



Forest Management Five Year Operating Plan Forest Management District 22

2022-2026

Government of Newfoundland and Labrador
Department of Fisheries, Forestry and Agriculture
Forest Service

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1.0 INTRODUCTION

When Forest Management Districts were declared in 1974, it was required through legislation that each District would prepare its own management plan. Initially, management planning was completed by each District in consultation with other resource agencies. Throughout the 1980's this concept was expanded to include input into plans through public meetings. In the 1990's, planning expanded to include the use of questionnaires and a series of public meetings throughout the District to gauge public opinion. By 1994, the Newfoundland Forest Service began to move toward management on an ecosystem basis, which included public consultation.

District 22 has been through five public consultation processes since the late 1990's with the later yielding a forest management plan for the District. Again in 2021, Forest Management District 22 (District 22) began forest ecosystem planning for the fifth time. The direct result of the extended planning process in District 22 is this *Five Year Operating Plan for Forest Management District 22* (herein referred to as the "operating plan").

The Forest Service is the proponent for this forest management plan although all participants who provided input are acknowledged for their time and effort.

The operating plan outlines specific areas and details for the various management activities that are scheduled to occur between January 1, 2022 and December 31, 2026. These activities, such as harvesting, silviculture, road construction, protection and research are carried out to suit the goals and objectives of the operating plan and the Provincial Sustainable Forest Management Strategy 2014-2024 (herein referred to as the "strategy plan"). Furthermore, annual work schedules and past annual reports will be prepared as part of the planning and reporting process.

Forest management today is far removed from the old days of timber supply being the only perceived value. District 22 is not faced with the same challenges as many other Provincial districts. The area is not encumbered by forestry based towns that often cause a considerable struggle to balance society's values. The District tells a story of an area that has been following natural disturbance and succession patterns without a forest industry influence. The activities planned in this document will strive to balance society's values with an emphasis on maintaining ecosystem processes while meeting the values of concerned stakeholders by practicing sustainable ecosystem management.

2.0 LANDBASE DESCRIPTION

2.1 General

Under legislation, the Province is divided into twenty-four Forest Management Districts. The planning zone consists of only one District and is a large area (approximately 8 million ha) of boreal forest situated in western Labrador. Physical features vary a great deal over such a large landscape. The following descriptions apply generally to District 22.

2.1.1 Location

Generally, District 22 is located in Western Labrador, bounded by the Quebec / Newfoundland and Labrador border and Forest Management Districts 19 (a,b,c), 23 and 24 (Figure 2.1). The legal description is provided in Appendix I. The district has a total area of approximately 8 million ha making it the largest district in the Province. There is a district office located in Wabush and a satellite office in Churchill Falls. The District 22 office is managed out of Forest Management District 19 office located in North West River.



Figure 2.1 Forest Management District 22 Boundary and communities

2.1.2 History

Labrador in general consists of a diverse blend of cultures consisting of established indigenous groups, non-indigenous residents and transient peoples. The three permanent communities in the district are centered on mega resource projects, namely hydro power production and mining. As a result of these mega projects, hundreds of families from all over, have moved into the district for employment opportunities. Despite the diversity, District 22 is still rich in the traditional Labrador way of life characterized with a northern lifestyle of fishing, hunting and trapping. This tradition is a continuation from early accounts of subsistence hunting and the establishment of fur trade routes across the area from the St. Lawrence to Ungava Bay over 3500 years ago.

The land in District 22 has had many uses over time. The largest landscape change that has occurred in the district is a result of flooding from the creation of the Smallwood reservoir for the Churchill River Hydro Project in the mid 1970's. The large scale flooding of this area covers an area of 6527 km² (www.statscan.ca). Secondary to the creation of the Smallwood reservoir are open pit mining operations in Labrador City and Wabush. In the past, forest resources have not played a significant role as a major economic activity in the district but they have traditionally provided for subsistence activities.

With three communities (Churchill Falls, Labrador City and Wabush) in the district, there are over 9500 permanent residents (Statistics Canada Census, 2021), making it the most populated district in Labrador. All three communities are very similar and were established as support centers for resource extraction. The district is well connected by major transportation links including roads, railways & airlines. The northern lifestyles of the residents include the domestic use of all resources in the district. Forest areas provide sources of wood products (fuel wood and building materials) and wildlife (game and furs), while other non-timber forest products such as mushrooms, and berries are provided as well. Furthermore, there are numerous cabins in the district especially with such a high density of roads/trails present in the area due to resource extraction activities. There are several tourist sport-fishing camps which have existed for many years. Sport hunting of caribou from the George River Herd was also promoted as a tourist activity in the district, but has since ceased with the decline in herd numbers. With the completion of the Trans-Labrador Highway from the Quebec border near Labrador City to the Quebec border near L'Anse au Claire, the potential for tourist activity is expected to rise.

Two remaining mega resource projects described above provide the majority of the primary employment opportunities in the area. Secondary employment opportunities also exist in the public service, education, health care and retail sectors.

2.1.3 Ownership

District 22 is considered a crown district as currently the entire district is classed as crown land, although aboriginal land claims asserted in the area are under review (Figure 2.2).

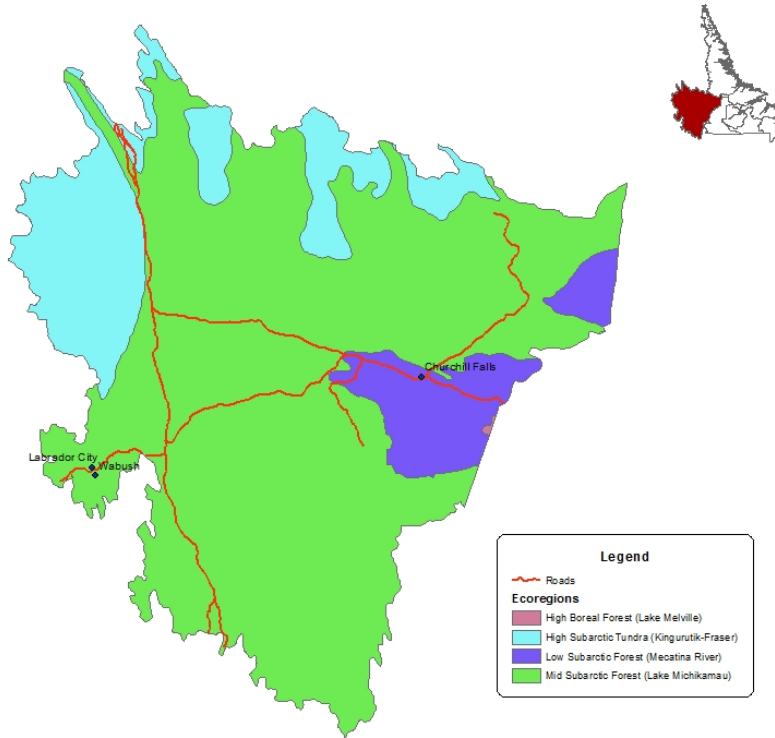


Figure 2.2 Managed land classes for District 22

2.2 Physical Description

Meades 1990 describes in detail the dominant ecological features, forest floor conditions and typical associated wildlife within the ecoregions of the district. Slow biological processes, reduced water uptake and very slow tree growth are attributed to the short cool growing season. Terrestrial and aquatic ecosystem components are roughly proportionally equal across the landscape.

2.2.1 Topography and Hydrology

Forest terrain conditions vary within the district, but generally it is a flat rolling plateau with numerous lakes and occasional hills leading to a predominance of black spruce usually open grown with a moss or lichen understory.

2.2.2 Geology

The underlying Canadian Shield (archean, granites, gneisses and acidic intrusive) coupled with the effects of recent glaciation have had a strong influence on ecosystem development.

2.2.3 Soils

Generally, the area has moderate drainage with adequate soil depth. Landforms include numerous eskers and drumlins and deep tills and glaciofluvial deposits over the bedrock.

2.2.4 Climate

The climate is essentially continental with a cool short summer and a very long cold winter. Precipitation averages less than 1000mm annually and the mean annual temperature is approximately -3.5° C.

2.3 Ecological Characteristics

2.3.1 Ecosystem Description

Ecoregions have been mapped for Newfoundland and Labrador based on distinctive regional climates as expressed primarily by vegetation. Figure 2.3 shows the extent of these ecoregions in the District. There are three ecoregions represented in District 22 which are described below and by area in Table 2.1.

Mid Subarctic Forest – Michikamau

This ecoregion encompasses the upland plateaus of central and western Labrador. Eskers and drumlin ridges are characteristic. This region has a very continental, sub-arctic climate with short, cool summers and long, severe, cold winters. The growing season is 100 to 120 days. Black spruce is the dominant trees species, except in the most northern areas, where white spruce dominates. Trembling aspen reaches its northern limit here and the only native population of jack pine occurs in this ecoregion. Open lichen woodlands are characteristic of this ecoregion. Extensive ribbed fen-string bog complexes, bordered by black spruce-sphagnum forest stands, dominate areas with little relief.

Low Subarctic Forest – Mecatina River

The main portion of this ecoregion is located in southern Labrador, with two separate areas to the north of Lake Melville and the Red Wine Mountains. Broad river valleys and rolling hills covered by shallow till, drumlins, and eskers are characteristic of the region. Summers are cool and winters are long. The growing season is 120 to 140 days. Somewhat open black spruce forests are the dominant vegetation, with crown densities greater than 75% on better sites. String bog-ribbed fen complexes cover extensive areas throughout the region.

High Subarctic Tundra – Kingurutil/Fraser

The George River Plateau makes up the main (northern) portion of this ecoregion. Various mountainous outliers, including the Benedict Mountains, Red Wine Mountains, Mealy Mountains, and the McPhadyen Plateau also belong to this region. Summers are short and cool, with a growing season of 80 to 120 days; winters are long, severe, and very cold. The upland vegetation is similar to the Low Arctic Tundra - Torngat ecoregion; however, the valleys support tree growth. Closed black spruce forests (with some larch) occur on lower valley slopes. River terraces support open spruce forests with a lichen dominated understory. Shallow fens with frozen peat occupy small depressions in plateau surfaces.

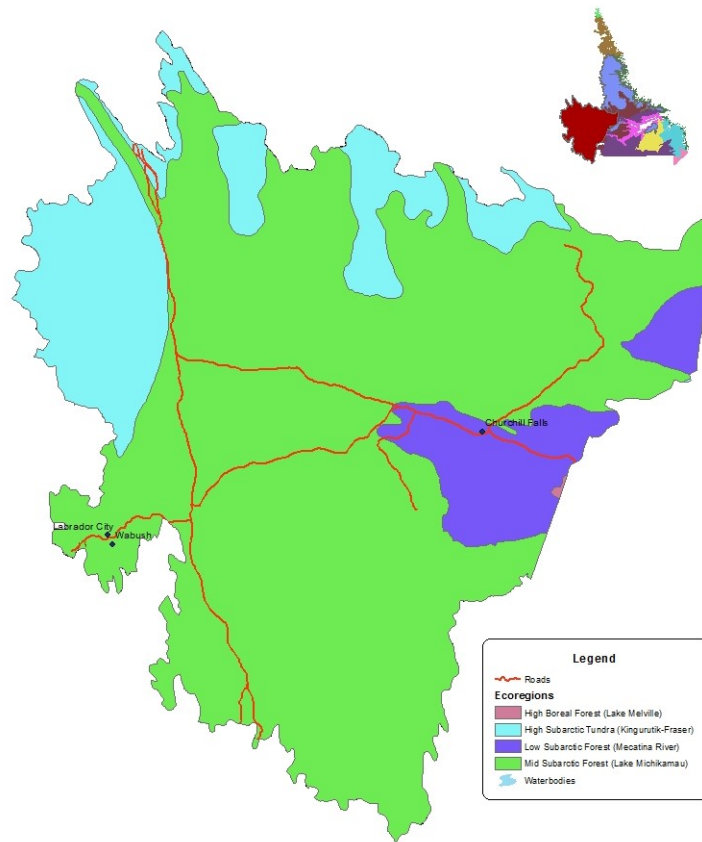


Figure 2.3 Ecoregions of District 22

Table 2.1 Ecoregions and their area and percentage within Labrador and the District.

	EcoRegions		
	Area (ha)		%
	in Labrador	in District 22	in District 22
Mid Subarctic Forest - Michikamau	8,523,500	6,028,090	70
High Subarctic Tundra – Kingurutil/Fraser	6,529,479	1,354,824	21
Low Subarctic Forest - Mecatina River	5,151,411	646,252	13
High Boreal Forest – Lake Melville	1,728,142	3,285	<1

2.3.2 Ecosystem Condition and Productivity

Even though a significant portion of Labrador is forested, only sporadic mosaics of commercial forest stands are distributed throughout District 22. Black Spruce (*Picea mariana*) is the predominant tree species within the district forming over 90% of the total volume, while other boreal species make up the remainder 10%.

The district has been relatively untouched by large scale commercial harvesting operations and has only seen small localized commercial operations and subsistence use. As noted previously, the largest scale disturbance present in the district has been for mega projects such as mining and hydro power production. Large scale insect infestations and disease have not been reported in the area, although significant infestations have occurred in neighbouring districts (District 19a, b, and c). Smaller scale disturbances such as windthrow or individual tree mortality are more common. Forest fire is the main disturbance regime for the area, and is the predominant mechanism for vegetation renewal.

Ecosystem conditions in the district provide habitat for a considerable number of wildlife species including caribou, moose, black bear, wolves, furbearers, small mammals, waterfowl, other birds, fish and a host of invertebrates and micro fauna species.

2.3.2.1 Productivity

Productivity can simply be defined as the accrual of matter and energy in biomass. The boreal forests in Labrador are characterized, for the most part, by an even age structure being dominated by an over mature age class. The tree canopy is poorly developed in many parts of the district (<25% crown cover). Among the factors that limit stand density and thus crown cover are severe climatic conditions and soils with restricted or excessive drainage.

Closed canopy forests occur only on rich, moist, mid to lower slopes. They contain a mixture of spruce, fir and hardwood tree species and a well-developed ground layer of feather mosses (primarily *Pleurozium schreberi*). On coarse-textured soils (typical of

river terraces and eskers), the dominant vegetation is lichen woodland, which is characterized by an open canopy of black spruce and a well-developed lichen layer. Most animal species found in forested areas of the district are typical of boreal forest regions across northern Canada.

The general characteristics of forest stands in District 22 (site class, age class and working group) are described later in the forest profile section (2.4.2). These characters define the limits within which the commercial forest development must function. Stands greater than 160+ years, primarily even- aged, form the dominant age class structure in this forest, although an extensive fire disturbed area has yet to be classified. Most forest sites are classed as poor to medium. Silviculture intervention may enhance future productivity on some sites, but how such treatments will affect the long rotation period (120 years) of forest stands in Labrador is not fully understood at this time.

Extant biomass is an integrating measure of forest ecosystem condition. Biomass represents the mass of living organisms inherent in an ecosystem and the ecosystem serves as a repository for animal, plant and microbial biomass. Accordingly, biomass is a measure of forest ecosystem condition and productivity. It refers to the condition of the forest in terms of organic matter production of all species and types.

Indicators to measure forest ecosystem extant biomass during the planning period include:

- mean annual increment ($m^3/ha/yr$) by forest type and age class
- frequency and occurrence within selected indicator species

Aquatic ecosystems within forest ecosystems integrate the overall watershed condition and thus provide an important measure of forest ecosystem condition and productivity. Elevated nutrient levels and flow rates in forest streams sustained over a long period clearly indicate a major forest ecosystem malfunction. In these situations, water and nutrients that should be utilized in forest growth are moving rapidly into drainage systems. This threatens the sustainability of the forest as well as the aquatic systems through eutrophication and flooding of downstream areas.

Indicators to measure changes in water quality and quantity during the planning period include:

- water quality as measured by water chemistry, turbidity, and other parameters for selected waterways
- trends and timing of events in stream flows from forest catchments for

Information collected on all indicators will be used to assess forest ecosystem condition and productivity change (if any) during the planning period based on the management actions of the plan as well as natural disturbances that will occur.

2.3.2.2 Resilience

Resilience is the capacity of a forest ecosystem to respond to a disturbance by resisting damage and recovering quickly. Healthy forest ecosystems maintain their resilience and adapt to periodic disturbances with little change. Properties of the forest ecosystem such as climate, soils, topography and flora often control the resilience of a forest.

2.3.2.3 Stability

Maintenance of natural genetic and ecosystem diversity across the landscape is an integral component to ensure species maintain viability through their capacity to evolve and adapt to change. Maintenance of the natural range of ecosystems and the ability of their components to react to external forces and processes provides the equilibrium required for maintenance of species diversity (CCFM 2005). The fundamental requirement for the conservation of biological diversity is the in-situ conservation of ecosystems and the natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings. The District's geographic location, topography and shallow soils make its forest ecosystems vulnerable to temperate extremes. These ecosystems are susceptible to development and comprehensive land use planning is required to ensure that biodiversity is maintained at the present level.

2.3.2.4 Disturbance Regimes and Successional Patterns

The primary natural disturbance factors attributed to boreal forests are fire and insects. Forest fires are frequent and extensive in Labrador and result in specific successional trends depending on the site type. More often than not, the spruce component is increased following fire, whereas other disturbance types such as insects and cutting often result in an increase in the fir component.

Human uses of the forest resources have had little influence on the overall forest structure. Fuel wood cutting has been a common practice however is mostly localized around the communities. Small scale commercial harvesting has also occurred. Indicators can be used as measurable variables to report on disturbances, resilience and extant biomass for evaluation of maintenance and enhancement of forest ecosystem condition and productivity. Using the CCFM approach, (CCFM 2005) criteria and

indicators will be selected to initiate measuring of these variables. Data for these indicators are considered attainable during the planning period.

Incidence of disturbance and stress refers to the frequency/severity of major biotic stresses. Depending on the particulars of the disturbance, stress negatively or positively affect forest condition over time.

Indicators for assessment of disturbance and stress on forest condition and productivity include:

- area and severity of fire damage
- area and severity of blow down
- area harvested

2.3.3 Biodiversity

Biodiversity is described in the Canadian Biodiversity Strategy as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

The decline of biodiversity is one of the most serious environmental threats now facing humanity. This decline of ecosystem, species and genetic diversity, is thought to be aggravated by human activities, including deforestation on a global scale, at a rate that far exceeds natural processes (Natural Resources Canada, 1995).

2.3.3.1 Species Diversity

District 22 is rich in a variety of species that inhabit the area. As described previously in detail by Meades 1990, large ungulates and predators along with an enormous variety of small mammals and avifauna are present. Currently eleven of the species present are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The most recognizable form of biodiversity degradation is the change in population levels or even the extinction of species. The slowing of degradation is fundamental to conservation of species and involves the identification of species at risk and concerted efforts to conserve critical habitat. The Province of Newfoundland and Labrador has passed legislation in the form of an Endangered Species Act to ensure the conservation of recovery and critical habitat. Potential risks from operational activities will be mitigated or eliminated by following environmental guidelines (Appendix III), respecting

buffers on water ways and avoiding heavily populated areas. The management and protection of threatened and endangered species including recovery plans will be incorporated with other management strategies.

Many documents have indicated that species are more abundant in riparian areas (Decker, 2003). Riparian areas are characterized by the transition from aquatic to upland vegetation with the width varying depending upon many site factors such as slope, soils, and permanence. Often covering only a small area in a watershed, riparian areas are often more diverse, richer and more productive than upland ecosystems. The long term stewardship of this critical ecosystem ensures habitat for fish and wildlife and reservoirs for biodiversity.

To ensure that planned activities do not affect ecosystem diversity in the district and to help support habitat protection the following indicators will be monitored.

1. Percent in area of forest types relative to historical conditions and total forest area.
2. Percent of area by forest type and age class.
3. Percent of area of each forest type in protected areas.
4. Percent of area in forested riparian areas.

2.3.3.2 Genetic Diversity

Genetic diversity within a species is the foundation of all biodiversity. Assessing genetic diversity does not mean attempting to track every gene in the District 22 forests. It means designating and implementing practical measures that can maintain viable populations of all forest vegetation species, and can utilize the genetic diversity of commercially important species to maximum benefit. Genetic diversity is the fundamental basis for the ability of populations (flora and fauna) to adapt to changing environmental conditions, therefore underlying both species and ecosystem diversity. These gene pools represent the years of natural selection for adaptation to local conditions.

The boreal forests in District 22 have evolved over time as even-aged in response to disturbances such as fire and wind storms. This must be taken into consideration when determining the effects of forest management (including harvesting) on genetic diversity. The spatial patterns of clear felling should mimic natural disturbance across the landscape so that natural processes can continue. During the course of this plan, various cutting designs and patterns will be implemented with the necessary monitoring and evaluation. Exact harvest patterns (which should mimic natural disturbances) within the operating areas will be identified in the annual work schedules.

The management actions of tree planting and pre-commercial thinning may also affect genetic diversity. However, most forest sites in district regenerate from seed sources already on or near the site. Sites which will be selected for planting are those where

there is an insufficient stocking of tree species to form a viable second growth forest to replace the one that was disturbed. During any planting, efforts will be made to plant native species from local seed sources on sites where they would be found naturally. The current practice, however, is to leave a representative proportion of all those woody tree species that are present in the stand before treatment.

2.3.3.3 Landscape Diversity

It is impossible to plan for the conservation of biodiversity on a species by species basis, there are simply way too many to consider. A much more rational approach is to aim to maintain a variety of ecosystems which are necessary for the preservation of species. Protected areas are a vital component of any biodiversity strategy. Besides protection of various ecosystems, protected areas provide benchmarks to measure and guide management decisions. At the ecoregion level, diversity is reflected in Damman’s site classification and determined by soil parent material, topography and climate. From this, one can deduce that different ecoregions have different plant communities and differences in processes. The Canadian Forest Accord, National Forest Strategy and Canadian Biodiversity Strategy all propose to have representative area in each ecoregion protected. Within each ecoregion, the dominant forest types and associated wildlife have been documented by Meades 1990.

2.4 Forest Characterization

2.4.1 Land Classification

The protection of ecological values to ensure the sustainability of subsistence activities is very important. Often, landscape, watershed and stand level scales are used as successive scales to filter and identify important ecosystem functions within each level (Table 2.2).

Table 2.2 Ecological protected area levels.

Level	Map Scale	Plan Terms	Sources	Examples
Landscape (course filter)	1:500,000 to 1:250,000	District & sub-district	Satellite information	Large areas not scheduled for harvest
Watershed (regular filter)	1:50,000	Area of interest	Aerial photography	Entire watersheds, riparian buffers, major slopes
Stand (fine filter)	1:20,000 to 1:5,000	Harvest block	Ground surveys	Wildlife dwellings, small streams

Landscape protected areas are designed to protect large umbrella areas of major ecosystem and habitat types. In this plan, a large portion of the district is not considered for commercial activities (Map 1). At the next level, watershed features such as riparian buffers and core habitats are identified. Furthermore, several portions and entire watersheds and water supplies are protected from commercial activities (Map 1). The final filter occurs at the stand level and is normally identified following pre-operational field surveys at very small scales. Identifiable stand level features include riparian buffers, waterfowl staging areas, wildlife dwellings, raptor nest buffers, and isolated stands and slopes. Additional reductions in the net commercial forest area are applied during the annual allowable cut calculations for such areas.

Table 2.3 Land base classification in District 22.

		District 22			
	Land Base Classification	Forested Area (ha)	Non-Forested (ha)	Total Area (ha)	% of Total District
1	Regulatory Alienations				
1.a	Parks				
1.a.1	Federal	N/A	N/A	N/A	N/A
1.a.2	Provincial	661	53	714	<1
1.a.3	Private	N/A	N/A	N/A	N/A
1.a.4	Aboriginal Land Claims	N/A	N/A	N/A	N/A
1.b	Reserves				
1.b.1	Ecological	9,163	N/A	9,163	<1
1.b.2	Wilderness	N/A	N/A	N/A	N/A
1.b.3	Others	N/A	N/A	N/A	N/A
1.c	Agricultural Areas	518	N/A	518	<1
1.d.1	Cottage Development Areas	370	111	481	<1
1.d.2	Crown Lands Other	N/A	N/A	N/A	N/A
1.d.3	Private Lands	N/A	N/A	N/A	N/A
1.e.1	Wildlife Exclusions	N/A	N/A	N/A	N/A
1.f.1	Permanent Sample Plots (PSP's)	N/A	N/A	N/A	N/A
1.f.2	Regulation Buffers Water (30m)	N/A	N/A	52,353 ¹	<1
Section Sub-Total		10,712	164	63,229	<1
2	Non-Harvestable Inventory Types				
2.a	Coniferous Scrub	N/A	N/A	N/A	N/A
2.b	Deciduous Scrub	N/A	N/A	N/A	N/A
2.c	Vegetated Non-Forested	N/A	22,326	22,326	<1

		District 22			
	Land Base Classification	Forested Area (ha)	Non-Forested (ha)	Total Area (ha)	% of Total District
2.d	Non-Vegetated	N/A	2,427	2,427	<1
2.e	Cleared Land	N/A	4,729	4,729	<1
-2.f	Residential Land	N/A	569	569	<1
	Section Sub-Total	0	30,051	30,051	<1
3	Water Features				
3.a	Water Bodies				
3.a.1	Lakes/Ponds	N/A	1,774,298	1,774,298	22
3.a.2	Double Sided Rivers	N/A	N/A	N/A	N/A
3.a.3	Salt Water	N/A	N/A	N/A	N/A
	Section Sub-Total	0	1,774,298	1,774,298	22
4	Operational Alienations				
4.a	Roads				
4.a.1	Right-of-way (Roads)	N/A	771	771	<1
4.a.2	Resource Roads (6m buffer)	N/A	N/A	N/A	N/A
4.a.3	Protected Road Buffers	20,538	N/A	20,538	<1
4.a.4	Aesthetic Road Buffers	N/A	N/A	N/A	N/A
4.b	Stand Level				
4.b.1	Stand Remnants	N/A	N/A	N/A	N/A
4.b.2	Islands	N/A	N/A	N/A	N/A
4.b.3	Steep Slopes	N/A	N/A	N/A	N/A
4.b.4	Isolated Stands	N/A	N/A	N/A	N/A
4.b.5	Other Stand-Level Constraints	N/A	N/A	N/A	N/A
4.b.6	Area Not Interpreted	N/A	N/A	6,041,210	75
	Section Sub-Total	20,538	771	6,062,519	75
5	Harvestable Land Base				
5.a	Crown				
5.a.1	Coniferous	15,553	N/A	15,553	<1
5.a.2	Coniferous/Deciduous	1,202	N/A	1,202	<1
5.a.3	Deciduous/Coniferous	695	N/A	695	<1
5.a.4	Deciduous	296	N/A	296	<1
5.a.5	Unclassified	6,041,210	N/A	6,041,210	75
	Section Sub-Total	6,058,956	0	6,058,955	76
	Grand Total	6,090,206	1,805,284	13,989,052	N/A

* Limited data available for Labrador.

2.4.1.1 Available Inventory and Information

In order to facilitate more effective decision making on potential land use activities, resource managers utilize ecological land classification systems. Not unlike classification systems used for other purposes, the intent of ecological land classification is to identify areas based on similar characteristics (vegetation type, climatic gradients, etc).

Ecological land classification assists managers in identifying ecosystem patterns, assess potential resources, conduct environmental analyses, forecast future conditions, and manage and monitor resources. The Canadian Ecological Land Classification System provides for seven levels of organization (scales) based on ecological principles. The Canada Land Inventory and the Forest Regions of Canada (Rowe, 1972) are both examples of large scale ecological land classification systems that are widely used for Canada. Eco-regions, which are characterized by distinctive ecological responses to climate as expressed by vegetation, soil, water and fauna and are described at a scale from 1:300,000 to 1:1,000,000 are available for Newfoundland and Labrador.

Furthermore, the entire district has been classified based on satellite imagery (Labrador Multi-Resource Inventory). This inventory highlights vegetation cover types based on satellite imagery. The primary data source for the compilation of this database was from 1:1,000,000 scale Landsat Thematic Mapper colour composite transparencies. A total of 20 images were used to map the forested region of Labrador (North to 56°). The vegetation cover was delineated into several forest, disturbance, and wetland types and then was digitized. This scale of inventory is suitable for “course filter” analysis at landscape levels.

Only a very small portion of the District has been inventoried in a forest cover type inventory by the Forest Service (~2%). Further photography has been taken, however inventory data is not available at this time. By using color aerial photographs, the ground features are interpreted and delineated including height, species, age and productivity of the forests. The information is then verified by measuring ground plots which supply further information such as wildlife habitat and abundance, timber volumes, soil types, and ground vegetation to name a few. The annual allowable cut (AAC) is calculated entirely on the available forest cover type inventory (1992) that was completed by the Forest Service.

2.4.2 Forest Profile

2.4.2.1 Species Composition

Black spruce (*Picea mariana*) is the most common tree species in the management district, based on area (approximately 92%). Balsam fir (*Abies balsamea*) constitutes

approximately 2% of the volume, while other softwood and hardwood species make up the balance (Figure 2.4)

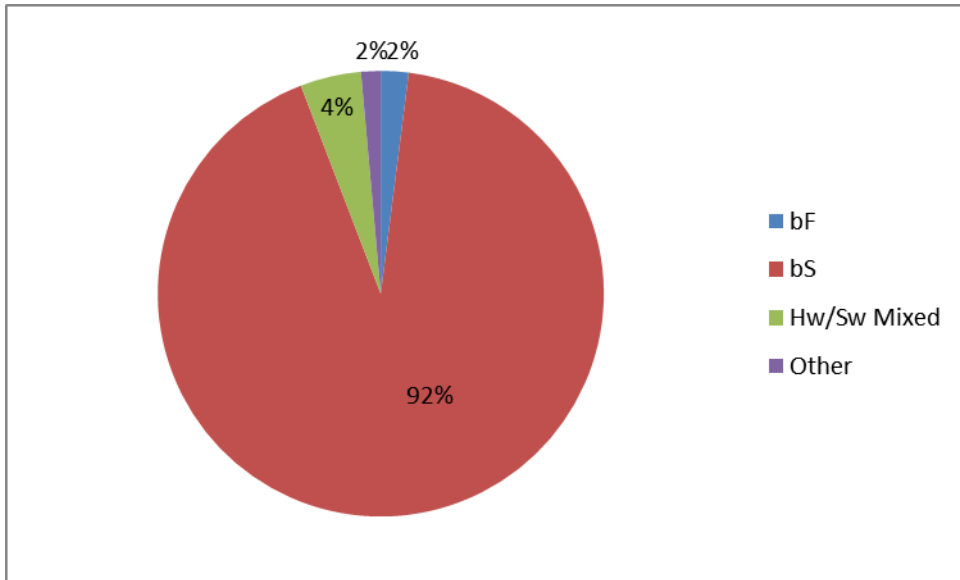


Figure 2.4 Working group distribution on productive sites in District 22.

2.4.2.2 Age Class

Primarily even- aged stands greater than 141+ years old, form the dominant age class structure in this forest, although an extensive area has yet to be classified (Figure 2.5). Most forest sites are classed as poor to medium. Silviculture intervention may enhance future productivity on some sites, but how such treatments will affect the long rotation period (120 years) of forest stands in southeastern Labrador is not fully understood at this time.

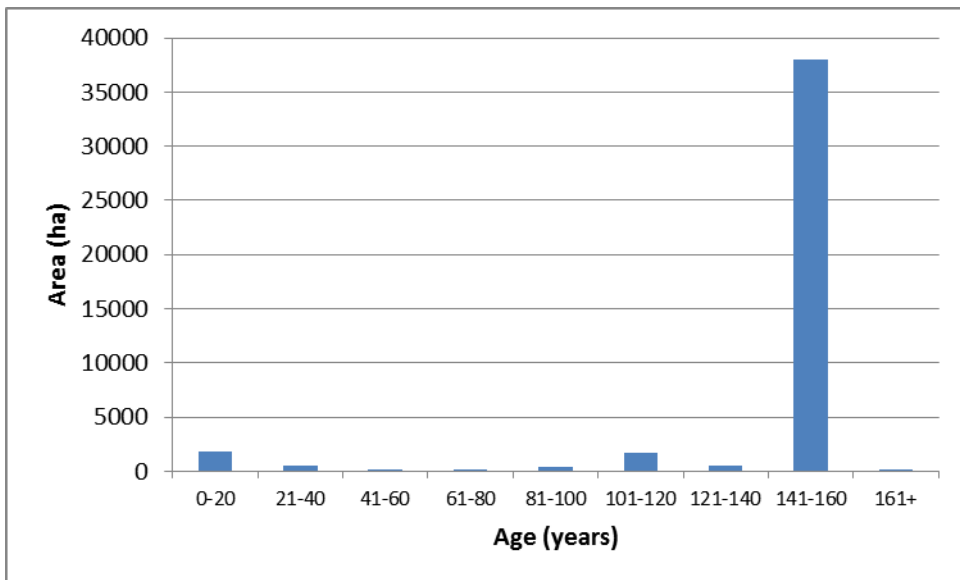


Figure 2.5 Age class distribution on productive sites in District 22 (1992 data).

2.4.2.3 Site Class

Many factors determine site class of productive forest including soil moisture, fertility, slope and geographic orientation. In District 22 medium and poor sites are most dominant accounting for approximately 96% of the total productive forest sites. The distribution of each site class is illustrated in Figure 2.6. Based upon its northern location it is estimated that the mean annual increment of a good site is 2.4 m³/ha/yr, medium site 1.4 m³/ha/yr and poor site 0.8 m³/ha/yr. Site class often determines the limits of growth and along with the limits of existing harvesting and processing technologies this will define the limits within which commercial forest development can function in the District.

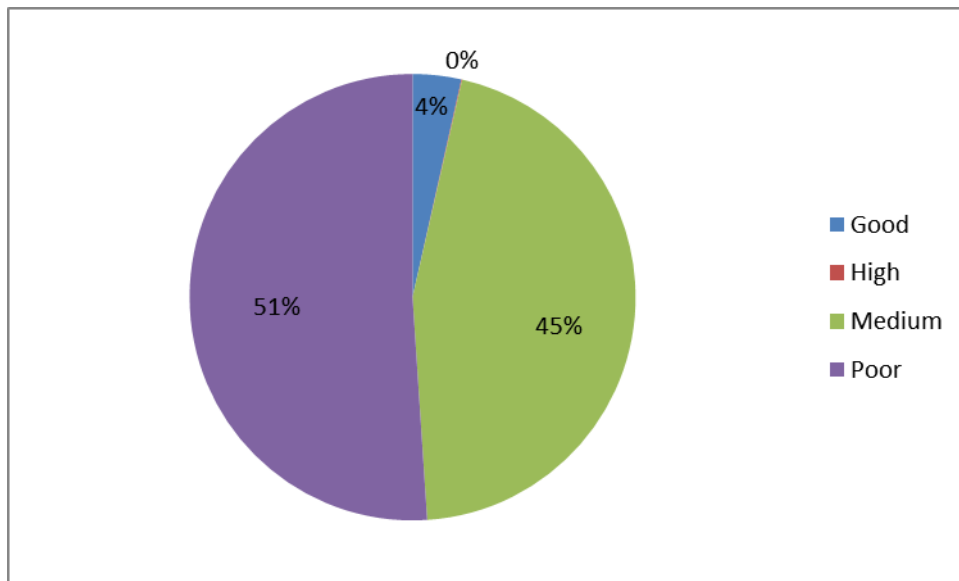


Figure 2.6 Site class distribution on productive sites in District 22.

3.0 PAST PLANNING ACTIVITIES

3.1 Harvesting

The previous five year forest management plan (2017-2021) was an overall success. Activities remained consistent over each year of the planning period. The underlying management objective was to support the sustainable development of the forest ecosystem ensuring the general well-being of all resources for present and future generations. The fundamental objective of this was to provide maximum social and economic benefits from the forest ecosystem, while maintaining its integrity at all

spatial scales.

3.1.1 Commercial Activity

With the down turn of the forest industry globally and the closure of two newsprint mills in the Province, commercial activities have since decreased in Labrador. District 22 has historically not been dependant on the forest industry. The limited commercial timber harvesting activities have been relatively stable at lower level over the past five years (Table 3.1)

Table 3.1 Commercial harvest summary 2017-2021

District 22		Core				Operational (Available)				Non-AAC wood
		AAC	Commercial	Deviation	Total	AAC	Comm.	Dev.	Total	
Softwood	2021	7,800	n/a	n/a	n/a					
	2020	7,800	71	7729	30940					
	2019	7,800	44	7756	23211					
	2018	7,800	83	7717	15455					
	2017	7,800	62	7738	7738					
Sub-Total		39,000	260		30940					
Hardwood	2016	0	N/A	N/A						
	2015	0	N/A	N/A						
	2014	0	N/A	N/A						
	2013	0	N/A	N/A						
	2012	0	N/A	N/A						
Sub-Total		0	N/A	N/A						
Total		39,000								

Annual commercial harvesting permit numbers have been increasing over the last five years; however actual commercial harvest levels relating to “traditional” forestry use have remained very low (Table 3.1). The majority of the commercial harvesting is happening as a result of clearing land for mine expansion projects/quarries as well as mineral exploration outside the inventoried area often requiring clearing of non-merchantable scrub only.

3.1.2 Domestic Activity

Domestic harvesting is a more significant activity in the area and has more than doubled compared to the previous five year average (2012-2016). The five year average (2017-2021) for the number of permits and volume issued per year are 322 and 7095 m³ respectively (Table 3.2). It is important to note that the vast majority of the area

designated for domestic harvest is outside the inventoried area and thus not included in the AAC calculation.

Table 3.2 Domestic harvest summary 2017-2021

Operating Area					Estimated Volume	
Number	Name	Tenure	Total Area (ha)	Number of Permits	Softwood	Hardwood
D-22-01	O'Connells	Crown	17,924	12	264	0
D-22-02	Carol Lake	Crown	64,681	35	764	0
D-22-03	Duley Lake	Crown	39,544	321	7029	0
D-22-04	Blueberry Hill	Crown	21,875	209	4588	0
D-22-05	Moose Head	Crown	16,546	365	8060	0
D-22-06	Mount Albert	Crown	1,123,115	35	775	0
D-22-07	Shabogamo	Crown	77,878	343	7556	0
D-22-08	Demile	Crown	16,488	65	1430	0
D-22-09	Ashuanipi	Crown	21,061	30	660	0
D-22-10	Wading River	Crown	480,344	34	748	0
D-22-11	Poisson River	Crown	1,941,843	18	374	0
D-22-12	Baikie Lake	Crown	588,319	100	2195	0
D-22-13	Lobstick	Crown	2,682,699	46	1034	0
Total			7,092,317	1613	35,477	0

3.2 Silviculture

Silviculture has been limited because of a lack of large scale disturbance (harvesting or natural disturbance). As a result, there were no silviculture projects conducted during 2012-2016.

3.3 Forest Access Roads

Any of the forest access road that exists in the District was constructed in the past through Government funding to provide access to previous commercial harvest blocks. In the past five years there was no new construction of road.

3.4 Natural Disturbances

3.4.1 Fire

Fourteen forest fires were reported during the past five years. The majority of these fires were small (<1.0 ha) and required minimal suppression efforts.

3.4.2 Insects

The levels of Hemlock Looper in Labrador have dropped significantly since 2009, when the last area was treated for this insect. There has been Spruce Budworm damage reported in neighboring District 19, with reports of Budworm in District 22 during this period. Crews from the Insect and Disease section at the Forest Service Headquarters in Corner Brook and local staff monitored insect populations through aerial and ground reconnaissance work.

3.4.3 Other

4.0 TIMBER SUPPLY ANALYSIS

4.1 Methodology

The annual allowable cut (AAC) can be defined as the maximum volume that can be harvested on an annual basis while maintaining a sustainable supply of timber and providing a landscape, which supports multiple values for future generations. Since the necessary growth and yield data required to run linear or other wood supply models are not yet calibrated for the district, the AAC was calculated using the following area and volume formula.

$$AAC (m^3/year) = \frac{\text{Net Commercial Forest Area (ha)}}{\text{Rotation age}} \times \frac{\text{Net Merchantable Volume (m}^3\text{)}}{\text{Hectare}}$$

Where:

- **Net Commercial Forest Area** is the net landbase of commercial forest.
- **Rotation Age** is the time period (in years) required to establish and grow trees to a condition of maturity following disturbance.
- **Net Merchantable Volume** is the expected merchantable volume on a specified landbase taking into account losses for fire, waste and retention.

Net Commercial Forest Area Determination

Landbase	Area (ha)	Softwood Volume (m ³)
Total District Area	8,032,669	N/A
Total Area (1992 inventory)	246,059	3,976,273
Productive Forest (1992 inventory)	48,016	3,976,273
Commercial Forest (1992 inventory)	19,975	2,540,538
Un-Alienated Commercial Forest (1992 inventory)	15,553	1,958,421

Net Commercial Forest (1992 inventory)	10,887	1,370,895
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Definitions and Assumptions

Productive Forest: Stands that are capable of producing 35 m³/year at rotation. (All stands identified in inventory which have a volume associated with them).

Commercial Forest: Stands (bF, bS, wS, sH) that contain a minimum softwood volume of 90 m³/ha. Stands less than 9m in height and less than 75% crown closure on poor sites are not considered commercial.

Un-Alienated Com. Forest: Isolated stands and sensitive areas were not included in AAC calculations. Area reductions were applied to the landbase using the GIS to account for:

- 30m forested buffers on rivers, lakes, streams.
- 100m forested buffers on major rivers.
- Stands located on slopes > 30%.
- 30m forested buffer on groomed snowmobile trails.
- Town buffers & water supplies.
- Parks and reserves.

Net Com. Forest: Total commercial forest with a 30% reduction applied to account for finer stand level features that require protection such as:

- Additional buffers as required on small streams.
- Localized steep slopes.
- Wildlife dwellings and habitat.
- Buffering or raptor nests.
- Cabin development areas.

Rotation Age

The age at which the mean annual increment of merchantable volume reaches its peak and yields the most volume per unit area per year is termed the rotation age. Normal yield tables show that rotation age increases as site quality decreases. They also show that the corresponding merchantable volume and mean annual increment decreases greatly from good to poor sites (USDA 1990). Averages for black spruce stands of three site classes in the boreal forest of Canada are as follows:

	Good	Medium	Poor
Rotation Age (years)	95	113	132
Merchantable Volume (m³/yr)	218	160	101
Mean Annual Increment (m³/ha)	2.3	1.4	0.8

Approximately 83% or more of the inventoried forest stand area in district 22 are dominated by black spruce (bS) stands. The proportion of site classes of bS forest stands is approximately 56% poor, 43% medium, and 1% good or high. The average gross merchantable volume for bS stands are approximately 93m³/ha. Considering these figures a best estimate of the rotation age for District 22 is 130 years.

Net Merchantable Volume Determination

The forest cover inventory used to derive the described land base, measures softwood and hardwood volumes per hectare of forest land. Analysis of 1:12,500 scale aerial photos identified height, species, age and productivity of the land base. Ground truthing plots were used to verify this information and furthermore the resulting inventory has specific volume/hectare values for all forest cover types. During the land base net-down exercise the commercial volume and the commercial land base areas are determined. The gross volume/hectare is found by using the following formula:

$$\text{Gross Volume/hectare} = \frac{\text{Net Commercial Volume}}{\text{Net Commercial Area}}$$

$$\text{Gross Volume/hectare} = \frac{1,958,421 \text{ m}^3}{15,552 \text{ ha}}$$

$$= 126 \text{ m}^3/\text{ha}$$

This number is then further refined to account for retention, waste, cull and natural disturbances. This number, referred to as the Net Commercial Volume, is then used in the AAC calculations. The expected net downs for District 22 were applied to account for the following losses:

Annual Allowable Cut Calculation Deductions

Cull	14%
Residual Stands	6%
Harvesting Losses	5%
<u>Fire</u>	<u>1%</u>
Total	26%

$$\begin{aligned}
 \text{Net merchantable volume/hectare} &= \text{Gross volume/hectare} - 26\% \text{ reduction} \\
 &= 126 \text{ m}^3/\text{ha} - 33 \text{ m}^3/\text{ha} \\
 &= 93 \text{ m}^3/\text{ha}
 \end{aligned}$$

AAC Calculations:

$$\frac{10,887\text{ha}}{130 \text{ yrs}} \quad \times \quad 93 \text{ m}^3/\text{ha} \quad = \quad 7,788 \text{ m}^3/\text{year}$$

4.2 Forest Profile Dynamics

Due to the methodology used to calculate the annual allowable cut for District 22, changes or outputs of forest profile dynamics are not predicted.

4.3 AAC Adjustments

Due to the methodology used to calculate the annual allowable cut for District 22, annual allowable cut adjustments are not used.

4.4 GMV Volume Adjustments

During calculation of the net AAC the GMV (Gross Merchantable Volume) is further refined to account for retention, waste, cull and natural disturbances. This number, referred to as the Net Commercial Volume, is then used in the AAC calculations. The expected net downs for District 22 were applied to account for the following losses for each calculation:

Cull	14%
Residual Stands	6%
Harvesting Losses	5%
<u>Fire</u>	<u>1%</u>
Total	26%

4.5 Spatial Blocking Adjustments

Due to the methodology used to calculate the annual allowable cut for District 22, spatial scheduling software is not used therefore spatial blocking adjustments are not

required. Harvest blocks are identified in areas where stand volume meets minimum commercial volumes and road access is available or potentially available.

4.6 AAC Results and Outputs

Land Tenure		District #	Planning Unit	Softwood Volume (m3/yr)			Hardwood Volume (m3/yr)		
				Core	Const.	Sub-Total	Core	Constrained	Sub-Total
Crown	LAB	22	Lab City	7,800	0	7,800	0	0	0
			Total	7,800	0	7,800	0	0	0

4.6.1 Harvest Profile

Due to the methodology used to calculate the annual allowable cut for District 22, harvest profiling is not determined. When identifying commercial harvest areas, areas that fit the stand age, and height profile of the surrounding areas were identified if possible.

5.0 RESOURCE VALUES

5.1 Values Structure

5.1.1 Aesthetic Values

Scheduled commercial harvesting activity may be visible from the TLH route. The arrangement of the operating areas should minimize the visual impact of these operations. Skyline reserves will be maintained and roads will be located on the lower slopes and buffered to reduce visibility wherever possible. Preliminary work has been done to start identifying the view shed of the TLH. The view shed has been produced for the majority of the proposed commercial areas in this five year plan and is considered a tool for managers to minimize visual effect of harvesting along the TLH. A digital elevation model (DEM) of a section along the TLH where commercial harvesting may occur was derived from 1:50 000 contours of the area. Using ArcGIS software, many observer points along this section of the TLH were analyzed and the areas that were visible from the line of sight points were combined to form the view shed (Map 2).

The view shed identified for a portion of the TLH is approximately 228,335 ha in total size. An analysis of the effect that removing this view shed from the landbase was completed and revealed that if removed approximately 7,346 ha of net commercial forest would be removed from the landbase resulting in a decrease in the Districts AAC,

of approximately 1,900 m³/year. The view shed would not be excluded from the landbase analysis for the AAC calculation for this reason.

Wherever possible, the following guidelines for operations will be within the view shed:

- Through operational planning, operations scheduled within the outlined view shed should be done during winter months, to limit ground disturbance and to protect advance regeneration.
- Closer operational planning by the Department and operators, within the view shed should occur to strategically locate skid trails to limit ground disturbance and their view from the TLH. Also, planning to leave retention patches could minimize the view from the TLH as well.
- Areas harvested within the view shed should be priority for regeneration surveys and for scheduled silvicultural prescriptions, in particular planting.

Currently there are no commercial operating areas that identified on or near snowmobile trails groomed by the Labrador Winter Trails. There are several domestic blocks which are accessible by groomed trails; however, since domestic harvesting is on such a small scale and often a selective harvesting process, the visual impacts are anticipated to be negligible. Officers will monitor domestic operations along groomed trails. If conditions are warranted, view shed work on groomed snowmobile trails may be explored in future planning periods.

5.1.2 Hunting & Trapping

Throughout consultations, wildlife was identified as being a very important value and therefore protection for social and recreational purposes is warranted. Numerous species were identified as having significant domestic opportunities, the most mentioned being:

1. Fur bearers (marten, lynx, mink, otter)
2. Caribou
3. Black bear
4. Upland game (rabbit, grouse, partridge)
5. Waterfowl (ducks and geese)
6. Fish species

The interaction of each of the aforementioned species with harvesting activity varies. For example, species such as waterfowl and fish/fish habitat have very little interaction with forest harvesting because their habitat requirements are protected by riparian buffers, proper stream crossings and harvesting methods. Additional buffer widths can be applied where it can be determined that critical fish or wildlife habitat may be affected.

Since hunting and trapping are an integral part of the northern lifestyle, it is anticipated that these activities will continue as normal with the proper permitting. Trapping and hunting grounds that were identified during consultation were taken into consideration when planning for harvest block locations to ensure minimum disturbance.

The following actions will attempt to ensure that the planned activities have minimal effect on hunting or trapping activities in the district.

Actions:

1. *Implementation of Environmental Protection Guidelines and the Environmental Management System standards during all planned activities.*
2. *Maintain regular contact with the Wildlife Division of the Department of Fisheries, Forestry and Agriculture regarding hunting and trapping issues.*
3. *Continue to collect hunting and trapping information from local hunting/fishing associations within the district for incorporation into future plans.*

5.1.3 Species at Risk

The main purpose of existing Federal and Provincial legislation and programs is to prevent species from becoming extinct; outline necessary recovery actions; and promote the special protection of species at risk. The identification of local species at risk and the protection of their habitats are critical to their recovery. In Labrador, the species that have been identified as at risk can be found at www.gov.nl.ca/env/wildlife/endangeredspecies

The following actions will attempt ensure that the planned activities minimize the effects on species at risk within the district.

Actions:

1. *Identify sensitive habitats of species at risk and implement Environmental Protection Guidelines.*
2. *Participate in Federal and Provincial Endangered species programs.*
3. *Communicate and work closely with any recovery team deemed necessary for the recovery of a species.*
4. *Monitor, review and support research activities where ever possible.*

5.1.4 Non-Timber Forest Products

The forest environment also provides non-timber forest products (NTFP) that include medicines, extracts and foods that are derived from such items as barks, berries, roots, etc., which are consumed domestically or used frequently for crafts. These items are often harvested from both natural and disturbed areas of the ecosystem. Economic opportunities exist for the sale of these products or crafts.

Other NTFP derived from the forest environment are harder to measure since they are spiritual and traditional in nature. Many residents see value in a healthy ecosystem for the pure enjoyment of nature and the outdoors. Because of the vast size of the District this opportunity exists

The following actions will attempt to ensure that the effects are minimized on the continuation of harvesting non-timber forest products.

Actions:

1. *Continuation of the collection and mapping of non-timber forest product information within the district for incorporation into future plans.*
2. *Harvesting of non-timber forest products will continue throughout the life of this plan by the careful planning of forest harvest blocks.*

5.1.5 Potential Developments

The possibility exists for both small and large scale developments within the district. The major possibility that exists is the expansion of the existing mega mining projects for world class iron deposits and other commercial minerals. This substantial deposit is expected to support operation long beyond the time period identified in this plan. Furthermore, planned expansions in the operations will see considerable investments in the projects, increased annual production and increased employment opportunities in the district. The expansion of the mines will result in a larger footprint on the landscape by both expanding the mining area and surrounding communities thus reducing the amount of area available for harvest.

Other opportunities exist for development which could include commercial agriculture development, tourism and recreation expansion, and commercial timber harvesting and value-added processing,

The following actions will attempt to ensure that the planned activities have minimal effects on any potential developments.

Actions:

1. *Participate in any consultations on potential new developments.*
2. *Monitor any new developments to ensure that timber is utilized before any additional area is disturbed.*

5.1.6 Water Resources

A supply of clean water for residents and healthy water resources are a significant attribute of ecosystem health. Historically, the water resources have provided domestic

food sources for residents and supported various commercial opportunities such as outfitting and recreation. The district has three water supply areas, of which in an attempt to maintain water quality, there will be no domestic or commercial harvesting within them and buffers on forest activities will be applied as per the environmental protection guidelines (Appendix III).

The following actions will attempt to ensure that planned activities minimize effects on water resources or quality in the district.

Actions:

1. *Ensure forest resource activities are conducted in a manner to maintain clean drinking water supplies for the communities.*
2. *Ensure forest resource activities are conducted in a manner to protect the water quality of water bodies in the district.*
3. *Maintain contact with and consult with the Department of Environment and Conservation - water resources division on any activities where water quality is of concern.*

5.1.7 Recreational Cabin Development

Since outdoor activities such as hunting, fishing and camping are so significant in the lifestyles of the residents, there is a significant demand for recreational cabins in the district. There are over 800 existing permitted cabins and tilts in the district with some areas more concentrated than others. High densities of roads, trails, railway and snowmobile trails have provided access to once remote areas. Furthermore, the availability of helicopters and float planes and the use of boats provide access to the remotest places in the district. The high number of existing cabins has limited the potential availability of appropriate sites in those popular locations. Cabin development potential remains high with the following concerns: i) land use conflicts, ii) density and expansion concerns, iii) site sensitivity and iv) effects on critical habitat.

The following actions will attempt to ensure that planned activities minimize effects on recreational cabin development in the district.

Actions:

1. *Crown lands applications will be reviewed on an individual basis for land use conflicts, density and expansion concerns, site sensitivity and effects on critical habitat. Concerns will be forwarded to the appropriate agency.*
2. *Environmental protection guidelines will be applied to all approved cabin sites.*

5.1.8 Timber Values

The forest resource in the district provides many domestic and commercial timber values to residents. Domestically timber is important to residents to heat homes and cabins during long cold winters and to provide building materials. Commercial harvesting activities exist in the district at a relatively limited scale. Both commercial and domestic harvesting activities will continue during this five year plan. Specific areas have been identified for both and described further in this document.

The following actions will attempt to ensure that the planned activities minimize the effect on domestic harvesting of timber in the district.

Actions:

1. *Conservation Officers will monitor the amount and locations of domestic harvesting.*
2. *Conservation Officers will apply and enforce applicable legislation and environmental protection guidelines on all inspected operations.*

5.1.9 Tourism and Outfitting

Commercial tourism and outfitting development continues to be a viable component of the resource sector in District 22. Existing operations take advantage of the diverse wildlife resources, sport-fishing opportunities and pristine areas for ecotourism opportunities. Access to remote areas is easily gained with snowmobiles, boats or even float planes and helicopters. Although the potential remains high for expansion and further development, careful planning is required to meet needs and mitigate possible negative impacts.

The following actions will attempt to ensure that planned activities minimize effects on tourism and outfitting development in the district.

Actions:

1. *Crown lands applications will be reviewed on an individual basis for land use conflicts, density and expansion concerns, site sensitivity and effects on critical habitat. Concerns will be forwarded to the appropriate agency.*
2. *Environmental protection guidelines will be applied to all approved outfitting sites.*
3. *Monitor and participate in any consultations on existing or potential new tourism or outfitting developments.*

5.1.10 Parks and Reserves

Significant natural features, habitat types and landscapes are represented across the Province. The protection of these areas insures conservation while providing research benchmarks, recreation, educational and ecotourism opportunities in the Province.

District 22 has one legislated ecological reserve site, the Redfir Lake – Kapitagas Channel. This area contains the only known natural stands of Jack Pine (*Pinus banksiana Lamb.*) in the Province. First recognized by the Department of Forestry in a submission in 1988 to establish a crown land reserve, Redfir Lake – Kapitagas was declared an ecological Reserve in 1999.

Located in southwestern Labrador, south of Ashuanipi Lake, the reserve consists of two areas; neither of the areas is accessible by road (Map 3). This reserve holds a high level of significance at Provincial and National levels due to its outlying position, outside of natural range, for jack pine, of the boreal forest zone and its location between two forest regions (mid subarctic and low subarctic).

Established management policies aim to preserve the natural jack pine ecosystem while providing opportunities for public education and scientific research. Furthermore the traditional activities of hunting, trapping and snowmobiling can occur in the area as there is no indication of any direct negative impacts. Timber harvesting however is not permitted in the ecological area and is not scheduled under this plan.

In addition, District 22 has one park reserve, Duley Lake Provincial Park, which is approximately 7 km² in size and located ten kilometres south of Labrador City. The main purpose of this park is to protect the open lichen woodland ecosystems which are characteristic of the mid subarctic forest ecoregion. Even though it is titled a park reserve, the park is not open to camping. Furthermore, timber harvesting is not permitted nor scheduled under this plan.

6.0 MITIGATIONS

During previous planning processes, a number of mitigations were developed that are designed to protect other ecosystem values, which are specific to the responsibility of the Forest Service. Table 6.1 outlines these issues and proposed mitigations.

Table 6.1 Issues and proposed mitigations raised during previous planning processes.

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
<p>Natural Resources - Mines Branch</p>	<p>Overlap of a proposed cutting area with a pair of quarry permits (in Labrador west), however don't anticipate a problem provided that, as with all such overlaps of quarry permits and proposed cutting areas, the overlap does not interfere with the quarry operator being able to obtain cutting permit to remove trees from the area</p>	<p>Overlap would not interfere with any quarry operator getting commercial cutting permit to remove trees and the possibility exists that the area may already be cleared by another commercial operator prior</p>

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
	covered by the quarry permit.	to the quarry becoming active.
Environment and Climate Change - Wildlife Division	Forest management protection guidelines apply to all operating areas	Forest management protection guidelines will apply to all forest operations
	CC22511 - This domestic harvest block contains critical wintering habitat for Lac Joseph caribou herd. Lac Joseph caribou are listed as Threatened under the Endangered Species Act and Species at Risk Act. Wildlife Division and FFA should discuss amending this block to avoid key wintering habitat. Most domestic harvest occurs in the wintertime and snowmobile trails increase likelihood of predation on caribou. The wildlife division is recommending the cut block be amended as per the below image (outlines in black).	Domestic block CC22511 has been amended to avoid critical wintering habitat for Lac Joseph caribou herd. Access to the area is already provided by a transmission line with access road from Churchill Falls to Quebec and railway heading south from Labrador West to the Quebec North Shore.
	A proposed domestic harvest block overlaps Duley Lake Provincial Park. Pursuant to the <i>Provincial Parks Act</i> , cutting must not occur in this protected area. Permits provided to domestic timber harvesters should include this information and a map of protected area boundaries to ensure encroachment does not occur; shape files for provincial protected areas are available for download at www.env.gov.nl.ca/env/parks/gis_data.html . Page 36 of the text document notes that PNAD has made this request previously and that overlapping portions would be removed, yet shapefiles provided still have not been modified to remove Duley Lake Provincial Park from the domestic harvest areas.	No harvesting currently permitted in Duley Lake area. Although it is not removed from the domestic cutting area shape file, this area is identified on individual domestic maps as part of a NO CUTTING layer that is applied to the District. The NO CUTTING layer contains all the no cutting restricted areas in the District.
Business, Tourism,	The plan references no dialogue with affected outfitters. Forest harvesting and	All known outfitters were invited to public

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
Culture and Rural Development - Tourism and Culture Branch	new access could be detrimental to these businesses. It is recommended that consultations take place with outfitters on attached document and mitigation measures are put in place between Forestry officials and operators.	consultation session held within the district on August 25, 2016. No outfitters were present nor did the Forest Service receive any complaints, conflicts or suggestions otherwise.
	Forest harvesting within close proximity to major salmon rivers not degrade scenic settings being utilized by anglers and tourism stakeholders. Landscape design techniques are recommended to minimize and protect visual aesthetics. The management of forest harvesting and forestry road access will significantly impact the extent to which these resources are packaged to attract tourist.	Where operationally feasible, the Forest Service will implement strategies to provide a balance between forest harvesting and the non-timber values identified by Tourism
	The plan references no impacts to Labrador Winter Trails Inc. In efforts to minimize conflict and implement appropriate buffers where needed.	Currently there are no commercial operating areas that identified on or near snowmobile trails groomed by the Labrador Winter Trails. To protect the aesthetic value of the trails a minimum of 30 meter no cutting buffer will be implemented for all domestic and commercial harvesting along the trail systems.
Labrador and Aboriginal Affairs Office	It is indicated that Forestry is planning to temporarily close domestic harvest blocks Poisson River, Baikie Lake & Lobstick (of a total of 13 blocks) from May 15-Sept to help protect Red Wine and Lac Joseph caribou. This seems reasonable since most wood harvesting occurs in the winter by snowmobile. However, LAA suggests that Forestry could notify the general public of	Public will be notified of these temporary closures as per Government Policy.

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
	this seasonal closure.	
<p>Dept. Municipal Affairs - Land Management Division</p>	<p>Commercial and Domestic harvesting does not usually present an issue on Crown lands, however, it may raise concern when harvesting occurs on private land. Cutting of timber on private land can only occur with the permission of the land owner. Forestry Services Branch staff should contact the Regional Lands Office for up-to-date titles issued and their knowledge of private land claims prior to harvesting in designated areas during the five-year period.</p>	<p>Prior to the preparation of the annual work schedule the Regional Lands Office will be contacted for up to date titles and private land claims to ensure there are no conflicts.</p>
	<p>During the life of this proposed five-year forest operating plan Crown lands applications will be accepted and processed in some of these forest operating areas. Each application is addressed on a case by case basis and referrals will be sent to Forestry Services Branch for comments. A decision on each application is made with respect to the referrals that are returned to the Crown Lands Administration Division. It should be noted that some applications are currently being reviewed and a decision to approve or refuse will be made once their review is complete.</p>	<p>Crown lands applications will be reviewed and commented on by the Forest Service in accordance to the plan which is in place at that time.</p>
	<p>Licences to Occupy for remote cottages or trappers' cabins are scattered throughout most of the forestry operating areas and should have a minimum 20 metre buffer around the structure and greater than 20 metre as terrain warrants. This consideration should be a condition of the cutting permit. Issued Licences only provide an area for the footprint of the structure. Remote cottage owners are now permitted to apply to the Lands Branch for a Crown lands grant. If the application is approved, the cottage owner can acquire up to a maximum of 0.3 hectares of land through the Crown lands application process. Accessible cottages are different</p>	<p>Apply environmental guidelines to all operations. A minimum of 20m treed buffer between existing approved licenses to occupy and any forest operation will apply. Buffer may be greater as conditions warrant or at the discretion of the District Manager.</p>

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
	<p>from remote cottages because the owners are issued a Crown lands grant that provides an area of approximately 0.4 hectares to place a structure, well and septic system if required. Forest operations are not permitted on private land without the permission of the land owner.</p>	
	<p>Section 36 of the Lands Act refers to (“Squatters’ Rights”) which are areas that have had uninterrupted occupation by individuals and their predecessors for twenty continuous years or more immediately prior to January 1, 1977. These lands are usually unknown to the Lands Branch because there is no mandatory land registration in the Province. Forestry Services Branch staff should contact the Regional Lands Office for up-to-date titles issued and their knowledge of private land claims prior to harvesting in designated areas during the five-year period.</p>	<p>Prior to the preparation of the annual work schedule the Regional Lands Office will be contacted for up to date titles and private land claims to ensure there are no conflicts.</p>
	<p>ATV and Snowmobile Trails - where these occur the trails should be left undisturbed and undamaged. Consultation with the Newfoundland and Labrador Snowmobile Federation or applicable ATV trail licence holder is recommended.</p>	<p>Currently there are no commercial operating areas that are identified on or near snowmobile trails groomed by the Labrador Winter Trails. To protect the aesthetic value of the trails a minimum of 30 meter no cutting buffer will be implemented for all domestic and commercial harvesting along the trail systems.</p>
	<p>Cottage Development Areas are areas designated for cottage development within Cottage Planning Areas. These areas have been previously developed over the years and there have been an accumulation of titles issued for remote cottages (Licenses) or cottages that are accessible by an access road and have been issued a grant (freehold</p>	<p>There will be no harvesting in any approved cottage development area.</p>

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
	<p>title). No harvesting is permitted in Cottage Development Areas without prior consultation with the Lands Branch. Most cottage development areas occur around waterbodies. The Lands Branch requests a 120 metre buffer around waterbodies where cottage developments exist. 120 metre includes the 15 metre shoreline reservation, a 90 metre granted lot (depth of lot) plus a 15 metre road right of way. Forestry Services should contact the Land Management Division of the Lands Branch for an up to date version of the Cottage Development Areas for use in annual plans. This should ensure that these areas remain undisturbed.</p>	
	<p>Forestry operations should not impede access to or with the rights of land users and land owners.</p>	<p>It is not anticipated that any forest operations will impede access of land owners</p>
	<p>Many of the municipalities within this zone have development and control regulations as well as municipal plans under the Urban and Rural Planning Act, 2000. Forestry related activities may or may not be permitted in some of the zones outlined in the municipal plans. Any zoning and/or zoning conflicts have been outlined in the attached Excel file in addition to GIS files that have already been emailed to Forestry Services planning staff illustrating areas where forestry activities are not permitted. This GIS file can be used for ongoing planning purposes and can be updated by the Lands Branch for new municipal plans or plan amendments. Forestry activity in any town that has development and control regulations under the Urban and Rural Planning Act, 2000 will require a permit from the respective town. Should the Forestry Services Branch feel that an area is critical to permit forestry related activities in an area where zoning does not permit those activities; the Forestry Services</p>	<p>In zones in which forestry is a permitted use the Forestry Service will apply for a permit from the town to do so. All other areas where forestry is not permitted or discretionary use will be no cutting areas and identified on domestic maps.</p>

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
	Branch should consult the applicable town to request that the town consider an amendment to their municipal plan.	
	Any forestry activity within the building control lines of a protected road requires a permit from Service NL.	Once the plan is approved through the EA process, Forestry Services will apply for a permit from Service NL as required.

Several other issues were identified during previous planning processes, but not discussed at this one. The Forest Service still considers these issues and their mitigations valid and will transfer into the 2022-2026 five-year plan. Table 6.2 outlines the issue and proposed mitigation.

Table 6.2 Issues and proposed mitigations raised during previous planning processes that are still valid.

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
Dept. Environment & Conservation – Water Resources	All activities in Protected Water Supply (PWS) area require prior approval under the Water Resources Act	The district has water supply areas, in an attempt to maintain water quality, there will be no domestic or commercial harvesting within them and PWS areas will be identified on domestic maps as no cutting.
	Recommend an environmental buffer of min. 15m along high water mark of all bodies of water showing on 1:50000 mapping.	Minimum requirement for 30m forested buffer around all waterbodies identified on latest 1:50,000 topographic maps and on all waterbodies that are 1.0m in width or greater.
	Projects located on boundary of PWS areas must be reviewed ensure they are not within buffer zones and to ensure compliance with policy	Buffers on forest activities will be applied as per the environmental protection guidelines.
Dept. Environment & Conservation – Pesticides	Must comply with Environmental Protection Act, Pesticides Control Regulations	Any proposed spray program planned for D22 will be registered as separate undertakings with the Environmental Assessment Division for environmental assessment and further public review.
Dept. Environment & Conservation – Lands	Requested no harvesting in former Duley Lake Provincial Park.	No harvesting currently permitted in Duley Lake area, area identified on individual domestic maps.

STAKEHOLDER/ DEPARTMENT	ISSUES RAISED DURING PLANNING PROCESS	PROPOSED MITIGATIONS
Dept. Environment & Conservation - Wildlife	Rare plants occur in several domestic harvest blocks. Contact wildlife division to discuss mitigations.	Commercial areas are identified further in Annual Operating Plans. Any conflicts with rare plants can be buffered at that time. Domestic harvesting is very light especially during winter and will have little impact on rare plants in the district.
	Requesting no activity within existing stewardship unit and to contact wildlife to discuss activity within the stewardship zones.	The Town of Labrador City and Wabush will be notified of any commercial harvesting within stewardship zone. No commercial harvesting planned within any stewardship unit. Domestic harvesting is very light especially during winter and will have little impact with in the stewardship zone or units.
	Requesting no harvesting activity in domestic harvesting blocks K,L & M, during the summer months due to caribou range of the Red Wine and Lac Joseph herds.	Domestic harvesting is very limited in blocks K, L & M during the summer months due to accessibility. Domestic harvesting will be limited during fire season (Mid May – End Sept) in the caribou range areas by indicating the temporary closure on domestic maps. After fire season, domestic harvesting will resume as normal in the remainder of the block.
Dept. Tourism & Culture - Tourism	Advise and consult with Tourism with regard to the initiation of the plan over the next four years.	The reason Forest Services prepares 5 year plans is to plan ahead. Agree with advising Tourism on an annual basis of activities by copy of the annual operating plan; however do not see any benefit to opening the plan to consultation every year.

7.0 PUBLIC CONSULTATION

7.1 Planning Objectives

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:

1. Establish a productive planning framework to include all stakeholders. An effective planning framework must have information and issues defined at the beginning of the process.
2. 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.
3. 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.

7.2 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 Services 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.

In 2021, in addition to transferring issues/concerns/mitigations from previous planning processes, a revised approach of stakeholder involvement for the development of this plan was implemented. Due to the ongoing global pandemic of COVID-19 and out of an abundance of caution, face to face gatherings are not advisable during this planning phase. The plan will be available for public comment through the Engage NL online resource. Known interested stakeholders from previous planning processes will be engaged on a "one-on-one" basis to evaluate potential activity prior to the plan submission to the Environmental Assessment Process. Given the very low harvest levels in the previous 5 years and the fact that there has been no change in proposed domestic or commercial harvest areas over several planning periods, it is expected that stakeholder concerns will be very similar for this plan. The results of previous stakeholder involvement are identified in the Mitigations Tables in Section 6.

8.0 MANAGEMENT GOALS, OBJECTIVES AND STRATEGIES

8.1 Harvesting

8.1.1 Commercial

Commercial operations will be confined to the seven identified blocks in the plan. In general mechanical harvesters and conventional harvesting methods will be used in commercial areas. Selective operations will be done manually using chainsaw and will mainly operate during the winter months. It is anticipated that all commercial harvesting will be through the clearcut silvicultural system with the retention of non-merchantable and wildlife trees.

8.1.2 Domestic

Domestic harvesting over the past five years has increased significantly from the previous planning period. From approximately 4,000 m³/year in 2012-2016 to approximately 7000 m³ from 2017-2021. Approximately 35,000 m³ is estimated to be

sufficient to meet district domestic requirements for the next five years. The majority of domestic cutting will occur near communities in the district. Majority of the domestic wood harvested will be during winter months with snowmobile and chainsaw. This harvesting method will have little environmental effect and ground disturbance within the domestic areas.

8.1.3 Hardwoods

Local residents also use white birch (*Betula papyrifera*) for fuelwood and value added products such as snowshoes. For this, and other domestic uses, white birch within the defined domestic harvesting areas is available for harvest, providing all other conditions (ex. buffers) are adhered to. It is requested that straight stemmed trees with clear boles not be harvested for firewood and left standing for future value added opportunities.

8.2 Silviculture

Silviculture refers to the theory and practice of controlling the establishment, composition, growth and quality of forest stands to achieve the objectives of management (Smith, Larson, Kelty and Ashton 1997). Two of the most common techniques that are associated with this practice are planting and thinning.

8.2.1 Forest Renewal

The silviculture program in District 22 will focus primarily on monitoring and research. Burn areas not adequately regenerating will be treated as candidate areas for planting. Any stands harvested during this plan will be located within the proposed commercial blocks outlined in maps 4 through 10. Selection of the species to be planted will be highly dependent upon the pre-disturbance stand structure and will be dealt with on a site specific basis.

Based upon observations in the district and in other areas of the region, it is anticipated that most areas when harvested will regenerate naturally within a five year establishment period. Harvested areas will be monitored for regeneration and detailed surveys will be conducted in areas where regeneration appears inadequate.

Research should focus on silviculture techniques that will enhance natural regeneration. Potential projects include:

1. Seed tree retention
2. Modification of harvesting plans
3. Investigation of various site preparations techniques
4. Species trials
5. Past plantation assessments

8.2.2 Forest Improvements

These areas may also become suitable areas for pre-commercial thinning, hardwood management, or require site preparation in the operating period covered by this plan. Further refinements to each project will be described in the Annual Work Schedules developed each year.

8.3 Forest Access Roads

The system of resource access roads in the district is currently developed for the purpose of mining and exploration work and not for a commercial forestry operation.

Road network construction is essential to the success of harvesting (commercial) operations, silviculture treatments and fire suppression in the district. In the past, very little road construction was conducted in District 22 under the Provincial access road program, under the Forest Service. The anticipated forest access road network to access the commercial harvesting areas for this operating period is summarized in table 9.3 and appended in map 11. Based upon current construction costs, well in excess of one million dollars is required. Construction each year will depend on the amount of money available in the roads budget.

8.4 Forest Protection

8.4.1 Insect and Disease

Protection of the regions forests and related values continue to be a priority in Labrador. The hemlock looper insect control program has not been required since 2009 due to low insect numbers. No treatments are planned during this operating plan period due to expected low numbers. Monitoring for insects will continue with aerial and ground reconnaissance being conducted. The spruce budworm has caused defoliation in the Goose Bay area but there is no recent evidence of damage in this district.

8.4.2 Fire

Resource protection, in particular fire suppression is necessary to protect Labrador's forest resource and is considered an essential operational activity. Even though large fires are uncommon within District 22, forest fire occurrence is unpredictable. We must be prepared to respond quickly to reduce the loss of valuable commercial, recreational and non-commercial values on the landscape.

To determine initial attack strategies the FMD 22 has been loosely sub-divided into the following priority zones: 1) life, 2) property, 3) resources, 4) other. Routine fire patrols are to be performed regularly in District 22 by ground, fixed wing aircraft, water bomber and helicopter.

8.4.3 Windthrow

Due to the old age class structure of the forests in District 22, areas of wind throw in the area is highly likely. Areas of wind throw have been observed on small scales throughout the District however with changing climate conditions with increased wind speeds and occurrences, wind throw will be more prevalent in the District over the next five years. Identified commercial blocks have targeted some of the oldest stands first to try to salvage the wood before it can blow down. Should the District experience an excess of wind throw, additional measures will be considered. Existing measures for domestic permit holders include wind throw harvest outside of a domestic block with District Manager approval.

8.5 Information and Education

Efforts by District staff to educate and foster new ideas to the public and operators on ecosystem management initiatives will continue within the District. Continued interaction with the public and operators will likely result in the better understanding of key management decisions made by managers, and their relationships with the goals and objectives of forest management. During this planning period it is expected that District staff will continue to:

- Deliver presentations to school and youth groups on forest ecosystem management topics.
- Maintain contact and good working relationships with town councils, resource groups, development associations and other Government Departments.
- Conduct operator workshop on various management issues including utilization, ground disturbance and road construction on a regular basis.
- Continue to participate in National forestry and wildlife weeks.

8.6 Research

8.6.1 Research Initiatives

All stakeholders including the Forest Service acknowledge the information gap, which exists in Labrador. Currently, little to no research has been conducted in the immediate area making management decisions cumbersome. In consultation with stakeholders, subject to funding, the Forest Service plans to initiate several smaller research projects over the next five year period. These projects will provide relevant site specific information, which can be used, for management decisions and processes during the next planning period.

Another important monitoring mechanism that is required under the current management planning process is the preparation of annual work schedules. These plans

will be subject to review by the planning team and the general public. This will provide an opportunity for stakeholders to evaluate the plan progress and recommend necessary changes.

8.6.2 Environmental Management System

The Province has initiated the ISO 14001 environmental management system within forest activities on crown lands of the Province. By doing so, the Forest Service can demonstrate control and measure the impacts of programs and activities on the environment, with a goal to continue to minimize harmful effects, and improve environmental performance.

ISO 14001 is a series of internationally recognized standards on environmental management. It provides a structured framework for the development of an environmental management system (EMS) and a supporting audit program, which can be integrated within the existing legislation and policies of an organization. There are many anticipated benefits in following the ISO 14001 EMS model. Some include:

1. Improved awareness of the key environmental issues.
2. An increase in the effectiveness of operations.
3. Improved forest management.
4. Improve relationships between Industry, Governments and Indigenous Peoples.
5. Improved market advantages.
6. Improved ability to meet compliance with environmental regulations.
7. Improved public image.

The EMS applies to most forest management activities and to all Forest Service employees, commercial permit holders, research institutions and contractors carrying out regulated forest management activities within the Province. Activities would include; commercial timber harvesting, forest access road construction and maintenance, loading and transportation of wood, Silviculture, and Insects and Disease.

The application of the EMS will ensure that all activities implemented in the district are following the same set of guidelines to ensure protection of the environment. It also ensures that reporting and monitoring will be conducted by the same set of guidelines across the entire province and done on a regular basis. Overall the EMS will ensure

further compliance of the cultural, ecological and economic objectives identified in this plan.

The ISO 14001 EMS required a lengthy information gathering and review period. It also required a third party external audit for assessment and registration along with internal annual audits. Audits consist of documentation review, site visits and communications with employees. The third party external auditor will make a final decision on performance. Audits will be conducted by an outside agency every three years to ensure ISO 14001 compliance. Crown forests in the Province are under the ISO 14001 EMS during this planning period (2022-2026).

9.0 PROPOSED ACTIVITIES

In general, commercial and domestic harvesting activities will take place during this planning period at the level of 7,800 m³/year. Commercial activities will be scheduled to occur in seven identified operating blocks. A majority of the domestic harvesting will take place near the communities. There are no areas identified for silvicultural treatments during this planning period, mainly due to the absence of available area. Silvicultural activities will focus on monitoring and research with the intent to produce a long term silviculture strategy for the district. A summary of the proposed activities scheduled for this operating period (2022-2026) is detailed in map 1.

9.1 Harvesting

All timber harvesting operations are subject to the environmental protection guidelines, which were developed from scientific literature, local stakeholders and input from various Federal or Provincial departments. Furthermore, all harvesting is also subject to permitting, permit conditions, requirements outlined in this document or the Provincial strategy document.

9.1.1 Commercial

Commercial harvesting permits are issued for the time period of January 1 – December 31 on an annual basis. These permits are issued from the district office and subject to review prior to approval.

Seven commercial blocks have been outlined in which all commercial harvesting will occur (Maps 4-10). Further refinements to the operating blocks to account for site specific features will be made in the annual work schedule prior to the beginning of each operating period. Additional net downs of -20% has been applied to the anticipated volume from each operating block to account for stand level features that require protection (Table 9.1).

Table 9.1 Proposed commercial harvest activity 2022-2026.

Operating Area					Volume Proposed		
Number	Name	Tenure	Area (ha)	Number of Permits	Softwood		
					Core (gross -20%)	Const.	Sub-Total
CC-22-001	Labrador City 1	Crown	113		7,860		7,860
CC-22-002	Labrador City 2	Crown	67		5,597		5,597
CC-22-003	Labrador City 3	Crown	64		4,660		4,660
CC-22-004	Labrador City 4	Crown	54		4,800		4,800
CC-22-005	Labrador City 5	Crown	51		4,253		4,253
CC-22-006	Labrador City 6	Crown	111		6,376		6,376
CC-22-207	Ranger Lake	Crown	466		27,960		27,960
Total			926		61,506		61,506

9.1.2 Domestic

Thirteen areas have been identified and mapped for domestic harvesting in District 22 (Maps 12-24). Domestic harvesting will continue under Provincial domestic permit for firewood, sawlogs and building materials. Domestic harvest blocks Poisson River, Baikie Lake & Lobstick will be temporarily closed for harvesting from the period of May 15 – September 30 due to the known caribou range of the Red Wine and Lac Joseph herds. It is expected that the numbers will remain the same during the life of this plan. Permits are available from the Forestry Services Branch office in Wabush.

A maximum volume of 22m³ can be issued on each permit and each permit is valid from January 1 – December 31 each year, unless otherwise stated. The Forest Service will work with domestic harvesters to gather further information on harvesting volumes and locations. Further information will be gathered during permit returns, spot checks and random surveys. Each permit is subject to conditions (Appendix II). Small volumes of wood are expected to be harvested outside of the identified domestic areas by cabin owners. Anticipated permit numbers (Table 9.2) are based on previous five year average.

Table 9.2 Proposed domestic harvest activity 2022-2026.

Operating Area				Estimated Number of Permits/year		Estimated Volume/year	
Number	Name	Tenure	Total Area (ha)	Commercial	Domestic	Soft wood	Hard wood
CC-22-501	A - O'Connells	Crown	17,924	0	2	44	0
CC-22-502	B - Carol Lake	Crown	64,681	0	7	154	0
CC-22-503	C - Duley Lake	Crown	39,544	0	64	1408	0
CC-22-504	D - Blueberry Hill	Crown	21,875	0	42	924	0
CC-22-505	E - Moose Head	Crown	16,546	0	73	1606	0
CC-22-506	F- Mount Albert	Crown	1,123,115	0	7	154	0
CC-22-507	G - Shabogamo	Crown	77,878	0	69	1518	0
CC-22-508	H- Demile	Crown	16,488	0	13	286	0
CC-22-509	I - Ashuanipi	Crown	21,061	0	5	110	0
CC-22-510	J - Wading River	Crown	480,344	0	7	154	0
CC-22-511	K - Poisson River	Crown	1,057,214	0	4	88	0
CC-22-512	L - Baikie Lake	Crown	588,319	0	20	440	0
CC-22-513	M - Lobstick	Crown	2,682,699	0	9	198	0
Total			6,207,688	0	322	7084	0

9.2 Silviculture

Silviculture refers to the theory and practice of controlling the establishment, composition, growth and quality of forest stands to achieve the objectives of management (Smith, Larson, Kelty and Ashton, 1997). Two of the most common techniques in the province are planting and pre-commercial thinning.

In the past, forest stands in District 22 have been subject to large scale disturbances such as fire. The occurrence of major fires in the district has had a strong influence on existing distribution of vegetation types including lichen woodlands and birch stands. Foster (1983) reported a strong correlation between fire distribution over the past 110 years and the location of lichen woodlands and birch stands.

Regeneration surveys completed in the district have indicated that the majority of the harvested areas adequately regenerate within a five year period and this can be easily seen on recent cutovers in the District. Although no regeneration surveys have been conducted in burn areas, observations have indicated that some of these areas have not been regenerating as fast. Many factors may have contributed to this slower regeneration time such as pre-disturbance site characteristics, seed sources, repetitive burns or fire temperatures. Harvested areas will be monitored and detailed regeneration surveys will be conducted in areas where regeneration appears to be inadequate three to five years after the disturbance.

Stands harvested in the past five years or those scheduled for harvest in this plan or burn areas not adequately regenerating will be treated as candidate areas for planting. Any stands harvested during this plan will be located within the proposed commercial blocks outlined in maps 4 to 10. Selection of the species to be planted will be highly dependent upon the pre-disturbance stand structure and will be dealt with on a site specific basis.

9.3 Forest Access

Operational roads (secondary or spur) are not identified in this five year plan. However they will be necessary to ensure that timber scheduled for harvest is fully accessed. Operators will have to construct short spur roads to access all timber in each harvesting block. Royalty reductions, as per regulations, are offered as incentive for commercial operators to construct their own access. These roads are subject to established environmental standards and are subject to approval by District staff. Operator built roads will be identified during the preparation of the annual work schedules.

Due to the relative lack of existing forest access roads, decommissioning was not considered by the stakeholders committee during this planning period. A detailed review of the access roads program will be undertaken towards the end of the planning period to establish whether or not decommissioning will be required during the next planning horizon. Individual operators will be expected to rehabilitate extraction trails to a standard acceptable to district guidelines.

Road construction activity will be carried out as per Departmental specifications and the Environmental Protection Guidelines, which are provided in appendix III. Under section 48 of the *Water Resources Act*, certificates of approval will be obtained from the Water Resources Management Division for any culvert or bridge crossing. In addition, approval under section 5(1) of the *Navigable Waters Act* (NWPA) will also be obtained for any water crossing prior to the commencement of any work. Where ever possible, bottomless culverts will be used on all fish bearing streams (1.0 m or greater). The Department will continue to work with the Department of Environment and Conservation and the Department of Fisheries and Oceans to ensure unimpeded fish passage in all stream crossings involved in this and other operating plans.

Table 9.3 Proposed Road construction for 2022-2026.

Operating Area		Construction/ Reconstruction	Length (km)	Water Crossings	
Name	Number			Culverts	Bridges
Huguette Lake		New Construction	6.2	1	0
Walsh River		New Construction	2.9	2	0
Total		New Construction	9.1	3	0

9.4 Forest Protection

9.4.1 Fire

Fire is the most predominant disturbance type in Labrador and although fire activity has been limited, there have been several fires in District 22. Although it is preferred to let fires burn naturally, fires that pose a threat to human life, property and resources will be suppressed. Fire suppression priority zones within Labrador are outlined in map 25. In the event of a fire where fire suppression activities will occur the district office in Wabush has staff and equipment to provide initial suppression activities. Seasonal fire protection staff stationed in Wabush from mid May to September, complemented by three permanent staff (along with 1 permanent staff in Churchill Falls) that are available for fire suppression when needed. After regular hours the Forest Service maintains one district duty officer and one regional duty officer for receiving fire reports and dispatching staff and equipment. The Forest Management Center located in North West River, assists in coordinating air support (tanker & helicopter) and provides additional staff and equipment within the region as required.

9.4.2 Insect and Disease

Although insect and disease outbreaks are common in the rest of the Province, they were very un-common in Labrador, until 2008. Since then, Labrador has increased its insect management priorities as a result of significant outbreaks of hemlock looper and spruce budworm. Several pockets of balsam fir / black spruce forests on the South coast were affected by the hemlock looper and further treated in recent years. In addition to this, recent outbreaks of spruce budworm in neighbouring District 19 have been recorded and are substantial enough to warrant treatment. Although there haven't been any substantial outbreaks reported in Western Labrador, it is likely that some may occur in during the life of this plan. It is unclear what management activities will be required; however any proposed program will be treated as a separate undertaking and may be subject to further public review.

9.4.3 Wind Throw

In the event that the district experiences an excessive amount of windthrow, salvage areas will be considered and identified for both commercial and domestic harvesting. If required, amendments to the plan will be made to cover this activity.

9.4.4 Surveys

Proposed harvesting areas will be surveyed for sensitive habitats such as the presence of raptor nesting sites, critical spawning areas and presence of aquatic furbearers. Detailed harvest sensitivity surveys (slope, ground water conditions, soil texture, etc.) may also be conducted to identify areas with high compaction and soil erosion hazard potential. Results of pre-harvest surveys will be used in the final determination of the harvest block layouts.

Regeneration surveys will be conducted on areas that have been harvested in order to determine the quantity and quality of natural regeneration as per the regeneration assessment procedures for Newfoundland and Labrador. Areas will normally be surveyed three to five years post harvesting to allow sufficient time for seedlings to establish.

Problems with improper utilization will be addressed through regular monitoring and enforcement by district Conservation Officers. Formal surveys, defined by the Newfoundland and Labrador Forest Service, will also be done in order to obtain base line data to resolve any disputes. A five to ten year measurement cycle is expected in District 22. In addition to obtaining growth and yield information, data pertaining to site class, coarse woody debris and the presence of small mammals and songbirds are recorded. These results will be particularly useful during future planning periods.

These surveys will be conducted as defined in the ground disturbance survey guidelines developed by the Newfoundland and Labrador Forest Service. They will be conducted during and following harvest activities to ensure compliance with the site disturbance and erosion sections of the environmental protection guidelines.

9.5 Activities in Protected Public Water Supply Areas

There will be no commercial or domestic harvesting scheduled or permitted in either of the protected water supply areas. Furthermore, these protected areas will be identified on domestic maps supplied to harvesters and identified and enforced as no cutting areas.

9.6 Information and Education

The Forest Service will continue to make efforts to educate the public and operators on ecosystem management initiatives. This outreach will likely result in a better understanding of why key management decisions are made in the context of the goals and objectives of forest management. To accomplish this staff will aim to:

1. Deliver presentations to school and youth groups on forest ecosystem management topics.
2. Maintain contact and good working relationships with town councils, resource groups, development associations and other Government Departments.
3. Conduct operator workshops on various management issues including utilization, ground disturbance and road construction as required.
4. Continue to participate in National forestry and wildlife weeks.

9.7 Other

Issues concerning the protection of aquatic and terrestrial habitats, biodiversity and ecosystem health are addressed in this section. Furthermore, strategies are based on the environmental protection guidelines attached.

Mature forests provide important habitat for a variety of plant and animal species. Examples range from various lichens to economically important fur bearers. Large contiguous forest areas have been excluded from the current wood supply analysis. Approximately 97% of the district was not considered during the AAC calculation. At the landscape level, entire watersheds or significant portions of watersheds have not been considered for harvesting in this plan. These areas can provide important bench marks for scientific study and long term monitoring of ecosystem health.

Furthermore, a large contiguous tract of land composed of a mosaic of string bog complexes, older forested areas with terrestrial lichens, lakes and waterways, will not be scheduled for commercial forest activities during this plan and will provide critical habitat for the recovery of the threatened Lac Joseph caribou herd. The recovery strategy for three woodland caribou herds (*Rangifer tarandus caribou*: Boreal population) in Labrador provides further details on the recovery efforts for this herd (Schmelzer, I. et al. 2004).

At the stand level, interim harvesting guidelines will provide for un-harvested areas and connectivity. These corridors will ensure that wildlife species have the ability to move freely across the landscape. Where possible these corridors will incorporate riparian areas and follow natural topography. Details of corridors will be outlined in the annual work schedules.

Riparian buffers are important in the protection of aquatic ecosystems and the maintenances of water quality and quantity in general. They provide shade, act as filters against excessive sedimentation and stabilize soils when properly planned.

Buffers also serve as important travel corridors and habitat for wildlife. Current guidelines require the following buffers to be applied:

- Minimum requirement for 30m forested buffer around all waterbodies identified on latest 1:50,000 topographic maps and on all waterbodies that are 1.0m in width or greater.
- Additional buffer width to be applied where it can be determined that critical fish or wildlife habitat may be affected.
- Minimum requirement for 100m forest buffer around all major rivers with additional area of modified harvest when required.
- Where slope is >30%, a no harvest forested buffer of (20m or 100m) + (1.5 x slope %) will be applied.
- Waterfowl staging areas will require a 30m buffer
- Harvesting of hardwoods within 30m of a water body occupied by a beaver will not be permitted.

Course woody debris, including standing snags and downed wood material, are also important to a variety of plant and animals species. In recognition of its value, whole tree logging will not be permitted under this plan. Logging systems that promote leaving limbs and tops on the harvesting site will be favoured. Guidelines also require that a minimum of 10 snags per hectare remain after an area has been logged. When appropriate, efforts will be made to retain green trees in harvested areas. Clusters of trees will be preferred over single trees. Where ever possible snags should be maintained in association with green tree retention. Efforts will be made to follow patterns of natural disturbances, such as irregular and feathered edges.

A 50m buffer will be maintained on any black bear denning sites that are found within the proposed operating areas. In the event that an active raptor nest is identified in the annual plans, guidelines require an 800m buffer be maintained during the nesting season (March 15 to July 31). These dates may vary in Labrador due to weather conditions. Once the young have left the nest, a 200m buffer is required. Pre-harvest surveys will be conducted to identify these areas.

10.0 PLAN ADMINISTRATION

10.1 Monitoring

At minimum the public will be updated on forest activities bi-annually. The main focus of the updates will be to report on activities and evaluate the overall progress towards the long term goals outlined in this document and the *Provincial Sustainable Forest Management Strategy 2014* and make suggestions where necessary. The Forest Service will prepare an annual work schedule for each operating year.

Annual work schedules will be prepared for each year outlined in this plan. They will provide further details on each activity and may be subject to further public review by the planning team and public.

An adaptive management approach will be applied to planned forest activities in the district. This will allow for the continual improvement of activities set out in the plan.

All stakeholders acknowledge the information gap which exists and the low availability of base line data. This data is identified as being key to making sound management decisions in the district. With the absence of such benchmark data, it is important that an effort be made in the district to gather more information to ensure the continual improvement of management policies and practices. In consultation with the forest research divisions and subject to funding, this plan will attempt to close some of the research gaps in the area. Some of the broad scale research topics that could be targeted in this operating period are:

1. Growth and yield data for current strata
2. Update and acquisition of new inventory areas
3. Modification of harvest patterns
4. Impacts of timber harvesting (ecological, social and economic)

Site specific data is also important and necessary to evaluate past actions and provide information on which to base future management decisions. Numerous surveys are scheduled for this upcoming planning period subject to staff availability and funding.

10.1.1 Operational Level

All forest activities will be monitored by Forest Service Conservation Officers and Forestry staff. Activities will be monitored to ensure compliance with applicable legislation, guidelines and the objectives and goals of management. This includes monitoring for such things as: compliance with allocations, observance of no cutting buffer zones, proper road construction or utilization to name a few.

10.2 Amendments

Further refinement of the commercial harvest blocks outlined in this plan will be detailed through the development of an annual work schedule by January 01 each year.

Any amendments to the operating plan will be processed through the Forest Ecosystem Management Divisions in Corner Brook and where appropriate, will be registered as undertakings with the Environmental Assessment (EA) Division. Amendments that require EA registration will be subject to environment assessment and further public

input. Any amendments that do not require EA registration will be approved by the District Manager in consultation with the Forest Ecosystem Management Division.

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APPENDIX I - Legal Description – Forest Management District 22

Wabush

All that piece or parcel of land situate and being in Western Labrador in the Electoral Districts of Labrador West, Lake Melville and Torngat Mountains abutted and bounded as follows:

Beginning at a point in the southern portion of the Quebec - Newfoundland and Labrador border, latitude 52° 52' 55" longitude 63° 36' 30", also being the headwaters of the Romaine River and western boundary of Management District 19B;

Then following Management District 19B western boundary in a northerly direction to where the Naskaupi River flows into Caribou Lake;

Then on a true north bearing of 6° to a point, latitude 54° 36' 35" longitude 62° 12', where the Shipiskan River meets the Kanairiktok River;

Then following southside of the Kanairiktok River in a south, west and northwesterly direction where it meets Wilbrow Lake ;

Then along the southwest shore of Wilbrow Lake, and Kenney Lake to where Kenney Lake meets the Quebec - Newfoundland and Labrador boundary, latitude 54° 48' 30" longitude 65° 52' 30";

Then following the Quebec - Newfoundland and Labrador boundary in a southwesterly, southeasterly and northern direction to the place of commencement.

APPENDIX II - D22 Domestic Cutting Permit Conditions

1. All timber cut must be identified by permit number and removed from the cutting area while harvesting is in progress. The number must be legible and on the butt end of every wood pile regardless of size or location.
2. Logging debris, (tops, limbs sawdust) is not to be deposited in/on any pond, brook, roadway or ditch.
3. The permittee shall utilize all portions of all trees harvested to a top diameter of 8 centimeters and stump heights shall not exceed 15 centimeters.
4. All harvesting must occur only in areas indicated on your permit. Also a permittee must have a valid permit, map, and conditions in his/her possession when cutting or hauling timbers. This includes burned and dry wood.
5. A helper can cut or transport timber, but must be accompanied by the permit holder (exceptions made only under special conditions, with prior approval from Forestry Officials). Wood is to be delivered to permit holders principal residence.
6. Timber suitable for saw logs CANNOT be utilized as firewood. It must be used as a saw log or left standing (a saw log is 8 feet or more in length, and 5 inches in the top).
7. During Forest Fire Season (May to September), this permit is invalid unless accompanied by an Operating Permit (Issued at the Forestry Office with no charge to the Permittee).
8. All waste material (garbage) associated with this activity shall be removed and disposed of at an approved waste disposal site.
9. Permittee shall not cut or in any way damage immature or silviculturally treated areas.
10. Unless otherwise indicated or approved by the District Office there shall be:
 - a. No cutting within 100 meters of a schedule river;
 - b. No cutting, piling or storage of timber within 30 meters of any streams, brooks or other body of water;
 - c. No cutting within 30 meters of forest access roads;
 - d. No cutting within 30 meters of designated groomed snowmobile trails;
 - e. No cutting on islands;
 - f. No cutting with 100 meters from the Center of the TLH.
11. All red stain MUST be fully utilized as firewood. All rot must be fully utilized up to one half the diameter of the bolt.

12. No Cutting within Domestic Harvest Blocks I, K, L and M during caribou calving and post-calving periods (May 15-September 15 annually).

These conditions are a summary only. For further information or copies of complete Regulations and Acts, please contact the Forestry Service Branch, Wabush 282-6881.



Government of Newfoundland and Labrador
Department of Fisheries, Forestry and Agriculture

Environmental Protection Guidelines
for Forestry Operations in Newfoundland and Labrador

Date effective: January 01, 2021

Forestry and Wildlife Branch
Forest Ecosystem Management Division

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Forestry and Wildlife Branch
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• FORWARD

The 2021 Environmental Protection Guidelines for Forestry Operations in Newfoundland and Labrador is an updated version of original guidelines developed in 1998. It has been developed through a consultative process with Forest Managers, Planners, Industry and other stakeholders throughout the province. These guidelines are intended to be stand level, on-the-ground procedures to be used by Forest Managers and operators to ensure sustainable use of the forest resource without degrading the environment. More specifically, the guidelines are designed to prevent and control degradation of soil, water, and vegetation in an effort to maintain healthy forest ecosystems.

The guidelines set out sound and practical measures and based the best available scientific information. To ensure the incorporation of new research findings and technologies, the guidelines will be reviewed periodically and adjusted to reflect new policies and procedures.

To facilitate use, the guidelines are structured by forestry activity and include sections on:

- harvesting;
- road construction;
- silviculture;
- forest protection;
- operations within protected water supply areas; and
- operations to reduce incidental take of migratory birds

Compliance with these guidelines will be monitored by Departmental staff.

The Environmental Protection Guidelines will complement the *Newfoundland and Labrador Forest Service Planning Guidelines*. Broader, landscape level issues are addressed in the Provincial Sustainable Forest Management Strategy.

The Department of Fisheries, Forestry and Agriculture (FFA) will continue to use science as a basis for refining and implementing sustainable forest policies and practices in the province. In particular, the development of the Environmental Protection Guidelines will continue to be an evolving process within which FFA will incorporate the best available information about forest ecosystems and sustainable forest management concepts in a timely fashion through adaptive management and other innovative, scientific based approaches.

1. HARVESTING GUIDELINES

1.1. PLANNING OPERATIONS

1.1.1. PERMITS REQUIRED

1. When temporary water crossings are required to facilitate travel of harvesting equipment, the location and type of all water crossings must be submitted to the Department of Environment, Climate Change and Municipalities (ECCM). A permit is required from Water Resources Management Division of ECCM, for any water identified on the latest 1:50,000 topographic maps. A Letter of Advice is required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than 2.0 metre in width, at its narrowest point from the high water mark, not found on the 1:50,000 topographic maps. The intent of these measures is to safeguard water quality and fish habitat.
2. All waste disposal sites require a valid permit under the *Environmental Protection Act*. Application for approval can be made by contacting the nearest Government Services Centre.
3. Timber harvesting is considered a development under the *Urban and Rural Planning Act*, and when this activity is proposed within a planning area boundary or within 400 meters of a protected road, a development permit is required from Service NL.

1.1.2. CONSULTATION REQUIRED

1. The Natural Areas Program of the Department of Environment, Climate Change and Municipalities will be consulted during the preparation of each District five-year operating plan. Where harvesting is proposed within one kilometer of an ecological reserve, wilderness reserve, provincial park or proposed reserve, Natural Areas will be expected to identify/discuss any concerns during the planning consultation process. New access roads will not be located within 500 metres of the boundary of an ecological reserve, wilderness reserve, provincial park or proposed reserve, without first consulting Natural Areas.
2. The Wildlife Division of FFA will be consulted on timber harvesting within woodland caribou habitat during the preparation of each District five-year operating plan.
3. Rare and listed flora will be protected through mitigation measures, in consultation with the Wildlife Division.
4. When specific forest cover is a requirement for the management of moose or other wildlife species, such areas will be identified by the Wildlife Division.

5. The impacts of forest operations on Newfoundland Marten, *Martes americana atrata* (marten) have been an ongoing issue. Proposed forestry activities within known marten recovery areas require consultation with the Wildlife Division.
6. During the preparation of five-year operating plans, areas identified as “Sensitive Wildlife Areas” require consultation with the Wildlife Division.
7. The Provincial Archaeology Office (PAO) of the Department of Tourism, Culture, Arts and Recreation will be contacted during the preparation of the five-year operating plans to determine the location of historic resources and appropriate mitigation measures.

1.1.3. PLANNING

Planning forest operations for both Industry and Crown may include, but is not limited to:

- boundaries of protected public water supplies (if applicable);
- existing and proposed access roads;
- general location of extraction trails and landing locations;
- areas sensitive to erosion;
- buffer zones around water bodies;
- location of approved stream crossings;
- location of fuel storage;
- sensitive wildlife areas as shown in the five-year operating plan; and
- sensitive fish habitat (e.g. salmonid spawning and rearing areas) identified in consultation with Department of Fisheries and Oceans (DFO).

1.1.4. NUTRIENT POOR SITES

If it is deemed necessary to harvest nutrient poor sites such as those typed as poor or scrub within the Provincial Forest Inventory, all effort will be made to ensure such sites are regenerated.

1.2. CONDUCT OF OPERATIONS

1.2.1. MINIMIZING EROSION AND DISTURBANCE

1. When extraction trails and winter roads are to be constructed, soil disturbance and impacts on water bodies are to be minimized. The operator will use culverts and/or temporary bridges, depending on site conditions, in order to minimize erosion and sedimentation, avoid restricting stream flow, and ensure fish passage in fish-bearing streams. Erosion control measures, such as the laying down brush mats and the construction of diversion ditches for water run-off, are to be maintained while an extraction trail is in use. The trail is to be left in an environmentally acceptable condition thereafter. All temporary crossings are to be removed at the end of the operating season. As well, when an extraction trail is located on steep ground and is no longer in use, cut-off ditches and push-lanes must be created.
2. No more than 6 per cent of the forested floor within the harvested land base of an operating area can be disturbed by equipment. In situations where specific operating areas require more than 6 per cent disturbance to capture available timber, the operator is required to obtain approval and then rehabilitate the area (i.e., leave the area in a condition suitable for successful forest regeneration and growth) to reduce the total net disturbance to the 6 per cent maximum. **Disturbance is defined as per the Ground Disturbance Survey Guidelines developed by the Forestry & Wildlife Branch.**
3. 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 of the Department of Environment, Climate Change and Municipalities and without contacting the DFO Area Habitat Biologist.
4. In areas prone to erosion and silting:
 - I. conduct winter logging (i.e. harvest during winter), or
 - II. place slash on extraction trails if conventional equipment is operating in an area.
5. Any forestry operation that directly or indirectly results in chronic sedimentation under normal conditions entering a waterbody must be dealt with immediately by notifying either the DFO Area Habitat Biologist or the District Manager within 24 hours.
6. Woody material of any kind (i.e. trees, slash, sawdust, slabs, etc.) is not permitted to enter a waterbody. Depositing woody material on ice within the high water floodplain of any waterbody is also prohibited.
7. To minimize potential for erosion and sedimentation, temporary waterbody crossings shall:

- I. have stable approaches;
 - II. be at right angles, wherever possible, to the waterbody;
 - III. be located where channels are well defined, unobstructed, and straight;
 - IV. be at a narrow point along the waterbody; and
 - V. allow room for direct gentle approaches wherever possible
8. Extraction trails and landings shall not be established within 30 metres of a waterbody.

1.2.2. ARCHAEOLOGICAL FIND

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

1.2.3. TIMING OF OPERATIONS

1. Harvesting is not permitted within woodland caribou calving and post-calving areas from May 15 to July 31. Calving areas will be identified by the Wildlife Division and communicated to Forestry Branch during the five year plan development.
2. Harvest scheduling may be modified during the migration of wildlife (e.g., caribou, waterfowl, etc.) and during temporary wildlife concentrations. Areas of concern and mitigation measures will be identify as part of the five year planning process.

1.2.4. LEAVING BUFFERS AND WILDLIFE TREES

1. A 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.

Streams greater than two metres in width that do not appear on the NTS maps require a 30 meter buffer and can be identified using the below criteria:

- The stream must have defined bottom;
 - banks that exceed 30 centimeters in depth;
 - meets or exceeds an average 2 meters in width measured at 40 meter intervals over a 200 meter distance along the stream.
2. Where the slope is greater than 30 per cent there shall be a no harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer requirement.

The District Manager must adjust the specified buffer requirements in the following circumstances:

- I. The no harvesting activity buffer can exceed the 30 meters for sensitive fish habitat (e.g., salmonid spawning habitat).
 - II. A 50 metre, no harvesting activity buffer will be maintained around known black bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.
 - III. No forestry activity is to occur within 800 metres of an active bald eagle nest or osprey nest during the nesting season (March 15 to July 31) and 200 metres during the remainder of the year. For other raptor species like hawks, falcons, and owls, no forestry activity is to occur within 160 metres of a known nest at any time of the year. The location of any raptor nest site must be reported to the Wildlife Division. Travel on established access roads **outside** a 200m of an active nest is a permitted activity, including forwarding of harvested timber, with the requirement that if roads/ trails are in use for two weeks or longer between March and July, the nest must be monitored and a summary of breeding success and travelling activities with appropriate mapping be emailed to WD at the end of trail usage or end of July, whatever comes first.
 - IV. All hardwoods within 30 metres of an active beaver lodge are to be left standing.
 - V. A minimum 50 metre, no-cut buffer will be maintained from the high water mark in Sensitive Wildlife Areas for waterfowl including breeding, moulting and staging areas. These sites will be identified by the Canadian Wildlife Service (CWS) or the Wildlife Division.
3. A minimum average of 10 snags (i.e., standing dead trees) or other suitable living trees per hectare shall be left individually or as small clumps on sites identified as habitat for wildlife (i.e., nesting and perching sites for birds, den sites for particular wildlife species, etc.). Preference should be given to the largest trees (i.e., standing dead trees or live hardwoods). Research has shown that larger diameter snags are more valuable (last longer and contribute more to the biomass pool) than smaller diameter snags. Consequently, the trees retained should be ones which are from the dominant or co-dominant portion of the stand and be left in a fairly evenly distributed manner.

1.2.5. PETROLEUM PRODUCTS

1. In the event of a spill and/or leak of petroleum products, the owner or operator must make every effort to first; contain and second; clean up the spill. Spills in excess of 70 liters and **all leaks**, must be reported by calling the following spill report line:

Environmental Emergencies Spill Report
Line Canadian Coast Guard
(709) 772-2083 collect or 1 (800) 563-9089

In this province, spills and leaks must be remediated in accordance with the Guidance Document for the Management of Impacted Sites prepared by Pollution Prevention Division of ECCM. (Appendix I)

2. No heavy equipment or machinery is to be refueled, serviced, or washed within 30 metres of a waterbody. Gasoline or lubricant depots must be placed at least 100 metres from the nearest waterbody. All fuel-storage tanks must be registered with Service NL and installed in accordance with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* as amended, under the *Environmental Protection Act*.
3. Used oil storage, handling and disposal is to comply with the *Used Oil Control Regulations, NLR, 82/02* under the *Environmental Protection Act*.
4. Above ground fuel storage tanks shall be registered with Service NL and have appropriate approvals for tank design. Construction and installation standards are clearly listed in section 27 of the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* as amended, under the *Environmental Protection Act*.
5. Contaminated soil or snow must be disposed of at an approved treatment facility.

1.2.6. CLEAN UP OF SITE

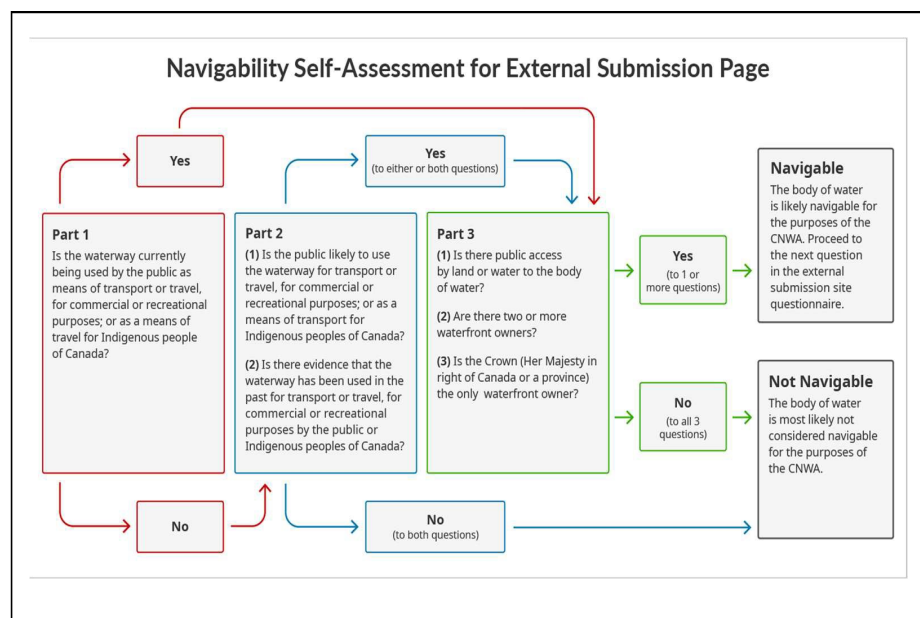
Waste material is to be disposed of at an approved waste disposal site with the prior permission of the owner or operator. Prior to disposal it must be contained in a manner not to attract wildlife. All equipment and waste materials are to be removed from the operating area when operations are completed.

2. FOREST ACCESS ROAD GUIDELINES

2.1. PLANNING OF ROADS

2.1.1. PERMITS REQUIRED

1. Any alteration 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 ECCM. For alteration of a waterbody, a permit is required under Section 48 of the *Water Resources Act*, SNL 2002 cW-4.01. For any development in a protected public water supply area a permit is required under Section 39(6) of the *Water Resources Act*, SNL 2002 cW-4.01. Alteration of a waterbody may include culvert installations, temporary or permanent stream crossings, outfalls, infilling; and bridge, dam, and wharf construction. A Letter of Advice is also required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than two metre in width not found on the 1:50,000 topographic map (using stream criteria as indicated in 1.2.4.1).
2. In addition to approvals from Water Resources Management Division and DFO, 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. This includes both inland and coastal waters). Transport Canada's Navigability Self-Assessment Tree must be utilized for each project to determine if a stream is Navigable or Not Navigable.



3. Resource road construction or any forestry activity is considered a development under the *Urban and Rural Planning Act*. Where this activity occurs within a planning area boundary or within 400 metres of a protected road, a development permit is required from Service NL before any activity takes place.

2.1.2. AREAS TO AVOID

Forest access roads, borrow pits, and quarries, whenever possible shall avoid:

- I. deltas, floodplains or fluvial wetlands;
- II. terrain with high potential for erosion;
- III. known sensitive wildlife areas such as:
 - a. caribou areas (i.e. calving, post calving, migrations routes, rutting areas, and winter areas);
 - b. waterfowl areas (i.e. nesting and staging areas);
 - c. raptor nest sites; and
 - d. species at risk habitat, rare flora or fauna habitat, and other unique habitats as determined by qualified authorities.
- IV. known sensitive fish habitat areas such as spawning and rearing grounds;
- V. historically significant areas such as archaeological sites;
- VI. existing reserves such as parks (municipal, provincial, national), wilderness areas, ecological reserves and wildlife reserves; and
- VII. riparian buffer areas.

2.1.3. WATERBODY CROSSINGS

Waterbody crossings shall:

- I. have stable approaches;
- II. be at right angles, wherever possible, to the waterbody;
- III. be located where channels are well defined, unobstructed, and straight;
- IV. be at a narrow point along the waterbody; and
- V. allow room for direct gentle approaches wherever possible.

2.1.4. BURROW PITS AND QUARRIES

With respect to borrow pits and quarries, the operator shall wherever possible, avoid:

- I. minimize the number of new borrow areas opened for construction and/or maintenance;
- II. use existing borrow pits whenever practical;
- III. be in possession of a valid quarry permit from the Mineral Lands Division of Department of Natural Resources and FFA, for borrow pits outside resources roads right of way, prior to aggregate extraction activities as per the *Quarry Materials Act*, and

- IV. not locate borrow pits and quarries in sensitive areas as identified by planning processes.

2.1.5. WILDLIFE VALUES

1. Wherever possible, forest access roads shall not obstruct wildlife movement. The following guidelines should be followed:
 - a. roads should be of low profile (i.e. less than one metre above the surrounding terrain);
 - b. slash and other debris shall be removed or buried; and
 - c. the slope of ditches and road banks shall be minimized.
2. Where road construction is to occur around identified waterfowl breeding, moulting and staging areas, mitigating measures will be identified during the 5 year planning process.

2.1.6. ROAD ACCESS

1. Areas proposed for harvest using winter roads shall not be harvested without a reforestation plan approved in the Certificate of Managed Lands.
2. A regeneration survey is required for all forest areas that will be affected by access due to road decommissioning and bridge or stream crossing removals. Prior to decommissioning, an approved reforestation plan by the Silviculture and Research Section of the Forest Ecosystem Management Division is required for all areas that fail to meet the provincial silviculture stocking standards.

2.1.7. DECOMMISSIONING ROADS

On a site specific basis, roads may be decommissioned. Levels of decommissioning include:

- I. barring access;
- II. removal of watercourse crossings; and
- III. restoration of roadway including planting of trees.

Decommissioning is identified through the five year plan development or under compelling circumstances, as decided by FFA (e.g. emergency closures).

2.2. CONSTRUCTION AND DECOMMISSIONING OF ROADS

2.2.1. ROAD CONSTRUCTION

1. There shall be no bulldozing or burying of merchantable timber or poor utilization of merchantable softwoods and hardwoods during the cutting of road right-of-way's. All merchantable timber shall be utilized and processed.

2. Where brush mat or corduroy is required, sub-merchantable or non-merchantable stems should be used first. In the event these are not available or sufficient, permission must be obtained from a Forestry Official prior to merchantable stems being utilized. Stems are to be placed in a “butt to top” alternating fashion for the entire length of the area to be brush matted.
3. Earth shall be excavated as required to complete earth cuts, ditching, and sub-excavation, and shall include hauling, handling and disposal as directed. Only with the approval of the Engineer or Inspector may excavation occur outside the limits of the roadway for the purpose of obtaining suitable or sufficient material to complete embankments. All holes and pits are to be rehabilitated.
4. Fill materials for road building must not be obtained from any waterbody, from within the floodplain of any waterbody, or within the 30 metres of a no-grub zone.

2.2.2. PITS AND QUARRY ACTIVITY

1. Where borrow pit or quarry activity is likely to cause sediment, laden runoff to contaminate a waterbody, sediment control measures such as filter fabric berms or sedimentation ponds are to be installed. Contact is to be made with a Forestry Official prior to construction where such conditions exist.
2. Overburden or grubbed material pushed off any gravel pit site must be retained in a manner that allows it to be pushed back into the pit after construction and spread in a neat and tidy fashion.
3. Existing pits are to be used, where possible, to minimize the opening of new pits.
4. Borrow pits are to be located at least 50 metres from the nearest waterbody.

2.2.3. WORKING NEAR WATERBODIES AND INSTREAM WORK

1. A “no-grub zone” of 30 metres of undisturbed ground vegetation must be maintained around any waterbody crossing to minimize the damage to the lower vegetation and organic cover, thus reducing erosion potential.
2. Trees are to be felled away from all waterbodies. Slash and debris should be piled above the high water mark so that it cannot enter waterbodies during periods of peak flow.
3. Right-of-way widths at waterbody crossings should be kept to a minimum, preferably to the width of the driving surface plus water control features.
4. Unnecessary side casting or backfilling in the vicinity of waterbodies is not permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent

to a waterbody, road slope stabilization is to be undertaken at the toe of the fill (an area where active erosion is likely). The placement of large riprap, armour stone or slope stabilization material is recommended in such areas.

5. Take-off ditching should be used on both sides of the road or in conjunction with culverts to divert the ditch flow off into the woods or stable vegetation areas before reaching the waterbody. The ditch itself shall not lead directly into the waterbody.
6. Grades in excess of 10 per cent shall have culverts with baffle or ditch blocks on one end and cut-off ditches every 150 meters along the road. Baffle or ditch block can be constructed from gabion baskets, wooden structures, rock walls or other approved materials. Unless otherwise specified, the height of the baffle shall be a minimum of one-half the diameter of the culvert requiring the baffle.
7. When working near waterbodies, road building operations causing erosion or siltation are to be suspended during periods of intense rainfall or when soils are saturated.
8. Any forestry operation that directly or indirectly results in sediment or turbid water entering a waterbody must be dealt with immediately. (See Guideline 1.2.2.5 for further information.)
9. Fording of equipment for stream crossing installation is to be kept to a minimum. Equipment activity in water crossing areas is to be kept to a minimum. All work is to be carried out from dry stable areas. Permission for exceptions must be obtained from DFO.
10. Heavy equipment and machinery is not permitted in any waterbody, on a wetland or a bog, unless it is frozen, without a permit from ECCM and without contacting the DFO Area Habitat Biologist.
11. Exposed mineral soil shall be stabilized during bridge construction and culvert installation.
12. All instream work is to be performed as per the DFO March 1998 "Guidelines for Protection of Freshwater Fish Habitat in NL." Marine Environment and Habitat Management Division Science Branch.
13. Cofferdams are to be used to separate work areas from the stream when installing bridges or similar structures requiring abutments, or footings.
14. Water pumped from work areas and cofferdams is to be directed into a settling pond or stable vegetation areas.

15. Not more than one third of the stream width is to be blocked at any one time.
16. The stream banks are to be rehabilitated upon completion and removal of a coffer dam.
17. All culverts, in fish bearing streams, are to be installed as per the DFO March 1998 "Guidelines for Protection of Freshwater Fish Habitat in NL." Marine Environment and Habitat Management Division Science Branch.
18. In fish bearing streams;
 - a. culverts having a diameter equal to or exceeding 2000 millimetres should be countersunk a minimum of 15 per cent of the diameter below the streambed elevation;
 - b. a minimum water depth of 200 millimetres should be provided throughout the culvert length. To maintain this water depth at low flow periods an entrance or downstream pool should be constructed; and
 - c. downstream outlet pools are of particular importance for long culverts or culverts to be installed on steep slopes.
19. Work to be completed in the stream bed, should be scheduled to avoid potential adverse impacts on spawning activities, egg incubation, spawning habitat and fish migration. It should also be done in consultation with the DFO Area Habitat Biologist.

2.2.4. ARCHAEOLOGICAL FIND

When an archaeological site or artifact is found, the condition in Guideline 1.2.2 will apply.

2.2.5. PETROLEUM PRODUCTS

In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in road construction and decommissioning operations.

2.2.6. WINTER ROADS

As with all season roads, soil disturbance and impacts on waterbodies are to be minimized with winter roads. Culverts or temporary bridges are to be used. Erosion control measures are to be maintained while the winter road is in use. After use, it is to be left in an environmentally acceptable condition. All temporary crossings are to be removed at the end of the operating season and an inspection is to be conducted by a Forestry Official, engineer or other qualified person. This inspection is to ensure any required remediation has been completed.

2.2.7. DECOMMISSIONING ROADS

1. When roads are decommissioned or barred by gating or ditching or placement of obstacles, appropriate signage warning of any hazardous condition shall be placed in open view.
2. When decommissioning is through removal of watercourse crossings, areas adjacent to former culverts or bridge locations shall be stabilized to reduce potential for erosion. Appropriate signage shall also be placed.
3. When decommissioning roads by replacing soil, overburden and other natural obstacles on former roadway, so as to deny vehicular access and to enable planting in order to restore productive forest on the site, standard precautions such as silt fencing shall be used to prevent entry of silt in waterways.
4. Decommissioning shall not be undertaken until all necessary reforestation activities beyond the decommissioning point has taken place.

3. SILVICULTURAL GUIDELINES

3.1. SILVICULTURE PLANNING

3.1.1. PERMITS REQUIRED

Silviculture is considered a development under the *Urban and Rural Planning Act*. Where this activity occurs within a planning area boundary or within 400 metres of a protected road, a development permit is required before any activity can occur.

3.2. CONDUCT OF SILVICULTURE OPERATIONS

3.2.1. PREVENTING EROSION

To prevent erosion on sites proposed for row scarification, every effort should be made to follow the contours where slopes exceed 15 per cent. If in such instances scarification has to occur parallel to the slope, the scarified trenches are to be intermittent (i.e. for every 20 metres of trench, an un-scarified section two metres m in length should be left).

3.2.2. PROTECTION OF WATERBODIES

1. Unless frozen, heavy equipment and machinery is not permitted in any waterbody, on wetland or a bog without a permit from ECCM and without contacting the DFO Area Habitat Biologist.

2. Any forestry operation that directly or indirectly results in sediment and/or turbid water entering a waterbody must be dealt with immediately. See Guideline 1.2.1.5 for further information.
3. Trees thinned during pre-commercial thinning, diameter limit thinning, commercial thinning or any other silviculture treatment shall not be felled into waterbodies.

3.2.3. PLACEMENT OF WINDROWS

When slash is piled into windrows, it should be located where the slash cannot be washed into streams at peak flooding conditions.

3.2.4. TREES LEFT FOR WILDLIFE AND OTHER VALUES

1. There is to be no cutting of Eastern White Pine, *Pinus strobus* or Red Pine *Pinus resinosa*.
2. Hardwood species, such as birch, are to be left when encountered in a stand scheduled for thinning where these do not compete with the conifer crop trees. Portions of thinning areas which are pure hardwood may be left unthinned when encountered. In mixed regeneration, various hardwood or softwood species may be favoured in future stand development in accordance with management objectives stated in the approved operating plan for the area.

3.2.5. TIMING OF SILVICULTURE

Where possible, silviculture operations are to be reduced or avoided in areas identified by the Wildlife Division during the periods of birth and hatching.

3.2.6. ARCHAEOLOGICAL FIND

When an archaeological site or artifact is found, the condition in Guideline 1.2.3 will apply.

3.2.7. FUELS AND PETROLEUM PRODUCTS

1. In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details.
2. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in silviculture operations.

3.2.8. SCARIFICATION METHOD

Where mechanical site preparation is required, the method selected shall be best suited for preparing the area for planting and for minimizing ground disturbance.

3.2.9. CHOICE OF SPECIES TO PLANT

In planting situations, the use of native species is preferred. However, in certain situations, use of non-invasive, exotic species, such as those which have been established in the province for decades, or those which may come under future review, may be planted.

4. FOREST PROTECTION GUIDELINES

4.1. PLANNING FOR THE APPLICATION OF PESTICIDES (INSECTICIDES AND HERBICIDES)

4.1.1. REGULATION OF PESTICIDES

The use of pesticides is regulated federally by Health Canada and provincially by MAE. The federal *Pest Control Products Act* states which products are registered for use in Canada, and the provincial *Environmental Protection Act, Pesticide Control Regulations* outlines licensing requirements and the conditions under which they can be purchased, sold or handed.

4.1.2. LICENCES REQUIRED

1. To apply pesticides in the province, two licences are required from the Pollution Prevention Division of ECCM. The first is a Pesticides Operators Licence which is issued for a specific program and valid for five years. To obtain this licence, the applicant must submit project details including a map of the area to be treated, product to be used, and time of the year to be used. Following the completion of the project, a report must be submitted to MAE. The second licence required is a Pesticide Applicators Licence. To obtain this licence, the applicator must complete an exam. Only people in possession of this licence may use the pesticide. It is valid for a period of five years.
2. To apply herbicides, the same conditions apply as above. An Operator's Licence must be obtained for the project and is valid for five years. In addition, each member of the crew involved with application of the herbicide must complete an exam and obtain a Pesticide Applicators Licence.
3. A third program which requires an Operator's Licence and a Pesticide Applicators Licence is the tree nursery program which may use pesticides to grow seedlings. Again the same conditions apply.

4.2. CONDUCT OF OPERATIONS

4.2.1. PESTICIDE USE

Only bio-degradable pesticides will be used and only as part of an integrated pest management strategy.

5. GUIDELINES FOR FORESTRY OPERATIONS WITHIN PROTECTED PUBLIC WATER SUPPLY AREAS

The primary function of a Protected Public Water Supply Area (PPWSA) is to provide the public with an adequate quantity of safe and good quality water on a permanent basis and to meet its present and future demands. By definition, a Protected Public Water Supply Area is the area of land and water designated as a Protected Public Water Supply Area, for a municipal authority operating a waterworks or using or intending to use a water sources, under Section 39 of the *Water Resources Act*. Any other activity within a Protected Public Water Supply Area is considered secondary, and if permitted, must be strictly regulated and monitored to ensure that the water supply integrity is not threatened and the quality of the water is not impaired.

In Newfoundland and Labrador forestry operations are permitted in most Protected Public Water Supply Areas on a limited and controlled basis provided the proposed operations have no or minimal, water quality impairment potential. More specifically, commercial forest harvesting of more than 10 per cent of the total land area of the Protected Public Water Supply Area, or 10 per cent of the total merchantable timber; whichever is less, in any 12 month period will not be permitted.

The following permits and approvals are required prior to the beginning of any forestry operations, whether commercial or domestic operations, and includes road construction, silviculture activities, and harvesting within a Protected Public Water Supply Area:

- I. Approval of the Five-year operating plan by the Environmental Assessment Division of MAE,
- II. Issuance of a permit under section 39(6) of the *Water Resources Act* which will include consultation with the community involved. Applications for development inside Protected Public Water Supply Area can be obtained from the Water Resources Management Division website (Appendix I).

5.1. CONDUCT OF OPERATIONS

All permits and contracts should include any conditions outlined under section 39(6) of the *Water Resources Act*. In addition to environmental guidelines specified in sections above, the following will apply in Protected Public Water Supply Areas.

5.1.1. MAP OF OPERATING AREA

The appropriate Forestry or Company official will provide the operator with a map indicating the harvesting area and the location of no-cut buffer zones, and will ensure the operator is familiar with the boundaries and conditions of the approved detailed plan of operations.

5.1.2. PREVENTION OF EROSION

In areas sensitive to erosion, depending on the nature and location of the proposed forestry operation, the Water Resources Management Division may not permit the activity to take place. However, where permitted, the following mitigation measures should be put in place:

1. Sensitive areas prone to erosion and areas which have high potential for erosion can be harvested if proper harvesting and site restoration techniques are a part of a detailed plan.
2. Wherever possible, extraction trails should run along contours and avoid wetlands.
3. Use of landings will be minimized. Any approved landing area shall be less than 0.25 ha and located at least 150 metres from Protected Public Water Supply intake ponds.

5.1.3. BUFFER ZONES

No ground disturbance riparian buffer zone requirements in Protected Public Water Supply Areas are as follows:

Water Body	Width of Buffer
Intake Pond, Lake or Reservoir	Minimum 150 metres
River Intake (for a distance of 1000 metres upstream and 100 meters downstream)	Minimum 150 metres
Main River Channel	Minimum of 75 metres
Major Tributaries, Lakes or Ponds	Minimum of 50 metres
Other Waterbodies	Minimum of 30 metres

Any deviation will require approval from Water Resources Management Division.

5.1.4. PETROLEUM PRODUCTS

Fuel storage and the operation of fuel storage equipment are regulated by the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* as amended and the *Heating Oil Storage Tank System Regulations, 2003* as amended.

In addition to the above regulatory requirements and Sections 1.2.5.1 to 1.2.5.5 the following are to be adhered to;

- I. If fuel must be stored in the Public Protected Water Supply Area, it must be in the least sensitive area and be approved by the Water Resources Management Division.
- II. Refueling must not take place within 150 metres of an intake pond.
- III. All tanks must be located at a minimum distance of 500 metres from any major waterbody.
- IV. A fuel or oil spill clean-up kit must be kept on site to facilitate any clean-up in the event of a spill. This kit must include absorbent pads, loose absorbent materials such as dried peat, speedy-dry or sawdust, a container such as an empty drum for recovering the fuel or oil, and a containment boom.

5.1.5. STRUCTURES PROHIBITED IN WATER SUPPLY AREA

1. Dormitory camps, garages or any other structures are prohibited within a Protected Public Water Supply Area.

2. The establishment of new sawmills is not permitted in Protected Public Water Supply Areas.

5.1.6. REPORTING WATER QUALITY PROBLEMS

Any water quality impairment problem should be reported immediately to the Water Resources Management Division.

6. GUIDELINES FOR FORESTRY OPERATIONS TO REDUCE INCIDENTAL TAKE OF MIGRATORY BIRDS

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

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

Beneficial Management Practices (BMP) are designed to reduce risk of incidental take by making forest operators aware of their responsibility in the following areas:

- I. Knowledge of Legal Obligations
- II. Risk Assessment and Planning
- III. Preventative and Mitigation Measures

BMPs in this document apply to commercial forest operations during the migratory bird breeding season in Newfoundland and Labrador. Operations include the construction and maintenance of forest access roads, timber removal and transportation activities, silviculture related activities and forest harvesting.

6.1. KNOWLEDGE OF LEGAL OBLIGATIONS

During planning, and immediately before implementation of operations, forest operators must familiarize themselves with the current legislation for the protection of migratory birds, their nests and their eggs. Section 6 subject to subsection 5(9) of the *Migratory Bird Regulations* and Section 75 of the *Wild Life Regulations* outline the responsibilities of operators concerning this.

Forest operators are also responsible for the protection or avoidance of species listed under the *Species at Risk Act (SARA)* or the *Endangered Species Act (ESA)*.

6.2. RISK ASSESSMENT AND PLANNING

Planning ahead can help you comply with the law and minimize the risk of detrimental effects to migratory birds. Assessing the risks of effects is the first step for developing appropriate prevention and mitigation measures that help maintain sustainable populations of migratory birds.

In order to help ensure that you are complying with legal obligations, you should first determine the likelihood of the presence of migratory birds and their nests or eggs when planning activities to be carried out. It is recommend to use scientifically sound approach that considers the available bird habitats, the migratory bird species likely to be encountered in such habitats, and the time period of encounters. You should plan to avoid engaging in potentially destructive or disruptive activities at key locations or during key periods, such as the breeding season.

6.3. PREVENTATIVE AND MITIGATION MEASURES

Planning To prevent incidental take of migratory birds during forestry operations it is recommended to schedule activities to reduce disturbance during the migratory bird breeding season. The breeding season for most migratory birds within the province occurs between April 15th and August 15th, though some species do nest outside of this time period.

Shutting down logging operations for this period would have huge economic and social implications including:

- I. Mills may not be able to hold inventory for 4 months.
- II. Keeping the workforce in forestry.
- III. Cannot avoid planting or thinning during the nesting season as it is our legal obligation for reforestation.
- IV. Summertime harvest is sometimes recommended to maintain other values.
- V. Some areas can only be accessed and logged during the summer months.

In cases where forestry activities have to take place during the breeding season of migratory birds it is recommended that practices are conducted in a manner that:

- I. Minimizes fragmentation and maintains interior forest habitat.
- II. Maintains forest structure in seral stages including understory vegetation, standing residual materials, and downed coarse woody debris.

- III. Uses methods that promote natural regeneration in order to maintain forest structure, including understory vegetation.
 - IV. Ensures no net loss of wetland function in forests.
- V. Ensures that large snags are left standing in cutblocks, as a source of nesting cavities.
 - VI. Maintains hardwood stands within the cutblock.
- VII. Maintains contiguous areas of uncut forests as control areas and reserves.

APPENDIX I

• RESOURCE MATERIAL

Development Applications in Protected Public Water Supply Areas

[h](#)

[http://www.env.gov.nl.ca/env/waterres/regulations/appform](http://www.env.gov.nl.ca/env/waterres/regulations/appforms/index.html)

[s/index.html](#) Guidelines for Protection of Freshwater Fish

Habitat in Newfoundland and Labrador [http://www.dfo-](http://www.dfo-mpo.gc.ca/Library/240270.pdf)

[mpo.gc.ca/Library/240270.pdf](http://www.dfo-mpo.gc.ca/Library/240270.pdf)

Guidance Document for the Management of Impacted Sites

[h](#)

[http://www.env.gov.nl.ca/env/env_protection/ics/Guidance_Document_For_the](http://www.env.gov.nl.ca/env/env_protection/ics/Guidance_Document_For_the_Management_of_Impacted_Sites_V2.0_Feb_6_2014.pdf)

[_Management_of_Impacted_Sites_V2.0_Feb_6_2014.pdf](#)

• FEDERAL LEGISLATION

Canada Fisheries Act

<http://laws->

[lois.justice.gc.ca/eng/acts/F-](http://laws-)

[14/index.html](http://laws-)

Canada Navigable Waters

Protection Act

[h](#)

<http://laws.justice.g>

[c.ca/eng/acts/N-](http://laws.justice.g)

[22/](http://laws.justice.g)

Canada Species at

Risk Act

<http://laws-lois.justice.gc.ca/eng/acts/s-15.3/>

• PROVINCIAL LEGISLATION

Newfoundland and Labrador Endangered Species Act

h

<http://www.assembly.nl.ca/Legislation/sr/statutes/e10-1.htm> Newfoundland

and Labrador Environmental

Protection Act

h

<http://www.assembly.nl.ca/legislation/sr/statutes/e14-2.htm> Newfoundland and

Labrador Forestry Act

h

<http://www.assembly.nl.ca/legislation/sr/statutes/f23.htm>

Newfoundland and Labrador

Historical Resources Act

h

<http://www.assembly.nl.ca/legislation/sr/statutes/h04.htm>

Newfoundland and Labrador Quarry

Material Act, 1998

<http://www.assembly.nl.ca/legislation/sr/statutes/q01-1.htm>

Newfoundland and Labrador Urban and

Rural Planning Act, 2000 h

<http://assembly.nl.ca/Legislation/sr/statutes/u08.htm> Newfoundland and Labrador

Wildlife Act

<http://www.assembly.nl.ca/Legislation/sr/statutes/w08.htm>

