

# **FOREST MANAGEMENT PLAN FIVE YEAR OPERATING PLAN**

## **FOREST MANAGEMENT DISTRICT 22 (CHURCHILL FALLS to WABUSH)**



**OPERATING PERIOD  
JANUARY 01, 2012 – DECEMBER 31, 2016**



**DEPARTMENT OF NATURAL RESOURCES**

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## 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 Manager 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 two public consultation processes since the late 1990's with neither of them yielding a forest management plan for the District. Again in 2011, Forest Management District 22 (District 22) began forest ecosystem planning for the third 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 Department of Natural Resources is the proponent for this forest management plan although all participants of the planning team sessions and those that provided input are acknowledged for their time and effort put into the lengthy process within the District.

The operating plan outlines specific areas and details for the various management activities that are scheduled to occur between January 1, 2012 and December 31, 2016. 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 Department of Natural Resources Strategic Plan 2003 (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. It 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 process while meeting the values of concerned stakeholders by practicing sustainable ecosystem management. District 22 promotes the Provincial Sustainable Forest Management Strategy and specifically has a vision to:

***“to create an ecosystem-based operating plan for District 22 that will maintain a sustainable balance of environmental, economic, and cultural values described by society”***

This vision will be achieved by acting upon a mission statement. Adopted from the Provincial Sustainable Forest Management Strategy 2003, the team's mission statement is:

***“to manage, conserve, enhance, and use the forest ecosystems of District 22 while using adaptive management to ensure its sustainability and productivity with the appropriate balance of values desired by society”***

To direct the operating plan towards the mission statement the planning team adopted the same guiding principles as the Newfoundland Forest Service towards Sustainable Forest Management (SFM)

- *Forest ecosystems are managed to maintain their ecological integrity, productive capacity, resiliency, and biodiversity.*
- *Management practices are to respect all forest land use and forest values*
- *Partnerships will be fostered with interested groups to provide meaningful participation in SFM*
- *Economic benefits for the forest resources will be maximized.*

- *Adaptive management principles are to be applied in the management of forest ecosystems.*
- *Conservation and compliance that ensures the protection of wildlife and forest ecosystems.*

## **DISTRICT DESCRIPTION – DISTRICT 22**

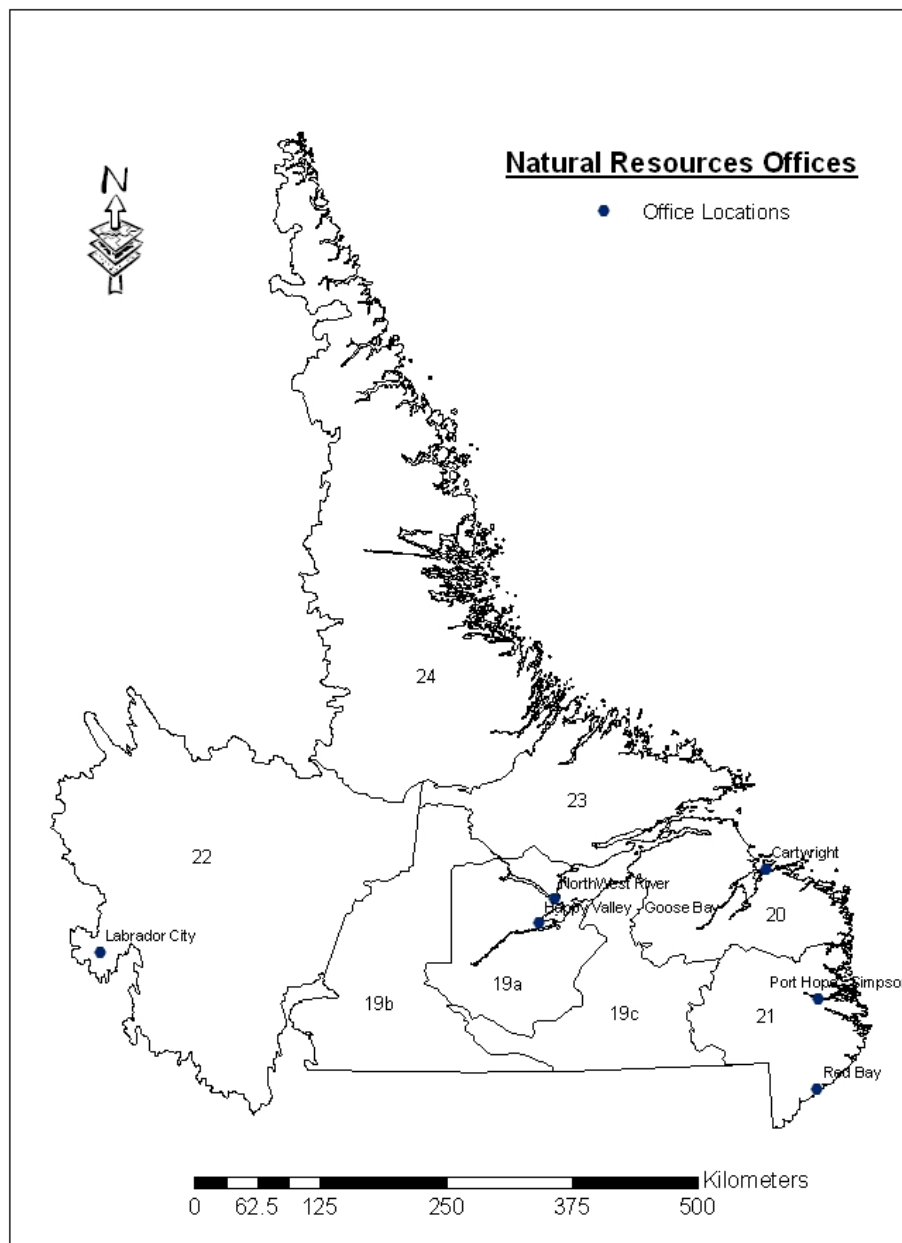
### **Geographic Setting and Location**

Under legislation, the Province is divided into twenty-four Forest Management Districts. 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 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 one district office located in Wabush. This office is managed out of the District office located in North West River. 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.

### **Social Character and Condition**

Labrador in general is consists of a diverse blend of cultures consisting of established aboriginal groups, non-aboriginal 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.





**Figure 1:** Forest Management District 22 boundaries

## Classification Systems and Available Inventories

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. Table 1 highlights the results of this inventory.

**Table 1:** Vegetation Cover Types of District 22

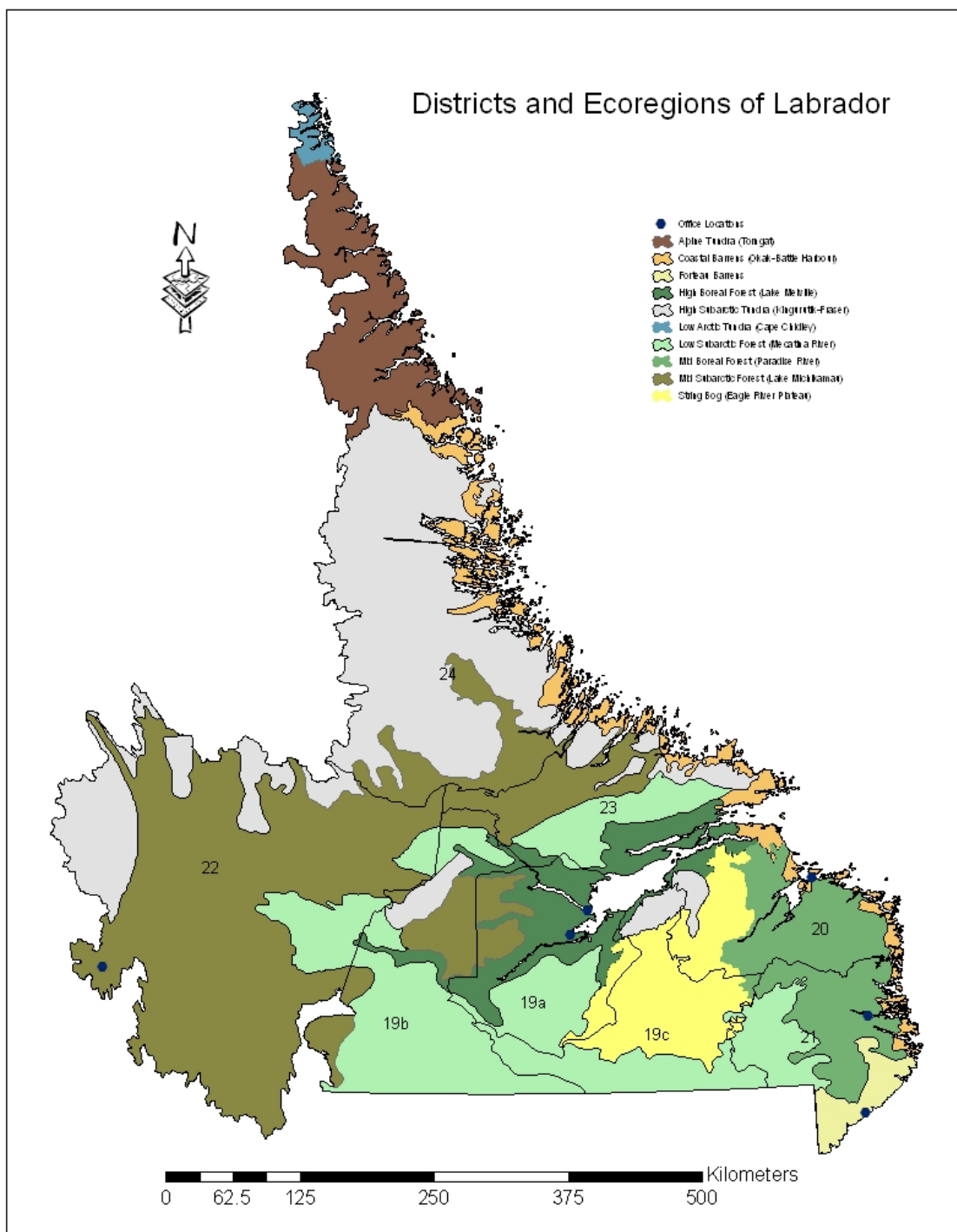
Vegetation Cover Type	Percentage of Type
Burn	4.93%
Hardwood Scrub	0.08%
Heavily Stocked Spruce/Fir Commercial Forest	0.67%

Lichen Woodland	18.83%
Moderately Stocked Spruce/Fir Commercial Forest	3.96%
Non-Commercial Black Spruce Forest	40.16%
Non-Forest Landuse	0.36%
Tundra and Rock Barren	9.49%
Water	21.51%
<b>Total</b>	<b>100%</b>

Only a very small portion of the District has been inventoried in a forest cover type inventory by the Department of Natural Resources (DNR) (~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 DNR.

### **Ecological Landscape – The Forest Ecosystem**

Ecoregions have been mapped for Newfoundland and Labrador based on distinctive regional climates as expressed primarily by vegetation. Figure 2 shows the extent of these ecoregions in Labrador as well as the Forest Management District boundaries. There are three ecoregions represented in District 22 which are described below.



**Figure 2:** Ecoregions of Labrador.

### 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.

## **Land Uses**

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 km<sup>2</sup> ([www.statscan.ca](http://www.statscan.ca)). Secondary to the creation of the Smallwood reservoir are open pit mining operations in Labrador City and Wabush. These mega resource projects still dominate the economic and ecological impacts of the district. 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, 2006), 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 suspected decline in herd numbers. With the completion of the Trans-Labrador Highway from the Quebec boarder near Labrador City to the Quebec border near L'Anse au Claire, the potential for tourist activity is expected to rise.

Three 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.

### **Ecological Character & Condition**

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 about 80% of the total volume, while other boreal species make up the remainder 20%.

Forest terrain conditions vary within the district, from rolling plains interspersed with numerous lakes, organic bogs and occasional hills leads to a predominance of black spruce usually open grown with a moss or lichen understory. Generally, the area has moderate drainage with adequate soil depth. Meades 1990 describes in detail the dominant ecological features, forest floor conditions and typical associated wildlife within the three 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. The climate is essentially continental with a cool short summer and a very long cold winter with precipitation averaging less than 1000mm annually. 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.

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 large infestations have occurred in neighbouring districts (District 19a,b,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.

### **Ecological Protected Areas**

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).

**Table 2:** Ecological protected area levels.

<b>Level</b>	<b>Map Scale</b>	<b>Plan Terms</b>	<b>Sources</b>	<b>Examples</b>
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.

### **Biodiversity**

Biodiversity is described in the Canadian Biodiversity Strategy (1995) 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).

Globally, biodiversity is addressed at many levels. Governments first addressed this issue at the United Nations Conference on the Environment and Development at Rio de Janeiro in 1992. At this conference a convention on biological diversity was signed by many countries, including Canada. As a follow-up to this convention, Federal, Provincial and Territorial Ministers have united to form the Canadian Biodiversity Strategy. The Canadian Biodiversity Strategy (1995) has five fundamental goals which are:

1. conserve biodiversity and use biological resources in a sustainable manner;
2. improve our understanding of ecosystems and increase our resource management capability;
3. promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner;
4. maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources; and
5. work with other countries to conserve biodiversity, use biological resources in a sustainable manner and share equitably the benefits that arise from the utilization of genetic resources.

Nationally, the Canadian Council of Forest Ministers (CCFM) has produced several National Forest Strategies in response to changing environmental conditions and the changing management direction of Canada's forests. The most recent document "A Vision for Canada's Forests: 2008 and Beyond". These documents have outlined National goals along with identifying criteria and indicators of sustainable forest management in Canada.

## **Ecosystem 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 deduct 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 as:

### ***Ecoregion 3: High Subarctic Tundra – Kingurutik/Fraser***

- Tundra with alpine heath on upland plateaus and forested valleys.
- Shallow fens with frozen peat on plateaus.
- Birch-willow thickets occupy upper scree slopes, spruce dominated forests in mid to lower slopes and lichen woodlands dominate outwash terraces.

### Land Mammals

#### *Tundra Habitat:*

Caribou, Arctic fox, Ungava lemming, Polar bear, Red fox, Bog lemming, Arctic hare.

*Forest and Shrub Habitats – Valley Slopes:*

Lynx, Woodchuck, Snowshoe hare, Pygmy shrew, Red fox, Mink, Heather vole, Musked shrew, Porcupine, Red squirrel, Red backed vole.

*Wet Land Habitats:*

Meadow vole, Meadow jumping mouse

*Ubiquitous Habitats:*

Black bear, Ermine, Wolf, Lease weasel

*Aquatic Habitats:*

Beaver, Muskrat, River otter

Amphibians

None observed

Characteristic Birds:*Barren or Tundra Habitats:*

Peregrine falcon, Rough-legged hawk, Rock ptarmigan, Snow bunting, Gyrfalcon, Snowy owl, Lapland longspur.

*Forest Habitats:*

Merlin, Northern flicker, Blackpoll warbler, Three-toed woodpecker, Swainson's thrush.

*Shrubby or Thicket Habitats:*

Willow ptarmigans, Tree sparrow, Northern shrike.

*Wetland Habitats:*

Short-eared owl, Lincoln's sparrow, Rusty blackbird.

*Aquatic Habitats:*

Harelquin duck, Least sandpiper, Red-necked phalarope, Solitary sandpiper, Spotted sandpiper.

***Ecoregion 5: Mid Subarctic Forest – Michikanau***

- Open lichen woodlands developed by frequent fires
- Sphagnum – black spruce forest with ribbed fens covering extensive areas.

Land Mammals*Tundra Habitat:*

Caribou, Arctic fox.

*Forest and Shrub Habitats – Valley Slopes:*

Caribou, Porcupine, Mink, Snowshoe hare, Star-nose mole, Little brown bat, Moose, Woodchuck, Red squirrel, Heather vole, Pygmy shrew, Woodland jumping mouse, Lynx, Marten, Flying squirrel, Red-backed vole, Masked shrew.

*Wet Land Habitats:*

Meadow vole, Bog lemming, Meadow jumping mouse

*Ubiquitous Habitats:*

Black bear, Ermine, Wolf, Lease weasel, Red fox

*Aquatic Habitats:*

Beaver, Muskrat, River otter, Water shrew.

Amphibians

American toad, Wood frog, Blue-spotted salamander, Two-lined salamander.

Characteristic Birds:

*Barren Habitats:*

Water pipit.

*Forest Habitats:*

Bald eagle, Red-tailed hawk, Spruce grouse, Northern hawk-owl, Northern flicker, Tree swallow, Hermit thrush, Dark-eyed junco, Osprey, Merlin, Great horned owl, Three-toed woodpecker, Black-backed woodpecker, Swainson's thrush, Blackpoll warbler.

*Shrubby or Thicket Habitats:*

Tree sparrow, White-throated sparrow.

*Wetland Habitats:*

Short-eared owl, Lincoln's sparrow, Rusty blackbird, common snipe, Greater yellow legs.

*Aquatic Habitats:*

Canada goose, Common merganser, Least sandpiper, Solitary sandpiper, Spotted sandpiper, Green-winged teal, Belted kingfisher.

***Ecoregion 8: Low Subarctic Forest – Mecatina River***

- Open black spruce forests with balsam fir occurring on moist slopes with sphagnum – black spruce forests occupying low wet areas.
- Lichen woodlands confined to sandy terraces and other dry sites.
- Extensive areas of ridded fens and string bogs.

#### Land Mammals

##### *Tundra Habitat:*

Caribou, Arctic fox, Bog lemming.

##### *Forest and Shrub Habitats – Valley Slopes:*

Caribou, Porcupine, Mink, Snowshoe hare, Rock vole, Masked shrew, Moose, Woodchuck, Red squirrel, Red-backed vole, Star-nosed mole, Woodland jumping mouse, Lynx, Marten, Flying squirrel, Heather vole, Pygmy Shrew.

##### *Wet Land Habitats:*

Meadow vole, Meadow jumping mouse

##### *Ubiquitous Habitats:*

Black bear, Ermine, Wolf, Lease weasel, Red fox

##### *Aquatic Habitats:*

Beaver, Muskrat, River otter, Water shrew.

#### Amphibians

None observed.

#### Characteristic Birds:

##### *Forest Habitats:*

Great horned owl, Northern hawk-owl, Ruffed grouse, Tree swallow, Dark-eyed junco, Boreal owl, Spruce grouse, Northern flicker, Swainson's thrush.

##### *Shrubby or Thicket Habitats:*

Alder Flycatcher, White-throated sparrow.

##### *Wetland Habitats:*

Lincoln's sparrow, Rusty blackbird, common snipe, Greater yellow legs.

##### *Aquatic Habitats:*

Least sandpiper, Spotted sandpiper, Green-winged teal, Belted kingfisher.

## **Riparian Areas**

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.

## **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). These species are listed in further detail in table 3.

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 II), 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.

## **DISTRICT VALUES**

### **Aesthetics**

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 m<sup>3</sup>/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.

### **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 affect on hunting or trapping activities in the district.

***Actions:***

1. *Implementation of Environmental Protection Guidelines during all planned activities.*
2. *Maintain regular contact with the Wildlife Division of the Department of Environment and Conservation 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.*

**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, there are eleven species that have been identified as at risk by the Provincial Department of Environment and Conservation (Table 3).

**Table 3:** Labrador species at risk ([www.env.gov.nl.ca/env/wildlife\\_at\\_risk.htm](http://www.env.gov.nl.ca/env/wildlife_at_risk.htm))

<b>Species</b>	<b>Status (date)</b>	<b>Habitat and Traditional Knowledge</b>
1. Barrows Golden-eye	Vulnerable (2000)	<i>Nests in Quebec and only a small portion of the population are thought to actually molt in</i>

<i>(Bucephala islandica)</i>		Labrador
2. Eskimo Curlew <i>(Numenius borealis)</i>	Endangered (2002)	<i>A small upland shore bird that utilizes coastal habitats. It was traditionally hunted in the coast for meat.</i>
3. Fernald's Milk Vetch	Vulnerable (2002)	<i>Known to occur only in southern Labrador, the species grows more strictly in calcium-rich soils where vegetation is sparse or has been removed by natural disturbance and a calcareous substrate is available.</i>
4. Harlequin Duck	Vulnerable (2002)	<i>Spend most of the year in coastal marine environments, but they move inland each spring to breed along fast moving rivers. During the winter they occur along headlands where the surf breaks against rocks and ice build up is minimal. They feed close to rock shorelines.</i>
5. Ivory Gull <i>(Pagophila eburnean)</i>	Vulnerable (2002)	<i>Nests in the arctic and winters off the Atlantic coast. Does not seem to be any concern in this region.</i>
6. Peregrine Falcon <i>(Falco peregrinus anatum)</i>	Threatened (2002)	<i>Nests are usually scrapes made on steep cliffs, usually near wetlands. The home range in which they hunt for food can extend as far as 27 km from their nest. They prefer open habitat types such as Tundra, seacoasts and high mountains, but may hunt over open forests.</i>
7. Polar Bear <i>(Ursus maritimus)</i>	Vulnerable (2008)	<i>Habitat consists of land fast ice and coastal pack ice. Appropriate denning and spring feeding areas are crucial components of habitat. Their movements are influenced by climate and ice conditions and by the presence of prey, especially ringed seals.</i>
8. Short-Eared Owl	Vulnerable (2002)	<i>Nests mostly along coastal areas, but have been sighted inland. It nests in high grass or on the edge of a forest of bog area.</i>
9. Tundra Peregrine Falcon	Threatened (2002)	<i>Found throughout the Northern Tundra and in Labrador its thought that they nest as far south as the tree line.</i>
10. Wolverine <i>(Gulo gulo)</i>	Endangered (2003)	<i>The eastern population is thought to range throughout northern Québec and most of Labrador. They frequently inhabit a variety of forest and tundra habitats, especially where there are large herds of ungulates such as caribou. There have been no confirmed records in Labrador since the 1950s, although there continue to be occasional unconfirmed sightings.</i>

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11. Woodland Caribou ( <i>Rangifer tarandus caribou</i> )	Threatened (2002)	<i>The threatened status applies to three populations of Labrador caribou, including the Lac Joseph Herd. The Lac Joseph Herd is found in the Lac Joseph area of western Labrador. They prefer mature forests which contain large quantities of lichen and are associated with marches, bogs, lakes and rivers. There is a recovery strategy in place for the boreal population in Labrador (Schmelzer et al. 2004).</i>
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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.*

**Public Input**

The Department of Natural Resources – Forestry and Agrifoods Agency (DNR-FAA) recognizes the importance of public consultation and input into the planning process. To successfully manage today’s forest ecosystem it is imperative that managers obtain input from the forest users and try to incorporate their collective values into management planning and decisions. Groups and individuals bring their perspective values to the process and help identify issues and contribute valuable information.

The previous work conducted on a forest management plan for the district entailed a comprehensive consultation process, which involved workshops and public meetings to determine the long term values of the District. Since the majority of the values were identified and discussed during the previous processes, it became apparent after speaking

with people from the area in the current process that the same values were still important and stakeholders suggested they be carried over to this plan.

In addition to the information and values gathered and discussed during the previous public process, five public meetings were scheduled within the district (Labrador City) starting in March 2011. Meetings were advertised in various combinations of various ways. There was an initial advertisement that was printed in the local newspaper and further meetings were advertised on the local radio station, on the local cable advertisement channel, notices were posted in the lobby of the DNR office in Wabush and notices were passed out with all permits and/or information that was issued. Furthermore, in consultation with the communications branch, a public advisory was issued which included the date, time and location of the next meeting, this advisory was posted on the Government website under news releases. In addition, for those who turned out for the meetings and provided contact information, e-mails were sent with additional information and meeting date and times. Meetings were held on a regular basis at the following dates and locations:

1. March 16, 2011 – Labrador City, NL
2. April 20, 2011 (Meeting was re-scheduled due to no turnout) – Labrador City, NL
3. May 10, 2011 – Labrador City, NL
4. May 31, 2011 – Labrador City, NL
5. June 23, 2011 (no turn out) – Labrador City, NL

Although overall participation was low by the community members, the residents who did participate did contribute meaningful scientific and local knowledge to the process which was key in the development of this plan. Minutes for all the planning sessions were distributed and copies can be requested through the Wabush District office (709-282-6881).

The public participation process was and will be open to all interested groups and individual stakeholders within and outside of the district. Participants of the planning process are acknowledged for their time and effort.

### **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.*

### **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.*

**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 II).

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.*

### **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.*

## **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.*

## **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 the snowmobiles, boats or even float planes and helicopters. Although the potential remains high for expansion and further development in this case are, 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.*

### **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 a 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.

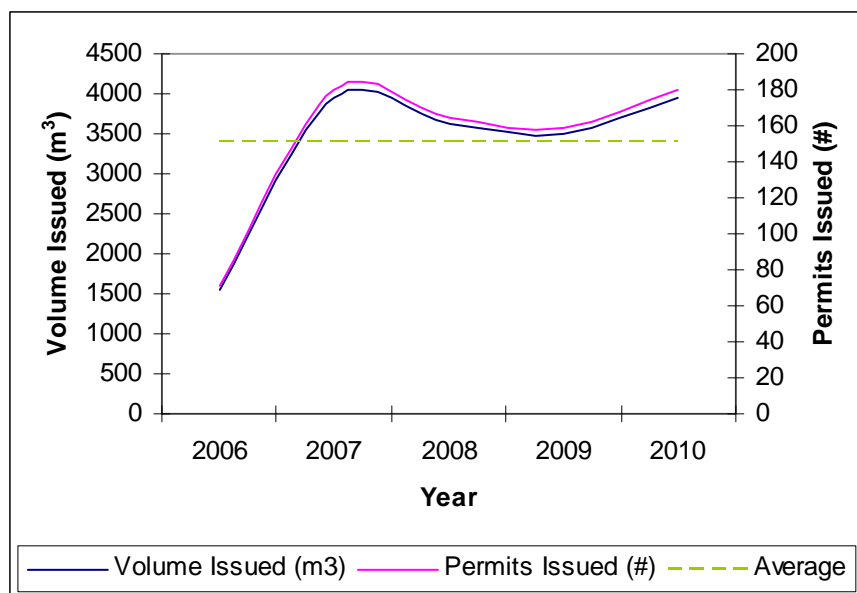
In addition, District 22 has one park reserve, Duley Lake Provincial Park, which is approximately 7 km<sup>2</sup> in size and located ten kilometres south of Labrador City. The main purpose of this park is to protect the open lichen woodland ecosystems which are characteristic of the mid subarctic forest 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.

## PAST ACTIVITIES

Annual commercial harvesting permit numbers and allocations have been increasing over the last five years; however actual commercial harvest levels have been declining (Table 4). The majority of the commercial harvesting is happening as a result of clearing land for mine expansion projects. Domestic harvesting seems to be a more significant activity in the area and seems to be holding at a more consistent level just above the five year average. The five year average for the number of permits and volume issued per year are 151 and 3,322 m<sup>3</sup> respectively (Figure 3).

**Table 4:** Summary of timber allocated to commercial operators in District 22 from 2006-2010.

<b>Year</b>	<b>Permit Type</b>	<b>Permits Issued</b>	<b>Volume Allocated (m<sup>3</sup>)</b>	<b>Volume Harvested (m<sup>3</sup>)</b>
2006	Commercial	17	7,252	1,306
2007	Commercial	30	8,228	1,023
2008	Commercial	27	9,200	68
2009	Commercial	23	10,242	903
2010	Commercial	23	10,990	N/A
<b>Total</b>		<b>120</b>	<b>45,912</b>	<b>3,300</b>



**Figure 3:** Summary of timber allocated to domestic operators in District 22 from 2006 to 2010.

There has been relatively little activity to report on other activities such as road construction, silviculture treatments and fire suppression in the district (Table 5).

**Table 5:** Summary of road construction, silviculturally treated and fire suppression areas which occurred in district 22 from 2006-2010.

Year	Road Constructed (km)	Silviculture Treated Areas (ha)	Area Burned (ha)
2010-2011	0	0	1
2009-2010	0	0	10,660
2008-2009	0	0	201
2007-2008	0	0	1,131
2006-2007	0	0	2
Total	0	0	11,995

In summary:

- Domestic harvesting has been the most significant harvesting activity in the district.
- Commercial activity is proceeding with very low harvest levels.
- Other forest related activities such as road construction and silviculture treatments have been non existent in the district.
- Forest fires have occurred and areas have been burned at low to modest levels.

## WOOD SUPPLY ANALYSIS

### Annual Allowable Cut 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

<b>Landbase</b>	<b>Area (ha)</b>	<b>Softwood Volume (m<sup>3</sup>)</b>
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

## Definitions and Assumptions

- Productive Forest:*** Stands that are capable of producing 35 m<sup>3</sup>/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 m<sup>3</sup>/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
<b>Rotation Age (years)</b>	95	113	132
<b>Merchantable Volume (m<sup>3</sup>/yr)</b>	218	160	101
<b>Mean Annual Increment (m<sup>3</sup>/ha)</b>	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 93m<sup>3</sup>/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:

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

## PROPOSED ACTIVITIES

### Overview

In general, commercial and domestic harvesting activities will take place during this planning period at the level of 7,778 m<sup>3</sup>/year. Commercial activities will be scheduled to occur in one identified operating block. 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. Mainly 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 (2012-2016) is detailed in map 1.

### Allocation of Wood Supply

The AAC has been calculated for District 22 to be 38,890 m<sup>3</sup>, which is 7,778 m<sup>3</sup>/year (Table 6). It is estimated that 22,390 m<sup>3</sup> will be allocated to commercial use and 16,500 m<sup>3</sup> has been estimated for domestic use.

**Table 6:** Summary of anticipated harvesting activity in each year of the planning period.

<b>Year</b>	<b>Commercial (m<sup>3</sup>)</b>	<b>Domestic (m<sup>3</sup>)</b>	<b>Total (m<sup>3</sup>)</b>
2011	4,478	3,300	7,778
2012	4,478	3,300	7,778
2013	4,478	3,300	7,778
2014	4,478	3,300	7,778
2015	4,478	3,300	7,778
<b>Total</b>	<b>22,390</b>	<b>16,500</b>	<b>38,890</b>

## **Timber Operations**

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.

## **Commercial Harvesting Operations**

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.

To maximize the use of the district allocation the following guidelines will be implemented:

1. Existing commercial permit holders will receive priority consideration for increases to allocations before new permits can be issued. Increases will be subject to evaluation by the Department and linked to local value-added processing capacity in the district.
2. Existing permit holders, who do not license or do not harvest for a period of 2 consecutive years, without reasonable justification, will not be considered for permit renewal and shall be considered new applicants. Their allocation shall be returned to the Department for re-allocation.



3. Existing permit holders, who harvest volumes below their annual allocation levels for a period of 2 consecutive years without reasonable justification, will be subject to a reduction in permit volume. Their allocation shall be returned to the Department for re-allocation.
4. Existing permit holders, who do not follow the proposals which they submitted to the Department for application for the permit or increase in allocation, will not be considered for permit renewal and shall be considered as new applicants. Their allocation shall be returned to the Department for re-allocation. Re-allocation or new allocations will be tied to establishing or expanding commercial sawmill operations in the district.

Six commercial blocks have been outlined in which all commercial harvesting will occur. The location of these blocks are mapped on 1:12,500 cover type maps and 1:50,000 topographical maps (Maps 4-5). 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 7).

**Table 7:** Summary of commercial harvest block volumes for 2012-2016.

<b>Operating Block ID</b>	<b>bF.bS Swd. Vol. gross (m<sup>3</sup>)</b>	<b>bF.bS Swd. Vol. net (m<sup>3</sup>)(-20%)</b>	<b>Gross Area (ha)</b>
1LC	9,482	7,586	75
2LC	6,267	5,014	50
3LC	6,053	4,842	49
4LC	5,139	4,111	42
5LC	4,890	3,912	42
6LC	7,846	6,277	67
<b>Total</b>	<b>39,685</b>	<b>31,742</b>	<b>325</b>

## **Domestic Harvesting Operations**

Eleven areas have been identified and mapped for domestic harvesting in District 22 (Map 7). Domestic harvesting will continue under Provincial domestic permit for

firewood, sawlogs and building materials. Domestic harvest blocks K, L & M 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. Based upon the past five years, an average 151 domestic permits were issued each year (Figure 3). It is expected that the numbers will remain the same during the life of this plan. Permits are available from the DNR office in Wabush.

A maximum volume of 22m<sup>3</sup> can be issued on each permit and each permit is valid from July 1 – June 30 each year, unless otherwise stated. The department 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 III). Small volumes of wood are expected to be harvested outside of the identified domestic areas by cabin owners.

### **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.

The silviculture program in District 22 will focus primarily on monitoring and research. However, one silvicultural prescription will be scheduled for the next five years, planting/gap planting including site preparation where required. 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 and 5. Selection of the species to be planted will be highly dependant upon the pre-disturbance stand structure and will be dealt with on a site specific basis. Subject to funding, cone collections may be initiated in western of Labrador to provide a local planting stock of

native tree species. All scheduled planting projects will be supported by the Labrador Regional Tree Nursery in Goose Bay.

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

### **Access Road Construction**

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 Department of Natural Resources. The anticipated forest access road network to access the commercial harvesting areas for this operating period is summarized in table 8 and appended in map 8. 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.

**Table 8:** Summary of proposed primary access road construction required for the period of January 1, 2012-December 31, 2017.

<b>Road Name</b>	<b>Class</b>	<b>Approx. Length (km)</b>	<b>Water Crossings (1:50,000 topo. map)</b>
Huguette Lake	C&D	6.2	1
Walsh River	C&D	2.9	2
Total		9.1	3

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 II. Under section 48 of the *Water Resources Act*, certificates of approval will be obtained from the Water Resources Management Division of the Department of Environment and Conservation 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.

### **Ecosystem Monitoring and Research**

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)

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.

District Conservation Officers will monitor harvesting, road construction and silviculture operations for compliance with various legislation, guidelines and objectives of the five year plan.

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.

### **Pre-Harvest 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**

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.

### **Utilization Surveys**

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.

## **Ground Disturbance Surveys**

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.

## **Public and Operator Education**

The Department will continue to make efforts to educate the public and operators on ecosystem management initiatives. This will likely result in a better understanding of key management decisions made by managers and their relationships with 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.

## **ENVIRONMENTAL PROTECTION**

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.

### **Habitat Protection**

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 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 box complexes, older forested areas with terrestrial lichens and lakes and waterways, will not be scheduled for commercial forest activities during this plan and will provide critical and recovery habitat for the threatened Lac Joseph caribou herd (Map 9). 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 woods 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.

### **Forest Fire Protection**

Fire is the most predominant disturbance type in Labrador and although fire activity has been limited, there have been several fires in District 22. A summary of the fire activity by decade for the past five decades is described below in table 9.

**Table 9:** Summary of fire activity by decade for District 22.

<b>Decade</b>	<b>Total Area Burnt (ha)</b>	<b>Average Fire Size (ha)</b>
1961-1970	89,842	1,833
1971-1980	38,575	1,928
1981-1990	104,057	1,825
1991-2000	178,496	2,203
2001-2010	32,506	2,167
Unclassified	217,072	2,028
<b>Total</b>	<b>660,548</b>	<b>n/a</b>

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 10. 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. Two seasonal fire protection staff stationed in Wabush from mid May to September, complemented by three permanent staff that are available for fire suppression when needed. After regular hours the Department 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.

### **Insect and Disease Control**

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.

### **Enforcement & Monitoring**

All forest activities will be monitored by Department of Natural Resources 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.

## **PLAN ADMINISTRATION**

### **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 2003* and make suggestions where necessary. The Department will prepare an annual work schedule for each operating year.

### **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 of the Department of Environment and Conservation. 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.

## REVIEW COMMENTS AND PROPOSED MITIGATIONS

Dept./Issue	Proposed Mitigation	Site Specific Mitigation (FMD 22)
1) DNR – Agrifoods Agency General comments	- No concerns, overall positive and looking for means to expand industry	No further action required
2) DNR – Mines Branch	- No response to date	
3) DE&C – water resources	<ul style="list-style-type: none"> <li>- All activities in PWS area require prior approval under the Water Resources Act</li> <li>- Recommend an environmental buffer of min. 15m along high water mark of all bodies of water showing on 1:50000 mapping</li> <li>- projects located on boundary of PWS areas must be reviewed ensure they are not within buffer zones and to ensure compliance with policy</li> </ul>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- PWS areas will be identified on domestic maps as no cutting.</li> <li>- 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.</li> </ul>
4) DE&C – Environment Pesticide use	- Must comply with Environmental Protection Act, Pesticides Control Regulations	Any proposed spray program planned for D21 will be registered as separate undertakings with the Environmental Assessment Division of the Department of Environment and Conservation for environmental assessment and further public review.
5) DE&C – sustainable development and strategic science	- No comments	

Dept./Issue	Proposed Mitigation	Site Specific Mitigation (FMD 22)
6) DE&C - Lands	<ul style="list-style-type: none"> <li>- Requesting a 120m buffer around waterbodies where cottage developments exist. Includes a 15m shoreline reservation, 90m cottage lot and a 15m road right of way.</li> <li>- Requesting individual remote cottages should have a minimum of 20m no-cut buffer around cottage.</li> <li>- no cutting on private land. Should contact the regional lands office for up-to-date titles issued and their knowledge of private land claims prior to harvesting.</li> <li>- ATV and snowmobile trails should be left undisturbed and an adequate buffer should be maintained. Recommend consultation with local ATV/Snowmobile clubs.</li> <li>- requested no harvesting in former Duley Lake Provincial Park.</li> </ul>	<ul style="list-style-type: none"> <li>- Invited Crown Lands to participate in process, no response.</li> <li>- Contacted regional lands office for locations of cottage development areas. No response to date, however I don't foresee any conflict in applying such a buffer to these areas.</li> <li>- Current environmental guidelines require a 50 meter treed buffer between existing approved cabin development areas and any forest operation. These guidelines are currently under review.</li> <li>- Not anticipating any cutting on private land.</li> <li>- 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.</li> <li>- no harvesting currently permitted in Duley Lake area, area identified on individual domestic maps.</li> </ul>

Dept./Issue	Proposed Mitigation	Site Specific Mitigation (FMD 22)
7) DE&C - wildlife	<ul style="list-style-type: none"> <li>- Rare plants occur in several domestic harvest blocks. Contact wildlife division to discuss mitigations.</li> <li>- Requesting no activity within existing stewardship unit and to contact wildlife to discuss activity within the stewardship zones.</li> <li>- Requesting no harvesting activity in domestic harvesting blocks K,L &amp; M, during the summer months due to caribou range of the Red Wine and Lac Joseph herds.</li> </ul>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- 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.</li> <li>- Domestic harvesting is very limited in blocks K, L &amp; 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.</li> </ul>
8) DE&C - Parks	<ul style="list-style-type: none"> <li>- Request to remove domestic harvesting area overlap with Lac Joseph-Atikonak NASP study area.</li> <li>- Request that all portions of proposed domestic harvest be removed from Duley Lake PP.</li> <li>- Suggests several text edits. No significant changes required.</li> </ul>	<ul style="list-style-type: none"> <li>- Under agreement, domestic harvesting will be grandfathered in within existing domestic harvest blocks in the NASP Study Areas and no new domestic harvest blocks be added. No new harvest trails will be constructed to reach domestic blocks</li> <li>- no harvesting currently permitted in Duley Lake area, area identified on individual domestic maps.</li> <li>- make appropriate text edits.</li> </ul>
9) DT&C - Tourism	<ul style="list-style-type: none"> <li>- Advise and consult with Tourism with regard to the initiation of the plan over the next four years.</li> </ul>	<ul style="list-style-type: none"> <li>- The reason DNR 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.</li> </ul>
10) DT&C – culture & recreation	<ul style="list-style-type: none"> <li>- no response to date</li> </ul>	

Dept./Issue	Proposed Mitigation	Site Specific Mitigation (FMD 22)
11) DMA – municipal support and policy	- no response to date	
12) DMA – municipal engineering and planning	- no response to date	
13) DLAA – aboriginal affairs	<ul style="list-style-type: none"> <li>- Too many domestic areas and they should be reduced to needed areas.</li> <li>- Do not foresee the need to consult Quebec Aboriginal groups on the district plans for 22. These groups may decide to send in comments as part of the EA process, but that is beyond our control.</li> </ul>	- Domestic areas which are identified have been historically used in the district. There are numerous (881 legal) cabins scattered throughout the district, domestic areas were identified to manage the cutting.
14) DLAA – Labrador affairs	- Suggests several text edits. No significant changes required.	- make appropriate text edits.

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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  $52^{\circ} 52' 55''$  longitude  $63^{\circ} 36' 30''$ , 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  $6^{\circ}$  to a point, latitude  $54^{\circ} 36' 35''$  longitude  $62^{\circ} 12'$ , 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  $54^{\circ} 48' 30''$  longitude  $65^{\circ} 52' 30''$ ;

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

## APPENDIX II

### **Environmental Protection Guidelines for Ecologically Based Forest Resource Management (Stand Level Operations)**

#### **ENVIRONMENTAL PROTECTION GUIDELINES**

"Forests are interconnected webs which focus on sustaining the whole, not the production of any one part or commodity. Trees, the most obvious part of a forest, are critical structural members of a forest framework. However, trees are only a small portion of the structure needed for a fully functioning forest." (Hammond, 1991)

This ecologically based approach to forest resource management requires that resource managers shift their focus from managing components of the ecosystem to managing the three-dimensional landscape ecosystems that produce them. Primary concern becomes the maintenance of landscapes and waterways as complete ecosystems because the only way to assure the sustained benefit of forest values, now and in the future, is to keep them and all their parts in a healthy state. This is the foundation for an ecologically based approach to forest management. It means that everyone attends to the conservation and sustainability of ecosystems instead of sharply focusing on the productivity of individual or competing resources which has been our traditional mode of operation.

The Newfoundland Forest Service is committed to the concept of forest ecosystem management, which is captured in the Twenty-year Forestry Development Plan (1996-2016) vision statement:

"To conserve and manage the ecosystems of the Province which sustain forests and wildlife populations and to provide for the utilization of these resources by the people of the Province under the principles of sustainable development, an ecologically-based management philosophy, and sound environmental practices."

There are five strategic goals in the Twenty-year Forestry Development Plan (1996-2016) which provide the foundation upon which ecologically based resource management will be developed.

1. Manage forest ecosystems so that their integrity, productive capacity, resiliency, and biodiversity are maintained.
2. Refine and develop management practices in an environmentally sound manner to reflect all resource values.
3. Develop public partnerships or networks to facilitate meaningful public involvement in resource management.

4. Promote adaptive ecosystem management and conduct research that focuses on ecosystem processes, functions, and ecosystem management principles.
5. Establish and enforce conservation and public safety laws with respect to managing ecosystems.

The environmental protection guidelines provide specific "on the ground" tasks for loggers and gives management direction to planners. Individually, the guidelines appear as specific rules; however, when implemented collectively they will facilitate ecologically based forest resource management.

## **1.0 GENERAL GUIDELINES**

These guidelines are generated from impacts described in the literature and from discussions with resource managers. As new information and management techniques become available the guidelines will be changed to reflect this improved information base. Consequently, the guidelines will be reviewed on an annual basis to incorporate any necessary changes. The "General Guidelines" applies to all forestry activities (i.e., silviculture, harvesting, and road construction). These guidelines form Schedule IV of the Certificate of Managed Land. They are conditions of Crown commercial permits and they form the basis for the voluntary compliance program.

### **1.1 Planning**

1. The location and type of all water body crossings must be submitted to the Department of Environment and Labour and the Department of Fisheries and Oceans. Certificates of Approval are required from both departments for water body crossings. A water body is defined as any water identified on the latest 1:50,000 topographic maps. Appropriate protection is still required for streams greater than 1.0 m in width (at its narrowest point from the high water mark) not found on the 1:50,000 topographic maps.
2. All waste disposal sites require a Certificate of Approval from the Minister of Government Services.
3. Excessive bulldozing is not permitted and no more than 10% of the total forest within an operating area can be disturbed. In situations where specific operating areas require more than 10% disturbance to capture available timber, the operator is required to rehabilitate the area to reduce the total net disturbance to the 10% maximum. Where disturbance has been excessive, a rehabilitation plan will be developed with the Forest Service District Manager. Disturbance is defined as per the Ground Disturbance Survey Guidelines developed by the Newfoundland Forest Service.

4. 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 Historical Resources Division (709-729-2462).

The Historic Resources Division will respond immediately and will have mitigation measures in place within seven days as agreed to by the Historical Resources Division and the operator. Forestry activity can then continue.

The Historic Resources Division will be contacted during the preparation of five-year operating plans to determine the location of historic resources and appropriate mitigation measures will be designed. These measures will include such things as buffer zones and modified operations or surveys.

5. Should an oil or gas spill in excess of 70 litres occur, the operator must make every effort to first contain and second clean up the spill after reporting the spill to the appropriate authorities

Government Services Centre  
Spill Report Line  
(709)772-2083 or 1-800-563-2444

6. The Parks and Natural Areas Division will be contacted during the preparation of five-year operating plans. Where operations are within one kilometre of provisional and ecological reserves, wilderness reserves or provincial parks, modified operations may be necessary.
7. In areas where caribou utilize arboreal lichens during the summer and/or winter, and terrestrial lichens during the summer, a minimum amount of lichen forest must be maintained for the caribou. Forestry activity will be designed in consultation with the Wildlife Division where this situation has been identified.
8. Areas identified as containing rare and/or unique flora (through literature review) are to be protected from forestry activity by avoiding these areas.
9. Where mature stands of timber for moose shelter and moose yards are required, they will be identified in consultation with Wildlife Division.
10. The impacts of forest operations on pine marten have been an ongoing issue. Until appropriate guidelines are developed for pine marten habitat, forestry activities within high-density pine marten areas and dispersion areas required for pine marten recovery will require consultation with the Wildlife Division.
11. During the preparation of five-year operating plans, areas identified as “Sensitive Wildlife Areas” in the Land Use Atlas require consultation with the Wildlife Division prior to any forestry activity.

## 1.2 Operations

1. A 20-metre, treed buffer zone shall be established around all water bodies that are identified on the latest 1:50,000 topographic maps and around water bodies greater than 1.0 metre in width that does not appear on the maps. Where the slope is greater than 30% there shall be a no-harvest buffer of  $30\text{ m} + (1.5 \times \% \text{ slope})$ . All equipment or machinery is prohibited from entering water bodies; thus, structures must be created to cross over such water bodies. Every reasonable effort will be made to identify intermittent streams and they will be subject to this buffer requirement. The District Manager of Forest Ecosystems is permitted to adjust the specified buffer requirements in the following circumstances:
  - the no-cut, treed buffer can exceed the 20 m for fish and wildlife habitat requirements.
  - a 50-metre, no-cut, treed buffer will be maintained around known black bear denning sites (winter) or those encountered during harvesting. These den sites must be reported to the Wildlife Division.
  - no forestry activity is to occur within 800 metres of a bald eagle or osprey nest during the nesting season (March 15 to July 31) and 200 metres during the remainder of the year. The location of any raptor nest site must be reported to the Wildlife Division.
  - all hardwoods within 30 metres of a water body occupied by beaver are to be left standing.
  - a minimum 50 metre, no-cut, treed buffer will be maintained from the high water mark in waterfowl breeding, moulting and staging areas. The Canadian Wildlife Service and/or the Wildlife Division will identify these sites.
2. Heavy equipment and machinery are not permitted in any water body, on a wetland or a bog (unless frozen) without a Certificate of Approval from the Department of Environment and Labour and without contacting the DFO Area Habitat Co-ordinator.
3. No heavy equipment or machinery is to be refuelled, serviced, or washed within 30 metres of a water body. Gasoline or lubricant depots must be placed 100 metres from the nearest water body. All fuel-storage tanks (including JEEP tanks) must be registered with the Department of Government Services and Lands and installed in accordance with the *Storage and Handling of Gasoline and Associated Products Regulations*. Fuel storage within protected water supplies is more stringent. Please refer to “Guidelines for Forest Operations within Protected Water Supplies” for more information.

4. Used or waste oil shall be collected either in a tank or a closed container.
5. Above ground storage tanks shall be surrounded by a dyke. The diked area will contain not less than 110% of the capacity of the tank. The base and walls of the dyke shall have an impermeable lining of clay, concrete, solid masonry or other material, designed, constructed and maintained to be liquid tight to a permeability of 25L/M<sup>2</sup>/d. There shall be a method to eliminate water accumulations inside the dyke.
6. Wherever possible, place slash on forwarded trails while forwarders are operating in an area. Skidding timber through any water body (as defined in Section 1.2.1) is prohibited.
7. Any forestry operation that directly or indirectly results in silt entering a water body must be dealt with immediately (a government official must be notified within 24 hours). Failure to comply will result in the operation being stopped.
8. Woody material of any kind (trees, slash, sawdust, slabs, etc.) is not permitted to enter a water body. Woody material on ice within the high water floodplain of any water body is prohibited.
9. To minimize erosion and sedimentation, water body crossings shall:
  - i) have stable approaches;
  - ii) be at right angles to the water body;
  - iii) be located where channels are well defined, unobstructed, and straight;
  - iv) be at a narrow point along the water body;
  - v) allow room for direct gentle approaches;
  - vi) have all mineral soil exposed during bridge construction and culvert installation seeded with grass.
10. Garbage is to be disposed of at an approved garbage disposal site. Prior to disposal it must be contained in a manner not to attract wildlife. All equipment is to be removed from the operating area where operations are completed.
11. Where safety is not an issue, a minimum average of 10 trees or snags per hectare (average on a cut block) or a clump of trees is to be left on all sites (harvesting and silviculture). Preference will be given to trees over 50 cm dbh.

## **2.0 TIMBER HARVESTING GUIDELINES**

### **2.1 Planning**

1. There will be corridors to connect areas of forest that will not be harvested (isolated stands within cutovers are not considered forested areas). These

- corridors connect wildlife habitat, watersheds and minimize fragmentation. Acceptable corridor vegetation includes productive forest areas (all age classes) and softwood/hardwood scrub. These corridors do not have to be continuous (i.e., breaks in vegetation are permitted) and will be determined in the five-year operating plan and identified in the annual work schedule.
2. Complete utilization of harvested trees is required. (Complete utilization is harvesting trees to a top diameter of 8 cm and stumps to a height of 30 cm). The District Manager can modify the stump height requirement to accommodate snow conditions. Where markets exist, non-commercial tree species that are harvested should be brought to roadside. This will be determined in consultation with the District Manager.
  3. Preplanning is required on all forest operations (Industry/Crown) at the request of the District Manager (for Industry) and the Section Head i/c Management Planning (for Crown). Preplanning will include:
    - boundaries of protected water supplies (if applicable);
    - existing and proposed access roads;
    - skid trails and landing locations;
    - areas sensitive to erosion;
    - buffer zones around water bodies;
    - approved stream crossings;
    - fuel storage locations;
    - wildlife corridors.
  4. Harvesting is not permitted within caribou calving areas from May 15 - June 15 (calving period). Harvesting is not permitted within post-calving areas from June 15 to July 31. These areas will be identified by the Wildlife Division.
  5. Harvest scheduling should be modified during the migration of wildlife (e.g., caribou) and during temporary wildlife concentrations (e.g., waterfowl staging). Wildlife Biologists will identify the areas of concern, and in conjunction with district or company foresters, aid in the modification of forestry operations.

## **2.2 Operations**

1. When skid 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 log bridges depending on the conditions. The objective is to minimize erosion and sedimentation to avoid restricting stream flow, and to ensure fish passage in fish-bearing streams. Erosion control measures (e.g., laying down brush mats and the construction of diversion ditches for water run-off) are to be maintained while the skid trail is in use. All temporary crossings are to be removed at the end of the operating season unless the District Manager agrees to extend the life of the crossing for more than one season.

2. A minimum 50 metre, no-cut buffer is to be left between operations within approved cabin development areas.

### **3.0 FOREST ACCESS ROADS GUIDELINES**

#### **3.1 Planning**

Forest access roads, barrow pits and quarries shall avoid:

- i) wetlands, deltas, and floodplain or fluvial wetlands;
  - ii) terrain with high erodibility potential;
  - iii) known sensitive wildlife areas such as:
    - calving grounds, post calving areas, caribou migration routes, caribou rutting areas, and winter areas,
    - waterfowl breeding areas and colonial nesting sites,
    - established moose yards by one kilometre,
    - eagle and osprey nest sites,
    - where site conditions and engineering permits, main haul roads should be one kilometre from permanent water bodies and all other roads by not more than 100 metres,
    - endangered or endemic species or subspecies of flora or fauna and other areas to be determined by qualified authorities;
  - iv) known sensitive fish 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 and ecological reserves;
    - rare and endangered plant sites and habitats.
2. With respect to borrow pits and quarries, the operator shall:
    - i) minimize the number of new borrow areas opened for construction and/or maintenance;
    - ii) use existing barrow areas whenever practical.
    - iii) be in possession of a valid quarry permit from the Department of Mines and Energy prior to aggregate extraction activities;
    - iv) not locate pits and quarries in sensitive areas as identified by planning processes.
  3. Forest access roads will not obstruct wildlife migration routes. The following guidelines will be followed to ensure the road is as unobstructing as possible:



- i) roads should be of low profile (less than 1 m above the surrounding terrain);
  - ii) slash and other debris shall be removed;
  - iii) the slope of ditches and road banks should not exceed 1½ horizontal to vertical.
4. Culverts and bridges are to be installed in accordance with the manufacturer's specifications and the specifications attached to the Certificates of Approval received from the Department of Environment and Labour and from the Department of Fisheries and Oceans. Culvert ends will be properly rip rapped.
  5. Where road construction is to occur around identified waterfowl breeding, moulting and staging areas the Canadian Wildlife Service is to be consulted.
  6. Road construction is not permitted within any buffer zone except with the permission of the District Manager.
  7. When a skid trail is on steep ground and is no longer in use, cut-off ditches and push lanes must be created. The frequency will be determined by the District Manager.
  8. When disturbance is over 10%, the conditions in 1. 1.3 will apply.
  9. There shall be no bulldozing of standing merchantable timber or poor utilization of merchantable softwoods and hardwoods during cutting of the right-of-way.
  10. Excavations required for the construction of piers, abutments or multi-plate culverts shall be completed in the dry. (Where exceptions occur, consultation with District Manager is required).
  11. On a site specific basis, roads can be decommissioned and/or rehabilitated as directed by the District Manager. Decommissioning is defined as barring access; rehabilitation means to re-vegetate the road.

### **3.2 Operations**

1. A "no-grub" zone of 30 metres of undisturbed ground vegetation must be maintained around any water body crossing to minimize the damage to the lower vegetation and organic cover, thus reducing erosion potential. Manual clearing at water body crossing sites should be used to remove or control vegetation. Right-of-way widths at water body crossings should be kept to a minimum.
2. Fill materials for road building must not be obtained from any water body or from within the floodplain of any water body.

3. Trees are to be felled away from all water bodies, and slash and debris should be piled above the high water mark so that it cannot enter water bodies during periods of peak flow.
4. Equipment activity in water crossing areas is to be kept to a minimum. Whenever possible, any work is to be carried out from dry stable areas.
5. Unnecessary side casting or backbiting in the vicinity of water bodies is not permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent to a water body, road slope stabilization is to be undertaken at the toe of the fill where it enters the water (an area where active erosion is likely). The placement of large riprap or armour stone is recommended in such areas.
6. Side casting must be carried out in such a manner that sediment does not enter any water body.
7. Where borrow pit or quarry activity is likely to cause sediment-laden runoff to contaminate a water body, sediment control measures such as filter fabric berms or sedimentation ponds are to be installed. Contact is to be made with the District Manager prior to construction where such conditions exist.
8. Stabilize cut banks and fill slopes in the vicinity of water bodies.
9. When using ditches, especially on long slopes, baffles and culverts are to be used at frequent intervals.
10. When constructing ditches near streams, the ditch itself is not to lead directly into the stream.
11. Keep ditches at the same gradient as the road.
12. In side hill and similar areas, install ditches on the uphill sides of roads to intercept seepage and run-off.
13. Borrow pits are to be located 50 metres from the nearest water body.

#### **4.0 SILVICULTURAL PRACTICES AND FOREST REGENERATION GUIDELINES**

##### **4.1 Scarification**

1. Select scarification methods best suited for preparing the area for planting and for minimizing ground disturbance.

2. Where slash is piled into windrows, ensure the windrows are placed where slash cannot be washed into streams at peak flooding conditions.
3. To minimize erosion, do not direct scarification equipment straight down slope.
4. Where safety is not an issue, a minimum average of 10 cavity trees or snags per hectare, or a clump of trees, will be left on all sites.
5. Whenever possible, white pine regeneration will not be disturbed.

#### **4.2 Planting**

1. Landings will be stabilized through seeding (grass) or planting at time of plantation establishment.

#### **4.3 Pre-commercial Thinning**

1. Where possible, do not carry out pre-commercial thinning in important wildlife areas during the period of birth and/or hatching. These areas and times will be identified by the Wildlife Division.
2. Where white pine regeneration is present, the District Manager will determine how the pine will be thinned.
3. Trees cut will not be felled into water bodies.

### **5.0 FOREST PROTECTION GUIDELINES**

1. A pesticide application licence must be obtained from the Department of Environment. This licence will determine planning and operational requirements.

### **6.0 GUIDELINES FOR FORESTRY OPERATIONS WITHIN PROTECTED WATER SUPPLY AREAS**

The primary function of a protected water supply area is to provide the public with an adequate quantity of safe and good quality water on a permanent basis, to meet its present and future demands. Any other activity within water supply areas 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, forestry operations are permitted in protected water supply areas on a limited and controlled basis provided the proposed operations have no, or minimal, water quality impairment potential.

The following permits and approvals are required prior to the beginning of forestry operations within a protected water supply area:

- 1) Approval of the forest operating plan by the Newfoundland Forest Service.
- 2) Approval of the forest operating plan by the provincial Department of Environment and Labour and issuance of a Certificate of Approval under *Section 10 of the Department of Environment Act*.
- 3) Quarry permits from the provincial Department of Mines and Energy for all borrow areas and ballast pits on unalienated Crown lands and alienated Crown land (i.e., leased and licensed land).
- 4) Stream crossing permits under *Section 11 of the Department of Environment Act* and from the federal Department of Fisheries and Oceans.
- 5) Other permits or approvals as required by natural resource management and regulatory agencies.

## **6.1 Planning**

1. Prior to beginning any work, a forest operating plan must be prepared and approved by the Newfoundland Forest Service and the Department of Environment and Labour, and a Certificate of Approval must be obtained under Section 10 of the Department of Environment Act for site specific activities such as road construction, commercial harvesting, silvicultural operations, and other activities associated with forestry operations.
2. In addition to the information normally contained in a forest operating plan, the plan must include maps to show:
  - the boundary of the protected water supply area;
  - existing and proposed access roads;
  - proposed harvesting areas;
  - areas sensitive to erosion;
  - buffer zones around water bodies; approved stream crossings,
  - proposed landing and skid trail locations;
  - proposed fuel storage locations;
  - peat land and other wetlands;
  - nearby communities;
  - other relevant information.

The plan must also contain a written section describing the harvesting techniques to be used, the equipment required for the operation, and the schedule of the operation.

3. Locate roads to avoid all water bodies and areas of sensitive terrain.

4. The forest operating plan must identify an Operations Manager who shall have the responsibility for ensuring that the special protection measures are followed. The Operations Manager is responsible for co-ordinating clean-up efforts in the event of a fuel or oil spill.

## **6.2 Forest Access Road Construction**

1. A "no-grub" zone of 30 metres of undisturbed ground vegetation must be maintained around any water body crossing to minimize the damage to the lower vegetation and organic cover, thus reducing the erosion potential. Manual clearing at water body crossing sites should be used to remove or control vegetation. Right-of-way widths at water body crossings should be kept to a minimum.
2. Clear-cutting up to the perimeter of any water body is not permitted. In all areas where road construction approaches a water body, a buffer zone of undisturbed vegetation must be maintained on both sides of the right-of-way using the buffer zone criteria outlined in Section 6.6.
3. Fill materials for road building must not be obtained from any water body or from within the floodplain of any water body.
4. Provide adequately designed arid constructed drainage ditches along forest roads to allow for good road drainage.
5. Take-off ditching can be used on both sides of the road, or in conjunction with culverts, to divert the ditch flow into the woods or into stable vegetated areas above the no-grub zones. Where take-off ditches are unstable or cannot be constructed, the use of check dams and settling basins in the ditches is required until the ditches become stabilized.
6. Trees are to be felled away from all water bodies, and slash and debris should be piled above the high water mark so that it cannot enter water bodies during periods of peak flow.
7. Equipment activity in water crossing areas shall be kept to a minimum. Any work will be carried out in dry, stable areas.
8. When working near sensitive areas such as streams or lakes, road building operations causing erosion or siltation are to be followed as per Section 1.2.7.
9. Unnecessary side casting or backfilling in the vicinity of water bodies is not permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent to a water body, road slope stabilization is to be undertaken at the toe of the fill where it enters water, an area where active erosion is likely. The placement of large riprap or armour stone is recommended in such areas.

Contact is to be made with the District Manager prior to construction when such conditions occur.

10. Side casting must be carried out in such a manner that sediment does not enter any water body.
11. Maintenance support sites must be located outside the protected water supply area.

### **6.3 Forest Access Road Stream Crossings**

1. Stream fording is prohibited in protected water supply areas.
2. All stream crossings, whether culverts or bridges, require written approval under *Section 11 of the Department of Environment Act*.
3. The operator must comply with all terms and conditions of a Certificate of Approval for stream crossings.

### **6.4 Harvesting**

1. Harvesting or other heavy equipment will not be used on wetlands or bogs.
2. Steep areas with high potential for erosion should not be harvested.
3. Wherever possible, skid trails should run along contours and never cross wetlands and water bodies.
4. Landings will be few in number with a maximum size of less than 0.25 ha. All landings should be located at least 100 metres from a water body.
5. In sensitive areas prone to erosion, equipment must have wide tires, or harvesting must occur during the winter when the ground is frozen.
6. Harvesting equipment shall not enter a buffer zone or any water body without permission of the District Manager.
7. The operator must implement erosion control and rehabilitation measures in areas where soils have been unduly disturbed by harvesting activity. In addition to general erosion control measures presented in other sections of these guidelines, the following should also be considered in protected water supply areas:
  - undertake contour furrowing;
  - construct diversion ditches to lessen the possibility of forming new drainage channels;
  - seed or plant areas that are difficult to stabilize by other means;

- plough or rip prior to seeding any surfaces which have been compacted

## 6.5 Buffer Zones

The Newfoundland Forest Service on unalienated Crown land and the appropriate company on leased, licensed, private or charter land will provide the operator with a map indicating the harvesting area and no-cutting buffer zones, and will ensure that the operator is familiar with the boundaries.

No forestry activities are permitted within the following buffer zones.

Water Body	Width of Buffer Zone
1. Intake pond/lake/reservoir	A minimum of 150 m
2. River intake	A minimum of 150m for 1 km upstream and 100 m downstream
3. Main river channel	A minimum of 75 m
4. Major tributaries/lakes/ponds	A minimum of 50 m
5. Other water bodies	A minimum of 30 m

## 6.6 Fuel/Oil Handling and Storage

Fuel storage and the operation of fuel storage equipment are regulated by the *Storage and Handling of Gasoline and Associated Products Regulations* (1982) under the Department of Environment and Lands Act. According to the regulations, the owner or operator of a fuel storage system must submit a Schedule "A" Storage Tank System Application to the Department of Environment. The applicant must be in receipt of a Certificate of Approval for the system before the system is used for fuel storage. Section 9 of the above Act states: *"No owner or operator shall directly or indirectly cause pollution of the soil or water by causing, suffering or permitting leakage or spillage of gasoline or associated products from a storage tank system or vehicle."*

In addition to the above regulatory requirements, the following guidelines are to be followed:

- 1 Bulk fuel is to be stored outside the protected water supply area. If fuel must be stored in the protected area, it must be in the least sensitive area and be approved by the Water Resources Management Division of the Department of Environment and Labour.
2. Fuel must be stored in self-diked, above-ground Jeep Tanks, which have been approved by the Department of Environment and Labour.
3. A maximum of seven days fuel supply can be stored within a water supply area.
4. Refuelling must not take place within 100 metres of a water body.

5. Daily dipping of tanks and weekly reconciliation are mandatory. Visual inspection of the dykes and the surrounding area must be carried out daily and inspection records must be maintained.
6. Each unit must be fitted with a locking valve system for the elimination of water inside the outer tank. The valve must be closed and locked except to drain precipitation.
7. Each person involved with fuel handling must be cautioned that any spillage is to be cleaned up immediately.
8. Each person involved with fuel storage must exercise extreme caution when refuelling equipment.
9. All waste materials and waste oil on the site must be collected in enclosed containers and removed to an approved site, at least weekly.
10. Contaminated soil or snow must be disposed of at an approved waste disposal site.
11. Any spill in excess of 70 litres must be reported immediately through the 24 hour Spill Report Number (709-772-2083) or the Government Services Centre (1-800-563-2444).
12. All self-diked Jeep Tanks must be located at a minimum distance of 500 metres from any major water body.
13. A fuel or oil spill cleanup kit must be kept on site within the protected area to facilitate any cleanup in the event of a spill. This kit must include absorbent pads, loose absorbent materials such as dried peat, speedy-dry or sawdust, and a container such as an empty drum for recovering the fuel or oil. If there is a bulk fuel storage facility within the protected area, the cleanup kit must include the following list of fuel or oil spill cleanup equipment:
  - Fire pump and 100 metres of hose
  - Two hand operated fuel pumps
  - Six recovery containers such as empty drums
  - Four long handled shovels
  - Two pick axes
  - Ten metres of containment boom
  - Twenty-five absorbent pads
  - One hundred litres of loose absorbent material.

When any fuel spill occurs, stop the fuel flow immediately. This may entail repairing a leak, pumping out a tank, or shutting off a valve. If fuel or oil is spilled onto soil, diking may be necessary. If fuel or oil enters water, absorbent booms or barriers such as fencing



or netting with loose absorbent or straw must be used to contain the spill. If necessary, culverts may be blocked off by earth or wooden barriers to contain the fuel or oil provided the threat of flooding is addressed.

All recovered fuel or oil must be stored in containers. Contaminated soil must be removed and placed in containers for transport and disposal. Extensive soil removal may cause problems such as erosion and the subsequent siltation of water bodies- therefore, the affected area must be backfilled and sloped and revegetated as required by the Department of Environment and Labour.

Recovered fuel or oil should be reused or collected by a waste oil company for recycling. Oily debris and contaminated soils must be disposed of at an approved waste disposal site with the approval of the disposal site owner or operator. Contact must be made with the appropriate regional office of the Department of Environment and Labour before disposal.

### **6.7 Support Service and Structures**

1. Storage of any type of pesticide, chemical or other hazardous material is prohibited within a protected water supply area.
2. Dormitory camps, garages or any other structures are prohibited within a protected water supply area.
3. The establishment of new sawmills is not permitted in protected water supply areas.
4. Wherever possible toilet facilities must be provided in all work areas.
5. Garbage cans must be located in all work areas and garbage is to be collected regularly and disposed of at an approved waste disposal site outside the protected area.

### **6.8 Silviculture**

1. Chemicals are to be used within a protected water supply area only under the approval of the Division of Water Resources.
2. Scarification must be minimized and restricted to the trench or spot types.
3. If scarification leads to erosion or sedimentation of small streams or water bodies, scarification operations must be suspended and remedial measures must be taken.

### **6.9 Abandonment**

When forestry operations in a protected water supply area have been completed, an abandonment plan for the area should be developed. This will involve input from the Newfoundland Forest Service, the Community involved, and the Water Resources Management Division of the Department of Environment and Labour. In general, the purpose of the plan is:

- (i) to ensure that the post-harvest conditions do not lead to water quality impairment, and
- (ii) to discourage activities or use of the area that could lead to water quality impairment.

An important question will be whether access roads will remain open. This will be decided on a case-by-case basis in consultation with the municipality, Water Resources Management Division and the operator. Issues such as the rehabilitation of cutover areas, landing sites, skid trails, and the abandonment of roads are to be discussed during the consultation process to control post-harvesting environmental impacts and activities.

The following are recommended precautionary measures if roads are to be closed to control post-harvesting access to the area:

Use water bars (trenches 8-10" deep dug across the road) to intercept and deflect surface roadside ditches rather than have it flow into a water body. Water bars can be placed 500 metres apart in gentle to moderate terrain (up to 10% slope), but should be no more than 150 metres apart in terrain greater than 10%. In most cases, it is sufficient to limit water bars to one kilometre on each side of a stream crossing.

Roadside ditches should flow into the woods or into stable, vegetation covered areas.

Stable bridge abutments and erosion protection works at crossings need not be removed.

Bridge decking, culverts and other easily removable structures should be transported out of the watershed area.

All disturbed areas of river banks will be stabilized and seeded.

## **6.10 Monitoring and Inspection**

1. Forestry operations approved under Section 10 of the Department of Environment Act will be inspected from time to time by the staff of the Water Resources Management Division to ensure the operator's compliance with the environmental protection guidelines and the terms and conditions of the approvals.

2. In case of an oil spill, the sedimentation of a water body, or any other water quality impairment related issue, the operator might be required by the Department of Environment and Labour to undertake water quality monitoring to assess the extent of the damage and to select appropriate mitigative measures to correct the harmful conditions.
3. Any water quality impairment problem should be reported to the Water Resources Management Division.

## **7.0 PROCESSING FACILITIES AND SUPPORT SERVICES GUIDELINES.**

1. If possible, use previously disturbed sites (e.g., barrow pit).
2. Minimize the size of the area cleared for the establishment of any camp, processing or support structures. Wherever possible, these facilities should not be established within 100 metres of a water body.
3. All sumps containing effluent from a kitchen or washroom facility must be properly treated on a daily basis in compliance with Department of Health regulations.
4. Sewage disposal must be carried out in compliance with the Public Health Act.
5. A permit to occupy is required for Crown Land developments.
6. Facilities will not be located within known sensitive wildlife areas. These areas will be identified by the Wildlife Division.
7. A permit is required for a firearm.

## **8.0 PLANNING AND MUNICIPAL AREA GUIDELINES**

1. Timber harvesting, resource road construction, silviculture, processing facilities, and support services are developments under the Urban and Rural Planning Act. Where these activities occur within a planning area boundary or within 400 metres of a protected road, a development permit is required before any activity takes place.

Consultation with the planning agency (usually municipality, but also the Development Control Unit of the Department of Municipal and Provincial Affairs) is to be made at the planning stage so that regulatory requirements can be made known and taken into account. This should occur three months before the desired commencement of the development and the permit obtained about one month before the development.

**APPENDIX III****D22 DOMESTIC CUTTING PERMIT CONDITIONS**

1. All timber cut must be identified by permit number and removed from the cutting areas 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 centimetres and stump heights shall not exceed 15 centimetres.
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, 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 trees.
10. Unless otherwise indicated or approved by the District Office there shall be:
  - a. No cutting within 100 meters of a scheduled 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 within 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.