.

Guiding Principles:

The Wildlife Division of FAL will be consulted on timber harvesting within woodland caribou habitat during the preparation of each five-year operating plan.

- Harvest and road building activities will be planned outside of existing caribou core and calving

areas
- Overlaps of existing infrastructure and harvesting operations will be discussed with the Wildlife division on an annual basis to determine if any temporal restrictions are required
- Use of winter roads or road decommissioning in sensitive areas
- Reporting of species at risk to wildlife division
- Educating harvesting operators on the status of the species and protection of habitat importance

5.2.5.3. Black Bear

Characterization:

The black bear is native to the island and is found in forested areas (Northcott, 1980). Currently, the number of black bears occurring on the island is not known but is crudely estimated to be about 6,000 - 10,000 animals (Government of Newfoundland and Labrador). In the spring of 2025, the former black bear management areas on the island of NL were consolidated into newly established regional areas to enhance hunting opportunities and improve return information that supports management. Within the zone portions of bear management areas 201, 202, 203 and 204 are found. Currently, only one license (with a bag limit at 2 bears) is required by hunters on the island to hunt bears in both spring and fall.

Critical Elements:

- Den sites for winter hibernation
- Forest cover

Guiding Principles:

A 50-metre, no harvesting activity buffer will be maintained around known bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.

5.2.5.4. Furbearers

Characterization:

Ten species of furbearers occur in the zone; lynx, red fox, beaver, otter, muskrat, short-tailed weasel, red squirrel, mink, coyote, and pine marten (will be discussed in more detail in next section). Of these, red squirrel, mink and coyote are not native. Approximately 16,000 people in the province trap and snare furbearers as a means of supplementing income.

Furbearer populations fluctuate from year to year and are influenced by factors such as predator/prey relationships, food supply and disease. Trapping pressure can also influence population growth or decline. (Government Newfoundland and Labrador, Furbearer Management in Newfoundland and Labrador).

Critical Elements:

- Forest cover for protection;
- Water quality maintenance;
- Riparian buffer zones along aquatic areas;
- Snags and coarse woody debris (denning, nesting sites, etc.)

Guiding Principles:

Fur Bearer Management Strategy:

Recommendations concerning the management of furbearer species are developed annually by the Wildlife Division upon consultation with provincial trappers, Newfoundland and Labrador Trappers Association, public, and departmental staff. Like the small game management plan, the fur management plan, reviews

the status of each fur bearer species annually and addresses the season dates and lengths, and if necessary, closure of areas (or no open season). Management of all fur-bearing species in the zone will continue to be managed through this process. Information regarding trapping is made available to the public through the Annual Hunting and Trapping Guide.

Environmental Protection Guidelines:
To protect beaver habitat, all hardwoods within 30 metres of an active beaver lodge are left standing.

5.2.5.5. Pine Marten

Characterization:
The Newfoundland pine marten (*Martes americana atrata*), also referred to as the Newfoundland marten, is a genetically distinct subspecies of the American marten found only on the island of Newfoundland.
Before 1900, marten ranged over most of the forested areas on the island. Unfortunately, due to a variety of reasons, the population levels dropped where this species was listed to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Endangered. Habitat loss, predation, disease and accidental trapping and snaring are thought to be primary reasons for marten population decline in Newfoundland. Marten still naturally occurs in three main areas on the island including: Main River watershed, Little Grand Lake and Red-Indian/Beothuk Lake areas. Additionally, marten also now exist at Terra Nova National Park (TNNP) and surrounding landscape. As well, in the Bay Du' Nord Wilderness Area around Lake St. John's through a relocation effort by the Eastern Newfoundland Pine Marten Recovery Team. Representatives from TNNP, Forest Services Branch, Wildlife Division and CBPPL were represented as stakeholders of the recovery team. Current estimates place the population at approximately **2,500–2,800 mature individuals**, with both abundance and distribution having increased since the early 2000s. These gains are attributed to long-term legal protection, reduced harvest pressure, improved forest conditions, and focused recovery actions led by the Newfoundland Marten Recovery Team and partners. Once listed as Endangered, COSEWIC has now downgraded the marten listing to "Vulnerable".

The Newfoundland pine marten is recovering but not fully secure—listed as Vulnerable provincially and Special Concern federally, with cautious optimism supported by science-based management and continued conservation efforts.

Critical Elements:
- Sufficient habitat to support a viable population of marten;
- Areas of known marten populations remain closed to snaring and trapping

Guiding Principles:
These guiding principles are put in place to further recover the species and allow for forest harvesting.
- Support continued monitoring of the species with wildlife division

5.2.5.6. Salmonids

Characterization:
In Newfoundland, the protection of salmon rivers is a key consideration in forest management because of the close relationship between healthy forested watersheds and viable Atlantic salmon populations. Provincial forest management planning requires the identification and protection of scheduled salmon rivers

through measures such as riparian buffer zones, restrictions on timber harvesting near watercourses, and careful planning of road construction and stream crossings to prevent sedimentation and habitat damage. Maintaining intact vegetation along riverbanks helps regulate water temperature, stabilize soils, and preserve habitat complexity that salmon depend on for spawning and migration. Forest operations are also guided by site-specific prescriptions and interdepartmental coordination to ensure that forestry activities do not compromise fish habitat or water quality. Together, these practices reflect an ecosystem-based approach that balances sustainable forest use with the long-term conservation of salmon rivers and the social, ecological, and cultural values they support in Newfoundland. There are 15 scheduled salmon rivers in Planning Zone 7 on CBPPL tenure.

Critical Elements:

- Water quality maintenance
- Riparian buffer zones along water systems

Guiding Principles:

Salmonid Management (Atlantic salmon and brook trout)

Management of Atlantic salmon and brook trout in the province is delivered by the Federal Department of Fisheries and Oceans (DFO). DFO annually sets bag limits, season dates and river closure dates based on extreme water temperature.

Environmental Protection Guidelines and other requirements

- A 30m no harvesting buffer zone shall be maintained around all water bodies that are identified on the latest 1:50,000 national topographic map.
- Streams greater than 2m in width that do not appear on the NTS maps require a 30m buffer
    - if they have a defined bottom,
    - banks that exceed 30cm in depth; and
    - meets or exceeds an average 2m in width measured at 40m intervals over a 200m distance along the stream

- Where the slope is greater than 30 per cent there shall be a no-harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer requirement.
- DFO recommends that a 100 metre no-cut buffer zone be left in designated sensitive spawning areas.
- Temporary stream crossings must be installed without placing any materials in the waterbody.
- Permitting must be acquired before installation of permanent structures (bridges/culverts).

5.2.5.7. Banded Killifish

Characterization:

The Newfoundland population of Banded Killifish was first listed as special concern in 1989 due to the limited area of occupancy, limitation on potential for range expansion, and potential threats from logging and other activities that could lead to habitat degradation (Chippett, 2003). In 2003 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommended the status of special concern should be maintained. Banded killifish populations in Newfoundland are distributed over a wide range, but local populations are restricted to very confined regions within their respective watersheds. Populations appear to be locally abundant in representative areas that were sampled (i.e. Indian Bay watershed, Loch Leven and

Freshwater Pond). Although multiyear data is not available, population estimates from 1999 indicate that over 20,000 individuals exist in the Indian Bay watershed. Estimates are not available for other local populations (Chippett, 2003). Although no killifish have been officially reported in other areas of the planning zone, it is highly likely other areas may contain suitable habitat.

Critical Elements:

- water quality maintenance;
- riparian buffer zones

Guiding Principles:

- Guidelines for the protection of freshwater fish habitat are developed by DFO's Habitat Management Branch
- Designated protected public water supply areas (PPSWA's) also provide protection. Also, applying existing Environmental Protection Guidelines to these areas (i.e.. Increased buffers, 150 meters on intake ponds, 75 meters on main river stems, 50 meters on major tributaries and minimum 30-meter buffer regulated in the rest of the district). - Protection of this species is also strengthened through partnerships with the community-based watershed management groups. In the past, industry has negotiated increased buffers on waterways throughout the Indian Bay watershed area with IBEC and Middle Brook watershed with FABEC.
- DFO has indicated the level of protection provided by the PPWSA buffers and the additional buffers negotiated between IBEC and industry, along with the implementation of forestry best management practices will be adequate habitat protection for this species.

5.2.5.8. Red Crossbill

The red crossbill is currently listed as endangered. Any recommendations on modified forestry activities, if any, will be developed by the Wildlife Division and will be presented in comments in future 5YP's or annually in the Certificate of Managed Lands. CBPPL staff are currently members of the landbird recovery team which will be developing a recovery plan for this and other species at risk.

5.2.5.9. Raptors

Characterization: Newfoundland is home to a diverse array of raptors (birds of prey) species that thrive in its coastal, forested, and open landscapes. Prominent among them is the Bald Eagle, which nests along shorelines and feeds largely on fish and seabirds, and the Osprey, a fish-eating raptor commonly seen hovering over lakes and bays. Peregrine Falcons nest on sea cliffs and are known for their incredible speed while hunting other birds in flight. Open bogs and barrens provide habitat for Northern Harriers, while Rough-legged Hawks and Snowy Owls are seasonal visitors that arrive from Arctic regions, especially during winter. Together, these raptors play an important ecological role in Newfoundland by helping regulate prey populations and serving as indicators of ecosystem health.

Raptors in Newfoundland and Labrador are protected through a combination of federal and provincial legislation, habitat conservation measures, and targeted management practices.

Critical Elements:

- forest cover for protection;
- water quality maintenance;

- riparian buffer zones along aquatic areas;
- snags and coarse woody debris (prey habitat)
- buffer zones on nesting sites
- the locations of all known bald eagle and osprey nests will be identified on all cutting maps and harvesters will be informed of their locations.

Guiding Principles

- The EPG's outline Beneficial Management Practices which would reduce the risk to raptors during nesting season:
    - No forestry activity is to occur within 800 metres of an active bald eagle nest or osprey nest during the nesting season (March 15 to July 31) and 200 metres during the remainder of the year. For other raptor species like hawks, falcons, and owls, no forestry activity is to occur within 160 metres of a known active nest during the nesting season. The location of any raptor nest site must be reported to the Wildlife Division. Travel on established access roads outside a 200m zone of an active nest is a permitted activity, including forwarding of harvested timber, with the requirement that if roads/ trails are in use for two weeks or longer between March and July, the nest must be monitored and a summary of breeding success and travelling activities with appropriate mapping be emailed to WD at the end of trail usage or end of July, whatever comes first.
- During site layout for road construction or harvest block layout supervisors are to observe and record possible nest sites for possible buffering requirements.

5.2.5.10. Waterfowl

Characterization: Maintaining waterfowl populations depends on effective conservation efforts throughout North America. Newfoundland and Labradors' most productive waterfowl breeding and staging areas are either owned or are under management control of major corporations, private or communities. To help manage waterfowl areas, stewardship agreements are signed at either the municipal, corporate or private levels.

Critical Elements:

- Habitat – Maintenance of it
- Breeding – disturbance of waterfowl during the brood rearing, breeding, and staging period

Guiding Principles

- The EPG's outline Beneficial Management Practices which would reduce the risk to waterfowl:
    - A minimum 50 meter no cut buffer on significant wetlands / waterfowl areas as identified by the map in Appendix A of the EPG's (Appendix 1). The map illustrates the location of Sensitive Wetland Areas', where forest harvesting can occur inside the identified boundaries, with implementation of buffers and using the operational guidance for determining the edge of a wetland in Appendix B of the EPG's.
    - A minimum 30 meter, no cut buffer and a 50 meter no-grubbing zone will be maintained from the high water mark in Sensitive Wildlife Areas for waterfowl including breeding, molting and staging areas.

5.2.5.11. Migratory Birds

Characterization: In Canada migratory birds, nests and eggs are protected under the Migratory Bird Convention Act (MBCA). Currently, the inadvertent harming, killing, disturbance or destruction of migratory birds, nests, and eggs often referred to as "incidental take", may be considered a violation under the MBCA and its regulations.

Bird nests occur in virtually every stand logged during the nesting season, which can run from mid-April through mid-August each year in Newfoundland and Labrador. This places forest operations in direct conflict with the MBCA during nesting season, with no opportunity to obtain a permit for authorization. Shutting down forest operations for this period would have huge economic and social implications.

Critical Elements:

- Habitat – Maintenance of it
- Breeding – disturbance of nests during the breeding season
- Knowledge of legal obligations
- Risk assessment and planning
- Prevention and mitigation

Guiding Principles

All CBPPL staff, contractor owners, supervisors and equipment operators must complete Environmental Awareness Training. During training some of the environmental topics include:

- Maintenance of wildlife trees for biological diversity
- Residual retention – habitat connectivity, nesting areas
- Maintenance of buffer zones
- Review of species at risk in the province and the reporting of them to the Environmental Management Representative for CBPPL
- Protection of nests during silviculture treatments
- Fuel management – storage and emergency response plans

During site layout for road construction or harvesting identify nests as found and ribbon for seasonal protection.

5.2.5.12. Other Avian Species

Characterization:

Grouse and ptarmigan are important game birds in Newfoundland and are well adapted to the island's boreal forests, bogs, and barrens. The Ruffed Grouse is the most common species, inhabiting forest edges and mixed woodlands where it feeds on buds, leaves, and berries and is known for its distinctive wing-drumming display. Willow Ptarmigan and Rock Ptarmigan are found mainly in open tundra-like habitats, especially in western Newfoundland and higher elevations, where they rely on shrubs and hardy vegetation for food. Ptarmigan are especially notable for their seasonal plumage change, turning white in winter to blend into snowy landscapes, which helps them avoid predators. Together, grouse and ptarmigan play an important role in Newfoundland's ecosystems and rural traditions, contributing to both wildlife biodiversity and regulated subsistence and recreational hunting.

Critical Elements:

- forest cover for protection and food sources

- water quality maintenance
- regulated hunting to prevent population declines

Environmental Protection Guidelines

Protection of nests if discovered on operating areas or near roadside piles.

5.2.5.13. Red and White Pine

Characterization:

Provincially, the range of white pine is shrinking due to a variety of reasons including past harvesting practices and infection from blister rust. However, significant stands of white pine still exist in forest management districts of Planning Zone 6. Red pine is the rarest tree species in the province with a distribution of some 22+ small stands (<15,000 trees in total). There is low representation of red pine in this Planning Zone. However, since both species occur in Planning Zone 6, local protection is required to maintain local and provincial biodiversity.

Critical Elements:

- maintenance or enhancement of stands on the landbase
- minimizing loss of trees/stands through public education
- minimize losses to fire, insect and disease
- enhancement of younger age classes through planting natural regeneration and pruning to ensure continuance of the species
- maintenance of native genetic stock

Guiding Principles:

- enforcement of forestry act, regulations, guidelines, and policies
- gene preservation gardens for these species and a clonal orchard for white pine have been developed by DNR at Wooddale Tree Nursery. At some point, the goal is to produce seed from these gardens/orchards to grow pine seedlings of native origin.
- some native red pine stands are protected under reserve status.
- EPG's state that there is not cutting permitted of Red Pine, FAL has adopted a no cutting policy of pine by nontraditional users and a phase out of cutting by traditional commercial users. Currently, no commercial operators harvest pine.
- protection of these species in planning zone is expected to be strengthened by public education and no-cut conditions on permits (both domestic and commercial).
- implementation of silviculture treatments designed to merge pine back into the landscape.
- DNR is collecting seed from red pine stands of native origin and the collection of white pine scions for the clonal orchard at Wooddale - DNR also implements stand level silviculture prescriptions such as pruning of immature white pine to reduce the infection rate of blister rust and cone production enhancement on red pine to ensure an adequate supply of native red pine seed.
- CBPPL staff are members of the Red Pine Recovery Team.

5.2.5.14. Black Ash

Characterization:

Black Ash is one of Newfoundland and Labrador's rarest native trees. It is also one of the most important species in Mi'kmaq culture. Its provincial range includes an approximately 10,390-km2 area of western

Newfoundland where the species grows in forested wetlands, floodplains, along stream and riverbanks, and occasionally on limestone talus slopes; it does not naturally occur in Labrador. Black Ash typically have a single dominant trunk, but a shorter, shrub-like growth form is possible following damage to the main stem (e.g., extensive herbivory). The species has compound leaves, corky bark, and uniquely cone-shaped terminal buds. The main threats to Black Ash in the province are land conversion, herbivory, and the potential introduction of Emerald Ash Borer.

Critical Elements:

- Maintenance of habitat through riparian buffers
- Support recovery initiatives as members of the Black Ash Recovery Team

Guiding Principles:

- CBPPL are members of the Black Ash Recovery Team
- Identify and protect Black Ash when found in the field
- Educate staff and contractors on identification of the species and the protection regulations
- Report locations of Black Ash to Wildlife Division GovNL

5.2.5.15. Yellow Birch

Characterization:

Yellow birch (*Betula alleghaniensis*) is a relatively uncommon but distinctive hardwood in Newfoundland, found primarily in the southern and southwestern parts of the island. Unlike the extensive yellow birch forests of mainland Canada, Newfoundland's populations are patchy and limited, making the species locally important for biodiversity and forest structure. Known for its yellow-bronze, curling bark and wintergreen scent in the twigs, yellow birch typically occurs in mixed stands with balsam fir and other hardwoods on moist, well-drained sites. Because of its slow growth, long lifespan, and limited distribution in the province, yellow birch is considered a high-value species and is generally managed carefully under sustainable forest management practices to ensure its persistence in Newfoundland forests.

Critical Elements:

- Protection of large trees and yellow birch leading stands with respect to regeneration and seed sources

Guiding Principles:

- As per CBPPL Environmental Management System protection of yellow birch includes:
  - Leaving yellow birch trees that are >50cm dbh (as seed trees)
  - In yellow birch leading stands leave 25 trees/ha >20cm dbh.
  - During pre-commercial thinning operations employees are to favour yellow birch over other hardwoods when thinning.

5.2.5.16 Rare Plants

Characterization:

Approximately 300 plant species, or about a quarter of all plant species on the island of Newfoundland, are rare and are found in 20 or fewer locations. Rare plants are often found in habitat types that are rare or at least restricted. While the limestone barrens of the Great Northern Peninsula are the best-known rare plant habitat, other habitats with high rare plant diversity exist in central Newfoundland and other areas of the island. Currently, 27 plants and 3 lichen species are listed under the Endangered Species Act.

Critical Elements:

- Quarrying and road construction
- Logging and extraction using heavy equipment
- Mechanical site preparation
- All terrain vehicle traffic

Guiding Principles:

- To ensure that rare and endangered plant species present in the zone do not become extinct resulting from forest management operations.
- To identify and protect rare plant habitat
- To educate department personnel and the public on the locations and importance of rare plants
- Encourage domestic harvesting in the winter
- Identify and update all rare plant sites on GIS forestry data base
- Ensure that areas containing rare plants are marked and posted
- Work with the Wildlife Division to develop mitigative measures in areas where rare plants occur.

5.2.5.17. Boreal Felt Lichen

Characterization:

Boreal Felt Lichen (Erioderma pedicellatum) is an epiphytic, foliose lichen that occurs primarily on the trunks of balsam fir in cool, moist forest environments in Newfoundland. It is occasionally found on fir branches and on black spruce, and more rarely on other tree species such as red maple, trembling aspen, and white birch. When dry, the lichen appears grey-brown, becoming slate blue to greenish when wet. Both the upper and lower surfaces are covered with fine white hairs, giving the thallus a felt-like texture, and the margins are characteristically white and upturned. Small, distinctive apothecia on the surface are pinkish-orange when dry and darken to purplish tones when moist. Newfoundland supports some of the most significant remaining populations of Boreal Felt Lichen in the world: the Avalon Peninsula and the Bay d'Espoir region.

The species is currently listed as Special Concern under the federal COSEWIC, specifically as part of the boreal population of the species.

Critical Elements:

- Maintenance of existing populations of Boreal Felt Lichen as they are currently known.

Guiding Principles:

- Rare and at-risk lichens listed under the NL Endangered Species Act are known to occur throughout the forests of Newfoundland and Labrador. To minimize negative effects on rare and at-risk lichens, staff from Forestry, Agriculture and Lands - Wildlife Branch will work together to ensure lichen surveys are conducted where required and appropriate mitigations are implemented. Mitigations and monitoring will be dependent on forest region.
- Support through management plans and education of staff and contractors

5.2.6. Water Resources

5.2.6.1. Public Protected Water Supply Areas

Characterization:

Public protected water supplies in Newfoundland and Labrador are sources of drinking water—such as lakes, ponds, reservoirs, rivers, or groundwater—are formally designated and managed to provide safe potable water to communities. These water supplies are protected under provincial legislation, primarily the Water Resources Act and associated regulations, which allow the government to establish protected public water supply areas with controlled land use to prevent contamination. Activities such as forestry, agriculture, road construction, and development within these areas are regulated to reduce risks from pollution, erosion, or pathogens. Municipalities or local service districts are typically responsible for operating and maintaining the water systems, including treatment, monitoring, and distribution, while the provincial government provides oversight, water quality standards, and enforcement. Protecting these water supplies is especially important in Newfoundland and Labrador due to many communities relying on surface water sources, which can be more vulnerable to environmental and human impacts.

Critical Elements:

Forest management activities such as road construction, maintenance, timber harvesting, and silviculture may potentially alter the quality of water draining from watersheds. As well as other defining characteristics such as stream hydrology, sediment loadings, stream characteristics, and aquatic discharges from municipalities. Careless storage and handling of fuels by industrial and recreational users, stream diversions and agricultural operations are other examples.

Within Zone 7 there are several overlaps between CBPPL tenure and PPWSAs. For this proposed 5YP the operating areas with overlaps are only in District 9. They include Seal Cove and Wild Cove (Seal Cove K-09-39) and Baie Verte (Pine Pond K-09-10).

Guiding Principles:

The Environmental Protection Guidelines state:

- The following permits and approvals are required prior to the beginning of any forestry operations, whether commercial or domestic operations, and includes road construction, silviculture activities, and harvesting within a Protected Public Water Supply Area:
    - Approval of the five-year operating plan by the Environmental Assessment Division,
    - Issuance of a permit under section 39(6) of the Water Resources Act which may include consultation with the community involved.
- As per permit requirements buffers must be placed on intakes, river channels, tributaries and other waterbodies in the PPWSA.
- Follow fuel storage requirements as per permit.
- Report water quality impairment problems immediately to Water Resources

5.2.6.2. Drilled Wells

Characterization:

Drilled water wells are a common and important source of potable water for rural and semi-rural properties in Newfoundland, where many homes are located beyond the reach of municipal water systems. These wells are typically drilled into bedrock to access groundwater, which is generally of good quality due to the province's hard rock geology but can contain naturally occurring minerals such as iron, manganese, or

arsenic. Because soil cover is often thin and fractured bedrock is widespread, well depths can vary significantly depending on local conditions and water availability.

Critical Elements:

Protection from physical damage to wells
Fuel and oil spills
Updated well location files

Guiding Principles:

- Placement of buffers on operations maps and discussions with contractors during pre-work meetings.
- Field flagging in place prior to harvest in areas where wells are known
- Request to water resources on annual basis for updated protected well locations

5.2.6.3. Significant Wetland Areas (SWAs)

Characterization:

Newfoundland and Labrador contain extensive and ecologically significant wetland areas, including bogs, fens, marshes, and riparian wetlands, which are closely interwoven with the province's forested landscapes and therefore highly relevant to forest harvest operations. These wetlands play a critical role in water storage and regulation, maintaining water quality, supporting biodiversity, and providing habitat for species such as waterfowl, caribou, and amphibians. From a forest management perspective, wetlands are particularly sensitive to disturbance: soil compaction, rutting, altered drainage, and sedimentation can result from poorly planned harvesting or road construction. As a result, provincial forestry practices place strong emphasis on wetland identification, retention of buffer zones, seasonal timing of operations, and careful placement of crossings and skid trails to minimize impacts. Protecting significant wetland areas during forest harvest not only reduces environmental risk but also supports long-term forest productivity, watershed health, and compliance with provincial environmental protection standards.

Critical Elements:

When forest harvesting occurs near wetlands in Newfoundland and Labrador, several critical environmental and operational elements can be impacted if not properly managed:

- Water quality and hydrology: Wetlands regulate surface and groundwater flow, so disturbance can alter drainage patterns, increase sedimentation, and raise nutrient or contaminant levels in downstream waters, affecting fish habitat and drinking water sources.
- Soil integrity: Wetland soils are typically saturated and low in bearing strength. Harvesting equipment can cause rutting, compaction, and erosion, leading to long-term soil damage and changes in wetland function.
- Wildlife habitat: Wetlands support a wide range of species, including waterfowl, amphibians, moose, and woodland caribou. Harvesting nearby can fragment habitat, disrupt movement corridors, and affect breeding or calving areas.
- Riparian and buffer vegetation: Trees and shrubs adjacent to wetlands provide shading, bank stability, and nutrient filtering. Removal or damage to this vegetation can increase water temperatures and reduce ecological protection.
- Wetland connectivity: Roads, skid trails, and crossings can block or redirect natural water movement between wetlands, affecting their ability to recharge, drain, or function as part of a larger watershed.

- Carbon storage and climate regulation: Peatlands and bogs store significant amounts of carbon. Disturbance can release stored carbon and reduce the wetland's long-term climate regulation role.

Because of these risks, forest harvest planning in Newfoundland emphasizes wetland mapping, buffers, timing restrictions, and low-impact practices to protect these critical elements while maintaining sustainable forest operations.

Guiding Principles:

- Land class mapping preparation including the locations of wetland areas and significant wetland areas.
- Use of buffers around wetland areas using the Environmental Protection Guidelines for Best Management Practices
    - A minimum 50 meter no cut buffer on significant wetlands / waterfowl areas as identified by the map in Appendix A of the EPG's (Appendix 1). The map illustrates the location of SWA's, where forest harvesting can occur inside the identified boundaries, with implementation of buffers and using the operational guidance for determining the edge of a wetland in Appendix B of the EPG's.
- Seasonal planning considerations in areas of low soil stability and thick organic layers

5.2.6.4. Flood Plains

Characterization:

The Humber River flood zone is a large area encompassing an area approx. 7,998 km2. The Humber River is one of Newfoundland and Labrador's largest river systems and flooding affects low-lying areas near Corner Brook, Pasadena, Deer Lake, Reidville, Little Rapids and Pynn's Brook, especially during spring snowmelt and extreme rainfall events.

Critical Elements:

- Increased peak flows from faster runoff in cutover areas
- Impacts from road networks, ruts and drainage networks

Guiding Principles:

- Use of best management practices with respect to road construction
- Use of buffer and no-grub zones during road construction around riparian areas
- Culvert sizing which allows for peak flows and flood event possibilities
- Erosion control measures in place at all times
- Timing restrictions when needed during spring and fall harvests
- Emergency preparedness equipment in place at all times
- Development and implementation of Standard Operating Procedures for harvesting and road building activities
- Erosion and Sediment Control Plan submitted and approved. Established BMPs used in all FMDs.

5.2.6.5. Spawning and Nursery Habitats

Characterization:

Protection of salmonid spawning and nursery habitat in NL is delivered through a layered federal–provincial framework, supported by stewardship programs and science-based best management practices

(BMPs). The core objective across all instruments is to prevent harmful alteration, disruption, or destruction of fish habitat—especially gravel spawning beds, rearing pools, overwintering areas, and riparian zones.

The Fisheries Act is the primary legal mechanism protecting salmonid spawning and nursery habitat across NL. It prohibits:

- Harmful alteration, disruption, or destruction of fish habitat
- Unauthorized obstruction of fish passage
- Activities causing sedimentation, dewatering, or temperature alteration in salmon rivers

This applies to all life stages of salmonids, including eggs, alevins, parr, and juveniles occupying nursery habitat.

Authorization is required to do any work in or near water (e.g. installation of culverts, road crossings etc.).

Provincially the Water Resources Act provides protection of water bodies and shorelines. It regulates activities that could adversely affect rivers, streams, brooks, wetlands, and lakes used by spawning fish. Permits are required for alterations to water bodies and end of year completion reports are sent to both the federal and provincial governing bodies.

Critical Elements:

Risk of sedimentation events which could affect spawning and nursery habitats through harvest and road building activities.

Guiding Principles:

- Minimize the number of crossings needed through strategic road layout
- Identification no cut buffers and no grub zones as per the EPG's
    - A minimum 30 no cut buffer and 50 meter no grubbing zone for sensitive fish habitat (e.g., salmonid spawning habitat) as identified in the five-year operating plan release conditions.
- Buffering on scheduled salmon rivers and tributaries
- Use of SOP's for permanent and temporary crossing installation and removals

SECTION 6. MITIGATIONS

	Contact	FMD	ISSUES / CONCERNS RAISED DURING 2027-2031 PLAN DEVELOPMENT on CBPPL Timber Limits (Government Depts. and one-on-one consultations with known stakeholders)	Mitigation
Qalipu First Nations	Ian Sullivan, Brooke Carter	9 & 16	Inclusion of Traditional Land Use section in 5YP text developed and sent for review. Text updated and included in this and all 5YP's going forward. Draft boundaries emailed to Ian Sullivan and Brooke Carter. At this time there are no features identified that would be of special concern.	Continue to provide annual plans for review and potential feedback as new information is gathered by the Qalipu First Nations.
Newfoundland and Labrador Snowmobile Federation	Matthew Swain, Bruce Yates, Mark Lamswood	9 & 16	Copies of maps provided. Both overview for district and 5YP focused. No concerns raised. Location and timing of winter operations continue to be the focus between both groups.	Continue to have annual meetings to review the winter and spring plans for harvesting.
International Appalachian Trail	Paul Wylezol	9 & 16	Email sent to review maps online. No issues with harvesting in any of the areas outlined.	No mitigation needed but continue to keep the group informed of future plans.
Atlantic Salmon Federation	Kim Thompson	9 & 16	Email sent to review maps online	
Newfoundland and Labrador Outfitters Association	Cory Foster	9 & 16	Email sent to review maps online. Cory Foster forwarded email to the entire membership.	Continue to engage with NLOA during plan development phases for feedback.
BuckLake Adventures Inc Upper Indian Pond Buck Lake	Roger Sheppard		Email sent to review maps online. No response as of plan submission	
Island Safaris	Cyril Pelley		Email sent to review maps online. No response as of plan submission	
Newfoundland Hydro	Craig Parsons		Email sent to review maps online. No response as of plan submission	
Springdale Forest Resources	Dennis Young		Email sent to review maps online. No response as of plan submission	
Meyers Minerals	Jamie Meyer		Email sent to review maps online. No response as of plan submission	
Rays Hunting and Fishing Lodge Ltd. Sandy Lake	Ray Broughton		Email sent to review maps online. No response as of plan submission	
Eclipse Pond Big	Fred Thorne		Email sent to review maps online. No response as of plan submission	

Falls				
Cottles Island Lumber	Laurie Philpott		Email sent to review maps online. No response as of plan submission	
Sextons Lumber	Kevin Sexton Neil Greening		Email sent to review maps online. No response as of plan submission	
College of the North Atlantic	Peter Yates Jason Baker		Email sent to review maps online. No response as of plan submission	
Northwest Forest Resources	Craig Reid Andrew Reardon		Email sent to review maps online. No response as of plan submission	
Majors Contracting Ltd.	Desmond Major Dean Major Jim Reid Shane Keeping Luke Worthman Markus Flynn		Email sent to review maps online. No response as of plan submission	
Nobles Resources Inc	Gene Noble Grant Noble Tina Thomas Marty Bowers		Email sent to review maps online. No response as of plan submission	
Ducks Unlimited Canada	Danica Jackson Park		Email sent to review maps online. No response as of plan submission	
Birds Canada	Catherine Dale Jenna McDermotts		Email sent to review maps online. No response as of plan submission	
Long Pond Lodge			Email sent to review maps online. No response as of plan submission	
Leslie Lake Outfitters			Email sent to review maps online. No response as of plan submission	
Flynns Services Ltd. Tilt Lodge			Email sent to review maps online. No response as of plan submission	
Roberts Outfitting Ltd.			Email sent to review maps online. No response as of plan submission	
Adies Lake Lodge			Email sent to review maps online. No response as of plan submission	
Taylors Brook Outfitting			Email sent to review maps online. No response as of plan submission	
Ocean Side Country Lodge			Email sent to review maps online. No response as of plan submission	
Town of Seal Cove			Email sent to review maps online. No response as of plan submission	
Town of Baie	Amanda Humby, CAO	9	Email sent to review maps. Reply from the town included the following concerns:	CBPPL will be prepared to review 5YP areas that are close to highway 410.

Verte			Adequate buffer zones are maintained along all major transportation routes particularly Route 410. Requesting buffer widths be increased to prevent the visibility of clear cuts from the highway. Also requesting that buffers be placed along the snowmobile trails within the entire district.	Currently there is a 100m buffer that is required. CBPPL will follow this guideline but will commit to reviewing areas again to see which areas may be of concern and review with the town as needed. CBPPL will contact the NLSF regarding buffers in District 9. There is currently a MOU with the NLSF which gives them access to use CBPPL constructed resource roads. We will open a dialog to discuss concerns going forward.
Town of Hampden			Email sent to review maps online. No response as of plan submission	
Burtons Cove Logging and Lumber	Zeta Osmond Andrea Ropson		Email sent to review maps online. No response as of plan submission	
Gros Morne National Park	Darroch Whitaker		Email sent to review maps online. No response as of plan submission	
March & Mill Co Outfitters	Kevin Marchand		Email sent to review maps online. No response as of plan submission	
Northern Lights Adventures Ltd	George McCarthy		Email sent to review maps online. No response as of plan submission	
Wilderness Horizons	Doreen Goobie Graydon Rodgers		Email sent to review maps online. No response as of plan submission	
Big River Camps	Judy Normore		Email sent to review maps online. No response as of plan submission	
Eagle Mountain Outfitters Limited	Brad Chaulk		Email sent to review maps online. No response as of plan submission	
Blackridge Outfitters Limited	Barry Strickland		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Wilfred Bartlett		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Mike Brake		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Overton Colbourne		Email sent to review maps online. No response as of plan submission	
MUN Grenfell Campus	Stephen Decker		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Sean Dolter		Email sent to review maps online. No response as of plan submission	

Town of Deer Lake	Carl Goudie		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Debbie Hearn		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Ralph Rice		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	Tim Moulton		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	George VanDusen		Email sent to review maps online. No response as of plan submission	
Concerned Citizen former PAC Member	John Baird		Email sent to review maps online. No response as of plan submission	
Unifor Local 60N	Kerry Anstey		Email sent to review maps online. No response as of plan submission	
Rob Clarke Motor Sports	Rob Clarke		Email sent to review maps online. No response as of plan submission	
Forestry, Agriculture and Lands GovNL	Wes Morgan Paul Taylor Bryan Oke Dave Poole		Plan sent by mail to FAL for review	
District Ecosystem Manager FMD 16	Rebecca Parsons		Plan sent by mail to review	
District Ecosystem Manager FMD 9	Bradley White		Plan sent by mail to review	
Nature Conservancy of Canada	Piers Evans	5/6	Email sent to review maps online. No response as of plan submission	

SECTION 7. PUBLIC CONSULTATION

A component of forest-management planning in this province is public engagement. Since the 1990s forest management plans have been developed with advice from public planning teams. This process was designed to garner advice from the public and was intended to improve forest management practices at the local scale while also mitigating land-use conflicts. Because the forest management planning process is the only regular interface for public input, the planning teams have become a catch-all for many provincial resource management issues. In many cases, issues raised extend beyond the district or zonal boundaries and may even be outside the scope of the planning team mandate. It is important to note that the forest management planning and consultation process has had a measure of success. Diligent work by district managers and planners has led to the submission and implementation of many plans over the past several decades.

The stakeholder involvement process into the development of new five-year operating plans has changed from historical processes. Over the years managers have seen a reduction in public participation in many zones. CBPPL has contacted several known stakeholders in Zone 7 during spring 2026 as the plan was being developed. This list of known stakeholders were sent instructions on how to provide feedback on the plan. A draft version of all maps for Zone 3 was posted to the Corner Brook Pulp and Paper Website in May 2026. On the website interested people can send questions/comments to CBPPL woodlands staff regarding the posted plans. Section 6 lists all mitigations from consultation.

During the approval process of the last 5YP for Zone 7, a Tourism Stakeholder Consultation Plan was requested. This plan included details around CBPPL's Stakeholder Performance Indicator in its Sustainable Forest Management Plan, the consultation process for the 5YP, our Annual Operating Plan outreach, general communications, special places program, and the public engagement list used during plan development. Since this plan we have continued to add to the consultation list as new groups reach out. A copy of the plan can be found in Appendix 4.

SECTION 8. MANAGEMENT OBJECTIVES AND STATEGIES

8.1 Harvesting

The forest in this zone is part of the boreal forest, which is characterized as being disturbance driven resulting in the formation of relatively even aged stands. The clear-cut silviculture system most closely emulates this natural disturbance pattern and therefore is the most preferred method employed for harvest. The size, shape, arrangement, and juxtaposition of clear-cut areas vary across the landscape depending on localized topography and terrain conditions. A modification of the clear-cut system takes place in domestic areas whereby the cuts are relatively small and disbursed resulting in the creation of a range of age and development classes. The clear-cut system is the only harvest system being considered in the zone at this time.

8.1.1 Commercial

Section 3 outlines in detail a general approach for the timber supply analysis and specific results and sensitivity analysis for the zone. The model used to calculate wood supply is a maximization model, outlining a specific course of action and timing of such actions to maximize timber production. The harvest schedule is an example, which indicates the specific forest stratums to be harvested, and an indication on the timing of such harvest. The districts must follow this schedule as closely as possible for the AAC to remain valid. In general, the oldest timber considered in worst condition and losing volume fastest is targeted as first harvest priority. Younger stands that have been damaged by insects and disease may also receive high priority. Once managed stands are eligible for harvest, this priority may change in some cases to allow for a faster rotation on good sites that are silviculturally treated.

Specific commercial strategies are as follows:

- design irregular cut blocks that follow contours and natural boundaries
- vary buffer widths to protect other values
- utilize winter harvest on wet and sensitive sites
- use landscape design techniques to mitigate viewscapes
- minimize timber utilization loss (< 6m3/ha)

8.1.2 Domestic

The harvest of domestic fuel wood from CBPPL limits in the zone is confined to cutover cleanup and the harvesting of non-commercial species. Incidental AAC levels for Zone 7 will be used to track this cut. Domestic permits are given for 15m3 and issued through the Forest Safety Association of Newfoundland and Labrador. Table 4 shows the estimated cut from 2022-2026. As the permitted volume cut was changed in 2024 from 25m3 to 15m3 it is expected that the harvest levels going forward will be closely comparable to the 2025 data collected. 2026 permit numbers are not available for this plan submission.

8.2 Silviculture

As a general rule, approximately 80% of the Boreal Forest regenerates naturally following a disturbance. Forest renewal management programs are applied by forest managers within the 20% that do not successfully natural regenerate. Forest renewal silvicultural treatments are designed to help facilitate a new forest after disturbances caused by harvesting, insect, wind or fire. These prescriptions can involve either Site Preparation (scarification), Planting or Pre-Commercial Thinning.

8.2.1 Site Preparation

When a site does not regenerate at all, a full planting program is required. In some cases, the site may need to be manually prepared to aid in the establishment and growth of the planted seedlings (generally black or white spruce and to a lesser extent, Norway spruce). Site preparation techniques can include:

1. Mechanical site preparation (scarification) involves using heavy equipment (skidder) equipped with special attachments to reduce the thickness of the duff layer, and remove or disturb any kalmia that is present, which would restrict seedling growth.
2. Prescribed burning is used to sanitize some sites where adelgid is present. This treatment reduces the slash loading and duff thickness to prepare the site for planting and kills any balsam fir which could potentially perpetuate the adelgid problem.
3. Treatment to prepare sites that have been overgrown with hardwoods and other herbaceous species has been done with herbicides to reduce this competition, making the site more accessible and suitable for planting. Release herbicide treatment reduces the competition for a few years to allow planted seedlings to get established. In other instances, herbicides are used to control Kalmia either before or after planting. Herbicides, while used sparingly, are sometimes a necessary tool to help establishment of a new forest, particularly on better sites.

8.2.2 Planting

A full planting technique is required when no regeneration occurs to ensure regeneration of selected tree species is at acceptable levels. Gap planting is normally achieved with spruce seedlings, coupled with the natural regeneration already present on site to increase seedling density to acceptable levels.

On adelgid sites partially regenerated to balsam fir, planting is done through the existing regeneration to obtain a sufficient stocking level of an adelgid resistance species. However, where adelgid has been a problem, balsam fir regeneration is sometimes ignored and the site is planted with spruce seedlings.

Where possible, seedlings used in the silviculture program are grown with seed from local sources. Seed orchards have been established at Wooddale Tree Nursery to produce seed from plus trees collected throughout the province. Plus trees are normally selected because they have superior growth and physiological characteristics. The ultimate goal is to plant seedlings that have superior growth characteristics and thus increase yield and maintain genetic diversity.

Exotic species have been planted in trials at some locations in the zone. However, it is not anticipated to form any substantive proportion of the planting program in the foreseeable future.

8.2.3 Thinning

To enhance development, silviculture thinning programs are designed to treat established forest stands. Pre-Commercial Thinning (PCT) usually involves partial removal of overstocked balsam fir stands at a young age 10 -15 years. In areas which have high moose browsing potential, the age is increased to 20 – 25 years, so that crop trees are tall enough to be out of reach of moose. PCT reduces density levels which facilitates maximizing volume increment and operability (piece size). Trees removed are not of merchantable size and remain on site, returning the nutrients back into the soil. In the zone, balsam fir is usually thinned to favour any spruce present within the stand. This prescription results in a mixed softwood stand (depending on the original density of spruce) which is more diverse and less susceptible to insect infestation. As well, any hardwood species that are not in direct competition with spruce or fir are left to increase the biodiversity of the stand.

Commercial and Diameter Limit thinning would occur in the intermediate age 25 - 35 years and is undertaken in older balsam fir stands (either natural or previously thinned). It is designed to capture any mortality that would normally occur in the stand through self thinning. The trees removed from commercial

thinning operations are extracted and utilized. The remaining trees are left to grow, free from competition and are harvested when mature. As with PCT, spruce and hardwoods are left where possible to increase the stand diversity.

Thinning programs aim to shorten the rotation period of a stand and produce large diameter stems. This program should increase the percentage of merchantable volume considered suitable for sawlogs. Commercial thinning has not been completed in the zone and diameter limit thinning has been done sparingly.

Specific silviculture strategies include:

- ensure regeneration of areas disturbed by harvest, insect, wind and fire to prevent loss of productive land base
- use thinning techniques in young stands to promote enhanced stand development, reduce rotation age, and increase the percentage of sawlogs
- leave hardwoods, where possible, in pre-commercially thinned areas to increase stand diversity
- where possible, promote species mixes particularly with spruce and hardwoods to reduce susceptibility to insect attack and increase biological diversity
- where possible, use seedlings grown from local seed sources to protect genetic diversity
- ensure levels of planting and thinning used in the wood supply analysis are achieved
- work towards pre harvest planning to identify areas with potential silviculture problems so that optimal prescriptions can be promptly employed

8.3. Forest Access Roads

Timely access to harvesting areas is the key to successful implementation of harvest allocations. Roads also provide access for other recreational values such as snowmobiling, ATV riding, hunting, fishing, skiing, berry picking and hiking. However, it is recognized roads can also have a negative impact both from an environmental perspective (loss of productive land base) and other value perspective (access near remote outfitting lodges).

As a general principle from both an environmental and cost perspective, the minimal amount of road required to effectively harvest available timber will be built. Also, roads are constructed to standards (e.g. width of right-of-way and driving surface etc.) that are the minimum required to access the timber in a safe and effective manner. Forwarding distances are maximized to the economic limit to minimize the amount of roads constructed. These principles ensure the loss of productive land base and environmental disturbance

are minimized. In sensitive and wet areas, winter harvesting and road construction are encouraged, to minimize environmental disturbance.

In many instances, forest access roads “open up” new areas which are then subject to cabin development. Forest roads also provide access to remote areas where outfitting businesses operate. This generally leads to competition for hunting areas between local and “sport” hunters and may detract from the “remote” designation of the lodge. In such instances cabin development should be controlled to limit local access. As well, road decommissioning may also be considered, depending on cost and mitigation of conflicting uses for a particular road.

The nature of the current wood supply is that harvestable areas or stands are becoming smaller and more dispersed. Achievement of allocated harvest is contingent on accessing these areas and stands. Therefore, more road infrastructure is required to access this timber. Specific strategies include:

- Where possible, build winter roads to access sensitive and wet areas
- Minimize amount of road built by maximizing forwarding distances
- Use minimum road standard to safely and effectively match the logging chance
- Work with appropriate agencies (crown lands) to control cabin development
- Where possible, consider road decommissioning in areas of concern for other values (e.g., near remote outfitting lodges, PPWSA’s, caribou habitat restoration)

8.4. Forest Protection

8.4.1. Insect and Disease

Over the past five years, FMDs 9 and 16 have been significantly affected by the ongoing spruce budworm outbreak. Following rising population detections beginning in 2018, moderate to severe defoliation became increasingly widespread after 2021, particularly in balsam fir–dominated stands, with repeated defoliation raising concerns about growth loss and tree mortality in mature forests. In response, provincial forest managers intensified monitoring and implemented the Spruce Budworm Early Intervention Control Program, including targeted aerial applications of Bacillus thuringiensis kurstaki (Btk) across tens of thousands of hectares in and around FMDs 9 and 16 to suppress populations and protect priority timber supplies. While the outbreak has continued to expand and intensify in places—especially near Gros Morne and further up the Northern Peninsula, the combined use of surveillance, treatment, and adaptive management has been central to limiting impacts on managed forest lands in these districts over the last five years. In 2026 and going forward the Early Intervention Strategy has been discontinued, and the current plan is to begin a salvage harvest with possible foliage protection spray.

As indicated in sections 1 and 2, insects have been a major natural disturbance factor in the zone. The main tree species, balsam fir, is susceptible to most of the major insects including spruce budworm, hemlock looper, balsam fir sawfly, and balsam woolly adelgid.

In the 1970's a spruce budworm outbreak resulted in forest losses that were unprecedented in scale and severity. During that time massive salvage efforts were implemented to utilize damaged and dying trees. Infrastructure limited the amount of volume that was utilized. Timing is also an issue as quality standards at local pulp mills have changed to require a fresh supply of green timber. Because of this the window to salvage insect damaged timber is now one to two years after mortality.

Once again, the province is experiencing a spruce budworm outbreak. It is currently well established and expanding along the west coast and towards the Baie Verte Peninsula, with the most severe impacts observed in western Newfoundland and the Northern Peninsula, including areas in and around Gros Morne National Park. Monitoring shows that budworm populations have been increasing since about 2018, with widespread and repeated defoliation becoming evident from 2021 onward, and by 2024–2025 affecting large areas of mature balsam fir and spruce forest. In response, the Government of Newfoundland and Labrador implemented an Early Intervention Strategy, carrying out aerial applications of the biological control agent Btk to slow population growth and reduce forest mortality, with tens of thousands of hectares treated across western Newfoundland and the Northern Peninsula. The last treatment was in 2025 with no path forward planned for 2026. While Parks Canada is allowing the outbreak to proceed naturally within Gros Morne to maintain ecological processes, forest managers outside protected areas view the outbreak as a significant long-term threat to timber supply, wildlife habitat, and forest regeneration, with current evidence suggesting the outbreak is likely to persist for several more years, consistent with historical budworm cycles in Newfoundland's boreal forests

Populations of hemlock looper and balsam fir sawfly were building in the early 2000's and resulted in a treatment program in 2002 and 2003. Since that time the populations of these insects have been in decline. The balsam woolly adelgid seem to be moving eastward into District 16 in increasing proportions causing growth problems in young balsam fir stands.

As outlined in the harvesting and timber supply analysis sections our timber supply is based on following a rigid predetermined harvest schedule and minimizing inventory deductions (of which insect damage is a portion). In the event of a major insect infestation, salvage efforts may change harvest priorities and thus the optimal harvest schedule may not be followed. If insect damaged stands cannot be harvested in a timely

manner, an additional harvest in the form of unsalvaged mortality may occur resulting in inventory deductions that are higher than anticipated. In both eventualities, deviations from harvest schedules and inventory adjustment levels will have to be closely monitored to ensure that the validity of the AAC calculations is not compromised.

Specific strategies:
- use silvicultural techniques at the stand level to alter species mix and increase stand vigor to make stands less susceptible to insect attack
- where possible, use harvest scheduling techniques to alter species mix across the landscape to avoid "setting the table" for severe insect infestation
- use species conversion techniques, where possible, to convert adelgid susceptible balsam fir to other less susceptible species
- Using the most recent defoliation severity layers, prioritize areas of moderate to severe and potentially, severe with existing mortality for use as logs, pulp or fuelwood. The following table breaks down the area by severity, updated in 2026, in both districts within 5YP boundaries.

Table 8 Area of Defoliation in 2027-2031 5YP

FMD	Severity Code Description	Area (ha) in 5YP 2027-2031
9	6 – Moderate	3,240
	7 – Severe	220
	8 – Severe with Existing Mortality	1,625
16	6 – Moderate	2,853
	7 – Severe	2,413
	8 – Severe with Existing Mortality	686

8.4.2. Fire

As outlined in previous sections, most of the zone has little fire history due to the relatively abundant rainfall and above average snowfall, however, some portions of District 9 have had a higher frequency. A fire in an unusually dry year can have devastating effects on the forest however and can exacerbate an already tight wood supply situation. The zone can minimize the risk of a serious fire by maintaining a highly trained, efficient and effective fire control program and by minimizing the risk in forest stands through maintenance of health and vigour.

Specific strategies:

- Use silvicultural treatments and protection from insects to increase health and vigour of stands
- Maintain fire control capabilities and emergency response equipment as per Gov NL Fire Season Operating Permits and CBPPL Polies
- Where possible, promote species mixes in stands to minimize risk

8.4.3. Wind Throw

Wind throw or blow down occurs in stands that are old and decrepit or in stands that have been predisposed by some other disturbance such as insects and disease. Blow down can also be increased in high-risk stands when unnatural edges are left on cutovers such as in the case buffers. To minimize the effects of blow down, stands will be managed to promote health and vigor mainly through silvicultural treatments and protection from insects.

Specific strategies include:

- Avoid thinning in areas with high wind damage potential (hilltops on high elevations etc.)
- Maintain forest in healthy vigorous condition through silvicultural treatments and protection from insects
- Design cut blocks to follow contours and natural boundaries to minimize risk of wind throw to residual forest
- Investigate techniques to minimize the risk blow down in buffers (i.e., buffer management).
- Ensure harvest schedule is followed to target the oldest worst condition (and risk) timber first.
- Continue to sample overmature stands for signs of imminent breakup (e.g., wind throw and butt rot) and update harvest schedule on a 5-year basis accordingly to capture mortality

8.4.4. Information and Education

Information and education are important to providing for more active and effective participation in the forest management planning process. Through interaction with various user groups and the general public, we gain a better understanding of each other's values and positions. Information about a stakeholder's values and the location on the landscape provides a better ability to mitigate any potential negative impacts of harvesting activity on these values. For example, learning where a cabin is located can help planners when selecting areas for harvest and provide a contact to discuss impacts and mitigations. As a forest industry, other such vehicles for information and education, which will be actively pursued, include:

- Field trips (e.g. Crown and paper company woodlands tours, mill tours)
- School visits
- Open houses
- Commercial operator environmental training programs, Qualified Logging Professional Training

- Information meetings
- Training courses
- Seminars
- General day-to-day contact

SECTION 9. PROPOSED ACTIVITIES

9.1. Harvesting

This section will outline all forest activities that will occur on Corner Brook Pulp and Paper Limits in the zone from 2027-2031, including: proposed commercial and domestic harvesting, silviculture, and access road construction/bridge construction.

To present a more comprehensive overview of proposed activities on the entire district an overview map is presented in Appendix 9. This map shows all proposed operating areas so that operations can be viewed from a landscape perspective. Maps of individual operating areas and summary sheets are also presented in Appendix 9. The summary sheets give a brief description of each area, the type of activities that will occur and any issues raised and mitigative measures employed.

9.1.1. Commercial

The timber scheduled for commercial harvest in the district is overmature with some small pockets of mature dispersed throughout. This proposed harvest approximates the harvest schedule that was used to determine the AAC in Section 3. The allocated operating area and associated harvest volumes represent as much as two times the actual proposed harvest. The purpose of including more volume than is proposed is to allow for operational flexibility and inventory deviations within operating areas without having to constantly amend the plan. Table 9 below summarizes the harvest in each area. A detailed description of each area can be found in coversheets in Appendix 9.

Table 9 Proposed Harvest 2027-2031 Zone 3 Districts 9 & 16

Proposed Harvest Total Volume m3							
FMD 9			CORE		OPERATIONAL		INCIDENTAL
			Harvested		Harvested		Harvested
		AAC	M3	AAC	M3	AAC	M3
	AAC and Plan Allowance	159,000	1,590,000	14,500	0	17,900	179,000
	5YP Areas		M3		M3		M3
Commercial	K-09-05 Rice Mountain		55,812				
	K-09-08 Tommy's Arm		287,954				
	K-09-10 Pine Pond		46,576				
	K-09-13 Rambler West		52,437				
	K-09-16 Lynx Pond		32,625				
	K-09-17 Main Brook		25,883				
	K-09-23 Dawes Pond		66,703				
	K-09-27 Black Lake		34,587				
	K-09-30 East Pond		11,789				
	K-09-36 Camp 34		273,647				
	K-09-38 Chouse Brook		15,619				
	K-09-39 Seal Cove		95,744				
	K-09-41 Rocky Pond		127,700				
	K-09-43 Gullbridge		46,653				
	K-09-44 Flat Water Pond		177,481				
	K-09-45 Halfway Bog		71,728				
	Totals		1,422,938		0		
Domestic	Estimate 625 permits per Year * 15m3						9,375
	Totals						9,375

Proposed Harvest Total Volume m3							
FMD 16			CORE		OPERATIONAL		INCIDENTAL
			Harvested		Harvested		Harvested
		AAC	M3	AAC	M3	AAC	M3
	AAC and Plan Allowance	87,500	875,000	7,800	0	6,800	68,000
	5YP Areas		M3		M3		M3
Commercial	K-16-05 Sheffield Lake		9,030				
	K-16-34 Adies Lake		28,539				
	K-16-37 Riverside		13,795				
	K-16-38 Sandy Lake		141,517				
	K-16-39 Angle Pond		50,679				
	K-16-40 Birchy Narrows		5,936				
	K-16-44 Taylors Brook		311,643				
	K-16-49 Gales Brook		65,751				
	K-16-50 Adies		174,402				
	K-16-51 Grand Lake		24,369				
	Totals		825,661		0		
Domestic	Estimate 165 permits per Year * 15m3						2,475
	Totals						2,475

9.1.2. Domestic

Harvesting will occur within CBPPL limits and is generally conducted on a small patch cut system, or remnant cutting on past operations. The number of permits and volume associated with these permits is relatively low and insignificant. An incidental harvest level was provided for the Zone, and permits are planned to be below this target. All domestic cutting is done under permit which has conditions attached that outline the species (e.g., birch, larch and deadwood), volume, district boundaries and utilization standards to be employed. All domestic cutting permits are issued outside of forest fire season and the permit allocation is 15 m3. No permits are issued inside of Provincial Protected Water Supply Areas and mapping is provided which reflects this in all CBPPL districts. Estimated permits issued per year are represented in the Table 9.

The current Hardwood Management Agreement for District 9 is due to expire December 2026. Discussions with FAL will continue to determine a path forward with respect to domestic cutting plans for the district which may include extensions to the existing agreement.

9.1.3. Silviculture

There are two silviculture prescriptions scheduled for the next five years; planting/gap planting including site preparation where required, and pre commercial thinning. Planting is designed to return a site to a minimum stocking level with the desired species, mainly spruce. There is full planting when there is complete natural regeneration failure and gap planting when a site has some desired regeneration but not enough to meet minimum stocking standards. Precommercial thinning is prescribed to reduce the density on overstocked regeneration so that growth can be concentrated on the remaining crop trees and thus reduce the time to harvest.

Areas that are scheduled for commercial harvest or have been recently harvested have been identified on the operating area maps and are candidates for planting or gap planting to black or white spruce. Approximate estimates for the next five years are found in Table 10.

Table 10 Proposed Silviculture Treatments 2027-2031

Treatment	FMD	Area (ha)
Precommercial Thinning	9	200
	16	300
Sub-Total		**500**
Planting	9	1000
	16	1000
Sub-Total		**2000**
Scarification	9	0
	16	0
Sub-Total		**0**
Other (Herbicide)	9	0
	16	0
Sub-Total		**0**
Grand-Total		**620**

9.2. Forest Access Roads & Bridges

As timber located closer to existing infrastructure has been harvested, it becomes necessary to access timber in more remote areas. These previously inaccessible stands have been included in the timber supply analysis and must be accessed to maintain long-term sustainability. No new capital road construction is proposed under this plan.

9.3. Activities in Protected Public Water Supply Areas

For harvesting operations inside PPWSAs, wider buffers will be used and the pertinent EPG's will be attached to any permits issued for these areas. There will be continuous monitoring inside these areas and buffers will be flagged to ensure compliance with the guidelines. In addition, a Certificate of Approval under Section 10 of the Environment Act must be obtained before any domestic harvesting commences inside the PPWSA, and these areas are identified on maps provided to domestic cutters. Table 11 shows the operating area overlaps in PPWSAs.

Table 11 Operating area overlaps with Public Protected Water Supply Areas (PPWSAs)

Operating Area	FMD	Area in PWSA
Seal Cove	9	200
Pine Pond	9	568
	Sub-total	768

SECTION 10. PLAN ADMINISTRATION

10.1 Monitoring

As part of CBPPL Environmental Management System (EMS) all CBPPL managed woodlands activities that have the potential to create significant environmental impacts will be measured and monitored. This is performed to ensure compliance to legal requirements, voluntary and non-voluntary agreements.

In addition, monitoring and measuring is performed to track performance, relevant operational controls, and conformance to the Company's environmental objectives and targets – including SFM Performance requirements, as well as to evaluate effectiveness. The core inspections that are completed are known as #1, 2 and 3 Inspections. Each will be described in this section.

#1 Inspections – Month End Check-in – Active Operations

All woodlands contractors are required to complete a #1 Inspection on their areas once per month. An example of this inspection is found in Appendix 5. Inspections can be completed on paper or within our electronic SiteDocs reporting system. It is meant to be a quick check on the most important Environmental and Safety aspects of the job. This form also contains other reportable information that the company requires monthly.

#2 Inspections – Active Operations

Throughout the calendar year it is a requirement of CBPPL that all contractors undergo a #2 inspection. This inspection covers all aspects of our Environmental Management and Safety expectations. The inspection forms can be found in Appendix 6.

Inspections during active operations allow the company to observe and correct in the moment. Superintendents (or designate) and required Woodlands Supervisors document deficiencies from #2 EMS Compliance Inspections in a Directive Book that is kept on the job site. The Superintendent (or designate) /

Woodlands Supervisor and Contractor review each directive; a date is assigned for each deficiency to be corrected. The contractor signs and dates the book when the deficiency is corrected and forwards a copy to the Superintendent (or designate)/Supervisor.

Review of the inspections takes place annually and decisions are made to improve on results collected the previous year.

#3 Inspections – Site Released

The intent of a Harvest Area Completion Inspection is to ensure that all operating areas are left in a state that minimizes any potential for a negative impact on the environment. The Harvest Area/Road Completion Inspection is conducted on each operating area by an Operations Superintendent, Roads Supervisor, or designate. When a contractor finishes up in a particular area (or portion of an area) and moves to another area, there are basic conditions that must be met before moving.

A map of the area inspected must be attached to the Harvest Area Completion Inspection. The following items are checked during this inspection:

- Minor fuel/oil spills and stained soil cleaned up
- Ditches free of debris or obstructions
- No logging debris in waterbodies
- Temporary crossings removed
- Culverts free of debris or obstructions
- Treed buffer zones maintained
- No unnecessary trails or disturbance created by machines
- Trails cut off (or rehabilitated if necessary)
- Min. of 10 wildlife trees per ha. left on operating areas
- Merchantable trees left on cutover/roadside landings
- All merchantable timber cut in block
- All garbage removed from site
- Operations within approved operating areas

If problem areas are found the contractor must return to site and correct the issues if possible. The minimum acceptable score is 100% and any deficiency is considered a failing score.

10.1.1 Operational Level

Annually, Corner Brook Pulp and Paper Limited are issued a Certificate of Managed Land (CML). Attached to this Certificate are schedules that set out the conditions that must be followed to maintain managed land status. Appendix 1 contains the Environmental Protection Guidelines (EPGs) which are annually updated. Industry planning and operations must comply with schedule five or the land can be

declared unmanaged, and fines levied. Government staff will monitor for compliance with EPGs and recommend managed or unmanaged status.

All planned activities are monitored to ensure all guidelines and regulations pertaining to environmental protection, harvesting, road construction, and silviculture are followed. Any infractions or deviations from the regulations or guidelines are dealt with as required under the Forestry Act.

10.1.2 Planning Level

The strategic planning section at forestry services monitors the implementation of this Five-Year Operating Plan for this zone. This is a crucial role, as many implementation commitments are stated in the plan. The primary function of the planning section is to monitor plan implementation for consistency with commitments in the plan through approval of the Annual Operating Plans derived from this plan and review of the past annual reports associated with each year's activities. The section will identify concerns with plan implementation, provide recommendations for plan changes and establish protocol for concerns reported to them. Additional meetings between CBPPL, Strategic Planning and/or relevant stakeholders may be required to review amendments or provide recommendations should changes be required because of a catastrophic event such as fire which may precipitate changes to the plan.

10.2. Amendments

Due to the dynamic nature of forest activities, amendments are often required because of changes in the forest, operational realities, imposition of addition requirements or guidelines, or some other unforeseen circumstance. These changes to the five-year operating plan must be submitted as amendments and approved before they are implemented. There are two types of possible amendments for this plan, one that can be approved internally by the Forestry Division Gov NL and one that must be submitted to the Environmental Assessment Division for public review. Changes to this plan can be approved by the Forestry if they are:

- within one kilometer of an operating area described in the five-year operating plan, an additional area for timber harvesting that is, in total, not more than 50 hectares in each year of the plan

- within a forest management district, an additional area for silviculture treatment of not more that 20 percent of the total operating area described in the five-year operating plan over the five-year term of the plan

- within an operating area described in the five-year operating plan, not more than one kilometer, in total, of new primary forest access road in addition to existing and proposed primary forest access road in each year of the plan

- adjacent to an operating area described in the five-year operating plan, not more than half a kilometer, in total, of new primary forest access road in each year of that plan.

Changes that are not covered by the above must be submitted to Environmental Assessment (EA) in the form of an amendment to the five-year operating plan. Prior to approval through EA, the amendment must be approved by the Ecosystem Management Division of the Forestry Division. Amendments will be reviewed by the monitoring committee if the District Manager deems that they represent a significant change to the plan.

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Appendix 1 – Environmental Protection Guidelines
Appendix 2 - Crown Land Referral Policy Environmental Guidelines for Mineral Exploration and Quarries
Appendix 3 – Environmental Guidelines for Mineral Exploration and Quarries
Appendix 4 – Stakeholder Consultation Plan
Appendix 5 – No. 1 Inspection form example
Appendix 6 – No. 2 Inspection form example
Appendix 7 – Women's Employment Plan
Appendix 8 – Erosion and Sediment Control Plan
Appendix - 9 – Coversheets and Maps