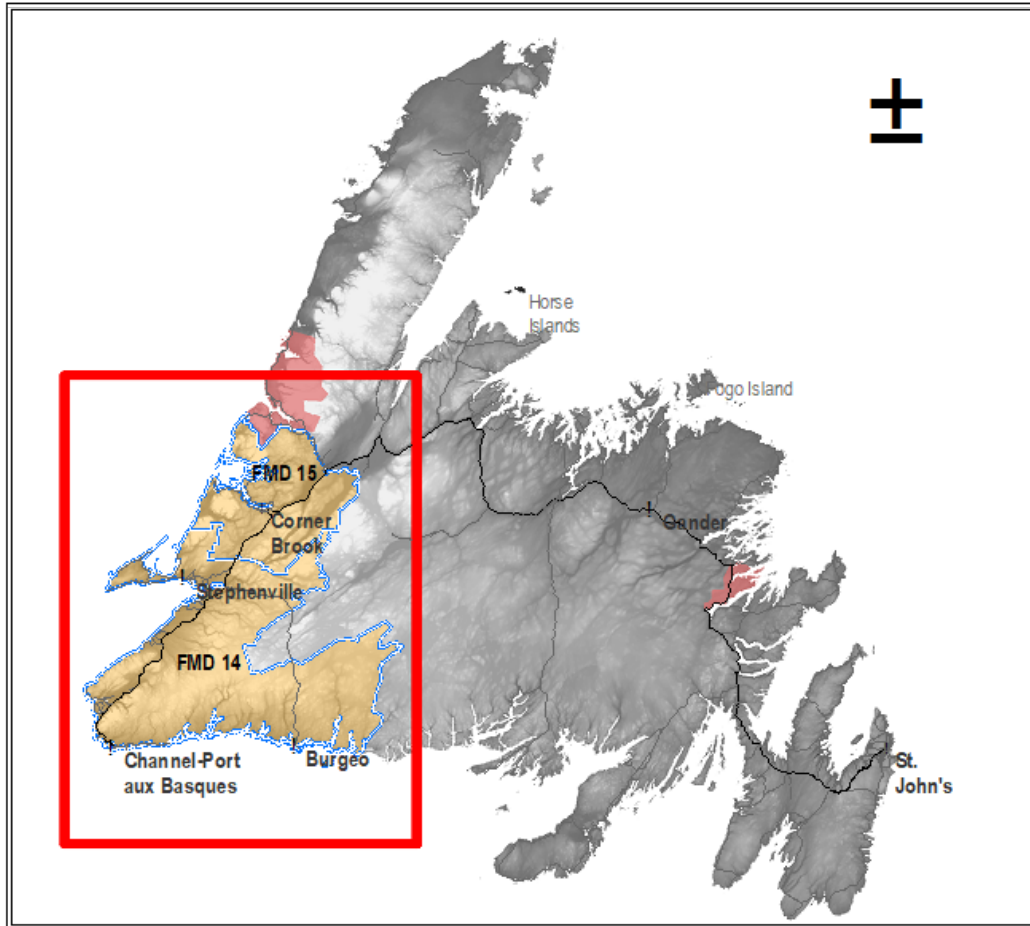


# Forest Management Planning Zone 6



**Five Year Operating Plan  
2024-2028**

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## INTRODUCTION

This new five-year operating plan covers the period January 1, 2024 to December 31, 2028 and represents proposed forestry activities upon crown land within Forest Management Districts 14 and 15. The management of this land is consistent with strategies and philosophies implemented by Fisheries, Forestry and Agriculture on all other crown land managed districts within the Province. This five-year operating plan incorporates established provincial planning requirements, environmental protection guidelines, and standard operating procedures developed under a stringent Environmental Management System (EMS), which is registered under the ISO 14001 standard. Topics that are provincial in scope such as carbon and global warming are included in the provincial sustainable forest management strategy, while sections that are more descriptive or depict local conditions such as values, forest characterization and ecosystem description are included into this five year operating plan. Forest Management Districts 14 and 15 are adjacent and share common ecoregion characteristics and collectively form Planning Zone 6. Within a planning zone, there is a requirement for each tenure to develop a five year operating plan. These plans have to be submitted to Forestry and Wildlife Branch and Department of Environment (for an environmental assessment review). As a result, there will be two (2) separate five-year plan submissions for this zone (Crown and CBPPL). Throughout this five-year plan, references will be made to Districts 14 and 15 individually, but when combined they will collectively be referred to as Planning Zone 6 or the zone.

This document will attempt to fully integrate the presentation of information and discussions for crown land in the zone. Discussion and information will be presented separately for each district where warranted based on unique and distinct differences in scope and content. 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. Finally, this document will attempt to build on the positive results of previous five-year plan documents. Information will be updated as required or new sections will be added as any new information is available.

## SECTION 1 DESCRIPTION OF THE LAND BASE

### 1.1 General

#### 1.1.1 Location

Located on the west and southwest coasts of the island, the zone extends from Burgeo and Port aux Basques in the south to the southern boundary of Gros Morne National Park in the north. Major towns located within the zone are Deer Lake, Pasadena, Corner Brook, Stephenville, Port aux Basques and Burgeo.

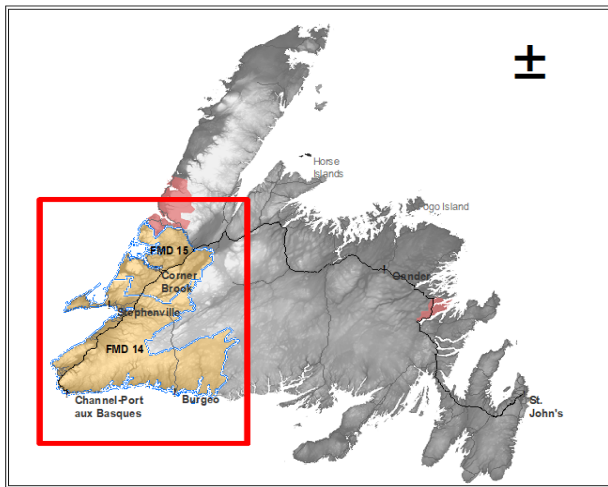


FIGURE 1 LOCATION OF FOREST MANAGEMENT PLANNING ZONE 6

#### 1.1.2 History

The natural resources of the zone have played a major role in the well-being 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.

Over the decades, forestry became the employment mainstay in the region. In 1923, the construction of a pulp and paper mill in Corner Brook and a hydro generation station at Deer Lake commenced. In 1985, the mill began operating under Kruger Incorporated and continues today, where it is considered an important economic driver of the local economy and the provincial forest industry.

### 1.1.3 Ownership

Both Crown and Corner Brook Pulp and Paper Limited (CBPPL) account for the two major tenure holders within the zone. Overall CBPPL, through timber licenses, accounts for 30 % of the total land area in the zone, with the crown controlling 70%. The majority of these licenses are due to expire in 2037. In District 14, crown controls 92% of the total land area and 63% of the productive forest. This is mainly due to the large area of unmapped crown land on the south coast. In District 15, CBPPL controls 64% of the total land area and 70% of the productive forest.

## 1.2 *Physical*

### 1.2.1 Topography and Hydrology

Lowland areas occur along the coast and extend inland in the river valleys as well as in interior basins. The hilly upland areas make up a large portion of the zone and generally contain the most productive sites. The landscape is generally undulating and intersected by numerous ponds, lakes and streams. The more prominent highland areas in the zone are Blow me Down Mountains, North Arm Hills, Mount Gregory, Lewis Hills, Annieopsquotch Mountains, and Cape Anguille Mountains.

Some of the major river basins include; Humber River, Harrys River, Serpentine River, Barachois Brook, Fishells River, Robinsons River, Crabbes River, Southwest Brook, Codroy River, Grey River, and White Bear River.

### 1.2.2 Geology

The Long Range Plateau, which runs north-south through the middle of District 15, is composed mainly of igneous and metamorphic rocks of which gneiss, granite and anorthosite are the most common. The Bay of Islands Range, which dominates the western side of District 15 and the northwestern part of District 14, is underlain by serpentized dunite and periodotite, amphibolite and gabbroic rock. The serpentine rock type is particularly prevalent in the highest areas. The entire zone has been severely glaciated and is mostly covered by glacial till. Extensive outwash deposits occur only in some of the major river valleys.

### 1.2.3 Soils

Extending north and south from the Bay of Islands there are two significant alpine rock barren areas known as the Bay of Islands Serpentinized Range. The dominant soils of the forested uplands and slopes are orthic humo-ferric (brown soils containing mostly inorganic material that occur on relatively dry sites) and ferro-humic podzols (dark soils with a high organic content and a high amount of iron and aluminum), some of which are gleyed in the lower B horizon (Roberts, 1983). The soils in the interior and southern part of District 14 are almost entirely humo ferric podzols. There are also some areas of exposed bedrock or bedrock with a thin soil covering (less than 10 cm).



#### 1.2.4 Climate

The climate in this zone has relatively warm summers and abundant precipitation. Conditions may vary resulting from differences in topography and proximity to the coastline. Severe windstorms have occasionally caused some blow down damage especially in shallow-rooted, over-mature stands. Periodic ice storms have also caused damage to predominantly hardwood stands.

### 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 (adapted from Perry, 1994). 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 6, 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 phenomena 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, white birch and jack pine. All of these, with the exception of 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 and Northern Newfoundland the climate is somewhat moister and fires are far fewer in this region resulting in the ascendance of balsam fir, a species which is poorly adapted to fire.

#### 1.3.2. Ecoregions and Subregions

Damman 1979, defined ecoregions as areas where 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 topo sequence, vegetation structure, floristic composition, and floristic distributions can provide the primary criteria. According to Damman, nine ecoregions are represented in Newfoundland. Each of these is further divided into sub-regions (also known as ecodistricts) All of the Newfoundland 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 2 depicts Planning Zone 6 relative to Damman’s ecoregion classification system.

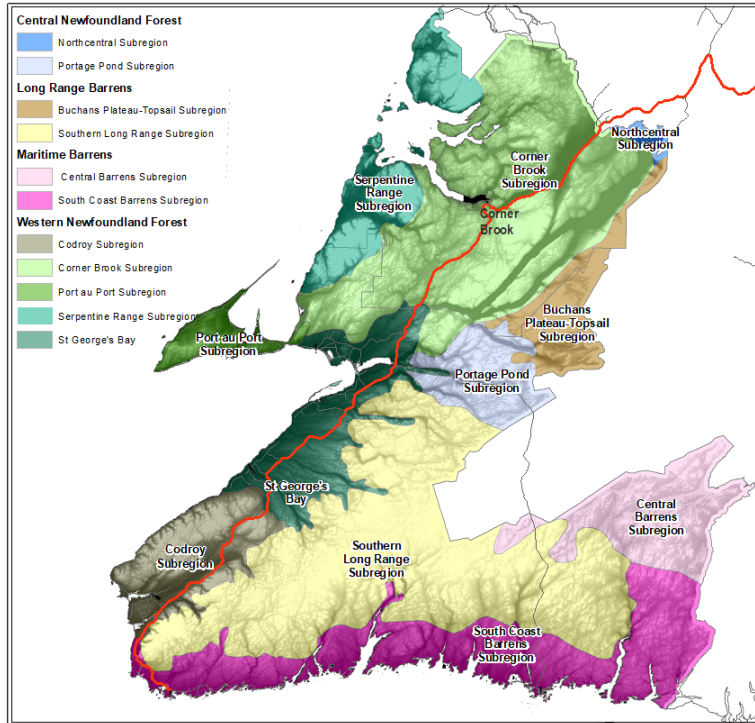


FIGURE 2 ECOREGIONS AND SUB-REGIONS OF PLANNING ZONE 6.

### 1.3.2.1 Long Range Barrens Ecoregion

This ecoregion comprises the highlands extending from the southwest coast to the northern part of the Northern Peninsula. It consists of three distinct units, the Southern Long Range, the Buchan’s Plateau-Topsails, and the Northern Long Range sub-regions. The sub-regions are separated by areas of more or less continuous forest with the former two occurring in the zone

#### 1.3.2.1.1 Buchans Plateau – Topsails *Subregion*

The Buchan’s Plateau-Topsails Sub-region lies between Grand Lake and Red Indian Lake and its western edge extends into District 15. Most of the sub-region is barren. Dwarf shrub heaths, shallow patterned peatlands, and areas with low krummholtz dominate the landscape.

#### 1.3.2.1.2 Southern Long Range Subregion

The Southern Long Range Sub-region encompasses most of the center of District 14 and covers the upper reaches of the river valleys and the higher terrain. In these river valleys, more of the southern plant species are present particularly yellow birch. Speckled alder thickets occur on alluvial soils.

#### 1.3.2.2 Western Newfoundland Ecoregion

The Western Newfoundland Ecoregion runs from the mouth of the Codroy Valley in the southwest corner of the island, northwest to Bonne Bay and eastward to Grand Lake. It encompasses almost all of District 15. This ecoregion is characterized by a humid climate with a relatively long 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.

##### 1.3.2.2.1 Codroy Subregion

This subregion covers the southwest coast of District 14 and includes the Codroy Valley and Cape Anguille Mountains. The topography is rugged with deep, heavily forested, protected valleys. The most climatically favourable sites occur within this sub-region.

##### 1.3.2.2.3 Corner Brook Subregion

This subregion extends from Bonne Bay to Stephenville and east to Grand Lake and is characterized by hilly to undulating terrain.

##### 1.3.2.2.4 Port au Port subregion

This subregion covers the Port au Port Peninsula. Soils are shallow and wind exposed limestone barrens are common; however, the herbaceous flora is rich and diverse. Many calcareous arctic-alpine species, gulf endemics and Cordilleran disjuncts are characteristic of this sub-region.

##### 1.3.2.2.5 St. George's Bay subregion

This subregion occurs on the western portion of District 14 and extends coastally, from Port aux Port to Codroy. It has flat to rolling topography and the deep soil deposits are mainly glacial or glacial-fluvial till.

#### 1.3.2.3 Central Newfoundland Ecoregion

This ecoregion is located in the north-central part of the island with a small outlet near Bay d'Espoir. This ecoregion is forested with balsam fir, black spruce, and to a lesser extent white birch. There is an extensive fire history thus fire origin stands of black spruce and white birch cover extensive areas in the northern and eastern portions. Trembling aspen forms local stands after fire but is restricted to the central and northern portion.

#### 1.3.2.3.1 Portage Pond Subregion

This sub-region includes the Annieopsquotch Mountains with elevations up to 677 metres. It has rugged topography and is heavily forested, primarily with balsam fir.

#### 1.3.2.3.2 North Central Subregion

The sub-region extends from Clarenville to Deer Lake with a mostly rolling topography of less than 200 metres. The history of fire is evident by the pure black spruce forest with white birch and aspen stands that dominate the sub-region.

#### 1.3.2.4 Maratime Barrens Ecoregion

This ecoregion extends from the east coast of Newfoundland to the west coast through to the south central portion of the island. It is characterized by relatively mild winters with intermittent snow cover and the coldest summers with frequent fog and strong winds. The dominant landscape pattern consists of usually stunted, almost pure stands of balsam fir, broken by extensive open heathland.

##### 1.3.2.4.1 Central Barrens Subregion

This sub-region includes the barrens between the forests of Central Newfoundland and the foggy zone along the south coast.

##### 1.3.2.4.2 South Coast Barrens Subregion

This ecoregion covers the wind-exposed foggy zone along the South Coast. Elevations over 300 metres occur in most parts of this sub-region. It provides important wintering ground for caribou due to the thin snow cover.

### 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 role 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 end 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.

#### 1.4.1.1 Productivity

Productivity is the accrual of matter and energy in biomass. In general terms, the more productive (ability to grow trees) 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. The more productive areas occur in the lowlands and gently rolling uplands of the zone. These areas have deeper soils and less exposed bedrock.

#### 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 depend 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 following a disturbance. To a large degree, a forest ecosystem's resilience is controlled by properties such as climate, parent soil, topography and flora.

#### 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 (eg. 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 in 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. Forest Harvesting can be considered a major disturbance in the zone, occurring on a regular and consistent basis. Fire and insect damage are the other two major disturbances and occur on a more irregular or cyclic basis. With the exception of a major windstorm, wind throw usually occurs after a stand is weakened by some other agent like insects. For this reason successional patterns after insect damage and wind throw will be discussed together. The following is a brief synopsis of successional patterns after each major disturbance type by forest type and site type.

##### 1.4.1.4.1 Harvesting

Regeneration patterns in the black spruce type after harvesting is mainly back to the black spruce type especially on the poorer sites. The component of balsam fir regeneration increases as the sites get better. There is substantial regeneration failure in this forest type with average not sufficiently restocked (NSR) rates of approximately 20 percent. Another general trend is that the poorer the site quality the higher the NSR rate. These sites would be candidates for planting with spruce.

In the balsam fir types, regeneration success back to balsam fir is much higher averaging 85 percent. Regeneration rates to balsam fir are higher on the medium sites and fall off somewhat on the poor and good sites. There is also some regeneration to black spruce and white birch types.

Regeneration pattern in the mixed wood types is generally back to mixed wood that is dominated by balsam fir. There is also a component of white spruce regeneration after harvest on these mixed wood types. There is a higher component of white birch regeneration after harvesting in types that had a higher percentage of hardwood before harvest. As well, the better the site class the more hardwood regeneration. Regeneration failure on the mixed wood types is variable across site types and ecoregions depending on local conditions but averages 20 percent.

##### 1.4.1.4.2 Fire

On the black spruce types regeneration is usually back to black spruce with a minor component of white birch. More white birch regenerates after fire on the better sites. Regeneration failure on the black spruce types is common after fire averaging 45%. Generally, the rate of regeneration

failure increases as the sites get poorer. On the balsam fir types regeneration is usually back to mixed wood dominated by balsam fir, with a minor component of pure black spruce. More white birch regenerates after fire on the better sites. Regeneration failure on the balsam fir types is common after fire averaging 35%. Generally, the rate of regeneration failure increases as the sites get poorer. On the mixed wood types regeneration is variable. The softwood hardwood sites regenerate the birch and mixed wood while the hardwood softwood sites tend to have a higher component of black spruce. The component of hardwood in the regeneration increases as the sites get better. Regeneration failure on the mixed wood forest types averages 20% and decreases as the component of hardwood in the original stand increases. Regeneration on the hardwood types is generally to hardwood and can be dominated by aspen if it was present in the original stand. Black spruce regeneration also occurs after fire.

#### 1.4.1.4.3 Insect

Balsam fir is highly susceptible to insect attack from the hemlock looper and spruce budworm while 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 subsequent wind thrown.

Mature balsam fir types usually regenerate to balsam fir or to balsam fir hardwood mixtures following an insect disturbance. Disturbance by insect kill in young balsam fir stands can cause succession to white spruce. In black spruce stands regeneration is usually back to black spruce and increases as the sites improve. 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 patterns in the hardwood types are variable. Regeneration failure occurs approximately 20% of the time, but can be significantly higher 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. 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.

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 micro-organisms capable of producing fertile offspring.

Species extinction is the most dramatic and recognizable form of reduced biodiversity; habitat loss the most drastic in terms of far reaching effect. 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 color, 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 zone's forest. Responsible planning should design and implement measures which maintain or enhance viable populations of all 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, micro-organisms 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.

### 1.5 Forest Characterization

#### 1.5.1 Land Classification

The total mapped land area in the zone is approximately 2 million hectares. There are four basic categories that currently represent how the land is classified; productive, non-productive, non-forest and fresh water. Figures 3 and 4 displays the relative percentages of each major land class category in each district with all ownerships combined.



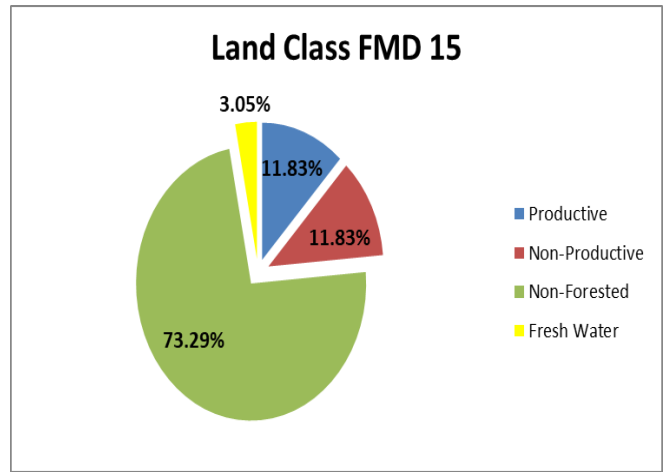
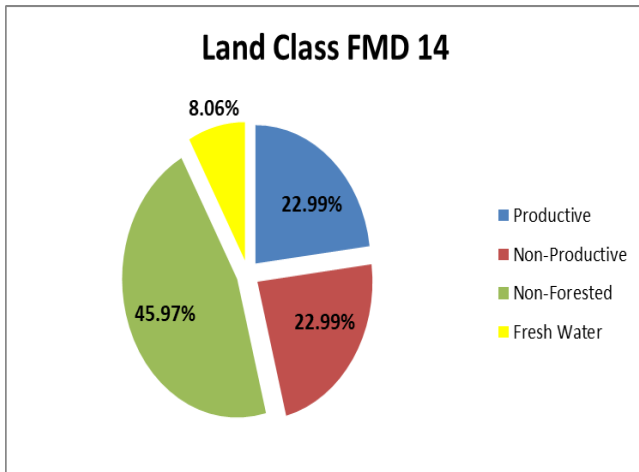


FIGURE 3 LAND CLASS BREAKOUT FOR DISTRICT 14 & DISTRICT 15

### 1.5.2 Age Class

Individual tree ages within any given stand have the potential to be the same after fire or planting. However; in most cases the ages vary. Foresters describe forest stand age in terms of age classes which generally encompass 20 years. The age classes present in the zone are described as regenerating (age class 1, 0-20 years), immature (age class 2, 21-40 years), semi-mature (age class 3, 41-60 years), mature (age class 4, 61-80 years), and over mature (age class 5, 81-100 years), (age class 6, 100-120 years), (age class 7, 120+ years). The age class distributions for each district are 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.

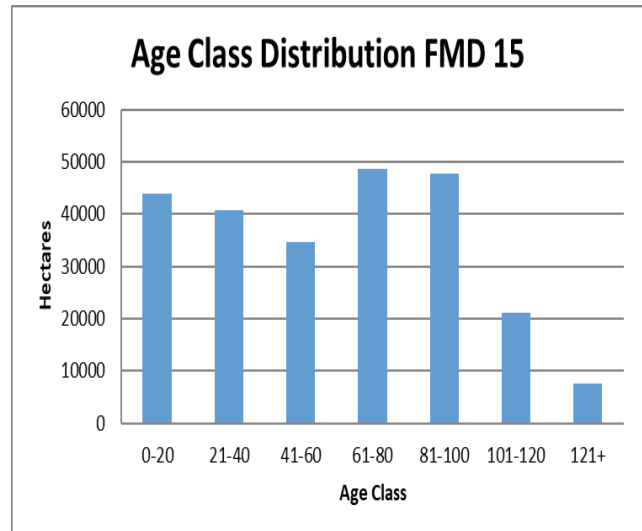
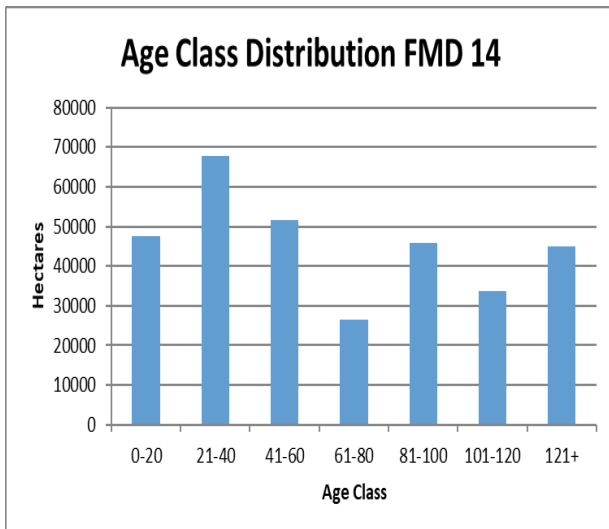


FIGURE 4 AGE CLASS DISTRIBUTION FOR DISTRICT 14 & 15

1.5.3 Site Class

The productive forest in the zone is further sub-divided along a gradient of productivity ranging from poor to high 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 on a number of factors some of which include soil fertility, moisture regime and geographic (slope) position. Generally the balsam fir and softwood hardwood working groups occupy the better sites in the zone. The black spruce working groups dominate the very dry and very wet areas that are of poorer site quality. The distribution of area by site class for each district is shown in Figures 7 and 8. On average, good sites are capable of producing 3.4 m<sup>3</sup>/ha/yr, medium sites 2.7 m<sup>3</sup>/ha/yr, and poor sites 1.3 m<sup>3</sup>/ha/yr

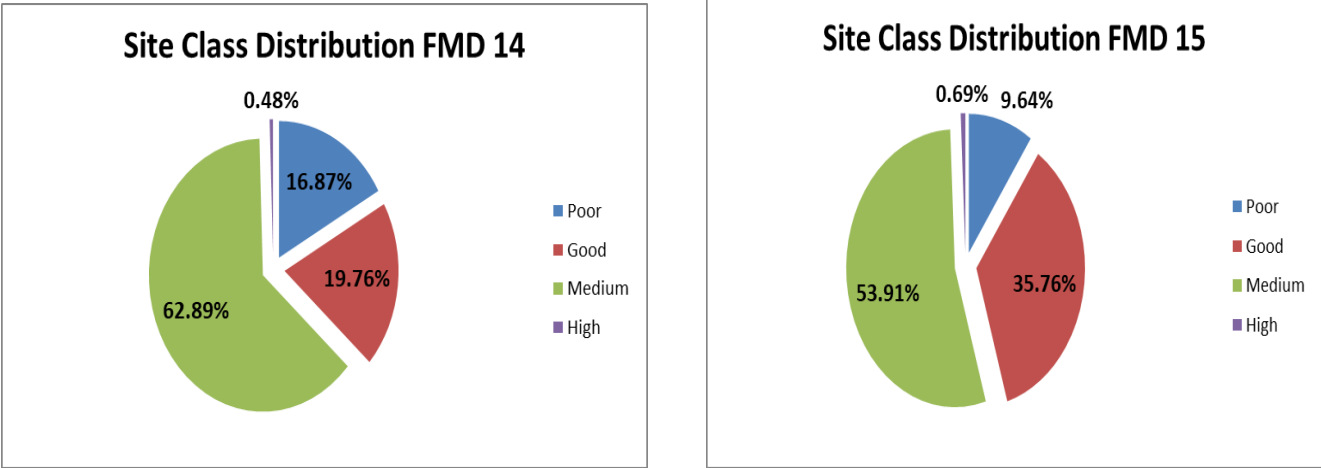


FIGURE 5 SITE CLASS BREAKDOWN FOR DISTRICT 14 & 15

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 percent of the productive forest. Balsam fir (bF) is by far the most prolific accounting for 67 percent of the working groups in District 14 and 73 percent in District 15.. Balsam fir can occur in pure stands or in association with one or more of black spruce, white spruce, white birch, or larch in varying species compositions. The black spruce (bS) working group is the second most abundant accounting for 19 percent in District 14 and 14% in District 15. Softwood hardwood working groups occupy 8 & 11% of the productive forest area in Districts 14 and 15 respectively.

### 1.5.5 Forest Disturbances

In the past 20-25 years, approximately 32,000 ha have been disturbed by some means on crown land within the zone. The main forest insects which have affected forests in western Newfoundland are the hemlock looper (1949, 1961, 1962, 1969, 1986-88, 1995, 1996), the spruce budworm (1956, 1978-80 to present at lower levels), the balsam woolly adelgid (1963, 1970-present) and the birch casebearer (1970-present). A chemical spray program was initiated in 1969, to aid in the control of the hemlock looper. Since then, the aerial application of insecticides has been used regularly as a management tool to control insect pests of balsam fir. However, in more recent years, a naturally occurring biological control agent known as *Bacillus thuringiensis* (bT), has been utilized in spray programs. Hemlock looper and the spruce budworm still continue to pose a significant threat to the forests of the zone and new infestations are likely to develop over the next 20 years.

Another insect of particular importance is the balsam fir sawfly, a native defoliator that rarely causes significant mortality. Typically, an infestation of this insect collapses due to parasitism and viral diseases well before lethal damage occurs. However, a sawfly epidemic began in the Bottom Brook area of District 14 in the early 1990's and spread northward into District 15. This infestation, which has now collapsed has resulted in serious growth loss in the affected forests. The balsam woolly adelgid is an ongoing insect pest of balsam fir, particularly in District 14. This insect occurs mainly on the coastal lowlands and impacts the newest tree growth causing node swelling and stagnation which results in severe growth loss of affected stands and poorer wood quality. To date there has been no available treatment for this insect other than stand conversion.

## Section 2 Past Activities

### 2.1 District 14

#### 2.1.1 Overview

The following forest activity occurred in District 14 from 2019 to 2023. There was over 137,000 m<sup>3</sup> harvested both domestically and commercially on Crown Land. In addition, there was 35,180m<sup>3</sup> harvested domestically on CBPPL exchange areas in this district. There were 162 hectares silviculturally treated, and 7.55 km of access roads constructed/reconstructed

#### 2.1.2 Harvesting

##### 2.1.2.1 Commercial

Table 1 summarizes the Commercial harvest in District 14 for the last planning period. Core and Operational Landbases are discussed in the woodsupply section. In summary, there was approximately 22,000 m<sup>3</sup> of softwood harvested commercially in FMD 14.

Table 1A Summary of commercial harvest in District 14 by Crown (2019 – 2023).

District 14		Core				Operational (Available)				Non-AAC Wood	
		AAC	Commercial	Deviation	Total	AAC	Commercial	Deviation	Total	Operational	Regulatory
SWD	Crown Tenure	41,164	632	40,532		8,774					
		41,164	4,528	36,636		8,774					
		41,164	5,103	36,061		8,774					
		41,164	3,009	39,155		8,774					487
		41,164	8,500	32,664		8,774					
Sub-Total		205,820	21,772	184,048							
		Core				Operational (Available)				Non-AAC Wood	
		AAC	Commercial	Deviation	Total	AAC	Commercial	Deviation	Total	Operational	Regulatory
HWD	Crown Tenure	1,804	834	970		328					
		1,804	1,280	524		328					
		1,804	1,132	672		328					
		1,804	707	1,097		328					
		1,804	1,200	604		328					
Sub-Total		9,020	5,153	3,867							
<b>District Total</b>											

Table 1B Summary of commercial harvest in District 14 by Crown on CBPPL tenure (2019-2023)

District 14		Core				Operational (Available)				Non-AAC Wood	
		AAC	Commercial	Deviation	Total	AAC	Commercial	Deviation	Total	Operational	Regulatory
SWD	Kruger Tenure						525				
			48								914
		Sub-Total			48				525		
		Core				Operational (Available)				Non-AAC Wood	
		AAC	Commercial	Deviation	Total	AAC	Commercial	Deviation	Total	Operational	Regulatory
HWD	Kruger Tenure						1093				
			266								
			233								101
			190								100
Sub-Total			949				1093			201	
<b>District Total</b>											

2.1.2.2 Domestic

Table 2 below summarizes the domestic softwood harvest in District 14 between 2019 and 2023.

Table 2A Summary of domestic harvest in District 14 by Crown (2019-2023).

District 14		Core				Operational (Available)				Non-AAC Wood	
		AAC	Domestic	Deviation	Total	AAC	Domestic	Deviation	Total	Operational	Regulatory
SWD	Crown Tenure	43,706	21,460	22,246		328					
		43,706	19,937	23,769							
		43,706	21,497	22,209							
		43,706	23,219	20,487							
		43,706	24,000	19,706							
	Sub-Total	218,530	110,113	108,417							
		Core				Operational (Available)				Non-AAC Wood	
		AAC	Domestic	Deviation	Total	AAC	Domestic	Deviation	Total	Operational	Regulatory
HWD	Crown Tenure	1,435									
	Sub-Total										
<b>District Total</b>											

Table 2B Summary of domestic harvest in District 14 by Crown on CBPPL tenure (2019-2023)

District 14		Core				Operational (Available)				Non-AAC Wood	
		AAC	Domestic	Deviation	Total	AAC	Domestic	Deviation	Total	Operational	Regulatory
SWD	Kruger										
	Sub-Total										
		Core				Operational (Available)				Non-AAC Wood	
		AAC	Domestic	Deviation	Total	AAC	Domestic	Deviation	Total	Operational	Regulatory
HWD	Kruger Tenure						5,810				
							7,150				
							7,722				
							6,798				
	Sub-Total						35,180				
<b>District Total</b>											

### 2.1.3 Silviculture

Table 3 summarizes the completed silviculture treatments from 2019 to 2023 in district 14.

Table 3 Summary of silviculture treatments on Crown land in District 14 (2019-2023).

Treatment Type	Area (ha)	
	Proposed	Treated
Pre Commercial Thinning	0	0
Site Preparation	0	0
Planting	0	0
Commercial Thinning	0	0
Plantation Maintenance	0	0

Summary of silviculture treatments on Kruger land in District 14 (2019-2023).

Treatment Type	Area (ha)	
	Proposed	Treated
Pre Commercial Thinning	0	0
Site Preparation	0	0
Planting	205.76	162.14
Commercial Thinning	0	0
Plantation Maintenance	0	0

### 2.1.4 Road Construction

Table 4 summarizes the completed road construction activity over the past period in district 14

Table 4 Summary of access roads constructed on Crown Land in District 14 (2019-2023).

Roads		
	Proposed (km)	Constructed (km)
New Construction	6.05	6.05
Re-Construction	1.5	1.5
Total	7.55	7.55
Bridges	0	0

### 2.1.5 Natural Disturbance

#### 2.1.5.1 Fire

District 14 has had a very infrequent fire history due to its relatively long winters and abundant precipitation. Over the past planning period there were 31 reported forest fires but only 45 ha of productive forest was burnt. Most of these fires were small grass fire which occurred early in the spring.

#### 2.1.5.2. Insect

The population of balsam fir sawfly collapsed in District 14 in the early 2000's and moved eastward into District 15. There has been no defoliation or treatment for either the hemlock looper or balsam fir sawfly in District 14 in the last 17 years. Damage caused by the balsam woolly adelgid is still evident within previously effected, as well as, new areas.

## 2.2 District 15

### 2.2.1 Overview

The following is forest activity in District 15 from 2019 to 2023. There was over 28,000 m<sup>3</sup> harvested both domestically and commercially on Crown Land. In addition, there was 19,565 m<sup>3</sup> harvested domestically on CBPPL exchange areas in this district. There were 81 hectares silviculturally treated, and 6.3 km of access roads constructed/reconstructed

### 2.2.2 Harvesting

#### 2.2.2.1 Commercial

Table 5 summarizes the Commercial harvest in District 15 between 2019 and 2023. Core and Operational Landbases are discussed in the woodsupply section. In summary, there was approximately 14,610 m<sup>3</sup> of crown softwood harvested commercially in FMD 15.

Table 5 Summary of Commercial harvest in District 15 by Crown (2019-2023).

District 15		Core				Operational (Available)				Non-AAC Wood	
		AAC	Commercial	Deviation	Total	AAC	Commercial	Deviation	Total	Operational	Regulatory
SWD	Crown	6,109	244	5,865		12,546					
		6,109	207	5,902							
		6,109	155	5,954							
		6,109	4004	2,105							
		6,109	10,000	-3,891							
	Sub-Total	30,545	14,610	15,935							
		Core				Operational (Available)				Non-AAC Wood	
		AAC	Commercial	Deviation	Total	AAC	Commercial	Deviation	Total	Operational	Regulatory
HWD	Crown										
	Sub-Total										
<b>District Total</b>											

District 15		Kruger			
		AAC	Commercial	Deviation	Total
SWD	Kruger		4,863		
			4,680		
			1,216		
			120		
			5,000		
Sub-Total		15,879			

### 2.2.2.2 Domestic

Table 6 below summarizes the domestic softwood harvest over the past period in district 15.

Table 6 Summary of domestic harvest in District 15 by Crown (2019-2023).

District 15		Domestic			
		AAC	Domestic	Deviation	Total
SWD	Crown	35,916	12,769	23,147	
		35,916	12,837	23,079	
		35,916	14,102	21,814	
		35,916	12,070	23,846	
		35,916	14,000	21,916	
	Sub-Total	179,580	65,778	113,802	
District 15		Domestic			
		AAC	Domestic	Deviation	Total
SWD	Kruger		4,557		
			3,365		
			3,797		
			3,346		
			4,500		
	Sub-Total		19,565		

### 2.2.3 Silviculture

Table 7 summarizes the completed silviculture treatments over the past period in district 15.

Table 7 Summary of silviculture treatments on Crown land in District 15 (2019-2023).

Treatment Type	Area (ha)	
	Proposed	Treated
Pre Commercial Thinning		
Site Preparation		
Planting	175.94	81.3
Commercial Thinning		
Plantation Maintenance		

### 2.2.4 Road Construction

Table 8 summarizes the completed road construction over the past period in district 15.

Table 8 Summary of access roads built on Crown Land in District 15 (2019-2023).

Roads		
	Proposed (km)	Constructed (km)
New Construction	7.13	6.3
Re-Construction		
Total		
Bridges		



## 2.2.5 Natural Disturbance

### 2.2.5.1 Fire

District 15 does not have an active fire history due to its long winters and abundant precipitation. In fact there were only 5 fires recorded in the last planning period which burnt less than 1 ha of productive forest.

### 2.2.5.2. Insect

Populations of the balsam fir sawfly collapsed in District 15 in 2009, while Hemlock looper populations have also remained at low levels. Areas with trees damaged by the balsam woolly adelgid have increased in District 15.

## Section 3 Timber Supply Analysis

### 3.1 Introduction

The province conducts a review of 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 mandates a wood supply analysis to 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 AAC's 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 160 years). Annual allowable cuts must be calculated on a district basis, and the cumulative sum would provide the total island annual allowable harvest level. The current AAC was extended for a two year period and a new five year AAC will commence with this five year plan on January 1, 2023.

### 3.2 Guiding Principles and Policy Direction

The key underlying principles guiding the provincial woodsupply 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 factors, not solely the physical supply of timber.

In addition to the establishment of sustainable timber harvest levels, the legislation also requires that forest harvesting not exceed the established AAC's. Likewise, government's policy is to optimize forest industry opportunities from the sustainable fiber supply.

### 3.3 Factors Affecting Timber Supply

The forests of insular Newfoundland are very variable in terms of age distribution. Typically, there are significant amounts of mature/over-mature forest and regenerating forest, and limited intermediate aged forests. This imbalance is not unusual in a boreal forest where cyclic catastrophic disturbances are common.

This imbalanced age class structure of intermediate age forest within insular Newfoundland is one of the most important factors influencing AAC's and is therefore the basis for many of the department's forest management strategies. Essentially, the department utilizes a matrix of management techniques designed to marginalize 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 that poses a challenge to forest managers is the natural fragmentation of the resource. The province's landscape is carved by many ponds, bogs, rivers, streams, and rock outcrops resulting in relatively small pockets of timber scattered across the landscape. These adverse conditions is very challenging when determining the economic availability of timber supply.

Arguably, the most important factor affecting present and future AAC's is the land base. The land base available for forest activity is constantly being reduced as a result of other users' requirements. There is an approximate correlation between AAC and land base in that a one percent loss of land base represents a one percent drop in AAC. Therefore, it is very important that we continue to determine methods to minimize the loss of productive landbase and expand on efforts to grow more volume on the existing land base.

### 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 AAC's) 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 requires 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 Forest Characterization

To realize the current description of the forest resource (referred to as forest stock), the province has invested significant resources into creating and maintaining a Provincial Forest Inventory. This program is designed to ensure the estimate of forest stock is current and accurate, while other regular programs employed by the department also evaluates:

1. Natural and man-made disturbances (fire, insects and harvesting)
2. Enhancement activities (tree planting and pre-commercial thinning)
3. In addition, the actual stands within the forest inventory is updated to reflect any yield changes

### 3.4.2 Land Availability

Through a regular timber supply analysis, the Forest Inventory is updated and classified at the stand level on the basis of harvest potential. This classification system consists of three broad classes;

- i. Core - available for harvest under normal operating conditions
  - a. Operationally Available – adverse conditions for forest harvesting, making that landbase more expensive and less available under current economic conditions. However, an AAC is still calculated in the event of improved economic conditions making the area more feasible for commercial operations.
  - b. Operationally Unavailable – unavailable for forest harvesting. No AAC is calculated on this landbase, which incorporates a broad range of timber and non-timber values as indicated in the following sections.

#### 3.4.2.1 Non-Timber Related

Implementation of non-timber values has a direct impact on provincial AAC's. As the amount of productive forested landbase available for timber management declines, so will the AAC. With the current non-timber related considerations, the net landbase (area where harvesting operations can occur) is only 17% of the total landmass on the island or 66% of the total productive forest land base. Typically, in any given year, less than 1% of the productive forest land base is influenced by harvesting operations.

#### 3.4.2.1.1 No-Cut Buffer Zones

The Department has implemented guidelines requiring all water bodies (visible on a 1:50,000 map sheet) be given a minimum 30 meter (from the edge of water) unharvested buffer. In addition to these legislated water buffers, District Ecosystem Managers, in consultation with interested stakeholders may have increased buffer zone widths to protect special values such as; salmon spawning areas, cabin development areas, aesthetic areas, wildlife habitat, outfitting camps, etc.

#### 3.4.2.1.2 Pine Marten and Caribou Habitat

Wildlife Habitat specialists are working in consultation with industry to ensure future adequate habitat remains available for wildlife species such as pine marten and caribou. Analysis of the landbase continues with examining the quantity and quality of habitat, as well as, the required connectivity. Wildlife specialists also examine how this arrangement of habitat would change over time. Forest management strategies take into consideration the results and recommendations of the Wildlife Habitat Specialists.

#### 3.4.2.1.3 Protected Areas

All established and proposed protected areas approved within the Natural Areas Systems Plan (NASP) are removed from potential harvest considerations and the 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 AAC's 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 class 1 AAC calculation. 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. 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, negative pressure on future AAC's 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 departments 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 the real life evidence, the curves were adjusted to make them more accurate.

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

### 3.4.4 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 taking into account other forest values. This involved developing strategies that minimize fiber losses and enhance forest sustainability.

#### 3.4.4.1 Harvest Flow Constraints

An even-flow harvest constraint strategy is utilized in the 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, then harvest levels are permitted to fluctuate which may result in increased commercial potential of the forest at specific intervals. However; applying the even-flow constraint provides more stability within the forest industry.

#### 3.4.4.2 Spatial Analysis

The provincial wood supply analysis implements a technique of manual harvest scheduling. In 2001, the harvest scheduling was an automated process where the software allocated the stands to be harvested over the upcoming 25 years, based on user supplied criteria. The 2001 approach of scheduling harvest stands was an improvement over previous wood supply analysis. However, the software used cannot realistically know all the operational restrictions within a forest management district. By utilizing the manual process, District Staff are able to 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 case, this process has to 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.

Manual harvest scheduling has several major benefits. First, it fosters the long term sustainability of our AAC's by mimicking current harvest practices and accounting for actual on the ground conditions that delay or restrict the harvesting of stands. These restrictions, which were previously unaccounted for, have made our past AAC's higher than was realistically sustainable. Secondly, the mapped harvest schedules build credibility into the forest management process. A common misconception is that the province is running out of wood and soon will not be able to support existing forest industries. Every stand that will be harvested over the spatial plan must already be in the second (20-40 years old) or third (41-60) age class and can be easily identified and highlighted.

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 landbase only. The Operationally Constrained AAC, for the most part, is considered opportunistic if economic conditions become favorable.

#### 3.4.4.3 Planning Horizons

Given the province's commitment to long term sustainability of our forest resource, timber supplies are projected 160 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

#### 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. This 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 hectare that is harvested another harvestable hectare must exist on the landscape. The requirement for a growing stock buffer is based on a number of factors including:

1. Some of the non-timber objectives are not explicitly accounted for in the planning process and therefore will require a growing stock buffer to achieve them.
2. The ability to completely incorporate the optimum harvest schedule due to operational restrictions on commercial harvesting.
3. Lowers the overall risk associated with the sustainability of the timber supply.

For these reasons a growing stock constraint of two times is utilized. This constraint is used in concert with harvest scheduling to help map out a reasonable harvest for the upcoming 20 years.

#### 3.4.4.5 Old Growth Forest Targets

Within the wood supply analysis, the department considers a target for Old Growth forest, where at least 15 percent of forests at any given time must be older than 80 years. While this is a 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 into the future and can be tracked across a district.

#### 3.4.4.6 Operability Limits

Operability limits are considered 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 stand's readiness for commercial harvest activity. Some younger stands may have acceptable harvest volumes, but still contain trees that are too small (diameter and height) to commercially harvest. In the 2006 wood supply analysis both stand volume and tree size were used to determine the earliest age when a stand could be initially harvested. In addition to determining the absolute earliest age a stand can be harvested, it was recognized that not all stands on the same site develop exactly the same at the same rate. A small portion of a stand will develop faster; a small portion will lag behind; with the bulk of the stand type representing the average condition. Therefore, the first operability limit was staggered by 5 year intervals with the 10 percent, 30 percent, and 60 percent assigned to each availability class listed above respectively. The ending operability limits or the last age in which a stand can be harvested before it becomes too old to harvest is solely determined on a minimum stand volume of 60 m<sup>3</sup>/ha, after which that stand is not considered to have enough volume to make it economical feasible to commercial harvest operations. It should be noted that while the operability limits define the extreme end points of when stands can be harvested, very few stands are ever harvested at these extreme points. In order to meet other non-timber objectives and maximize the total volume of wood harvested, the model schedules stands to harvest somewhere inside the operability limit window.

#### 3.4.4.7 Silviculture

Silviculture is one of the main forest management tools available to forest managers when analyzing the many different future forests that are generated using the wood supply modelling software.

The silvicultural actions used in the current wood supply analysis include:

1. Pre-commercial thinning of balsam fir, black spruce, and softwood hardwood stands,
2. Full planting of any areas that do not regenerate naturally with either white spruce, black spruce, or Norway spruce, and
3. Gap planting of stands with either black spruce or balsam fir seedlings. Gap plant is the filling in of "holes" within stands that have inadequate natural regeneration of either balsam fir or black spruce.

### 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 as: fire, insects/disease, timber utilization practices and the presence of stand remnants. It was



recognized that a need existed to study each component more intensely and the staff from the Forest Engineering and Industry Services Division, over a seven year period, completed an analysis of the individual components. The results of these (and other) analysis are incorporated into the current wood supply analysis.

### 3.5.1 Fire

An estimate of productive area loss as a result of fire was based on an analysis of the historical fire statistics maintained by FFA. Fire losses in Zone 6 are very low.

### 3.5.2 Insects

An aerial mortality survey was completed on areas with historically high insect infestations. This information along with a GIS analysis of areas salvaged enabled FFA to determine the amount of productive area lost to insect mortality each year.

### 3.5.3 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.

## 3.6 Results

Table 9 summarizes the result of the timber supply analysis for District 14.

Table 9 Annual Allowable Cut results (m<sup>3</sup>) for Crown Land District 14.

<b>District 14</b>	<b>Core Softwood</b>	<b>Oper. Constr. Softwood</b>	<b>Core Hardwood</b>	<b>Oper. Const. Hardwood</b>
District 14 Commercial	20,000	10,000	2400	200
District 14 Domestic	48,000	0	1600	0
<b>Total</b>	<b>68,000</b>	<b>10,000</b>	<b>4,000</b>	<b>200</b>

Table 10 summarizes the result of the timber supply analysis for District 15.

Table 10 Annual Allowable Cut results (m<sup>3</sup>) for Crown Land District 15.

<b>District 15</b>	<b>Core Softwood</b>	<b>Oper. Constr. Softwood</b>	<b>Core Hardwood</b>	<b>Oper. Const. Hardwood</b>
District 15 Commercial	11,500	11,000	1800	600
District 15 Domestic	49,000	0	2000	0
<b>Total</b>	<b>60,500</b>	<b>11,000</b>	<b>3,800</b>	<b>600</b>

## Section 4 Values

### 4.0 Guiding Principles of Sustainability

Environmental, Economic, Political, Social, and Cultural are considered the five guiding principles of sustainability.

Environmental sustainability evaluates current and future ecosystem health. It ensures the needs of the present are obtained without compromising the ability of future generation's needs. Ecosystem health is determined by such factors as ecosystem integrity, biodiversity, productive capacity, and resiliency. The five year operating plan strives to ensure these factors are maintained.

Economic sustainability requires forest resources to be managed efficiently and equitably among stakeholders. Economic development remains high priority for many of the residents within the Province. However; economic development should only proceed with the incorporation of the other principles of sustainability.

Political sustainability refers to goals and management objectives being applicable, administrable, and practical. With the aid of public input and support, these goals and objectives must maintain these qualities into the future.

Social sustainability means fairness and equity to all interested stakeholders. The forest management strategy should not jeopardize the basic requirements of the public. As a result, public involvement/awareness, participation, and decision-making are considered necessary to development of proper forest management plans.

Cultural sustainability is attained by applying Newfoundland and Labrador'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 and Labrador's public has 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 properly achieved.

#### 4.1 Value Structure

The forest ecosystems of the zone provide a wide range of values to different individuals and groups, which include:

- Consumptive values such as: timber products, hunting, trapping, sport fishing, and berry picking.
- Non-Consumptive values such as: skiing, snowmobiling, hiking, and bird watching.
- 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, spiritual values are considered to be a product or an accumulation of all values.

Other values such as water quality, parks and protected areas provide the protection of forest ecosystems, which can enhance the above identified values. Many of the values in the zone are identified by many years of forest management planning and engagement with interested stakeholders. The following represents a framework for characterizing values in a clear and consistent manner. This approach consists of three components:

<b>VALUE STRUCTURE</b>	
<b>Characterization</b>	Description: Why the value is important, types of activities, intensity, spatial extent, employment, etc. Data in support: Statistical references
<b>Critical Elements</b>	Forest Features: Elements at risk from harvesting or enhanced by harvesting (viewscales, adjacency to water, mountains, habitat, wilderness ambiance, road Access, etc.)
<b>Guiding Principles</b>	A guiding principle can be defined as a fixed or predetermined policy or mode of action. These 'modes of action' would be implemented in the five year plan in the form of: <ul style="list-style-type: none"> <li>• Policies that should be in place to protect or enhance the resource value;</li> <li>• Methods for negotiation or inclusion of other interested stakeholders in resolving potential conflicts;</li> <li>• Special management provisions/strategies such as: riparian buffer zone consideration, temporal operating periods, modified harvesting, or best management</li> </ul>

	<p>practices, and/or</p> <ul style="list-style-type: none"> <li>• Models and/or forecasting strategies to determine economic contribution, biodiversity impact, or community sustainability</li> </ul>
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In many instances, the Environmental Protection Guidelines (EPG's) developed by the department help form the guiding principles for a value. Quite often the spatial extent or location of all values is not known (eg., raptor nests). Specific guidelines are still listed in order to provide a direction or course of action when and if these values are encountered.

#### 4.1.1 Biotic Values

##### 4.1.1.1 Big Game

##### 4.1.1.1.1 Moose

<b>MOOSE</b>	
<b>Characterization</b>	<ul style="list-style-type: none"> <li>• Moose were introduced in 1878 (Gander Bay) and 1904 (Howley) and are now distributed throughout the entire Island.</li> <li>• The 2020 population estimate is 118,000 animals.</li> <li>• The Province is divided into Moose Management Areas (MMA); boundaries, season dates and license quotas are reviewed annually for each MMA. All or portions of MMA 5-13, 18, 19, 37 and 43 are located within Zone 6.</li> <li>• Approx. 100,000 residents actively participate in the annual moose license application process. If successful, it provides an opportunity to hunt, to take part in an outdoor fall activity, to be part of an important social event and to provide local food.</li> <li>• Non-resident harvest is conducted through outfitting establishments, employing guides, cooks, maintenance people, pilots, etc. Other businesses benefiting from the non-resident outfitting industry include local stores, accommodations and restaurants, outdoor stores, aviation companies, etc.</li> <li>• Moose are also important for non-consumptive activities. Intrinsic value is added to hiking, cycling, camping, paddling, sightseeing, etc., when there is a chance to view megafauna such as moose. The tourism industry relies on this intrinsic value to promote many of the activities offered.</li> </ul>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Habitat <ul style="list-style-type: none"> <li>◦ Moose select different habitats at different times of the year and therefore require a mixed forest landscape year-round: a mixture of closed, mature stands for cover, shelter and winter moose yards; early-seral stages (due to disturbances such as insects, fires and logging) with a high amount of young regenerating areas for browsing; and aquatic foraging areas in the summer.</li> </ul> </li> <li>• Forest harvesting <ul style="list-style-type: none"> <li>◦ Recently harvested large scale areas can be low quality moose habitat as forage</li> </ul> </li> </ul>

	<p>and cover are removed. Five plus year old cutovers tend to have enough regeneration to support a slow return of moose to the area. Regenerating cutovers provide excellent foraging opportunity until trees become too tall for moose to reach.</p> <ul style="list-style-type: none"> <li>• Forest roads <ul style="list-style-type: none"> <li>○ Provide hunters access into areas previously free from vehicle traffic. Removal of access, in particular in areas of new forest regeneration, may allow moose densities to increase beyond sustainable levels.</li> </ul> </li> </ul>
Guiding Principles	<ul style="list-style-type: none"> <li>• Proposed forestry activity is reviewed by the staff at the Wildlife Division and recommendations are incorporated into this five-year plan.</li> </ul>

#### 4.1.1.1.2 Caribou

<b>CARIBOU</b>	
Characterization	<ul style="list-style-type: none"> <li>○ Caribou in Canada occur in two primary ecotypes: Barren-ground caribou and Woodland caribou, often referred to as boreal caribou. The latter ecotype inhabits mosaics of barren, wetlands, and mature forests. The herds on the island of Newfoundland belong to this ecotype. They are cyclic by nature mainly due to being density-dependent; meaning restricted by food and/or space, as well as regulated by predators such as wolves and managed hunters.</li> <li>○ Caribou is the only native ungulate species on the island (Northcott, 1980). Numbers are anecdotal at best for the 1800's (ranged from 40,000 to 200,000). By 1925 hunting was closed as the island population was down to a few thousand caribou. From the 1960's through the 1990's the caribou population recovered, peaking at over 90,000 in the 1990's. In late 1990's caribou started another downward trend (2014 assessment: just over 32,000 animals). The 2019 population estimates suggests 30,600 animals island-wide.</li> <li>○ The Province is divided into Caribou Management Areas (CMA): boundaries, season dates and license quotas are reviewed annually for each CMA. All or portions of CMA 61, 62, 63 and 75 are located in Zone 6.</li> <li>○ Approx. 100,000 residents actively participate in the annual big game license draw process. If successful, it provides an opportunity to hunt, to take part in an outdoor fall activity, to be part of an important social event and to provide local food.</li> <li>○ Non-resident harvest is conducted through outfitting establishments, employing guides, cooks, maintenance people, pilots, etc. Other businesses benefiting from the non-resident outfitting industry include local stores, accommodations and restaurants, outdoor stores, aviation companies, etc.</li> <li>○ Caribou are also important for none-consumptive activities. Intrinsic value is added to hiking, cycling, camping, paddling, sightseeing, etc., when there is a chance to view megafauna such as caribou. The tourism industry relies on this intrinsic value to promote many of the activities offered. Caribou is also iconic to the NL Regiment.</li> <li>○ In 2014 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed Newfoundland caribou and recommended a listing of "special concern". COSEWIC assessments are usually done on a 10 year cycle.</li> </ul>

<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Caribou display a highly mobile nature and some herds occupy large home ranges.</li> <li>• Caribou show a high selection for bogs and mature coniferous forests, as well as shrubs and water bodies. These habitats provide refuge from predation and support an abundance of forage.</li> <li>• Direct impacts from large cut overs and linear features include habitat destruction and fragmentation, increase in mortality and reduced recruitment rates likely due to increased and improved access for humans as well as predators, and avoidance of disturbed areas</li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• Caribou populations are monitored and assessed on a regular basis via <ul style="list-style-type: none"> <li>◦ Annual fall classification surveys: provide regular updates to sex ratios and recruitment within each herd. This work feeds into herd level assessments and quota evaluation/development.</li> <li>◦ Collar deployment: analysis of caribou movements, mortality rates and range occupation</li> </ul> </li> <li>• This supports the development and assessment of Caribou Management Guidelines for forest management planning. New iterations of these guidelines may incorporate maximum targets for disturbance and linear features (e.g., forest roads) as well as no net losses within certain caribou core ranges.</li> <li>• The guiding principles for forestry operations and road construction will apply to all crown operations within the province. Wildlife Division will provide herd specific guidance and recommendations.</li> </ul>

#### 4.1.1.1.3 Black Bear

<b>BLACK BEAR</b>	
<b>Characterization</b>	<ul style="list-style-type: none"> <li>• The black bear is native to the island and is found in forested areas (Nortcott, 1980). Black bears are solitary creatures and do not truly hibernate but enter a state of lethargic sleep. A den is chosen in mid fall under tree stumps or logs which are lined with grass, twigs and leaves. If reproducing females gained enough body fat they will give birth between January and February before emerging from the den with the cub(s) in April or May.</li> <li>• Currently, the number of black bears occurring on the island has been estimated at approximately 6,000 - 10,000 animals.</li> <li>• The Province is divided into Black Bear Management Areas (BMA), which correspond to MMAs (except for sub-areas). Portions of BMA 5-13, 18, 19, 37 and 43 are located within Zone 6. Currently, only one license (with a bag limit at two black bears) is required by hunters on the Island to hunt black bear in both the spring and fall.</li> </ul>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Heavily wooded areas with dense bush intercepted with smaller clearings or early successional seral stages represent suitable habitat for black bears.</li> </ul>

<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• A 50-metre undisturbed buffer must be maintained around known Black Bear den sites (winter) or those encountered during harvesting.</li> </ul>
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#### 4.1.1.2 Furbearers

<b>FURBEARERS</b>	
<b>Characterization</b>	<ul style="list-style-type: none"> <li>• There are a variety of furbearers within the Province: lynx, red fox, beaver, otter, muskrat, short-tailed weasel, red squirrel, mink, coyote, wolf (Labrador) and Newfoundland marten (currently listed as a Species at Risk). Of these, mink and red squirrel are not native to the Island and coyotes are considered recent colonizers as they expanded their range naturally.</li> <li>• Furbearer populations fluctuate from year to year and are influenced by factors such as predator/prey relationships, food supply and disease. Trapping pressure (i.e. due to fur market prices) can also influence population growth or decline.</li> <li>• Trapping furbearers for their fur, meat and other natural products has a long tradition in this Province. Today's trapping is a choice of lifestyle, most times deeply rooted in the family and local culture, provides food, clothing and money as well as an enduring connection and experience with nature. Approx. 2,500 people in the province trap and snare furbearers.</li> <li>• Management of furbearer species within the province is highly regulated and the responsibility of the Wildlife Division. There are 13 furbearer management zones throughout Newfoundland and Labrador. Within these zones, harvest activities for each species occurs during optimum periods for fur quality, which is generally during the fall and winter period. However, furbearer seasons may vary for each different species.</li> </ul>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Embedded in conservation of furbearers is the conservation of biodiversity and the ecological processes that support that biodiversity. Furbearers depend on other species; lynx on snowshoe hares, marten on mice and beaver on deciduous trees. Each species belong to a diverse community that depends on specific habitat conditions. Habitats change from one forest successional stage to another and are therefore inextricably linked to forest management. (Fur Institute of Canada, 2019)</li> <li>• Species respond differently to logging operations or Silviculture treatments (i.e. thinning, prescribed burns). Hare and grouse increase with logging, which is advantageous to lynx, coyote and fox. The wolf depends on caribou and moose, and beaver.</li> <li>• Snags, coarse woody debris, and sufficient understory provide sites for shelter, denning, nesting, traveling, etc.</li> <li>• Maintaining sufficient undisturbed riparian buffer zones along aquatic areas such as wetlands and waterbodies ensures water quality maintenance as well as shelter from upland disturbances</li> <li>• A mix of various forest conditions and successional stages that provides diversity of</li> </ul>

	habitats supports a diversity of prey and thus a diversity of furbearers.
Guiding Principles	<ul style="list-style-type: none"> <li>The Wildlife Division develops and implements an annual <i>Furbearer Management Strategy</i>. Similar to the big game management plan, a furbearer management plan reviews the status of each furbearer species, addresses the season dates and lengths, and if necessary closure of areas (or no open season as currently in place for marten).</li> </ul>

#### 4.1.1.3 Species of Interest

##### 4.1.1.3.1 American Marten

<b>AMERICAN MARTEN</b>	
Characterization	<p>In 1986, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed the Newfoundland population of the American marten and the species was listed as threatened. Revisions in 1996 and 2000 resulted in an up listing to “endangered” due to further declines. Habitat loss, trapping and incidental snaring are possible reasons for the marten population decline. Through the work of the Marten Recovery Team, the status of marten has been upgraded from “endangered” to “threatened” in 2007 because new population estimates were stable and distribution of marten was increasing. The American marten (island population) is currently (2010) listed as “threatened” under both the federal <i>Species at Risk Act</i> and provincial <i>Endangered Species Act</i>.</p> <p>To identify factors affecting marten survival, stakeholders from the Canadian Forest Service, Wildlife Division, Corner Brook Pulp and Paper and the Forestry Branch became members of the Newfoundland Marten Recovery Team. The primary function of the Recovery Team was to prepare and periodically revise the recovery plan for American marten in Newfoundland and to provide advice on species recovery. The initiation of the live-trapping program, revealed that Main River, Little Grand Lake and Red-Indian Lake are high-density marten areas on the island. Based on this information, it is important that marten habitat be protected in these areas. Furthermore, it is important that some remnant stands of old growth (80+) forests remain on harvested areas throughout the province and provision made to have connectivity (i.e., unbroken corridors of forest).</p>
Critical Elements	<ul style="list-style-type: none"> <li>Older studies of habitat associations of American marten in Newfoundland have found that they are dependent on old-growth or overmature (&gt;80-years-old) forests due to a depauperate prey base which restricts marten to older forests where prey are accessible. More recent research suggests that marten will use a wide variety of habitat types, including immature regenerating forests, precommercially thinned forests, areas disturbed by forest insects, and areas of mature and overmature forests sufficient habitat to support a viable population of marten;</li> <li>Overall experts agreed that forest management promotes marten populations when some remnant stands of over mature/ old-growth (80+) forests remain unharvested across the island and a provision made to have connectivity between these over mature or old growth stand with the habitats that are listed above in the first bullet (this does not include recently harvested areas).</li> <li>Under Brian Hearn’s work with the Canadian Forest Service, previous proposed harvest schedules within various forest management districts have been analyzed and</li> </ul>



	indicate suitable habitat remained after harvest.
<b>Guiding Principles</b>	<p>These guiding principles are put in place to further recovery of the Newfoundland Marten and allow for forest harvesting.</p> <ul style="list-style-type: none"> <li> <p><b>Sustainably manage and conserve core marten areas:</b></p> <p>In the early 1990's-2000's there were three high-density marten areas on the island: Main River (southern Northern Peninsula), Little Grand Lake-Red-Indian Lake (Western) and Terra Nova (Eastern). Marten have and continue to expand their range from these core areas. Based on this information, it is important that marten habitat be managed with a focus on the sustainable use and conservation of these core areas and the management of forests to promote and continue range expansions beyond the three core areas.</p> </li> <li> <p><b>Ensure habitat connectivity:</b></p> <p>Forest planning ensure sufficient connectivity between habitat patches to allow continued dispersal and expansion of the species back to its historical range.</p> </li> <li> <p><b>Protect denning female and kits:</b></p> <p>Activities previously identified by the Newfoundland Marten Recovery Team, as having the potential to disrupt female marten and her kits during the critical denning period, where possible should be limited during the period April 1st to June 30th within the areas identified as marten critical habitat in the 2010 Provincial Recovery Plan. This includes any activity that results in the removal of trees, significant noise, or compression or disturbance to brush or soil. Wildlife Division must be consulted on activities proposed in critical habitat during this period.</p> </li> <li> <p>The guiding principles for Habitat requirements during forestry operations will apply to all crown operations within the province.</p> </li> </ul>

#### 4.1.1.3.2 Rare Plants

<b>RARE PLANTS</b>	
<b>Characterization</b>	<ul style="list-style-type: none"> <li>The distribution of specific species as well as plant communities depend on regional and landscape-level factors, such as climate, geology, altitude and terrain as well as more local factors, such as the depth, moisture regime and fertility of the soil, microclimate and other biota, such as presence of herbivores, pathogens or pollinators.</li> <li>“For those interested in rare and unusual plants, the island of Newfoundland has been called the best kept secret in North America (Hermanutz,2000). The island’s west coast is especially diverse, with more than 200 plant species assigned as provincially rare (Hermanutz,2000). The western side of the Great Northern Peninsula with its</li> </ul>

	<p>cool moist climate, strong prevailing winds and shallow limestone soils rich in calcium support a vast array of rear and vascular plants from northern alpine plants to the more southerly Appalachian species.</p> <ul style="list-style-type: none"> <li>• Information on the distribution of plant species in Newfoundland and Labrador is obtained from various surveys initiated by government, research institutions, individual naturalists or local organizations, as well as those by consulting firms required through Environmental Assessment processes.</li> <li>• Currently, 27 plant and 3lichen species are listed under the <i>Endangered Species Act</i>, with several hundred other plant and lichen species considered to be of conservation concern.</li> <li>• Four of the Endangered plant species are not found anywhere in the world outside of the Gulf of St. Lawrence Region, and three of them, the Fernald’s Braya, Long’s Braya and Barrens willow, are only found on the Island of Newfoundland.</li> <li>• There are many species of plants, lichen and fungi throughout the Province that are not rare or endangered but still have an important social or economic value. Many of these species also play important roles in the functioning of the province’s ecosystems.</li> <li>• The vast majority of the rare plant species throughout Newfoundland are inhabitants of open habitats, such as river gravels, salt marshes, wetlands, aquatic habitats, alpine areas and coastal barrens, which are not targeted by commercial forest operations and in some cases receive special protection</li> </ul>
<p><b>Critical Elements</b></p>	<ul style="list-style-type: none"> <li>• A small subset of the plant and lichen species of conservation concern, such as the Endangered Graceful Felt Lichen, depends on forests, and some of them are specialists requiring late-successional forests.</li> <li>• Without proper protection measures, negative effects can occur from: <ul style="list-style-type: none"> <li>○ quarrying and road construction</li> <li>○ logging and extraction using heavy equipment</li> <li>○ mechanical site preparation</li> <li>○ all-terrain vehicle traffic</li> <li>○ prescribed burning</li> <li>○ stand conversion to different tree species and/or earlier seral stages</li> </ul> </li> </ul>
<p><b>Guiding Principles</b></p>	<ul style="list-style-type: none"> <li>○ Work with the Wildlife Division to educate forestry Personnel and develop mitigative measures in areas where rare plants occur.</li> <li>○ Identify and update all rare plant sites on GIS forestry data base</li> <li>○ Encourage domestic harvesting in the winter</li> </ul> <ul style="list-style-type: none"> <li>• The guiding principles for Protection during forestry operations will apply to all crown operations within the province.</li> </ul>

#### 4.1.1.3.3 Waterfowl

<b>WATERFOWL</b>	
<b>Characterization</b>	Maintaining waterfowl populations depends on effective conservation efforts throughout North America. Newfoundland and Labrador most productive waterfowl breeding and staging areas are either owned by or are under management control of major corporations, private or communities. To help manage for waterfowl areas, stewardship agreements are signed at either the municipal, corporate or private levels. The community of Hawkes Bay has a waterfowl stewardship area within its municipal boundary. In Hare Bay, there are a series of islands that are protected for Eider Duck enhancement.
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Habitat               <ul style="list-style-type: none"> <li>○ maintenance of habitat</li> </ul> </li> <li>• Breeding               <ul style="list-style-type: none"> <li>○ disturbance of waterfowl during the brood rearing, breeding, and staging period</li> </ul> </li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• Habitat               <ul style="list-style-type: none"> <li>○ 30-metre treed buffer will be established around designated sensitive waterfowl areas.</li> </ul> </li> <li>• Breeding               <ul style="list-style-type: none"> <li>○ A minimum 30-metre, treed buffer must be maintained from the high water mark in other waterfowl breeding, molting, and staging areas.</li> <li>○ no forestry activities are recommended during the brood rearing, breeding, and staging period</li> </ul> </li> <li>• The guiding principles for Habitat and Breeding during forestry operations will apply to all crown operations within the province.</li> </ul>

#### 4.1.1.3.4 Other Species

Other species, particularly the red crossbill, are currently listed as endangered. The Forestry and Wildlife Division has a representative on the recovery team for this species. Any recommendations on modified forestry activities, if any, for this species will be developed with input from all members and implemented accordingly.

#### 4.1.1.4 Water Resources

<b>WATER RESOURCES</b>	
<b>Characterization</b>	The protection of water resources is an important topic both nationally and provincially. Human impacts both locally and globally have the potential to impair or alter water quality and water quantity.
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Road construction / maintenance, Timber harvesting, and Silviculture               <ul style="list-style-type: none"> <li>○ Potential to alter the quantity and quality of water draining from watersheds.</li> <li>○ Negative Impacts could include: Negative impacts could include: stream hydrology (e.g. water quantity/flood risk), sediment loadings, and stream characteristics. Such activity would also potentially increase access by the public to land inside a Protected Public Water Supply Area (PPWSA) that was not previously accessible.</li> </ul> </li> <li>• Storage and handling of fuels</li> <li>• Public Protected Water supply Areas (PPWSA)               <ul style="list-style-type: none"> <li>○ Human Activity (e.g. domestic and commercial forestry has the potential to negatively affect the area of land and water designated as a Protected Public Water Supply Area, for a municipal authority or local service district (LSD) operating a waterworks or using or intending to use a water sources, under Section 39 of the Water Resources Act. 3</li> </ul> </li> <li>• Working in and within 15 metres of a waterbody or wetland               <ul style="list-style-type: none"> <li>○ The management of water resources helps to protect, enhance, conserve, develop and effectively utilize NL water resources and is accomplished through the issuance of Permits to Alter a Body of Water and Water Use Licences under Section 48 and Part 1 of the Water Resources Act respectively.</li> </ul> </li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• Road Construction               <ul style="list-style-type: none"> <li>○ Any alteration to a body of water (e.g. culvert or bridge installation) within 15 metres of a natural waterbody (i.e. any water identified on the latest 1:50,000 NTS map) or development within a protected public water supply area, will require prior approval by the Water Resources Management Division of the Department of Environment and Climate Change (ECC).</li> <li>○ Approvals from Transport Canada are required for culverts, bridges and abutments on navigable waters (i.e. any waterbody capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. Transport Canada’s Navigability Self-Assessment Tree) must be utilized for each project to determine if a stream is Navigable or Not Navigable.</li> <li>○ When extraction trails and winter roads are to be constructed, soil disturbance and impacts on water bodies are to be minimized.</li> </ul> </li> <li>• Timber Harvesting               <ul style="list-style-type: none"> <li>○ Heavy equipment and machinery are not permitted in any waterbody, on a wetland or a bog, unless frozen, without a permit from Water Resources Management Division</li> <li>○ Woody material of any kind (i.e. trees, slash, sawdust, slabs, etc.) is not</li> </ul> </li> </ul>

	<p>permitted to enter a waterbody. Depositing woody material on ice within the high water floodplain of any waterbody is also prohibited.</p> <ul style="list-style-type: none"> <li>○ Buffers inside PPWSAs vary and are applied using Policy 95-01 (Policy for Land and Water Related Developments in Protected Public Water Supply Areas)</li> <li>○ Extraction trails and landings shall not be established within 30 metres of a waterbody</li> <li>○ A minimum 30 metre, no harvesting activity buffer zone shall be established around all water bodies that are identified on the latest 1:50,000 national topographic system (NTS) maps.</li> <li>○ All buffers may be increased inside PPWSAs.</li> <li>○ Where possible, a closure plan will be identified at the end of Forestry activity to minimize access.</li> </ul> <ul style="list-style-type: none"> <li>● <b>Storage and handling of fuels</b> <ul style="list-style-type: none"> <li>○ No heavy equipment or machinery is to be refueled, serviced, or washed within 30 metres of a waterbody.</li> <li>○ Gasoline or lubricant depots must be placed at least 100 metres from the nearest waterbody</li> <li>○ All fuel-storage tanks must be registered with Digital Government and Service NL</li> <li>○ Used oil storage, handling and disposal is to comply with the Used Oil Control Regulations, NLR, 82/02 under the Environmental Protection Act.</li> <li>○ Contaminated soil or snow must be disposed of at an approved treatment facility</li> </ul> </li> <li>● <b>Protected Public Water supply Areas (PPWSA)</b> <ul style="list-style-type: none"> <li>○ In Newfoundland and Labrador forestry operations may be permitted in Protected Public Water Supply Areas on a limited and controlled basis provided the potential negative impacts of the proposed operations can be mitigated.</li> <li>○ Approvals required include: <ul style="list-style-type: none"> <li>▪ Approval of the Five-year operating plan by the Environmental Assessment Division of ECC, and</li> <li>▪ Issuance of a permit under section 39(6) of the Water Resources Act which will include consultation with the community involved.</li> </ul> </li> <li>○ Buffers inside PPWSAs vary and are applied using Policy 95-01 (Policy for Land and Water Related Developments in Protected Public Water Supply Areas)</li> <li>○ Refueling must not take place within 150 meters of an intake pond.</li> <li>○ Fuel storage tanks approved by Digital Government and Service NL must be located at a minimum distance of 500 meters from any major waterbody.</li> <li>○ A fuel or oil spill clean-up kit must be kept on site to facilitate any clean-up in the event of a spill.</li> <li>○ Policy Directive 95-01 (Land and Water Related Developments in PPWSAs) shall apply</li> </ul> </li> <li>● <b>Working in and within 15 metres of a waterbody</b> <ul style="list-style-type: none"> <li>○ All waterbodies, including wetlands will be identified within the project area as per the most up to date 1:50,000 NTS topographic maps.</li> <li>○ Work within mapped wetland areas will follow the WRMD's Policy for Development in Wetlands to ensure that adverse effects to water quantity,</li> </ul> </li> </ul>
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	<p>quality, hydrological functions and terrestrial and aquatic habitats are restricted.</p> <ul style="list-style-type: none"> <li>○ All necessary erosion/siltation control measures will be taken during infilling, dredging and debris removal activities near waterbodies.</li> <li>○ Impacts to the natural drainage pattern of the work area shall be identified including the redirection and discharge of water.</li> <li>○ Flood risk areas will be identified and work activities categorized as per the WRMD Policy for Flood Plain Management to ensure structural, public, and environmental health and safety.</li> <li>○ Required permits and licenses will be attained prior to commencing work include; <ul style="list-style-type: none"> <li>▪ Issuance of a Permit to Alter a Body of Water under Section 48 of the Water Resources Act</li> <li>▪ Issuance of a Part 1 – Water Use Licence for all non-domestic water use.</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>• The guiding principles for forestry operations, road construction, fuel handling and operating with PPWSA's will apply to all crown operations within the province.</li> </ul>
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#### 4.1.2 Human Values

##### 4.1.2.1 Timber Resource

<b>TIMBER RESOURCE</b>	
<b>Characterization</b>	<p>Commercial logging contractors are allocated the majority of the annual allowable cut level in the zone. Commercial harvesting and sawmilling activity provides many jobs in harvesting, sawmilling, trucking, pulp and paper manufacturing and related spin off industries for local residents. Commercial uses have arisen for timber, which includes: lumber, pulp and paper products, and value added products.</p> <p>Domestic harvesting provides fuelwood to heat many homes and sawlog material for residential house construction in the zone. Domestic harvesting is conducted in specific domestic cutting areas via a crown domestic cutting permit that is required and issued within each forest management district. Unless otherwise specified; domestic cutting is limited to these designated cutting areas. A Domestic Permit specifies the volume and species that can be harvested, utilization standards, and other relevant conditions. While some domestic cutting areas are designated for hardwood only, the majority of areas will allow the harvest of all hardwood and softwood species.</p> <p>Silviculture treatments are important to the forest resource of the zone as it ensures that a vigorous and healthy forest is maintained. Forest renewal activities facilitate renewal of productive landbase by manual 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. There will be a significant investment on silviculture in the zone each year creating seasonal employment.</p>

	<p>Timely access to timber is critical to planning any forestry operations. Primary, secondary and tertiary roads form an integral part of operating areas for commercial harvesting activity. Upon completion, these roads are often used for silviculture and recreational purposes. A significant amount of money will be spent to construct forest access roads each year in the zone.</p> <p>Protection of the forest from various disturbances is a major characteristic of resource management, which includes: integrated pest management and forest fire prevention/suppression techniques. Other resource values are protected through modification of activities and enforcement.</p>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• maintenance or enhancement of productive land base</li> <li>• planting of non-regenerating areas</li> <li>• minimizing loss of land base to other users</li> <li>• minimize losses to fire, insect and disease</li> <li>• timely access road construction</li> <li>• enhancement of younger age classes through thinning to correct age class imbalance</li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• enforcement of forestry act, regulations, guidelines and policies</li> <li>• minimize loss of productive land base through spatial and temporal compromises and continuous dialogue with other resource users</li> <li>• education (staff, public, operators)</li> <li>• aggressively conduct silviculture, access road, and protection activities</li> <li>• implement best management practices. The <i>EPG's</i> outline courses of action and mitigative measures for forest activities. These <i>EPG's</i> are outlined in their entirety in Appendix, with some highlighted subject areas listed below.</li> <li>• garbage disposal</li> <li>• fuel storage</li> <li>• mineral soil exposure</li> <li>• buffer requirements</li> <li>• road and bridge construction</li> <li>• silviculture and harvesting activities</li> </ul>

#### 4.1.2.2 Agriculture

<b>AGRICULTURE</b>	
<b>Characterization</b>	<p>The agricultural industry provides both direct and indirect employment to residents of the province.</p> <p>Brophy's farm is a major dairy operation that is located in Daniels harbour. There are a couple of small commercial sheep farmers in the zone with a flock size of less than 40 ewes. There are hundred's of subsistence farming plots scattered throughout the zone. The vegetables grow on these plots are mostly root crops used to supplement food</p>

	<p>requirements during the winter months.</p> <p>The wild berry industry (Bakeapples, partridge berry and raspberry) plays a significant role in the subsistence style of living enjoyed in the zone. While there is no actual record of production, thousands of kilograms of berries are harvested annually. There is one jam producer in the zone who purchases berries and produces jam on a commercial basis.</p>
<p><b>Critical Elements</b></p>	<ul style="list-style-type: none"> <li>• Landbase <ul style="list-style-type: none"> <li>○ Land resources are at the foundation of all agricultural enterprises and provide the requirements for crop production. It is not possible to identify and plan all sites for future agriculture use and often there is a conflict with other land uses particularly forestry because these sites are of high growing capability.</li> <li>○ 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.</li> </ul> </li> <li>• Operational Requirements <ul style="list-style-type: none"> <li>○ When approval is granted for an agricultural lease, the land needs to be cleared and prepared for production</li> </ul> </li> </ul>
<p><b>Guiding Principles</b></p>	<ul style="list-style-type: none"> <li>• Landbase <ul style="list-style-type: none"> <li>○ Both the Forestry and Agrifoods sections have identified Agricultural Areas of Interest (AOI's) across the province, representing approximately 155,600 hectares. The area in AOI's have been removed from woodsupply calculations and is available for agricultural development.</li> <li>○ Agricultural Development is still considered for areas falling outside established AOI's</li> </ul> </li> <li>• Operational Requirements <ul style="list-style-type: none"> <li>○ Forestry Act has been amended to allow clearing of land to occur without a commercial cutting permit if applicant is utilizing the fibre for their own private use.</li> <li>○ Where possible, existing commercial forest operators should be encouraged to work with farmers to clear new land for development.</li> <li>○ Where possible, existing commercial forest operators are encouraged to clear identified land within the departments Agriculture areas of Interest (AOI's). Five Year Plans includes AOI areas which are not part of woodsupply calculations</li> <li>○ Home gardening leases should be confined to areas already developed for this activity.</li> </ul> </li> <li>• The guiding principles for Landbase and operational requirements will apply to all crown operations within the province.</li> </ul>



#### 4.1.2.3 Mining, Mineral Exploration and Quarrying

<b>MINING, Mineral Exploration, and Quarrying</b>	
<b>Characterization</b>	<p>Mineral exploration, mining, and quarrying are recognized as separate and distinct activities, each of which is approved and regulated under a separate piece of legislation.</p> <p>Mineral exploration activities may consist of prospecting, geological mapping, grid line-cutting, geochemical surveys, ground-based and airborne geophysical surveys, the preparation and use of access trails, mechanized trenching, diamond drilling, and – in remote areas – the preparation and use of campsites.</p> <p>Mineral exploration takes place province-wide and is a significant contributor to the provincial economy, particularly in rural areas.</p> <p>There are a large number of active quarries throughout the province which generate significant royalties and which provide the raw material for the development and maintenance of infrastructure such as highways, building lots, and concrete.</p> <p>There are a number of active mines in the province at any given time and mining represents a major component of the provincial economy.</p>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Forest Ecosystem <ul style="list-style-type: none"> <li>○ Mining, quarrying, and mineral exploration activities can have potential negative impacts to Forest Ecosystems and future Woodsupply calculations. Mining and quarrying represent permanent (but sequenced – not all at once) alterations to the landscape whereas mineral exploration activities at most involve temporary disturbance. Each activity is subject to rehabilitation requirements.</li> </ul> </li> <li>• Utilization of Timber Resource <ul style="list-style-type: none"> <li>○ When exploration activity occurs, merchantable trees may need to be harvested to gain access to work sites. Under forestry act, all merchantable trees can only be removed with a cutting permit and that holders of a cutting permit must utilize all portions of the tree to a top diameter of 8cm (outside bark). Section 18 of cutting of timber regulations state that all timber cut shall be removed from the cutting area to a roadway while harvesting operations are in progress unless otherwise specified in the cutting permit.</li> </ul> </li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• Forest Ecosystem <ul style="list-style-type: none"> <li>○ Regulations and permitting conditions require that all mine sites, quarry sites, and mineral exploration sites be rehabilitated. While each activity is regulated separately, rehabilitation requirements for each include the requirement that the organic overburden (e.g., topsoil, ground vegetation) be stockpiled and stored in a manner so that it can be used to rehabilitate the site. Rehabilitation requirements can be further specified in special terms and conditions and could include, if warranted, the requirement that the site be left in a condition conducive to forest regrowth.</li> </ul> </li> <li>• Utilization of Timber Resource <ul style="list-style-type: none"> <li>○ As part of exploration and development activities, individuals must attempt to extract timber harvested. If timber cannot be feasibly extracted using conventional means, then timber shall be piled so that it may be extracted</li> </ul> </li> </ul>

	<p>during winter months by snowmobiles.</p> <ul style="list-style-type: none"> <li>○ Mineral Exploration companies are permitted to use some harvested timber within access routes for the purposes of corduroy or brushmatting to prevent rutting and minimize ground disturbance on sensitive sites.</li> </ul> <ul style="list-style-type: none"> <li>● Additional: <ul style="list-style-type: none"> <li>○ The Forestry Branch will consult with the Mining and Mineral Development Branch in determining appropriate silviculture buffer distances from the boundaries of sites covered by a quarry permit or quarry lease. In many cases, 100 meters is an appropriate buffer distance that will accommodate discrepancies in plotting. However, in other cases, there may be valuable aggregate resources present and expectations that the area will see proposals for new quarry developments in the foreseeable future, in which case a buffer zone should be specially planned in consultation with Mines. In other cases, where quarry development is expected to proceed slowly, silviculture buffer distances may be much reduced.</li> <li>○ For mine sites (including all associated infrastructure), an appropriate silviculture buffer distance should be chosen in consultation with the site operator and the Mining and Mineral Development Branch.</li> <li>○ Mineral exploration activity that proposes to explore or develop within a silviculturally treated area must be undertaken with minimal disturbance and under approval of Forestry Branch. A standard condition has been developed by the Mineral Development Branch and Forestry &amp; Wildlife Branch to include as a condition in mineral exploration approvals document where silviculture treatments may be impacted.</li> <li>○ Mineral exploration and/or development on mineral licenses will not be impeded and will follow government policy. Specific proposed forest management activities are identified in annual operating plans for each upcoming calendar year.</li> <li>○ Should future quarry or mineral resource developments or exploration programs (i.e., new quarry development, existing quarry expansion, new mine development, exploration for quarry materials, or mineral exploration) be considered by the Forestry Services Branch as having the potential to cause a significant impact on the forest resource and forest resource users, the Forestry Services Branch will work closely with the Mining and Mineral Development Branch and the proponent to ensure that mutual impacts are minimized.</li> <li>○ For the purpose of road construction, quarry permits or quarry leases are required only for aggregate material taken outside of the road right-of-way.</li> <li>○ Non-compliance with exploration permits identified by Forestry Branch will be passed to Mining and Mineral Development Branch.</li> <li>○ Many forest access roads and bridges are used by other land users, among them parties carrying out mineral exploration or quarrying. Where possible, the Forestry Services Branch will forward plans to decommission roads or bridges as a matter of course to ensure that all road/bridge rehabilitation and decommissioning plans are reviewed to consider whether mineral exploration, quarrying, or mining may be affected. Plans should be forwarded to MinesBranchReferrals@gov.nl.ca</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>● The guiding principles for Forest Ecosystem, Utilization of Timber Resource, and</li> </ul>
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	additional comments will apply to all crown operations within the province
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#### 4.1.2.4 Historic Resources

<b>HISTORIC RESOURCES</b>	
<b>Characterization</b>	<p>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.</p> <p>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. The preservation and interpretation of archaeological sites will continue to benefit in this province in the future.</p>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Protection <ul style="list-style-type: none"> <li>○ Activities which disturb soil layers and/or provide unintended public access to an archaeological site can have a negative impact on that historic resource. Without applying best management practices, forestry activities such as: construction of access roads and bridges, harvesting, and mechanical site preparation have the potential to destroy historic resources.</li> <li>○ While forestry activities can have adverse impacts on historic resources, beneficial effects can be realized. Where impact assessments are carried out and new sites 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.</li> </ul> </li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• Protection <ul style="list-style-type: none"> <li>○The provincial archaeology office will review forestry’s five year plan proposals through the Environmental Assessment process. Applicable protection measures will be identified by the archaeology department and incorporated into the forestry plans.</li> <li>○Buffer Zones will be implemented to protect known archaeological sites and potential unknown sites. If deemed necessary, archaeological assessments may be required to fully assess the site.</li> <li>○Buffer zones are required along all rivers and ponds, as well as along the</li> </ul> </li> </ul>

	<p>coastline, where there is potential for archaeological resources to be found.</p> <ul style="list-style-type: none"> <li>○ Occasionally there are accidental discoveries made of historic resources. In the event that this does happen, activities should cease in this area and contact be made immediately with the provincial archaeologists.</li> </ul> <ul style="list-style-type: none"> <li>• The guiding principles for Protection during forest Harvesting will apply to all crown operations within the province.</li> </ul>
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#### 4.1.2.5 Parks and Protected Areas

<b>PARKS AND PROTECTED AREAS</b>	
<b>Characterization</b>	<p>There are several different types of conservation areas in the province contributing to the provincial system of protected areas.</p> <ul style="list-style-type: none"> <li>○ Wilderness Reserves are designed to protect complete ecological systems, while Ecological Reserves may be established to protect representative samples of each of the province’s natural regions. Both Wilderness and Ecological Reserves are established via the <i>Wilderness and Ecological Reserves Act</i>.</li> <li>○ Provincial Parks established under the <i>Provincial Parks Act</i>, do play a conservation role, but are primarily established as sites for outdoor recreation and nature-based education.</li> <li>○ Wildlife Reserves may be established under the <i>Wildlife Act</i> for the protection of specific species or habitats.</li> <li>○ Public or Crown Reserves may be established for conservation reasons under the <i>Lands Act</i>.</li> <li>○ National Parks such as Terra Nova, Gros Morne and Torngat Mountains are established under the federal <i>National Parks Act</i>.</li> </ul> <p>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.</p> <p>Protected areas include Little Grand Lake, wildlife and ecological reserves. There are also some areas being considered through the Natural Areas System Planning process for future protected areas.</p>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Protection <ul style="list-style-type: none"> <li>○ preservation of biodiversity</li> <li>○ maintenance of protected area integrity</li> <li>○ maintain natural processes and features</li> </ul> </li> <li>• Operational <ul style="list-style-type: none"> <li>○ Forestry activity occurring around Parks and Protected Areas.</li> </ul> </li> </ul>
<b>Guiding Principles</b>	<ul style="list-style-type: none"> <li>• Protection <ul style="list-style-type: none"> <li>○ Some protected areas prohibit new development such as mining activity, hydroelectric projects, forestry activity, agriculture activity, roads/trails,</li> </ul> </li> </ul>

	<p>cabins and new structures;</p> <ul style="list-style-type: none"> <li>○ the type of activities encouraged or permitted within various protected areas in the province depends entirely on the type of protected area and the rationale for its establishment</li> </ul> <ul style="list-style-type: none"> <li>• Operational <ul style="list-style-type: none"> <li>○ 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</li> <li>○ where forestry operations are scheduled within one kilometer of provisional and ecological reserves, wilderness reserves or provincial parks, modified operations may be necessary</li> </ul> </li> <li>• The guiding principles for Protection and operational requirements will apply to all crown operations within the province.</li> </ul>
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#### 4.1.2.6 Outfitting

<b>OUTFITTING</b>	
<b>Characterization</b>	<p>Outfitting is an iconic, high yield tourism demand generator and one of Newfoundland and Labrador’s most developed tourism products. Outfitters annually attract high end hunting and angling enthusiasts that benefit local communities, other private operators, transportation providers and guides.</p> <p>Since the early 1900’s, the outfitting industry has been an integral component of the tourism industry in Newfoundland and Labrador. The province has 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 this forest management zone, which provide seasonal employment for many local individuals.</p> <p>Over the past decade or so, a significant number of traditional hunting and fishing facilities have diversified into the non-consumptive areas of the tourism industry. Such activities include: 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 a result, increasing numbers of operators are considering this opportunities. Pristine wilderness settings are necessary for many of these types of diversification.</p>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Resource Roads <ul style="list-style-type: none"> <li>○ Some outfitting camps are considered remote and construction of forest access roads too closely to a main camp could have negative impacts to this remote appeal.</li> <li>○ Increasing accessibility through increased access roads has the potential for increased hunting and fishing pressures within in a given area. Increased pressure on the wildlife resource within a given area could potentially lead to decreased success rates of outfitter guests.</li> <li>○ With improved road access, there is also a potential for increased cottage development, which can also impact both remoteness and wildlife</li> </ul> </li> </ul>

	<p>availability.</p> <ul style="list-style-type: none"> <li>• Visual <ul style="list-style-type: none"> <li>○ While clients of hunting and fishing outfitters are primarily interested in the actual hunting or fishing experiences, they also show a great respect and admiration for pristine conditions and a healthy looking landscape. Activities such as forest harvesting can potentially detract from the overall visitor experience.</li> <li>○ The landscape view experienced by clients plays a large role in leaving a lasting impression of the province. The viewscape experience may also have a direct impact on repeat client bookings and recommending the destination to others.</li> <li>○ Viewscapes become even more important as outfitters begin diversification into non-consumptive tourism activities.</li> </ul> </li> <li>• Wildlife <ul style="list-style-type: none"> <li>○ Without proper application of best management practices, forest harvesting has the ability to negatively impact wildlife travel corridors, bear denning areas, and moose and caribou feeding and calving areas. Removal of large areas of forest can simulate the same effect of reducing wildlife habitat, particularly winter staging areas.</li> <li>○ Forest harvesting has the ability to lead to disturbances of wildlife, including shifts in where they live, disturbances for hunters accessing hunting areas and finding animals in these traditional hunting areas, and other disturbances for outfitters. This has the potential to significantly impact their business.</li> </ul> </li> </ul>
<p><b>Guiding Principles</b></p>	<ul style="list-style-type: none"> <li>• Resource Roads <ul style="list-style-type: none"> <li>○ Where possible, new access roads will be strategically located away from an outfitters existing main outfitting Lodge.</li> <li>○ Consideration will be given to decommissioning roads and bridges (where possible) after harvesting is completed, which will help reduce possibilities of increased hunting pressure.</li> <li>○ When roads are in use actively for harvesting purposes, access to hunters could be restricted or limited.</li> <li>○ Where possible and feasible, conduct harvest activity in the winter and construct winter roads that are less passable in summer/fall and will help to reduce vehicular traffic around an outfitters main lodge.</li> </ul> </li> <li>• Visual <ul style="list-style-type: none"> <li>○ In consultation with the outfitter, efforts will be made to minimize negative effects regarding the view from the outfitter’s main lodge and their hunting areas when conducting nearby forest operations.</li> <li>○ Environmental Management System (EMS), developed procedures for: <ul style="list-style-type: none"> <li>▪ Ensuring all garbage is removed from the harvest area.</li> <li>▪ Appropriate stream and wildlife buffers are implemented and maintained</li> </ul> </li> </ul> </li> <li>• Wildlife <ul style="list-style-type: none"> <li>○ All forestry Plans are reviewed by the Wildlife Branch.</li> <li>○ Travel Corridors and Buffer Requirements are designed and implemented upon direction of Wildlife Branch using scientific data.</li> <li>○ Modified or deferred harvest based on Wildlife Habitat requirements is under the direction of the Wildlife Branch</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Forest Operations <ul style="list-style-type: none"> <li>○ shall be undertaken in compliance with existing regulations</li> <li>○ In consultation with the outfitter, the timing forest harvesting can be modified around the main lodge during the season of operation.</li> <li>○ Unless located on registered crown land issued to the specific outfitting business, Bear Bait Stands are considered temporary hunting tools, which do not require protection mechanisms and are not considered permanent fixtures on the landscape.</li> <li>○ However, through the five year plan development and consultation process, outfitters can identify the location of temporary hunting tools such as Bear Bait Stands in an effort to mitigate any issues prior to implementation.</li> </ul> </li> <li>• The guiding Principles for Resource Roads, Visual, Wildlife and Forest Operations above are applicable for all licensed outfitting businesses within the province. In addition, direct consultations with specific outfitters and the Newfoundland and Labrador Outfitters Association may occur to mitigate specific forestry proposals near the Main Lodge.</li> </ul>
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#### 4.1.2.7 Tourism / Recreation

<b>TOURISM / RECREATION</b>	
<b>Characterization</b>	<p>Non-timber values such as: hiking, skiing, canoeing/kayaking, ATV/UTV and snowmobiling constitute an important role within the Province for tourism and recreational purposes. The Province has outstanding scenery, varying topography and opportunities for viewing wildlife and flora in a natural setting.</p> <p>The tourism industry in Newfoundland and Labrador has experienced significant growth over the years and is now a significant economic driver, generating \$1.14 billion in revenue in 2019. Newfoundland and Labrador has the resources to compete nationally and internationally with tourist destinations. As such, protection of these resources is vital for continued growth and prosperity.</p>
<b>Critical Elements</b>	<ul style="list-style-type: none"> <li>• Wilderness <ul style="list-style-type: none"> <li>○ Adventure tourism activities require the existence of wilderness areas. If best management techniques are not applied, forest harvesting may result in the alteration of this feeling of pristine wilderness, which could have short and long term adverse effects.</li> </ul> </li> <li>• Accessibility <ul style="list-style-type: none"> <li>○ Construction and maintenance of Forest Access roads has both a positive and negative effect. On a positive side, it provides the ability to increase vehicular and ATV/UTV traffic allowing more opportunity for this activity. However, on a negative side, it also has the potential to decrease the value of the experience for those individuals seeking a “remote” type setting.</li> </ul> </li> <li>• Viewscapes <ul style="list-style-type: none"> <li>○ Either walking a trail, snowmobiling on a groomed trail or canoeing down a</li> </ul> </li> </ul>

	<p>river, the visual experience of the surrounding landbase plays an important role in the overall pleasure of the activity. Over the past number of years, viewscales have become an integral portion of forest management planning.</p> <ul style="list-style-type: none"> <li>○ The Trans Canada Highway is a strategically important touring route for the tourism industry. Any development that is near this touring route and would impact scenic settings, must be managed to minimize the negative visual viewscales.</li> </ul>
<p><b>Guiding Principles</b></p>	<ul style="list-style-type: none"> <li>• Wilderness <ul style="list-style-type: none"> <li>○ Forest operations will avoid established ecological reserve areas and will make every attempt to consult with local stakeholders in areas of high concentrations of tourism and recreational activities. In such areas, stakeholder meetings could prevent conflicts through temporal scheduling.</li> </ul> </li> <li>• Limiting Accessibility <ul style="list-style-type: none"> <li>○ Where possible in sensitive areas, forest harvesting will be scheduled during winter months and take advantage of winter road construction techniques. Winter roads usually restrict vehicular traffic and decommission naturally. In addition, decommissioning of regular forest access roads near sensitive areas is a possible option when forest operations are completed.</li> </ul> </li> <li>• Viewscape <ul style="list-style-type: none"> <li>○ Where possible within areas where high concentrations of tourism and recreational activities occur, negative impacts to viewscales could be managed using landscape design techniques. 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.</li> </ul> </li> <li>• The guiding principles for Wilderness, Accessibility, and Viewscales will apply to all crown operations within the province.</li> </ul>

## Section 5 Mitigations

### 5.1 General

Best Management Practices adopted from previous planning processes to be incorporated into this plan, which include:

1. A 30 m buffer will be maintained on both sides of any other rivers, brook, ponds or other water bodies that are shown on 1:50,000 topographic maps.
2. There will be no cutting buffer within 100 meters of the Newfoundland T’Railway.
3. There will be no cutting buffer within 100 meters of a cabin development area and 30 meters of an approved cabin.
4. Scheduled salmon rivers will be evaluated on a site-by-site basis and buffers will vary in width from 50 -100 meters.
5. Within protected water supplies, there will be no cutting within 150 meters of the intake pond or stream and no cutting within 75 meters of the main river channel. There will be



no cutting within 50 meters of all ponds and streams flowing into the intake pond or stream.

6. Forestry and Wildlife Division will work with Private Park Owners and Tourism businesses near any proposed commercial or domestic areas to develop mitigative measures for issues that may arise.
7. The Forestry and Wildlife Division will work with Gros Morne National Park and develop mitigative measures for issues that may arise

Results of consultation process for the development of this Five-Year Plan (2024-2028) as described in section 6 are presented below:

## Interdepartmental Outreach

Department / Agency	Contact Date	Response Date	Issue / Concern	Forestry Comment / Action
FFA - Forestry and Wildlife Branch	April 19, 2023	May 25, 2023	Caribou - CC 15005 overlaps with Mt. St. Gregory Caribou SWA, requesting further consultation with Wildlife	In this regard, Consultation means a review of the Annual Operating Plan to provide advice to FEMD on harvest/ road layout
			Lichen - CC 14021 is being requested for closure due to possible presence of Degelia plumbea lichen	Wildlife Staff will conduct a survey during the summer of 2023. If lichen is discovered, buffering and protection is required. Otherwise, both commercial and domestic harvest is permitted.
			Plants - CC14018 overlaps with a SWA designated for endangered plants and SOCC, proposed harvesting north of TL Line and South of resource road needs further consultation with Wildlife	Spatial plan has been sent to Wildlife staff for review. Area will continue to be included in harvest plan for 2024-2028
			Marten - CC14015b is partially within Marten CH, no disturbance between early April to end of June	Marten Habitat will be removed from proposed harvest 2024-2028 until the down listed management plan is in place.
			Marten - CC14062 and CK14013 are within Marten CH, requesting no harvesting until a marten management plan has been approved	Marten Habitat will be removed from proposed harvest 2024-2028 until the down listed management plan is in place.
Water Resources Management Division	April 19, 2023	April 28, 2023	Permits required inside Protected Public Water Supply Areas and Protected Public Wellhead Water Supply Areas	Forestry will obtain all appropriate watershed permits
			<b>High Risk PPWSA will not be approved for domestic activity FMD 14</b> (Grey River - Big Charlies Pond, Mainland-Caribou Brook, Piccadilly Head - unnamed brook) and <b>FMD 15</b> (Huges Brook-reservoir, St Jude's-Uncle Arthurs Brook, St. Judes-Chute Brook, Woody Point - winterhouse brook, Norris Point-neddy harbour pond, Glenburnie-Birchy Head- Shoal Brook	This decision affects domestic harvesting activity. Domestic areas proposed inside the High Risk watersheds will be removed from domestic harvest plan for 2024-2028... Overlaps include: Grey River (27ha), Mainland (48 ha), Piccadilly Head (216ha), Huges Brook (30ha), St. Judes-Uncle Arthur's brook(117ha), St. Jude's-Chute Brook(110ha), Woody Point - Winterhouse Brook(141ha), Norris Poing-Neddy Harbour Pond(157ha), Glenburnie-Birchy Head-Shoal Brook(166ha)

Department / Agency	Contact Date	Response Date	Issue / Concern	Forestry Comment / Action
Mineral Lands Division	April 19, 2023	May 18, 2023	Various Commercial Cutting areas overlap one or more mineral licences, where there is a high likelihood that exploration activities will be proposed in future within these areas	Forestry Branch will continue to work with Mineral Lands Division to minimize conflicting interests
			Some of the proposed commercial cutting areas that do not overlap a mineral licence are located near recognized mineral occurrences of potential economic significance. There is an elevated likelihood these areas maybe staked in future and exploration activities proposed.	Forestry Branch will continue to work with Mineral Lands Division to minimize conflicting interests
			Some proposed commerical cutting areas overlap areas of aggregate resource potential. In most cases to lower-lying areas corresponding to a river valley. There is an elevated likelihood that quarry operations maybe proposed within these areas in the future	Forestry Branch will continue to work with Mineral Lands Division to minimize conflicting interests
			CC14008 overlpas an area corresponding to a pair of contiguous quarry permits.	Forestry Branch will continue to work with Mineral Lands Division to minimize conflicting interests
			Do not forseee any conflicts with proposed Domestic Cutting Areas.	No concerns

Department / Agency	Contact Date	Response Date	Issue / Concern	Forestry Comment / Action
Policy, Planning, and Natural Areas Division	April 19, 2023	April 25, 2023	No Concerns	
FFA - Aquaculture Development Division	April 19, 2023	May 3, 2023	No Concerns	
FFA - Agriculture	April 19, 2023	No Response		
FFA - Crown Lands	April 19, 2023	No Response		
FFA - Land Management	April 19, 2023	No Response		

Department / Agency	Contact Date	Response Date	Issue / Concern	Forestry Comment / Action
Tourism Product Development	April 19, 2023	May 24, 2023	Outfitting - CC14021, CC14022, CC14025 and CC14026 fall within 8km buffers of Tourism Outfitters, it is recommended to contact these operators	Outfitters were sent notification of proposed plan on email dated March 17, 2023.
			Outfitting - CC14061 and CC15005 are in close proximity to scheduled salmon rivers	Established buffers are identified in the Environmental Protection Guidelines and implemented in the field
			Outfitting - FFA should ensure the harvest will not negatively impact the regions hunting and angling seasons for the outfitting sector	Hunting success rates is ambiguous and cannot be measured simply against any or lack of forestry activity. Things such as: Guide experience and knowledge of area, hunter willingness to accept a "non trophy" animal, Outfitter operational factors need have to be incorporated into how a "success rate" is determined and the positive financial impacts to an outfitter. FFA will continue to work with local outfitters as commercial harvesting operations are ongoing to minimize conflicts.
			Touring Corridor - Route 1 (TCH), Route 480, Route 431, Route 44 - Developments that would impact scenic setting near touring corridors be managed to minimize negative impacts to visual viewscales. Cut blocks should be developed using landscape design techniques and hould not be visible to travellers.	1) Negative impacts to visual viewscales is ambiguous and cannot be measured simply against any (or lack of) forestry activity. A Negative visitor experience can potentially be more attributed to highway construction delays, housing rental accomodations, or simply an unclean public washroom. It is difficult to implement measures that preserve the visitor experience when TCAR have not clearly defined and weighted all the factors that would lead to a negative visitor experience. 2) Viewscape analysis can be conducted to minimize visibility of a harvest area from the motoring public. These types of analysis are time consuming when given a vantage point. However, to simply indicate viewscales along the TCH or Routes 480, 431 and 44 is vague. Cutting areas from Commercial Forestry operations are short term when silviculture techniques are applied, whereas Forest Removal for other activities are more permanent and are approved . 3) It is recommended that TCAR provide specific known vantage points were viewscales by motoring public are deemed essential. 4) It is recommended that TCAR contact FFA with actual complaints/concerns from visitors with respect to Forest Harvesting Activity
Parks - CC 15005, CC15006, CC15009 and near Gros Morne National Park. Cutblocks should be developed using landscape design techniques to minimize visual impacts to visitors. Forest harvesting should not be visible to visitors of the park and should not occur during operating season of the park (May 19 - October 09)	To help reduce noise distrubance for visiting park users, Commercial forestry harvesting activity within 2 kilometer's of park boundary (CC05005 & CC15006) will restrict operations to 7am-7pm daily from May 19 to October 09. Operating area 15009 is over 2km away from the Park Boundary			

## Non Governmental Outreach

Stakeholder	Contact Date	Response Date	Issue / Concern	Forestry Comment / Action
Newfoundland and Labrador Forest Industry Association (NLFIA)	April 19, 2023	May 4, 2023	No concerns	
Miawpukek First Nation (MFN)	April 19, 2023	no response		
Burtons Cove Logging	May 10, 2023	no response		
Qalipu First Nation (QFN)	April 19, 2023	May 19, 2023	Migratory Birds - requesting a section outlining steps to protect migratory birds	Environmental Protections Guidelines (EPG's) are developed and implemented in the field to help address migratory birds
			Caribou - requesting section on caribou habitat protection	Chapter 4.1.1.1.2 was developed in coordination with Wildlife staff to outline critical elements and guiding principles for Caribou. In addition, proposed areas are reviewed by Wildlife Staff prior to implementation.
			Moose Regeneration - more detail on impacts of moose browsing of regenerating stands	Chapter 4.1.1.1.1 was developed in coordination with Wildlife staff to outline critical elements and guiding principles for Moose. In addition, proposed areas are reviewed by Wildlife Staff prior to implementation.
			Bat Populations - more detail on how roosting trees will be identified and protected during operations	Bat Species are not address directly in the plan text but proposed areas are reviewed by Wildlife Staff prior to implementation.

Stakeholder	Contact Date	Response Date	Issue / Concern	Forestry Comment / Action
Communities	April 25, 2023	1 Response	<b>Notification Sent to:</b> Burnt Islands, Cape St. George, Corner Brook, Cox's Cove, Deer Lake, Gallants, Gillams, Glenburnie-Birchy Head-Shoal Brook, Hughes Brook, Humber Arm South, Irishtown-Summerside, Isle aux Morts, Kippens, Lark Harbour, Lourdes, McIvers, Meadows, Mount Moriah, Norris Point, Pasadena, Port au Port East, Port au Port West-Aguathuna-Felix Cove, Reidville, Rocky Harbour, Rose Blanche - Harbour Le Cou, St. George's, Steady Brook, Stephenville, Stephenville Crossing, Trout River, Woody Point, Burgeo, Cormack, Cow Head, Parson's Pond, St. Pauls	Community of Steady Brook indicated no concerns
Outfitters	March 17, 2023	1 Response	<b>Notification Sent to:</b> Adventure Quest Outfitters & Tours Ltd., Besaw's Log Cabin Outfitters Ltd (Lewis Hills Camp), Big River Camps (2012) Inc., Brophy & Sons Outfitters, Burgeo Road Outfitters Inc., Crabbes River Outfitters, DADG MacDonald Outfitters Ltd (East Bay River), Dashwood Outfitting Limited, Deep Valley Outfitters Ltd., Efford's Hunting Adventures (Cochrane Pond Lodge), Garia Bay Lodge, Grand Bruit Outfitters Inc., Grandy's River Outfitting, Hilliard's Hunting Camp, Ironbound Outfitters (Cinq Cerf Lodge), Island View Cabin, JDI Outdoor Adventures Ltd., Jennings Enterprises Limited, Layden Lake Outfitters Inc., Moose Creek Lodge, Moose Hill Cabins, Moose Hunting Adventures Ltd., Moose Valley Outfitters, Mountain Top Cabins, Newfoundland Outfitting Ltd., Northside Outfitting & Adventures Ltd, Rock Camp Lodge, Ryan's Outfitters, Salmon Hole Lodge, Sandy Pond Outfitters, Sou'wester Outfitting Inc. (Indian Pond Lodge), Steel Mountain Lodge, West Woods Outfitters, Woodland Lodges, Yace Enterprises Limited (Camp Gulch), Young's Tourism & Fishing Lodge, Besaw's Log Cabin Outfitters, Cloudy Pond Outfitters, Grand Lake Adventures Inc., Newfoundland Big Game Adventures, Ray's Hunting & Fishing Lodge Ltd. (Blue Grass Brook Lodge), Sandy Lake Lodge Outfitting Limited (Noel Paul Brook Camp), Serpentine Valley Outfitters, Tuckamore Lodge Ltd. (Grey Islands Lodge), Where-Ya-Wannabee Outfitting Lodge	Northside Outfitters and Adventures has concern regarding forest harvesting in FMD 14 in an area that he considers his hunting area. He is concerned that commercial harvesting is opening up access to others to allow for increased hunting. Operator wants to see an indefinite end to any commercial harvesting in FMD 14. The District Ecosystem Manager has had various conversations with the outfitter, but no resolution can be achieved.
Tourism Groups	March 17, 2023	no response	Newfoundland and Labrador Outfitters Association Newfoundland and Labrador Snowmobile Federation Hospitality NL Legendary Coasts NL DMO Adventure Central DMO Go Western DMO	

## Section 6 Public Consultation

### 6.1 Planning Framework

Forest Resource managers in Canada are striving for a society that successfully integrates economic, environmental and social considerations into all resource-related decision making. Since the early 1990's, there has been a country-wide shift from single resource management to a more comprehensive approach of forest ecosystem management. Sustainable Forest Management (SFM) must be balanced in light of social, economic, and environmental issues. In the context of SFM, this shift has resulted in a move from the traditional narrow focus of timber management, to incorporate non-timber values into the management planning framework. Another term that has become closely associated with SFM is "sustainable development" or in this case "sustainable forests", which not only takes into account the social, cultural, economic, and environmental benefits of the present, but those of future generations as well. Involvement of Interested Stakeholders into the five-year planning process is recognized by the Forestry Services Branch as a key component to achieving sustainable development.

As a result of the 1995 Environmental Preview Report, the Forestry Services Branch adopted an adaptive management planning process, which has three objectives:

- Establish a productive planning framework to include all interested stakeholders. An effective planning framework must have information and defined spatial issues.
- Learn more about forest ecosystems while they are being actively managed (i.e. adaptive management). Adaptive management incorporates strategies which help us learn about the forest ecosystem and to deal with uncertainties.
- Establish an ecosystem approach to forest management which integrates the scientific knowledge of ecological relations and limits of growth with social values. This will help to attain the goal of sustaining natural ecosystem integrity and health over the long term.

Adaptive management makes decisions based on input from interested stakeholders and establishes a continuous learning program. The adaptive approach allows us to communicate, share information and learn about forests being managed. This sharing of information, both old and new, then provides the flexibility necessary to adjust to changes and to set new goals. Such interaction is an absolute necessity for a subject as complex as an ecosystem.

### 6.2 Stakeholder Involvement

Since the mid 1990's, for each five-year plan, the Forestry Services Branch embarked upon a rigorous public consultation process involving a series of meetings spanning a number of months at an established venue, where interested stakeholders could discuss a range of forest management issues at an operational level.

With respect to the strategic level, in 2014, the Forestry Services Branch released a 10- year Provincial Sustainable Forest Management Strategy (PSFMS) Document (2014-2024), which emerged through wide consultation with citizens of the Province. The 2014-2024 PSFMS builds on the strengths of the previous strategy plans and uses a landscape-scale planning approach to implement the progressive and innovative ecological policies required for Sustainable Forest Management (SFM). The strategy builds on the strengths of the many modern and high-quality

forest management programs that are currently being implemented in this province to ensure a vibrant and competitive forest industry.

Taking into account the many five-year plans successfully implemented within the province since the mid 1990's through public consultation processes and the recent PSFMS developed through public consultations, The Forestry and Wildlife Branch strives to improve its methods to garner advice from the public while also mitigating land-use conflicts. To this effect, as new five-year plans are being developed and implemented provincially, relevant issues raised from previous planning processes are considered the foundation the new plans.

The following describes the consultation process taken in 2023 regarding this proposal.

1. April 19, 2023 – an Interdepartmental outreach was conducted. Notifications were sent to:
  - FFA - Crown Lands, Land Management, Fisheries and Wildlife Divisions
  - ECC - Natural Areas, Tourism Product and Water Resources Divisions
  - Mines & Energy – Mineral Lands Branch
2. March 17, 2023, notifications of proposed forestry plan and google earth files was sent to:

Adventure Quest Outfitters & Tours Ltd., Besaw's Log Cabin Outfitters Ltd (Lewis Hills Camp), Big River Camps (2012) Inc., Brophy & Sons Outfitters, Burgeo Road Outfitters Inc., Crabbes River Outfitters, DADG MacDonald Outfitters Ltd (East Bay River), Dashwood Outfitting Limited, Deep Valley Outfitters Ltd., Efford's Hunting Adventures (Cochrane Pond Lodge), Garia Bay Lodge, Grand Bruit Outfitters Inc., Grandy's River Outfitting, Hilliard's Hunting Camp, Ironbound Outfitters (Cinq Cerf Lodge), Island View Cabin, JDI Outdoor Adventures Ltd., Jennings Enterprises Limited, Layden Lake Outfitters Inc., Moose Creek Lodge, Moose Hill Cabins, Moose Hunting Adventures Ltd., Moose Valley Outfitters, Mountain Top Cabins, Newfound Outfitting Ltd., Northside Outfitting & Adventures Ltd, Rock Camp Lodge, Ryan's Outfitters, Salmon Hole Lodge, Sandy Pond Outfitters, Sou'wester Outfitting Inc. (Indian Pond Lodge), Steel Mountain Lodge, West Woods Outfitters, Woodland Lodges, Yace Enterprises Limited (Camp Gulch), Young's Tourism & Fishing Lodge, Besaw's Log Cabin Outfitters, Cloudy Pond Outfitters, Grand Lake Adventures Inc., Newfoundland Big Game Adventures, Ray's Hunting & Fishing Lodge Ltd. (Blue Grass Brook Lodge), Sandy Lake Lodge Outfitting Limited (Noel Paul Brook Camp), Serpentine Valley Outfitters, Tuckamore Lodge Ltd. (Grey Islands Lodge), Where-Ya-Wannabee Outfitting Lodge

In addition, the notification was sent to provincial tourism groups, which include:

Newfoundland and Labrador Outfitters Association  
Newfoundland and Labrador Snowmobile Federation  
Hospitality NL  
Legendary Coasts NL DMO  
Adventure Central DMO  
Go Western DMO



3. April 25, 2023. Notification was sent out to Local Governance, with a request to review and provide any comments or concerns, which include:

Burnt Islands, Cape St. George, Corner Brook, Cox's Cove, Deer Lake, Gallants, Gillams, Glenburnie-Birchy Head-Shoal Brook, Hughes Brook, Humber Arm South, Irishtown-Summerside, Isle aux Morts, Kippens, Lark Harbour, Lourdes, McIvers, Meadows, Mount Moriah, Norris Point, Pasadena, Port au Port East, Port au Port West-Aguathuna-Felix Cove, Reidville, Rocky Harbour, Rose Blanche - Harbour Le Cou, St. George's, Steady Brook, Stephenville, Stephenville Crossing, Trout River, Woody Point, Burgeo, Cormack, Cow Head, Parson's Pond, St. Pauls

4. April 19, 2023. Notification of proposed forestry plan with associated google earth files was sent out to Indigenous Groups
  - Qalipu First Nation
  - Miawpukek First nation
5. April 19, 2023. Notification of proposed forestry plan with associated google earth files was sent out to local MHA.
6. April 19, 2023. Notification of proposed forestry plan with associated google earth files was sent out to Newfoundland and Labrador Forest Industry Association (NLFIA)
7. May 10, 2023. Notification of proposed forestry plan with associated google earth files was sent out to Burtons Cove Logging Limited (BCLL).
8. The general public will be able to review and comment on the plan proposal through the Environmental Assessment Process.

## Section 7 Management Objectives and Strategies

### 7.1 Harvesting

The boreal forest is characterized by natural stand replacement following a natural disturbance, which results in the formation of relatively even aged stands. A forest management technique called the Clearcut Silvicultural system is utilized as it closely emulates this natural disturbance pattern. The size, shape, arrangement and juxtaposition of harvest areas vary across the landscape depending on localized topography and terrain conditions

### 7.1.1 Commercial Harvesting

The older unalienated timber considered in the worst condition is targeted as a high harvest priority, followed by stands that have been damaged by insects and disease. In managed stands, this priority changes to allow for a faster rotation on sites that have been silviculturally treated.

*Specific commercial strategies include:*

- design irregular cut blocks that follow contours and natural boundaries
- vary buffer widths to protect other values (ie. larger buffers on salmon rivers)
- utilize winter harvest on wet and sensitive sites
- maintain current size and distribution of clear cuts
- where possible, maintain unharvested strips between harvest blocks as wildlife utilization corridors
- use landscape design techniques to mitigate viewscales
- minimize timber utilization loss (< 6 m<sup>3</sup>/ha)
- areas of bug killed stands including areas that have been silviculturally treated as salvage harvest. These areas / stands will be identified on the ground and royalty rates may reflect salvage rates.

### 7.1.2 Domestic Harvesting

The harvest of domestic fuelwood and sawlogs occurs from designated areas, recent commercial harvest areas and sporadically throughout the zone with the removal of blowdown trees. Utilization of cutover residue, dead timber and scrub areas do not form part of the woodsupply analysis. Generally, domestic cutting areas are generally established near communities. However, within areas of the zone not covered by any operating areas, domestic permits may be issued to remote cabin owners for firewood as requested. The number of permits and volume associated with these permits will be extremely low and insignificant.

*Specific domestic strategies include:*

- target low volume stands having poor commercial opportunity and areas of Non AAC along southern portion of zone
- encourage use of poor quality hardwood (birch, larch and aspen). In areas where there are future softwood commercial operations, domestic harvesting is limited to non-commercial hardwoods
- target dead, blown down, burnt or insect damaged stands that are beyond commercial salvage throughout the zone and specifically within 100 meter buffer of highways.
- target alienation class 3 lands that have low commercial opportunity
- in areas of high domestic demand, limit volume allocation in designated cutting areas and encourage alternate sources (cutovers, landings, scrub etc)
- Provide opportunity for small scale non industrial commercial harvesting that closely mimics domestic harvesting. Commercial permits will be limited in size to less than 200m<sup>3</sup>

## 7.2 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.

### 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:

- 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.
- 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.
- 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 the better sites.

### 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 Pynns Brook and Wooddale to produce seed from plus trees collected throughout the province. Plus trees are normally selected because they have superior growth and physiological characteristics. It is hoped that once the orchard is

in full production, the majority of the planting stock will be grown from this source. 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.

## Thinning

In an attempt 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. In recent years the pre-commercial thinning program has dropped significantly. This trend is expected to continue.

### *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

### 7.3 Access Roads

Forestry roads are required to gain access to scheduled commercial harvest areas. Access roads also provide opportunities for other recreational and commercial values such as: hunting, fishing, skiing, berry picking, hiking, outfitting, cabin development and mineral exploration.

As a general rule of thumb, only the minimal amount of access roads are constructed to effectively and efficiently conduct commercial harvest operations. Access roads are constructed to specifications minimizing right-of-way and running surface width. Forwarding distances will be maximized to curtail the overall amount of road constructed. In sensitive and wet areas, winter harvesting and road construction are encouraged. Following these principles helps to ensure the minimum amount of road will be constructed, reducing the loss of productive forest landbase and minimizing environmental disturbance. Road and bridge maintenance and/or decommissioning are considered depending on cost, and mitigation of conflicting uses for a particular road.

*Specific roads strategies include:*

- construct winter roads in 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
- consider road decommissioning on roads near remote outfitting lodges and other areas of concern where requested and where feasibly possible
- determine impacts and explore alternatives (cost sharing) in areas where road and bridge decommissioning impacts other stakeholders
- explore all avenues to secure funding for road construction and encourage operators to build their own roads in exchange for royalty reductions

### 7.4 Forest Protection

#### 7.4.1 Insects and Disease

Balsam fir is susceptible to most of the major insects including spruce budworm, hemlock looper, and balsam woolly adelgid. In the event of a major insect infestation, salvage efforts may change harvest priorities. However, deviations from harvest schedules will be closely monitored to ensure that the validity of the AAC is not compromised.

*Specific insect and disease strategies include:*

- 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 minimize potential for severe insect infestation
- in conjunction with provincial and federal initiatives, use pertinent and approved insecticides

#### 7.4.2 Fire

A fire in an unusually dry year can have devastating effects on the forest and can exacerbate an established wood supply. The risk of a serious forest fire can be minimized by maintaining a highly trained, efficient and effective fire control program and by minimizing the risk in forest stands through maintenance of forest health and vigor. Within the zone, wildfire has not been a major issue. There have been some minor wildfires but all have been quickly contained and not much timber has been lost. The Department of Fisheries, Forestry and Agriculture is committed to protection of the resource and continues to invest in a fire suppression program to ensure any future losses are minimized. There are fire crews and equipment stationed at local forestry depots within the zone during the forest fire season, whose direct responsibility is forest fire protection. In addition, support, equipment and manpower at both the regional and provincial level is available should the need arise. There are air tankers stationed at Deer Lake and Gander and helicopters in Gander that are available for initial attack.

*Specific fire strategies include:*

- use silvicultural treatments and protection from insects to increase health and vigour of stands
- maintain fire control capabilities
- promote species mixes in stands to minimize risk

#### 7.4.3 Windthrow

Wind throw usually occurs in older stands that have been predisposed by some other disturbance such as insects and disease. To minimize the effects of Windthrow (blowdown), stands will be managed to promote forest health and vigour mainly through silvicultural treatments and protection from insects.

*Specific windthrow 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 windthrow to residual forest

### 7.5 Environmental Protection & Climate Change

#### 7.5.1 General Environment

The Department of Fisheries, Forestry and Agriculture has developed an Environmental Management System (EMS) that is registered with the International Standards Organization (ISO). As part of this process, an EMS Policy was developed and proper operating procedures developed for various forest management activity. Initial registration was on December 17, 2015 and through regular monitoring and audits (internal and external), the

EMS remains registered. Under the EMS, the department has developed stringent operating procedures for fuel handling, working around waterbodies, and overall pollution prevention. In addition, inspection programs are implemented to evaluate forest operations and rectify any deviations from established protocols.

To ensure forestry activity is conducted to minimize any potential negative impacts to the environment, operating procedures and best management practices called Environmental Protection Guidelines (EPG's) have been developed and implemented across the province. Highlights of measures to avoid these impacts include no activity buffer zones, modification of harvesting design and equipment, avoidance of sensitive site during critical periods, consultation with other regulatory agencies, and monitoring.

Through implementation of the EMS and the EPG's, the department strives to be responsible stewards of the landbase. As well, the programs illustrated in this document relating to forest protection from Insects and Fires, help to maintain a forested landbase. As indicated in previous sections, harvested sites are evaluated for regeneration potential and proper reforestation techniques are implemented to facilitate tree growth. Maintaining and achieving a stocked forest at the earliest timeframe help provide for carbon storage.

#### 7.5.2 Climate Change

FFA has been working with the Canadian Forest Service (CFS) over the past two years in an attempt to model the amount of carbon currently existing within our provincial forest. In addition, FFA will strive to quantify the potential carbon impacts associated with implementing the forest management activities outlined in our five-year operating plans. Considering the specialized training requirements and complexities involved, this process is slowly evolving.

FAA recognizes that new or changing ecological conditions have potential varying impacts on tree species. To help minimize negative effects, FFA supports the Atlantic Tree Improvement Council, which is focused on evaluating the genetic diversity within species and quantifying their ability to adopt to a changing environment. The results of this information are integrated into our provincial tree improvement program. To date, three planting trials have been established in this province, with replicas studies established in each of the three remaining Atlantic Provinces (Nova Scotia, Prince Edward Island and New Brunswick). Under this program, utilizing seedling stock from each province aims to measure species adaptability over time.

To help raise awareness of healthy forests and support urban forest initiatives, FFA implemented a program to distribute tree seedlings (free of charge) to residents across the province during national forestry week in 2021. With approximately 110,000 tree seedlings distributed, FFA considers this a successful program and anticipates it will continue in future years.

FFA is currently developing a 2 billion tree initiative program with Natural Resources Canada. This objective of this program is to restock naturally disturbed areas (fire, insect, & wind damage) which have not sufficiently regenerated. In addition, another objective of the program is to aid in the restoration of sensitive wildlife habitats and reduction of linear features through targeted tree planting initiatives. Implementation of this program will increase demand for seedlings from the provincial tree nursery at Wooddale. With anticipated increase in demand, the nursery has recognized the requirement to upgrade its seeder line and increase the number

of cold frames on site. It is anticipated this 2 billion tree initiative will also result in engagement and partnership building with indigenous and community groups to develop and implement various tree planting programs.

### 7.5.3 Surveys

Utilization surveys will be conducted on both commercial and domestic cutovers to ensure loss of merchantable timber is minimized. Results of these surveys will be used to evaluate the expected volume in an operating areas to those actually attained. The results of this survey will help refine inventory deductions in future woodsupply analysis.

Reconnaissance and intensive regeneration surveys will be conducted on commercial cutovers in this upcoming five year period, and as well as those created in the past five years to determine the requirement for silvicultural activity. Reconnaissance surveys will be completed on regenerating stands to determine the suitability for pre-commercial thinning.

### 7.6 Information and Education

Information and education is one of the key elements to providing active and effective participation in the planning process at all levels. Through interaction with various user groups and the general public, a better understanding of ones values and positions is gained. The more we know about other values and their location, the better the ability to mitigate any potential negative impacts. 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. Districts within the zone will continue to educate the general public and engage in meaningful consultations with interested stakeholders where applicable. Annual National Forest Week activities provides a great opportunity for interested individuals to gain a greater understanding of the Provinces' Forest.

*Sources of information can include:*

- government website
- field trips
- school visits
- information meetings
- general day to day contact



## Section 8 Proposed Activities

### 8.1 Overview

This section will outline all forest activities that will occur on crown land in the zone from 2024-2028, including: proposed commercial and domestic harvesting, silviculture, access road construction, and activities proposed within protected water supply areas.

To present a more comprehensive overview of proposed activities in both Forest Management District 14 & 15, overview maps are presented in the appendices. These maps show 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. 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.

#### 8.1.1 Allocation of Timber Supply

Tables 11 & 12 below indicate the scheduled proposed forest harvest for the upcoming five year period (2024-2028). Note: the total volume identified may be over the final AAC for each forest management district, but when scheduling activity, the maximum sustainable harvest over the five year period will not be exceeded.

Table 11 Proposed commercial harvest on Crown Land in District 14 (2024-2028) (5 year total)

	Core Softwood	Operationally Constrained SW	Core Hardwood	Operationally Constrained HW
Commercial AAC	100,000	50,000	12,000	1,000
Commercial Harvest	84,110	18,131		
Deviation (+/-)	(18,752)	(31,869)		
Domestic AAC	240,000	0	8,000	0
Domestic Harvest	150,095		44,504	
Deviation (+/-)	(89,905)		36,504	

Table 12 Proposed harvest on Crown Land in District 15 (2024-2028) (5 year total)

	Core Softwood	Operationally Constrained SW	Core Hardwood	Operationally Constrained HW
Commercial AAC	57,500	55,000	9,000	3,000
Commercial Harvest	113,995	68,769		
Deviation (+/-)	56,495	13,769		
Domestic AAC	245,000	0	10,000	0
Domestic Harvest	95,073		19,893	
Deviation (+/-)	(149,927)		9,893	

### 8.1.2.1

#### Commercial

The timber scheduled for commercial harvest in the district is overmature with some small pockets of mature dispersed throughout. This proposed harvest follows the harvest schedule that was used to determine the AAC in Section 3. For commercial operations on Core and Operationally Constrained timber, the first two five year periods are highlighted on the operating area maps. This represents two times the actual proposed harvest. The purpose of including more volume than is actually proposed is to allow for operational flexibility within operating areas without having to constantly amend the plan.

In FMD 14, There are 102,241 m<sup>3</sup> of commercial timber softwood scheduled to be harvested over the next five years (Table 13).

Table 13 Summary of commercial harvest by operating area in District 14 (2024-2028)

Operating Area		Proposed Commercial Harvest (m <sup>3</sup> )							
		Softwood				Hardwood			
Number	Name	Core	Operational Constrained	Sub-Total	Non AAC	Core	Operational Constrained	Sub-Total	Non AAC
CC14003	Woody Hill	3,752	6,468	10,220					
CC14007	Little Barachois	2,885		2,885					
CC14008	Magnetite Road	3,287		3,287					
CC14018	Middle Barachois	4,099		4,099					
CC14019	Mitchell's Pond	5,696	455	6,151					

CC14021	O' Regans	8,958		8,958					
CC14022	Ryans Brook	3,847	12	3,859					
CC14025	Grand Daddy's	7,812		7,812					
CC14026	Low Brook	20,506		20,506					
CC14060	Cold Brook	4,329		4,329					
CC14061	White Hills	8,770	6,981	15,751					
CC 14062	Northern Feeder	3,244		3,244					
CK14006	Black Duck	6,925		6,925					
CK14027	Crabbes River		4,215	4,215					
		<b>84,110</b>	<b>18,131</b>	<b>102,241</b>					

Note: areas CK14006 & C14027 would require renewal/extension of transfer agreement with CBPPL

In FMD 15, There are 182,764 m<sup>3</sup> of commercial softwood timber scheduled to be harvested over the next five years (Table 14).

Table 14 Summary of commercial harvest by operating area in District 15 (2024-2028)

Operating Area		Proposed Commercial Harvest (m <sup>3</sup> )							
		Softwood				Hardwood			
Number	Name	Core	Operational Constrained	Sub-Total	Non AAC	Core	Operational Constrained	Sub-Total	Non AAC
CC15005	Governor's Pond	62,368	19,489	81,857					
CC15006	Mackenzies Brook	28,262	23	28,285					
CC15009	Puzzle Pond	23,293	1,056	24,349					
CC15026	South Brook	72	47,910	47,982					
CC15029	Blue Gulch		291	291					
		<b>113,995</b>	<b>68,769</b>	<b>182,764</b>					

### 8.1.2.2 Domestic

In FMD 14, There are 194,599 m<sup>3</sup> scheduled to be harvested domestically from 2024 to 2028 (Table 15). In FMD 15, There are 114,966 m<sup>3</sup> scheduled to be harvested domestically from 2024 to 2028 (Table 16). Harvesting will occur in designated domestic cutting areas and is generally conducted on a small patch cut system. Domestic wood cutters will also be allowed to harvest deadwood and blow down outside of domestic cutting blocks. Within areas of the zone not covered by any operating areas, domestic permits maybe issued to remote cabin owners for firewood. The number of permits and associated volume will be low and insignificant. All domestic cutting is done under permit which has conditions attached that outline the species,

volume, location and utilization standards to be employed. For the most part cutting occurs in winter with extraction by snowmobile or ATV.

Table 15 Summary of domestic harvest by operating area in District 14 (2024-2028).

FMD 14					Estimated 5 year volume (m <sup>3</sup> )	
Number	Name	Tenure	Total Area (ha)	Estimated # of Permits	Softwood	Hardwood
CC14501	Port au Port	Crown	33,125.5	3,010.0	37,925.0	4,215.0
CC14502	Point Du Mal	Crown	8,780.5	325.0	5,365.0	1,790.0
CC14503	Stephenville	Crown	2,398.4	985.0	16,255.0	5,414.0
CC14504	Stephenville Crossing	Crown	3,952.3	435.0	10,560.0	3,520.0
CC14506	Main Gut	Crown	3,634.6	265.0	4,665.0	1,165.0
CC14509	Little Barachois	Crown	1,987.7	295.0	3,245.0	3,245.0
CC14510	St Georges	Crown	3,140.9	755.0	8,305.0	8,305.0
CC14515	Flat Bay	Crown	9,310.0	520.0	9,150.0	2,290.0
CC14518	Mine Road	Crown	2,093.3	35.0	655.0	115.0
CC14519	Jeffreys	Crown	1,403.1	155.0	2,730.0	680.0
CC14522	St Fintan's	Crown	576.2	100.0	1,650.0	550.0
CC14523	Brooms Brook	Crown	79.1	25.0	440.0	110.0
CC14526	Highlands	Crown	1,203.3	25.0	440.0	110.0
CC14527	South Branch	Crown	4,095.3	190.0	2,925.0	1,255.0
CC14528	Overfalls	Crown	2,028.7	180.0	2,575.0	1,385.0
CC14529	Limestone Brook	Crown	849.6	550.0	8,470.0	3,630.0
CC14530	Oregans	Crown	1,534.1	115.0	1,010.0	1,520.0
CC14531	Codroy	Crown	4,292.6	245.0	4,310.0	1,080.0
CC14532	St Andrews	Crown	38.7	20.0	330.0	110.0
CC14534	Port aux Basque	Crown	1,962.8	540.0	10,690.0	1,190.0
CC14541	South Coast	Crown	142,761.0	335.0	6,635.0	735.0
CC14542	Burgeo	Crown	233,173.0	315.0	6,585.0	345.0
CC14543	Cold Brook	Crown	2,912.6	220.0	3,870.0	970.0
CC14545	Journois Brook	Crown	2,690.1	5.0	95.0	15.0
CC14546	Lake Layden	Crown	24,732.5	85.0	1,120.0	750.0
CC14563	The Bar	Crown	228.3	15.0	95.0	10.0
<b>Total</b>	<b>Domestic</b>	<b>Crown</b>	<b>492,984.3</b>	<b>9,745.0</b>	<b>150,095.0</b>	<b>44,504.0</b>
Number	Name	Tenure	Total Area (ha)	Estimated # of Permits	Softwood	Hardwood
CK14549	Round Valley	CBPPL	15,842.1	65.0		1,430.0
CK14550	Morris Brook	CBPPL	9,586.3	85.0		1,870.0
CK14551	Bauld Mountain	CBPPL	28,067.5	200.0		4,400.0
CK14552	Camp 180	CBPPL	27,293.9	125.0		2,750.0
CK 14554	Camp 185	CBPPL	25,172.1	125.0		2,750.0
CK14555	Southwest Brook	CBPPL	10,605.6	35.0		770.0
CK14556	Robinsons River	CBPPL	14,405.3	45.0		990.0
CK14557	Black Duck	CBPPL	7,018.0	250.0		5,500.0
CK 14558	Camp 38 Road	CBPPL	6,329.7	400.0		8,800.0
CK 14559	Whites Road	CBPPL	12,370.9	215.0		4,730.0
<b>Total</b>	<b>Domestic</b>	<b>Kruger</b>	<b>156,691.4</b>	<b>1,545.0</b>		<b>33,990.0</b>

*\*Note: Hardwood domestic cutting on CBPPL tenure is subject to renewal of HWD agreement*

Table 16 Summary of domestic harvest by operating area and zone in District 15 (2024-2028)

FMD 15					Estimated 5 year volume (m <sup>3</sup> )	
Number	Name	Tenure	Total Area (ha)	Estimated # of Permits	Softwood	Hardwood
CC15501	Sallys Cove	Crown	1,538	80	1,840	
CC15502	Rocky Harbour	Crown	5,525	725	15,010	1,670
CC15503	Woody Point	Crown	1,524	80	1,840	
CC15504	Trout River	Crown	5,125	260	5,380	600
Cc 15505	Governors Pond	Crown		13	269	30
CC15509	Bonne Bay Big Pond	Crown	1,473	145	3,000	335
CC15512	Old Mans pond	Crown	6,458	130	685	1,270
CC15513	Gilliams	Crown	5,113	630	6,145	3,310
CC15514	Wild Cove	Crown	2,274	350	2,625	2,625
CC15515	Corner Brook Ring Road	Crown	633	195	2,340	585
CC15516	Mount Moriah	Crown	1,668	430	5,160	1,290
CC15517	Benoits Cove	Crown	4,332	750	10,125	1,125
CC15518	Lark Harbour/York Harbour	Crown	6,137	360	4,860	540
CC15519	Mclvers Coxs Cove	Crown	5,486	925	12,490	1,390
CC15520	Little Rapids	Crown	677	60	720	180
CC15521	Pasadena North Harbour	Crown	3,586	930	11,160	2,790
CC15522	St Judes	Crown	2,453	230	2,760	690
CC15523	Deer Lake North	Crown	3,970	195	2,340	585
CC15524	Goose Arm Road	Crown	1,464	355	4,795	533
CC15525	Jack Ladder	Crown	1,452	105	1,260	315
CC15527	Woods Island	Crown	606	*NEW		
CC15528	Governors Island	Crown	142	*NEW		
<b>Total</b>	<b>Domestic</b>	<b>Crown</b>	<b>61,636</b>	<b>6948</b>	<b>95,073</b>	<b>19,893</b>

### 8.1.2.3 Hardwoods

Throughout the zone, hardwoods (birch) will be harvested during commercial and domestic activity, as birch occurs as a mixture in softwood stands. At this point there are insufficient pure hardwood stands or residual on commercial cutovers to support any commercial hardwood sawlog activity. However, birch is sold commercially as fuelwood

### 8.1.3 Silviculture

There are three silviculture prescriptions for Zone 6;

- planting/gap planting including site preparation (herbicide) where required. 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.
- pre-commercial thinning - done 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.
- commercial/diameter limit thinning - done on older stands (25-40 years) and is designed to produce a sawlog crop while salvaging any trees thinned out as pulpwood or fuelwood.

If sites which require planting have competing vegetation which may hinder the planting operation and future development of seedlings then they may be treated with herbicide to prepare them for planting. Other sites which are planted but develop a regeneration problem may be treated with herbicide to release seedlings from competing vegetation.

The silviculture levels used in the timber supply analysis for District 14 is 760 ha of planting and no pre-commercial thinning. Depending on survey results, these levels may increase during the planning period.

The silviculture levels used in the timber supply analysis for District 15 is 160 ha of planting and no pre-commercial thinning. Depending on survey results, these levels may increase during the planning period.

### 8.1.4 Primary Access Roads and Bridges

There are 15.9 km of forest access roads scheduled in District 14 in the next five years (Table 17) to access timber for commercial purposes. Reconstruction will be required on various existing resource roads.

There are 14.4 km of forest access roads scheduled in District 15 in the next five years (Table 18) to access timber for commercial purposes. Reconstruction will be required on various existing resource roads.

All roads will be built to the specifications of the Class C-2 standard and all pertinent EPG's will be followed. Operational and winter access roads will also be required and submitted in the annual operating plan prior to the year that they are planned to be built. As well, referrals will be sent to all relevant agencies before any construction is initiated.

Table 17 Summary of primary access road construction in District 14 (2024-2028)

Operating Area		Construction/ Reconstruction	Length (km)	Water Crossings	
Name	Harvest Block			Culverts	Bridges
Woody Hill	CC14003	Construction	3.75	6	
Magnetite Road	CC14008	Construction	3.0	6	
Mitchell's Pond	CC14019	Construction	2.5	5	
O'Regans	CC14021	Construction	2.3	5	
Ryan's Brook	CC14022	Construction	0.60	1	
Northern Feeder	CC14062	Construction	3.75	6	

Table 18 Summary of primary access road construction in District 15 (2024-2028).

Operating Area		Construction/ Reconstruction	Length (km)	Water Crossings	
Name	Harvest Block			Culverts	Bridges
Governor's Pond	CC15005	Construction	9.3	18	
Puzzle Pond	CC15009	Construction	2.6	5	
South Brook	CC15026	Construction	2.5	5	

### 8.1.5 Activities in Protected Water Supply Areas

There are both commercial and domestic operations scheduled to occur in protected public water supply areas (PPWSA). Within these PPWSA's, appropriate permits will be obtained and pertinent Environmental Protection Guidelines which includes increased buffers will be applied to any commercial or domestic 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 by the Forest Service before any commercial or domestic harvesting commences inside the PWSA.

## Section 9 Plan Administration

### 9.1 Monitoring

Monitoring of planned activities is critical to ensure objectives and operations are carried out in a manner consistent with various guidelines and provincial and federal legislation. Monitoring occurs at the operational level and the planning level. Forest harvesting activity is regulated using a permitting system and all activities are inspected and monitored on the ground by conservation officers to ensure compliance with applicable legislation, cutting permit conditions, and Environmental Protection Guidelines. Permit holders and contractors are also subject to financial penalties if deviations occur.

### 9.2 Amendments

Changes to an approved Operating Plan may be required occasionally resulting from operational challenges or unforeseen circumstances. These changes are submitted as amendments and must be approved by the Forest Ecosystem Management Division prior to implementation.

There are two types of possible amendments:

- 1) Internally within the Department of Fisheries and Land Resources, where approval is required by the Forest Ecosystem Management Division. Internal amendments are governed by the following conditions:
  - a. 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
  - b. within a forest management district, an additional areas 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
  - c. 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
  - d. 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.
- 2) Externally, through the Department of Environment. Any required revisions which are not covered by the above internal requirements must be submitted for Environmental Assessment (EA) in the form of an amendment to the five year operating plan.



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