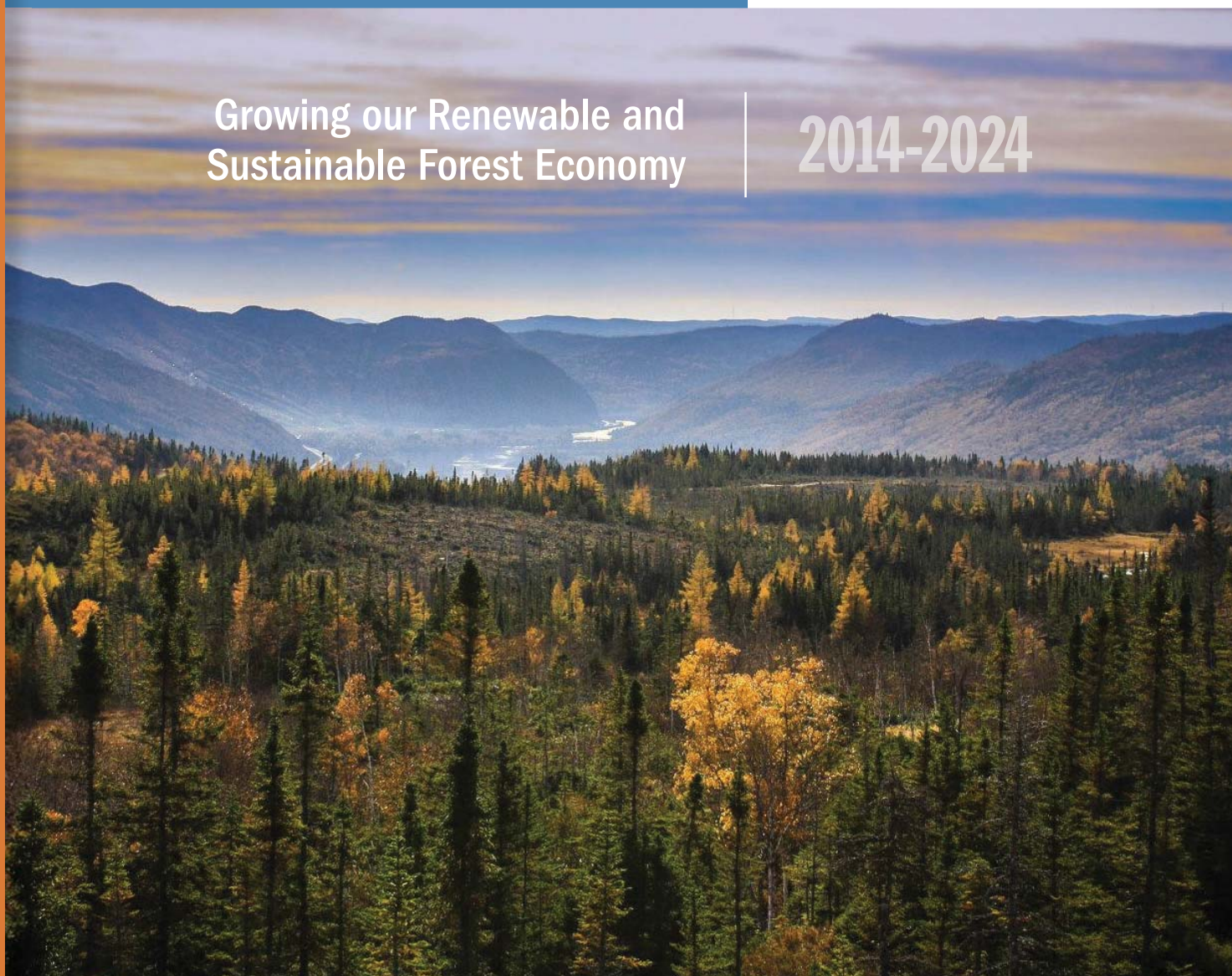


Provincial Sustainable Forest Management Strategy

Growing our Renewable and
Sustainable Forest Economy

2014-2024



GROWING OUR RENEWABLE AND SUSTAINABLE FOREST ECONOMY

PROVINCIAL SUSTAINABLE FOREST MANAGEMENT STRATEGY

2014-2024



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A MESSAGE FROM THE MINISTER



Growing our Renewable and Sustainable Forest Economy 2014-2024 outlines the Provincial Government's strategic framework for the forest resource in Newfoundland and Labrador. The rural lifestyle of our province reflects a strong dependency on our forests where social, economic and cultural uses are strongly entwined. Indeed, the historical uses of the forest resource helped shape who we are as a people.

Our 10-year Provincial Sustainable Forest Management Strategy emerged through wide consultation with our citizens and responds directly to our need to be leaders in environmental protection and sustainable forestry. Designed to guide and govern our actions, ***Growing our Renewable and Sustainable Forest Economy 2014-2024*** will ensure our province is at the leading edge of environmentally-responsible forest management. It will also ensure the sector remains an important economic contributor to our people and our province. Our strategy charts our path at a time when the forest sector is faced with severe competition and structural changes. Our goal is to meet those challenges by continuing to transform and revitalize the forest sector through new opportunities, research, and broader public involvement.

As stewards, the Provincial Government has set a vision and goal for the management of our forest resources. We are committed to policies that will strengthen the future development of the forest economy in our province. I invite you to read ***Growing our Renewable and Sustainable Forest Economy 2014-2024*** and to work with us to contribute to our success.

A handwritten signature in black ink, appearing to read 'D Dalley'. The signature is fluid and cursive, with a long, sweeping underline.

The Honourable Derrick Dalley

Minister of Natural Resources

Table of Contents

A MESSAGE FROM THE MINISTER..... 1

ACKNOWLEDGEMENTS 7

EXECUTIVE SUMMARY 8

INTRODUCTION..... 10

 The Evolution of Forest Management in Newfoundland and Labrador..... 10

 A Vision for Forest Management..... 12

 Thank You to Consultation Participants 12

1. THE NATURE AND EXTENT OF OUR FOREST RESOURCES 13

 The Boreal Forest..... 13

 The Forests of Newfoundland and Labrador..... 13

 The Ecoregions..... 14

 Forest Management Zones and Districts..... 14

2. SUSTAINABLE FOREST MANAGEMENT 20

 Adaptive Management 20

 Regulatory Certainty and Simplification..... 20

 Research in Support of Forest Management..... 20

 A Commitment to Professionalism..... 21

 Ecological Values..... 21

 Forest Management in Labrador..... 21

 Large Intact Landscapes..... 21

 Connectivity of Forest Habitat 28

 Aquatic Ecosystems..... 28

 Late-Succession Forests 29

 Rare Species and Species at Risk..... 31

 Climate Change 32

 Forest Protection 33

 Silviculture 35

 Forest Health 36

 Social and Non-timber Economic Values..... 37

 Tourism and Outdoor Recreation..... 38

 Public Engagement 38

 Planning and Consultation..... 38

 Accountability and Transparency 39

3. SUSTAINABLE HARVEST LEVELS AND THE FOREST INDUSTRY..... 41

 Forest Sector Status..... 41

 Pulp and Paper 41

 Sawmilling..... 41

 Value Added Manufacturing..... 41

Wood Energy 42

Investing in Forest Sector Diversification 42

Forest Resource Status (Wood Supply)..... 42

Forest Resource Inventory..... 42

The Provincial Annual Allowable Cut..... 43

Sustainable Industry Development 44

Industry Innovation..... 45

Bioenergy 45

Biorefining 45

Solid Wood Products..... 46

Domestic Forest Activities 47

Non-timber Forest Products 47

Research and Development..... 47

4. CONCLUSION 48

5. APPENDICES 49

Appendix A: Activities, Goals and Indicators 49

Appendix B: Tables, Data and Glossary of Acrynoms 55

Appendix C: Consultation Record..... 58

List of Figures and Tables

Figure 1. Typical boreal forest mosaic found in Newfoundland and Labrador. A mix of water, bog, and forest..... 13

Figure 2. The Ecoregions of Newfoundland 16

Figure 3. Planning Zones, Districts and Corner Brook Pulp and Paper Tenure for Newfoundland..... 17

Figure 4. The Ecoregions of Labrador..... 18

Figure 5. Forest Management Districts of Labrador (currently no planning zones) 19

Figure 6. Forest Management Areas for the island Newfoundland (Map 1). 24

Figure 7. Forest Management Areas for the island Newfoundland (Map 2). 25

Figure 8. Combined Map of Special Forest Management Areas for Newfoundland. 26

Figure 9. Commercial Forest Management Area..... 27

Figure 10. The Bay du Nord River, Smokey Falls..... 29

Figure 11. Projected Changes In Mean Temperature For Newfoundland And Labrador By 2070..... 33

Figure 12. A Burned Area Of Boreal Forest In Central Labrador 34

Figure 13. Trends In PCT And Tree Planting For Newfoundland And Labrador 1994-2013 35

Figure 14. Biorefining Output Produced From Wood By A Mobile Fast Pyrolysis Unit. 46

Table 1. Special Forest Management Areas of the island of Newfoundland.. 23

ACKNOWLEDGEMENTS

The 2014-2024 Provincial Sustainable Forest Management Strategy could not have been developed without the dedicated work of many individuals throughout the Public Service. In particular the Directors and staff of Forestry Services Branch were diligent and thoughtful in formulating the policies and initiatives presented in this strategy; always considering the implications of any policy changes for all of the people of the province.

PROVINCIAL SUSTAINABLE FOREST MANAGEMENT STRATEGY

2014-2024

EXECUTIVE SUMMARY

Forest management has been undergoing extraordinary change throughout much of Canada and the developed world over the past several decades. Increasingly, consumers and stakeholders are demanding an emphasis on ecological sustainability and protection the environment. This evolution of public sentiment has led to substantial changes in forest management in many Canadian jurisdictions. Initiatives such as the Canadian Boreal Forest Agreement and wide spread forest certification by the forest industry are a direct response to these changes. Newfoundland and Labrador must ensure that our forest sector can meet the environmental expectations of our citizens and a conscientious market place.

The 2014-2024 Provincial Sustainable Forest Management Strategy (PSFMS) is founded on the continued development of ecologically and environmentally sound policies, and the innovative development of a diversified renewable resource base. Utilizing tools such as the ISO 14001 Environmental Monitoring System and new remote sensing technologies, the Forestry Services Branch (FSB) is continuing the development of a strong forest industry sector that has the support of the citizens of Newfoundland and Labrador.

FSB will use landscape-scale, science-based polices to support values such as outdoor recreation, eco-tourism, water quality, biodiversity, and species at risk. These science-based management policies will also prepare our forests for the challenges of climate change. To ensure that these ecologically sound policies are recognized by forest product markets, the province will undertake its first audit for an Environmental Standard in 2015.

FSB will invest in research and development to support diversification of the forest industry into areas such as bioenergy, biorefining, and engineered wood products. FSB will also strive to improve the efficiency of forest management, reducing costs for harvesters and producers alike. FSB will work with industry and academia to exploring innovation in fibre allocation and transport logistics.

FSB will continue to evaluate its forest resource inventory program on the feasibility of introducing new metrics for the forest industry for such things as fibre quality, detailed stand attributes and species composition. Lidar, remote-sensing data, targeted ecological data, and other such tools will be explored for their potential to reduce costs and improve forest management. FSB will continue to review its public engagement and its five-year forest management planning process, as well as the environmental protection guidelines. All aspects of the planning process will be examined with the objective of reducing land-use conflicts.

The 2014-2024 PSFMS builds on the direction set out in the 2003-2013 PSFMS, consolidating an innovative era of environmentally sustainable forest management that ensures the integrity of the province's forests, and the sustainability of the forest sector. Our forests represent one of our greatest renewable resources; properly managed, they will serve the citizens of our province for many generations to come.

INTRODUCTION

The forest industry has been an important component of the economy of Newfoundland and Labrador for centuries. Rural communities have depended on our forest resources, whether for firewood and building materials, direct employment, making furniture or operating a modern sawmill. Meanwhile, the development of larger communities, like Grand Falls-Windsor and Corner Brook, was also driven by the forest industry. Currently the province's economy is dominated by non-renewable resources such as oil and mineral extraction. While the benefits of these resources are dramatic, they cannot replace the forest industry as a sustainable and widely distributed driver of the rural economy. Forestry provides an opportunity to grow a resource-based industry that has the potential to reinvigorate much of rural Newfoundland and Labrador. With continued good management and an innovative industry, the forests of this province can help sustain rural Newfoundland and Labrador for generations to come.

Forest management planning is a complex and long-term endeavor. Forest management activities, because of the broad footprint on the landscape, will interact with a wide range of social, environmental and economic values, ranging from archaeological sites to endangered species to mineral exploration. These dynamic interactions when combined with a resource that takes decades to renew can make for a very challenging development and planning environment. In recent decades significant conflicts have arisen around forest management and land use priorities. The forest industry has also gone through a period of structural change. The transformation of this industry is still ongoing. A clear, concise, and integrated forest management strategy is the most appropriate tool available to government to provide stability to the renewable resource sector while reducing the probability of land use conflicts. This strategy has three components: 1) Define the nature and extent of our forest resources. 2) Identify known values that may conflict with forest management and put forward strategies to mitigate the risks of conflict. 3) Provide an update of the current resource development status and identify areas of potential growth and innovation. These core components represent an integrated approach to environmentally and socially responsible economic development of the provinces' forest resources. A 10-year planning scope will provide the appropriate timeframe to research, design and implement the new policies outlined in this strategy.

Ultimately the success of this strategy can be broadly measured by three strategic criteria. 1) A measurable improvement in the extent and quality of our forest resources. This includes ecological services as well as available fibre for consumptive economic use. 2) A significant reduction in land use and values conflicts around forest management. 3) A significant increase in the diversity of forest value chains in the province, and an increase in the total value of forest products produced. These are long-term goals of the new strategy. FSB will strive to show continuous improvement across these objectives (Appendix A: Activities, goals, and indicators).

The Evolution of Forest Management in Newfoundland and Labrador

Early formal work on forest management in the province included the 1955 Newfoundland Royal Commission on Forestry, the 1973 Forest Land Tenure and Taxation of Newfoundland Report and the 1981 Royal Commission on Forest Protection and Management. The first strategic forest management plan for the province was developed in 1984 and was a forerunner of the science-based wood supply modeling that is still in use today. In the latter years of the 1980s, the province (and most of eastern Canada) experienced a large and sustained outbreak of Spruce Budworm (*Choristoneura fumiferana*) causing massive tree mortality. In 1989, as a response to the budworm epidemic, the government struck the Poole Royal Commission, which recommended

the implementation of many of the modern forest management principles and processes governing current practice, including silviculture, forest protection, and management planning.



Winter logging near Millertown circa 1905

In 1990 the principle of sustainable development was incorporated into the *Forestry Act*, as evidenced by provisions in the Act that require FSB to ensure that the Annual Allowable Cut (AAC) is not exceeded. To complement these changes, FSB produced its first 20-Year Plan (1990-2009), with a focus on AACs and addressing wood supply shortfalls. Forest protection measures were expanded, harvesting restrictions imposed, and intensive silviculture programs were implemented. Although at the time the province was faced with a serious wood supply shortfall, FSB implemented sufficient regulatory and management measures to ensure the AAC was never exceeded.

In 1996 a revised 20-year strategy was produced (as a five-year update to the 1990 Plan). This strategy was the first one to include references to “other values” such as old forests and biodiversity, and introduced the concept of public participation in forest management planning. This marked a significant advance in the history of forest management in the province. The citizens planning team approach to district level forest management was introduced in the 1990s. This approach is the basis of the current public engagement process in place today.

In 2003 the province released the 2003-2013 PSFMS, a new ten-year strategy. This strategy recognized the concepts of ecosystem-based management and adaptive management as fundamental elements of the planning process. The strategy was also aligned with key elements of the Canadian Council of Forest Minister’s approach to forest management – the National Forest Strategy. As well, the new ten-year strategy reiterated a commitment to public consultation and a commitment to incorporate and manage for “other values that were identified in the consultation process”. The principal policy statements included in this strategy, especially those relating to ecosystem-based management and public consultation, were widely supported. However, FSB was criticized by several stakeholder groups and the Auditor General (2010 report) for failing to implement all of the actions outlined in the strategy in a timely fashion.

The 2003-2013 period is notable in the history of forest management in this province. FSB began the new century with a bold and innovative ecosystem-based plan. Unfortunately with the new century came the collapse of the province’s 100-year old newsprint industry. Over this period two out of three newsprint mills closed, while the third mill reduced production. The sawmill industry also contracted significantly. This was a time of uncertainty. Forest planning was under intensive scrutiny, and the fiscal and human resources of FSB were fully engaged in managing the socio-economic impacts of industry contraction.

The industry is now entering a new era. While the international newsprint demand is still in structural decline, a very significant multi-billion dollar global trade in newsprint still exists. The remaining newsprint mill in this province (Corner Brook Pulp and Paper Limited (CBPPL)) is positioning itself to be a top competitor in this market. CBPPL has recently made it onto the list of the top 10 most cost efficient mills in North America. The sawmill sector is also recovering with the end of the global recession and improvements in U.S. housing markets. Emerging developments in value-added production, promising research and development in

biorefining, a robust and culturally significant domestic fuel wood harvesting sector, and a wood supply surplus all bode well for the viability of the forest sector in the province.

Coincident with a rebounding forest product sector is a growing demand from markets and the citizens of Canada and the province for careful management of the environmental risks of forest management. It has become clear over the past several decades that the public will not accept forest management planning that does not include explicit consideration of ecological and social values. This change is reflected in consumer choice and market demands. To maintain a social license to operate on public lands and ensure competitiveness no jurisdiction can afford to ignore these trends.

The 2014-2024 PSFMS builds on the strengths of the previous plans and uses a landscape-scale planning approach to implement the progressive and innovative ecological policies required for Sustainable Forest Management (SFM). The strategy builds on the strengths of the many modern and high-quality forest management programs that are currently being implemented in this province to ensure a vibrant and competitive forest industry.

A Vision for Forest Management

FSB seeks to maintain and enhance the province's forest in a manner that sustains the balance of ecological, economic, and social values desired by society. Forests provide habitat for viable populations of native species, maintain clean water, and productive soils. Healthy forests contribute positively to climate and atmospheric regulation through carbon storage and sequestration. The forest industry helps sustain communities and is a key contributor to rural, regional, and provincial economies. Forests provide support for many social-economic and cultural benefits to our citizens, including recreational and outdoor tourism activities, hunting and fishing opportunities, domestic firewood cutting, and many other outdoor pursuits that our citizens regard as part of their cultural heritage.

The forests are also deeply important to our Aboriginal communities and FSB will continue to build on the success of our internationally recognized partnerships with the Labrador NunatuKavut Community Council, Inc., the Nunatsiavut Government and the Innu Nation, and continue to explore meaningful ways to engage these stakeholders in forest management planning in Newfoundland and Labrador.

The province's forest mandate, vision, and key forest management goals cannot be delivered independently - it will require the development of strategic and meaningful partnerships inside and outside of government. Non-government partners may include the forest research community, the environmental community, the Aboriginal community and the forest industry. Public consultations will also inform these partnerships. These partnerships will be developed around adaptive management and research in support of forest management planning.

Thank You to Consultation Participants

The people of Newfoundland and Labrador all have a stake in the future management of our forests and FSB would like to thank the individual citizens, environmental groups, forest industry groups, and other stakeholders that attended and/or provided written comment to the public consultation process on the 2014-2024 PSFMS. Participating in the consultation process required a significant investment of time and resources for many. This investment, and the passion with which the diverse perspectives were presented, allowed FSB to develop a clear sense of the policy direction expected by our citizens. The strategy has also been strengthened by the contributions of our fellow public servants, whose technical expertise and experience were invaluable. Contributions are summarized in Appendix C.

1. THE NATURE AND EXTENT OF OUR FOREST RESOURCES

The Boreal Forest

The boreal forest is one of the largest biomes on the planet. It is a circumpolar ecosystem, ranging from the edge of Arctic tundra in the north to temperate deciduous forests in the south. Throughout most of Canada, the forest is roughly 1000 km wide from north-to-south, covering almost 60 percent of the country's land mass. It is characterized by large tracts of even-aged coniferous forests interspersed with bogs and fens. Natural disturbance is the overarching dynamic that has created the structure of the boreal forest. This disturbance occurs through fire, insect outbreaks, and even large-scale wind events. The frequency, intensity, and scale of these disturbances vary significantly, as does the resultant forest structure. Understanding this variation is essential to effective forest management.



FIGURE 1. TYPICAL BOREAL FOREST MOSAIC FOUND IN NEWFOUNDLAND AND LABRADOR. A MIX OF WATER, BOG, AND FOREST

The Forests of Newfoundland and Labrador

The total area of the island of Newfoundland is 11.1 million hectares (ha), 5.2 million ha of which is forested land. The total area of Labrador is 29 million ha, of which 18 million ha is forested.

Balsam fir (*Abies balsamea* [L.] Mill) is the most abundant tree on the island and the second most abundant in Labrador. The forests of western Newfoundland are commonly stands of pure balsam fir, a tree that prefers moist, well-drained soils and attains heights of up to 24 metres at 100 years of age.

Black spruce (*Picea mariana* [Mill.]B.S.P.) is dominant in about one third of the forests on the island and two thirds of Labrador's forests. Because of its very high tolerance for poorer locations, black spruce is common both on very wet and dry sites. It grows well in fertile locations, but is a poor competitor among faster growing hardwoods. Repeated fires in past centuries have established black spruce as a dominant species across much of central Newfoundland. Where sites are more favourable, white spruce (*Picea glauca* [Moench] Voss) may be more prevalent.

Hardwoods have not formed major forest stands in this province. White birch and trembling aspen are, however, significant components of mixed-wood and hardwood stands on better forest sites throughout the island, especially the deep river valleys of the western Long Range Mountains and the Humber and Red Indian Lake watersheds. Hardwoods may reach a height of 22 metres at 80 years of age in the most fertile locations. Other native trees in the province include tamarack or juniper (*Larix laricina* [Du Roi] K. Koch), white pine (*Pinus strobus* L.), red pine (*Pinus resinosa* Ait.), red maple (*Acer rubrum* L.), yellow birch (*Betula alleghaniensis* Brit.), mountain white birch (*Betula cordifolia* Regel), mountain maple (*Acer spicatum* Lam.), pin cherry (*Prunus pensylvanica* Lf.), black ash (*Frax inusnigra* Marsh), American mountain ash (*Sorbus Americana* Marsh), showy mountain ash (*Sorbus decora* [Sarg.] Schneid), jack pine (*Pinus banksiana* Lamb.), choke cherry (*Prunus virginiana* L.), speckled alder (*Alnus rugosa* [Du Roi] Spreng.), and mountain alder (*Alnus crispa* (Ait.) Pursh). The only natural jack pine stand in the province is found in western Labrador.

The productive forests of Labrador are mainly found in the valleys of the Churchill, Kenamu, Eagle, Hawke, Alexis, and Kaipokok Rivers. The combination of a cooler, dryer climate, and the fine textured soils of the lowland areas, allows black spruce to develop extensive stands in association with balsam fir, white birch (*Betula papyrifera* Marsh.), balsam poplar (*Populus balsamifera* L.), and trembling aspen (*Populus tremuloides* Michx.). These sites are also favourable for the growth of white spruce. On upland slopes and poorly drained flats, black spruce occurs alone or mixed with balsam fir and white birch. Elsewhere in Labrador, sites are limited by poor drainage, adverse climate, and thin, nutrient-poor, sandy soils. These areas are characterized by subarctic forests of pure black spruce and mixtures of black spruce and balsam fir.

The Ecoregions

The Ecoregions of Newfoundland and Labrador (Figures 2 and 4) were defined by the seminal work of Damman (1963; 1964; 1967; 1983), Meades (1986; 1989), and Meades and Moores (1989). The island of Newfoundland has nine ecoregions, encompassing 21 subregions or ecodistricts, while there are 11 ecoregions in Labrador. The ecoregions are a product of the geology and climate of a particular region, but they are characterized by the plant and animal communities that have developed as a consequence of these biophysical factors. The ecoregions of Newfoundland are highly diverse, ranging from arctic tundra in northern Labrador to dense productive mixed forests of southwestern Newfoundland. The natural ecological processes, connections, and history of each of these ecoregions are equally diverse. Protecting this diversity is essential to preserving the biodiversity and the resource production capacity of our province's forests.

Commercial forestry has been concentrated in Central and Western Newfoundland Ecoregions and has focused on the harvest of the conifer species black spruce and balsam fir. From a forest management perspective, the most important differences between these ecoregions are the differences in the natural disturbance regimes. The Central Newfoundland Forest Ecoregion disturbance dynamics are driven primarily by fire, which tends to produce large-scale disturbances (up to tens of thousands of hectares). The Western Newfoundland Forest Ecoregion disturbance dynamics are driven primarily by insect outbreaks and wind events. Many of the forest management policies presented in this strategy are derived from our understanding of these ecoregion-specific dynamics.

Forest Management Zones and Districts

The *Forest Land Management and Taxation Act*, proclaimed in 1975, established the administrative management structure that exists today – the creation of forest management districts, the requirement for development of forest management plans, and the authority to declare those with tree-cutting rights not managed (failure to follow regulatory requirements), resulting in a higher land tax rate. The *Forestry Act 1990* mandates the Forestry Service of Newfoundland and Labrador to manage the forest resources of the province. Forest management occurs on a district basis through 18 districts in Newfoundland and six in Labrador (Figures 3 and 5). The boundaries for these districts were originally proclaimed in Newfoundland Regulation 72/79, filed on May 18, 1979, and revised under Consolidated Newfoundland Regulation 777/96.

The current framework for managing the province's forest ecosystems includes the creation of eight planning zones on the island of Newfoundland which are based loosely on ecoregion location. Forest Management Districts (FMDs) that share common ecoregion characteristics are combined to form these zones. For example, FMDs 4, 5, 6, and 8 are combined to form Planning Zone 3 (Figure 3). The requirement for submission and for environmental assessment is one five-year operating plan for each tenure owner in each zone. The past requirement was one five-year operating plan by each owner in each district. There are no planning zones in Labrador; rather the management planning is on a district basis.

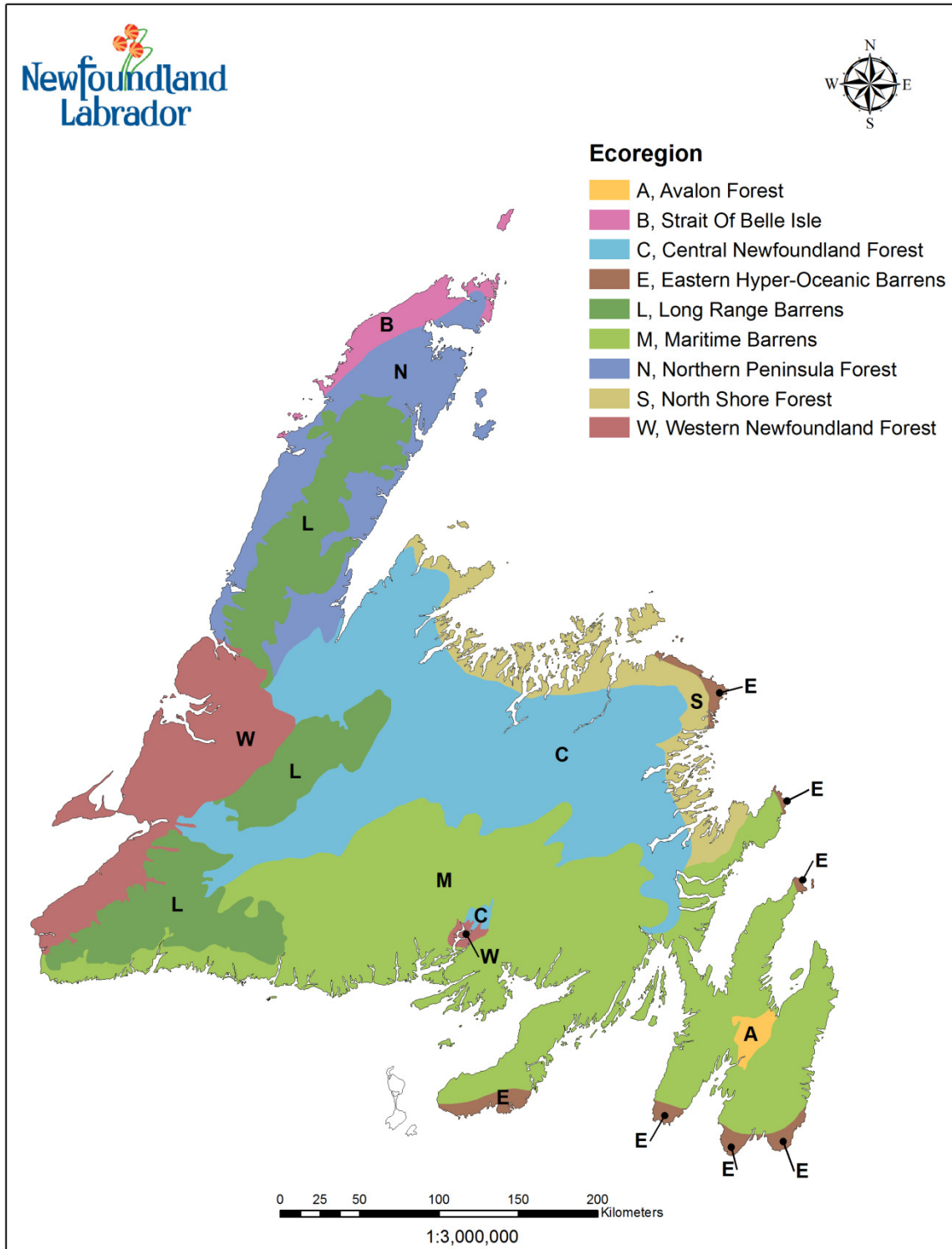


FIGURE 2. THE ECOREGIONS OF NEWFOUNDLAND

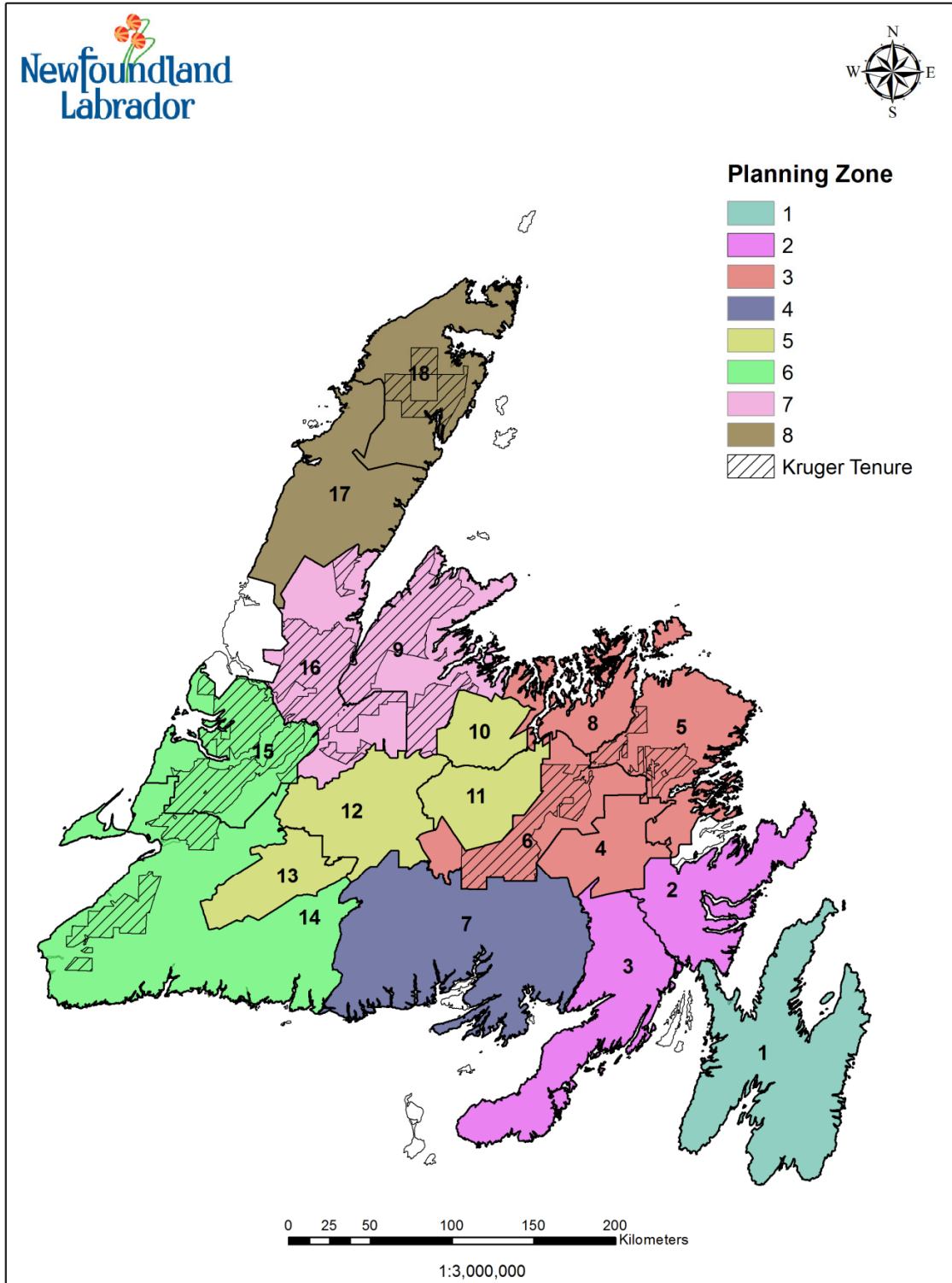


FIGURE 3. PLANNING ZONES, DISTRICTS AND CORNER BROOK PULP AND PAPER (KRUGER INC) TENURE FOR THE ISLAND OF NEWFOUNDLAND

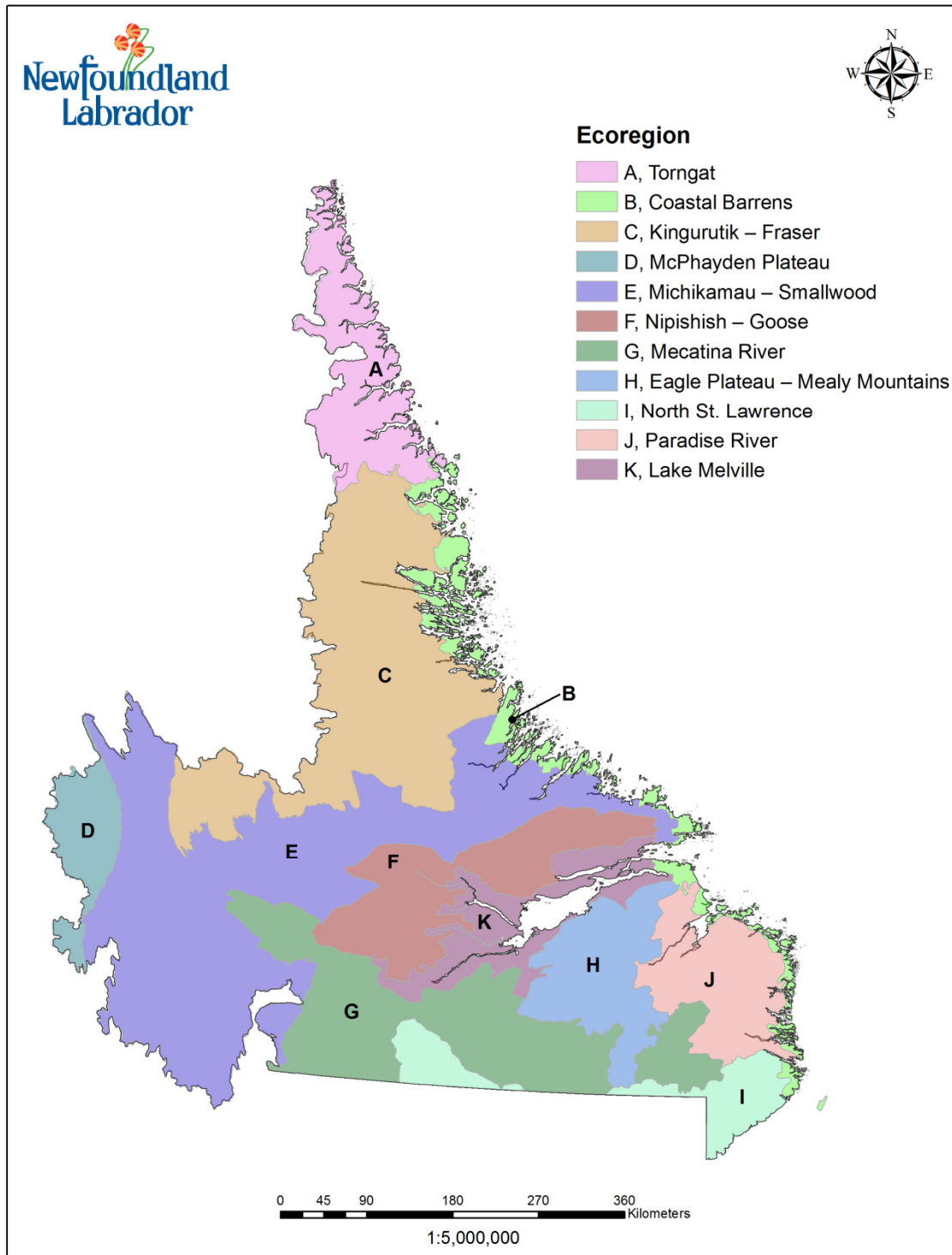


FIGURE 4. THE ECOREGIONS OF LABRADOR

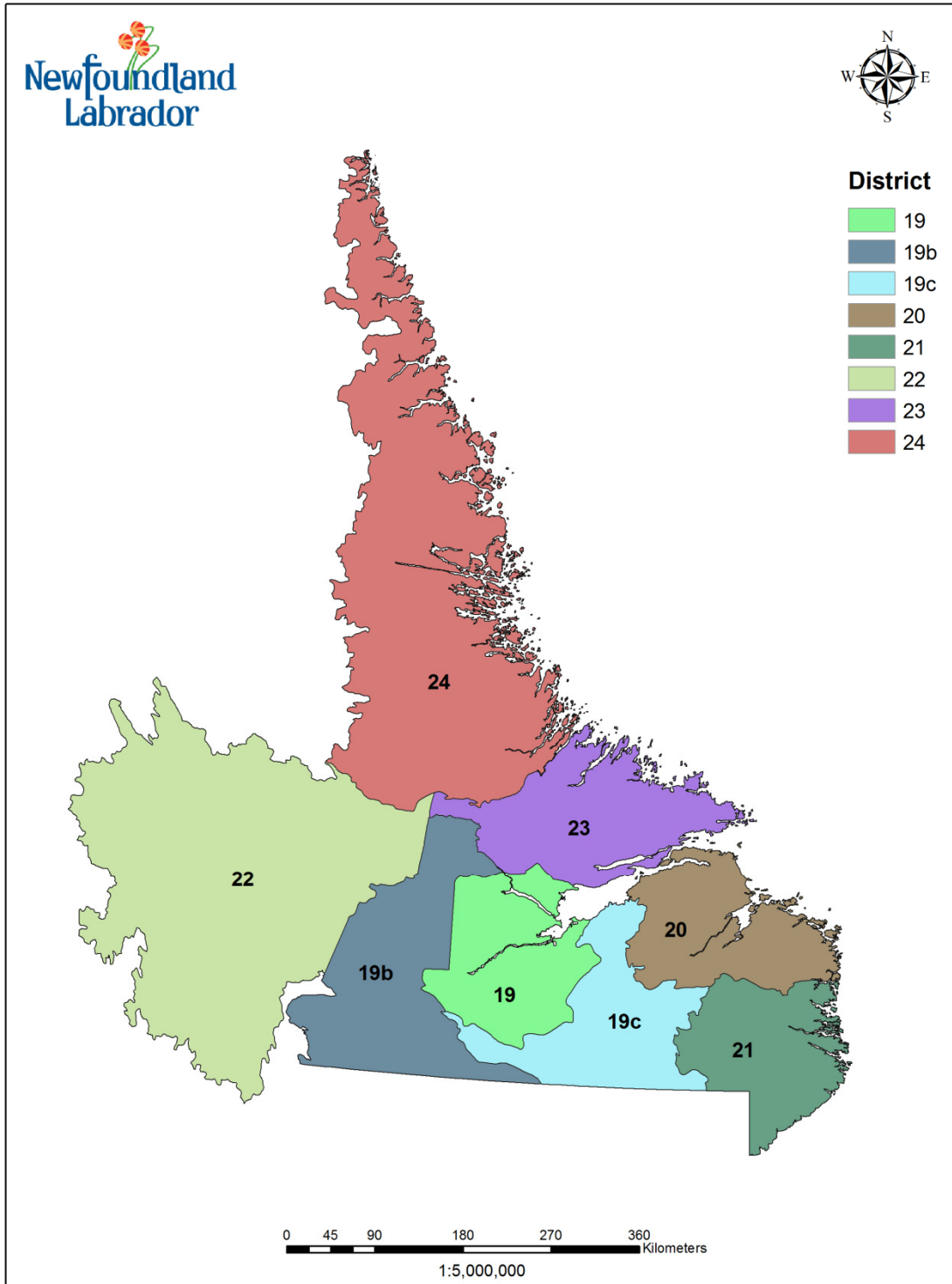


FIGURE 5. FOREST MANAGEMENT DISTRICTS OF LABRADOR (CURRENTLY NO PLANNING ZONES)

2. SUSTAINABLE FOREST MANAGEMENT

Adaptive Management

One of the over-arching philosophies underpinning the management strategy embraced in the 2014-2024 PSFMS is that of adaptive management to support decision-making. Under an adaptive management framework, forest managers gain knowledge through the process of experimenting while they manage. Adaptive management is often referred to as “learning while doing”, but it is much more than this. Adaptive management promotes flexible decision-making that can be adjusted in the face of uncertainties, as outcomes from management actions and other events are better understood. Careful monitoring of these outcomes both advances scientific understanding and adjusts policies or operations as part of an iterative learning process.

Specifically, adaptive management is the integration of design, management, and monitoring to test assumptions systematically in order to adapt and learn. Adaptive management is a process by which management is carried out under rigorous experimental processes. Research questions come out of policy as testable hypotheses and different management practices are applied in an experimental fashion. The results are then used to develop new policy.

Clear outcomes and indicators are a necessary part of adaptive management. Monitoring of research outcomes allows for robust evaluation as to what extent intended outcomes were realized, or not realized, and this helps to identify the best possible management practices. Because ecological, social, and economic systems are complex, and knowledge is never complete, adaptive management is a continual process. Thus it is of critical importance that resources be allocated to monitoring and reporting, because without these steps, true adaptive management does not take place.

- **Activity:** FSB will use adaptive management and applied research to refine its forest management policies.
- **Goal:** Improve the efficiency and efficacy of sustainable forest management practices.
- **Indicator:** A reduction in land use conflicts and a reduction in cost per ha for forest management.

Regulatory Certainty and Simplification

Forest management planning is intrinsically a long-term endeavor. The resource renews itself over periods that are much longer than typical policy and planning cycles within government or industry. Much of the forest industry has high fixed costs that are amortized over long periods. These factors make the industry susceptible to significant risk when resource availability or costs change significantly as a result of ad hoc policy or reactive conflict resolution. One of the primary objectives of this strategy document is to define clearly areas of policy development that will provide simplified and consistent guidelines for business while reducing risks both to industry and the environment.

Research in Support of Forest Management

Policy development requires research to provide the scientific basis for implementation and to ensure that the policies will have the desired outcomes. The Centre for Forest Science and Innovation will develop a research support plan as a component of the overall strategy implementation plan.

- **Activity:** Develop a research support plan as a component of the overall strategy implementation plan.

- **Goal:** Ensure the delivery of the PSFMS is science based.
- **Indicator:** A clear scientific basis for policies that flow from the PSFMS.

A Commitment to Professionalism

FSB comprises a very dedicated group of skilled professionals. Managing millions of hectares of forest, supporting an industry in transition, and protecting ecological and traditional values is no small feat. FSB is committed to supporting our forestry professionals in both the execution of their duties and the continued development of professional skill sets. *The Foresters Act – An Act Respecting Forestry Professions* – recognizes the advanced skill sets of many of our staff with the formal establishment of the Registered Professional Foresters Association. This will ensure that the highest quality public service possible is provided to the citizens of the province. FSB will improve informatics systems to support our staff in the delivery of these often complex and technical services. An integrated informatics system can provide significant efficiencies in the delivery of public services and improve the efficacy of forest management.

- **Activity:** FSB will improve informatics systems to support our staff in the delivery of these complex and technical services.
- **Goal:** To improve the efficiency and efficacy of forest management and the delivery of public services.
- **Indicator:** Reduced response times on requests for information by frontline forest managers.

Ecological Values

The natural resources of Newfoundland and Labrador are the basis of our economic prosperity and our quality of life. The utilization and extraction of renewable and non-renewable natural resources must be carried out such that we do not diminish the ability of future generations to maintain and improve upon the gains our citizens have made. One of the most delicate tasks we face is to ensure that the utilization of these resources does not cause permanent or irreversible damage to provincial ecosystems. Consultation with scientists, environmental groups, and citizens has been distilled into a set of ecological values that, when protected and managed, will ensure that we safeguard our ecosystems for generations to come.

Forest Management in Labrador

The Government of Newfoundland and Labrador, Nunatsiavut Government and the Innu Nation have received international recognition for the District 19a (Figure 5) forest management plan (http://www.env.gov.nl.ca/env/env_assessment/projects/Y2009/1413/dist_19a_5_yr_operating_plan_2008.pdf). This plan was written cooperatively with the stakeholders in Labrador and uses an ecosystem-based approach to ensure all values are integrated into the forest management planning. FSB has used many of the principles developed in the 19a plan throughout the development of the PSFMS. One of the advantages of doing planning in Labrador was the lack of significant existing values conflict on the landscape. The planners were able to start with a clean slate. On the island of Newfoundland, the existing industry and other established activities create a significantly more complex planning environment. The smaller scale of the planning and high levels of competing land use makes it more difficult to implement a holistic or ecosystem-based model. At the landscape-scale however, there remains enough flexibility to integrate ecological and social values with the existing economic models. The overarching policies in this strategy will lay the foundation for ecosystem-based planning at the landscape scale.

Large Intact Landscapes

One of the most effective measures for the conservation of biodiversity is to maintain large portions of an ecosystem in an intact and natural state with minimal human disturbance. The thinking behind this is that these systems are self-regulating and stable. Without human intervention they are expected to persist. Given that human activity affects climate change, no part of the planet is wholly free of human intervention. Nevertheless, many areas of Newfoundland and Labrador are relatively undisturbed. Estimates of intact landscape on the island portion of the province by groups such as Global Forest Watch and Parks and Natural Areas Division suggest that at least 50 percent and as much as 80 percent of our island land base is intact (depending on specific criteria for intactness, for example, variations in the size of buffers assigned to human activities), with little or no development. Labrador is higher again and both values are higher than the national average of about 50 percent. Many parts of the province have a long history of low-intensity human use, and while they may have been impacted by invasive species, for the most part they still maintain their core ecological character. FSB is making large intact landscapes an important component of our management planning for ecological values.

Part of FSB strategy to integrate ecological values into forest management planning is the designation of a series of Special Forest Management Areas (SFMA) where alternate forest management criteria are applied. These SFMA will include a Commercial Forest Management Area (CFMA), Intact Landscape Forest Management Areas (ILFMA), and Dynamic Species Specific Areas (DSSA) (Figures 6, 7 and 8).

The CFMA is the traditional area of forest management on the island of Newfoundland. FSB intends to continue with sustainable forest harvesting in this region of Newfoundland. While other values will be carefully considered in planning in the CFMA, producing wood fibre will be the primary management objective of FSB on this portion of the land base (Figure 9).

The forest management strategies presented here are one component of the Government of Newfoundland and Labrador's initiatives to protect ecosystems and biodiversity. The establishment of permanent protected areas such as wilderness and ecological reserves by the Department of Environment and Conservation (ENVC) is also an important component of ecosystem management. FAA supports the establishment of a network of protected areas in Newfoundland and Labrador and will work with ENVC to achieve this objective.

The ILFMA will be managed with the primary objective of protecting the inherent ecological values of landscapes with minimal anthropogenic activity. The ILFMA consists of the large intact landscape area designated by FSB and three high conservation value forests designated by Corner Brook Pulp and Paper Limited (CBPPL) (Figure 6) as part of their Forest Stewardship Council certification. Industrial forest harvest activity, defined as involving the construction of harvest roads, the use of mechanical harvesting equipment, and the creation of cuts over five ha, is deferred in this area for a period of ten years. The effectiveness of these areas in meeting ecological goals will be reassessed in 2019. Commercial harvesting using other techniques is allowed. Other forest management tools, such as silvicultural site preparation and tree planting, may also be utilized in these areas.

The DSSA are based on the most current data and recommendations of the ENVC to protect species at risk like the Newfoundland Marten, or high-value game species like caribou. For clarity only the caribou and Newfoundland marten DSSA are presented on the maps below (Figure 7), however these areas also include places such as water supply areas, main stems of salmon rivers, stewardship areas, areas of rare plant diversity, and sensitive wildlife sites (Table 1). These areas may be updated at any time based on the best available science. The forest management criteria for these regions are species specific.

These zones, when combined, are intended to capture a large portion of the province's ecosystem diversity and minimize the risk to ecological values. Together, these areas represent alternate management in a land base with a total area of 5,235,162 ha. This is 47.2 percent of the island of Newfoundland of which 19.2 percent is commercially productive forest (Table 1; Figures 6, 7, and 8). Thirty-one percent of the total island land base has commercial productive forest. The commercial productive forest is arranged in a mosaic with scrub forest, bog and barren. The FSB will manage this mosaic as a natural unit of the boreal forest.

Table 1. Special Forest Management Areas of the island of Newfoundland. Several of these areas overlap, See Figures 6-8.

Forest Management Area	Management Regime	Area (ha)	Comments
Commercial Forest Management Area (CFMA)	Sustainable forest management for commercial harvest.	4,926,959	The primary area of commercial forestry activity.
Intact Landscape Forest Management Areas (ILFMA)	Deferral of industrial forest harvest until 2024.	3,993,431	12 Ecoregions, 74 percent of caribou core habitat.
Caribou Core Habitat (DSSA)	No industrial forest harvest activity.	494,731	Primarily calving and overwintering areas.
Caribou Core Habitat Buffer (DSSA)	No industrial forest harvest during calving and post-calving periods. Thirty percent forest cover maintained post-harvest.	929,256	A precautionary buffer zone around the primary or core caribou habitat.
Newfoundland Marten Core Habitat (DSSA)	Integrated habitat management in conjunction with ENVC.	1,208,282	Habitat with evidence of Newfoundland Marten.
Water Supply Areas, Main Stems of Salmon Rivers, Stewardship Areas, areas of rare plant diversity, and Sensitive Wildlife Areas	75-150m buffer zones around water bodies with no commercial forest harvest activity. Specific areas removed from forest management (e.g. Upper Humber Wetlands Complex).	variable	Not represented on maps below due to scale.
Provincial and National Protected Areas	Protected areas, no development activity.	877,847	No roads within 500m of these areas.

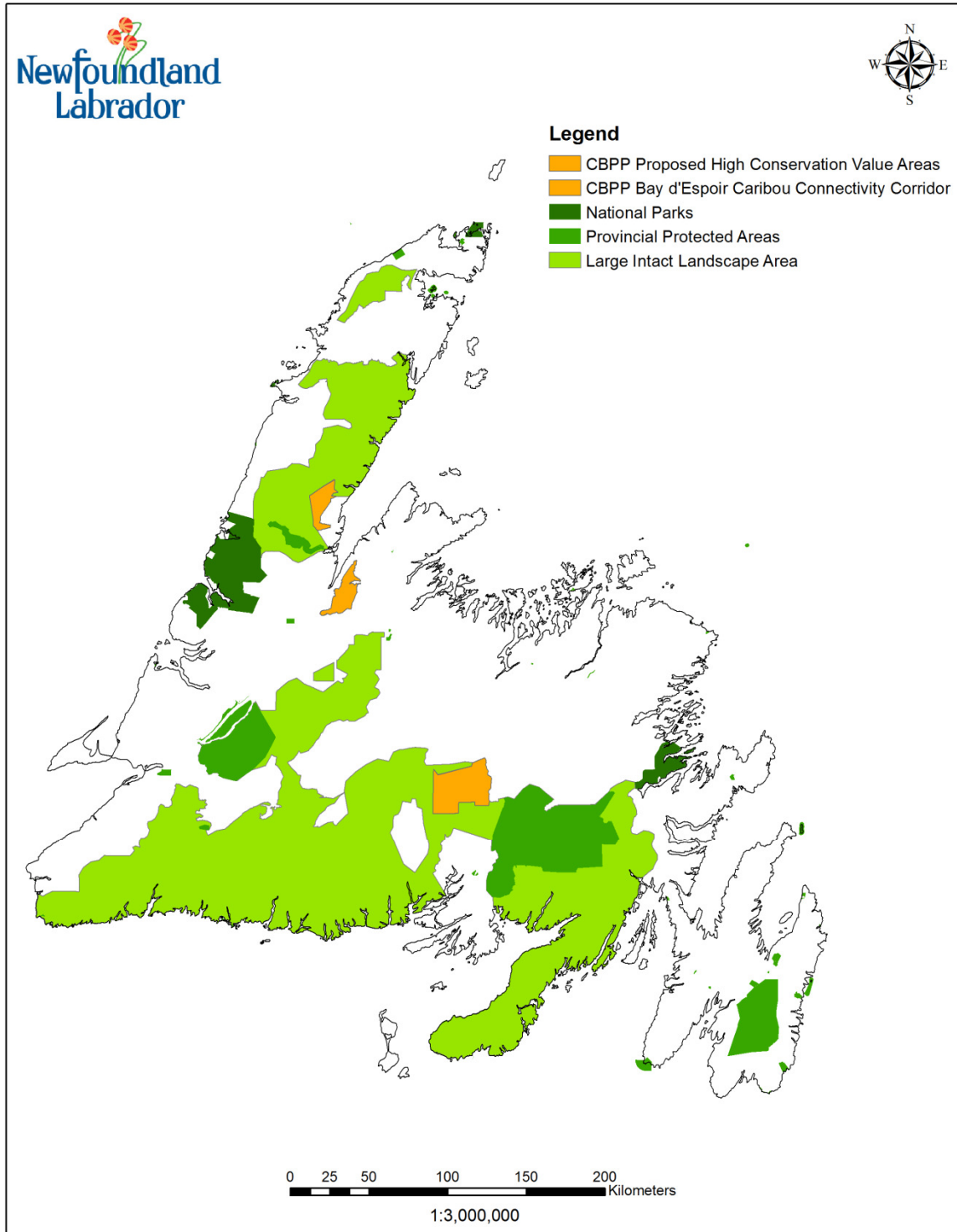


FIGURE 6. FOREST MANAGEMENT AREAS OF THE ISLAND OF NEWFOUNDLAND. THE ILFMA INCLUDES THE CBPPL CONTRIBUTIONS AND THE LARGE INTACT LANDSCAPE AREA.

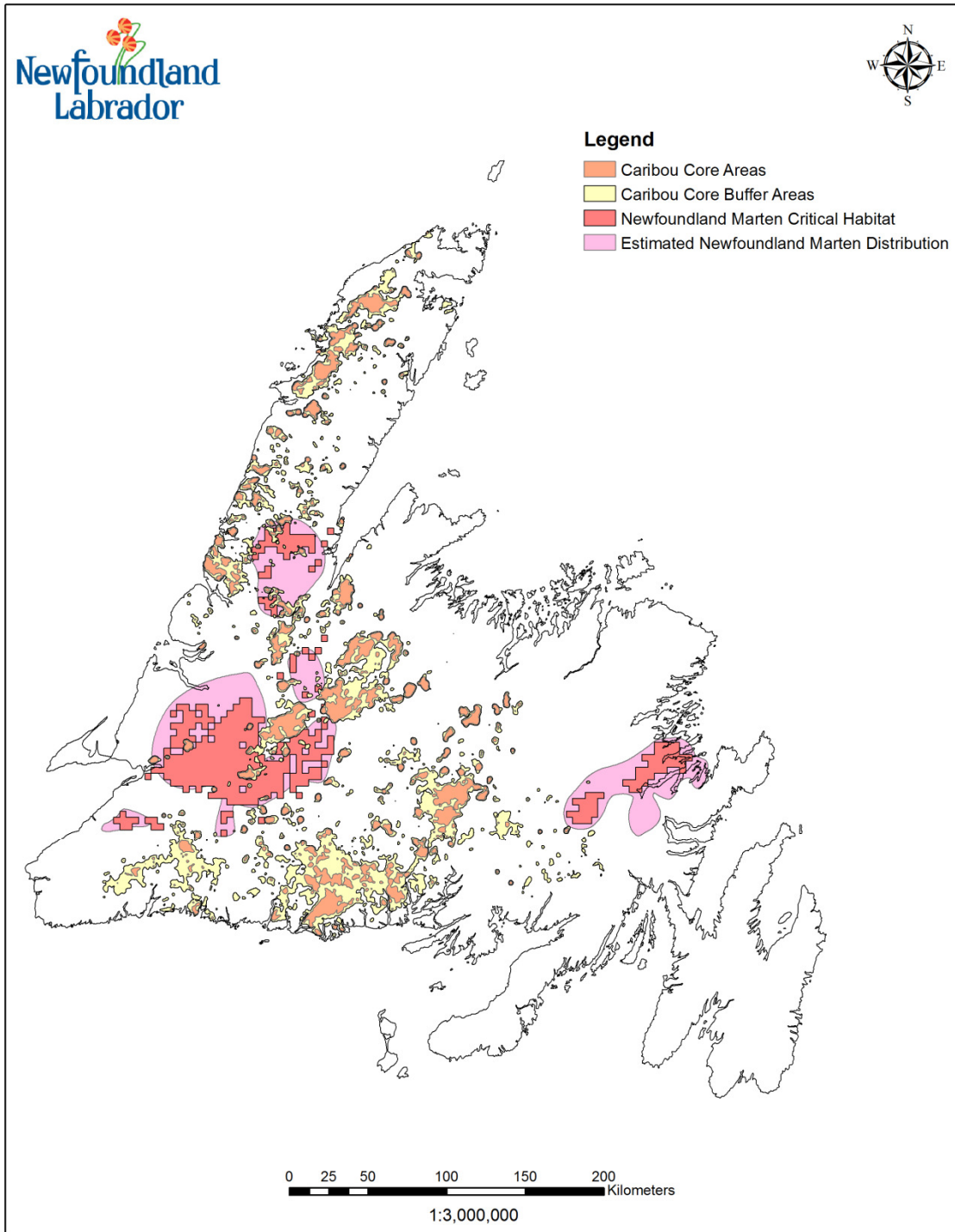


FIGURE 7. FOREST MANAGEMENT AREAS FOR THE ISLAND NEWFOUNDLAND. THE DSSA IS MADE UP OF THESE MARTEN AND CARIBOU HABITATS.

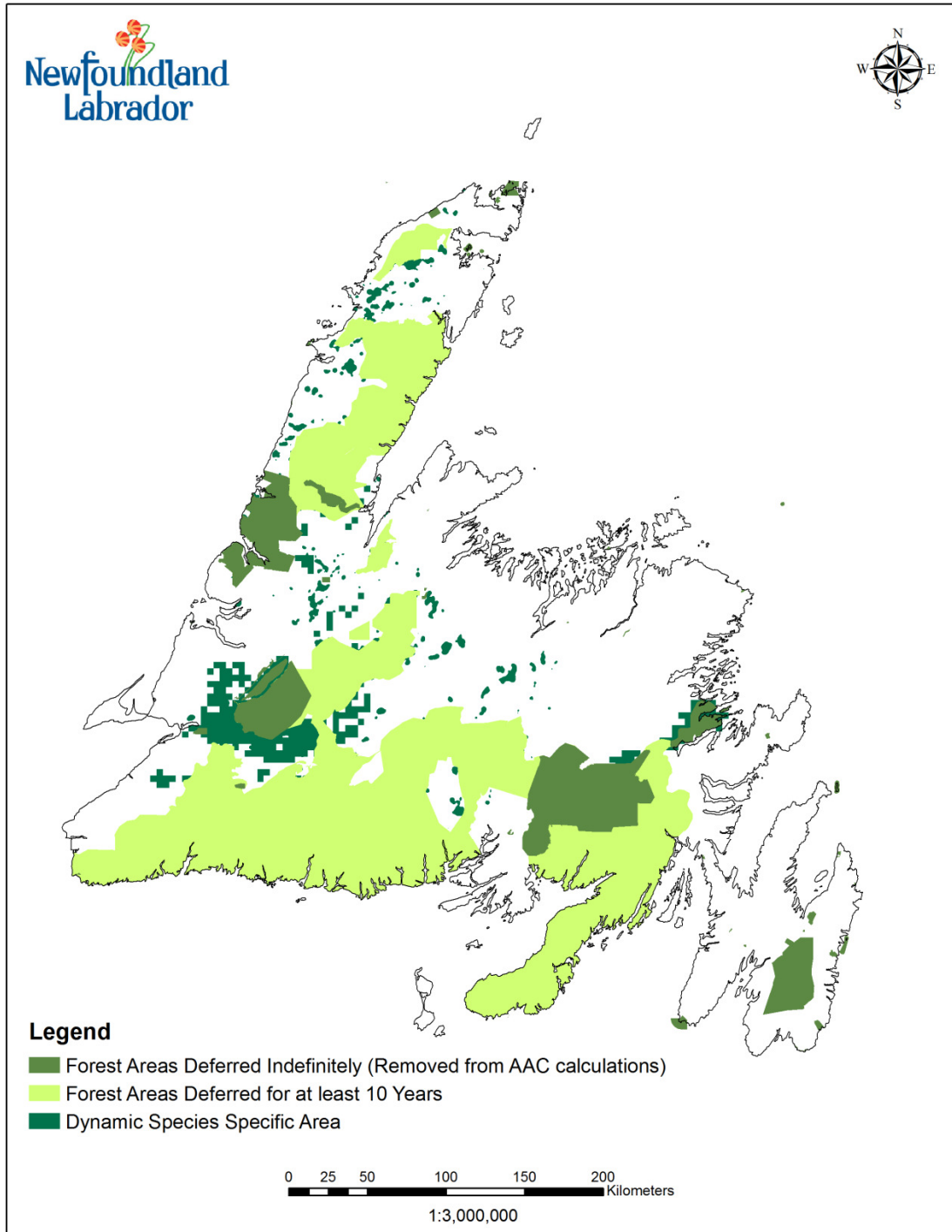


FIGURE 8. COMBINED MAP OF SPECIAL FOREST MANAGEMENT AREAS FOR THE ISLAND OF NEWFOUNDLAND.

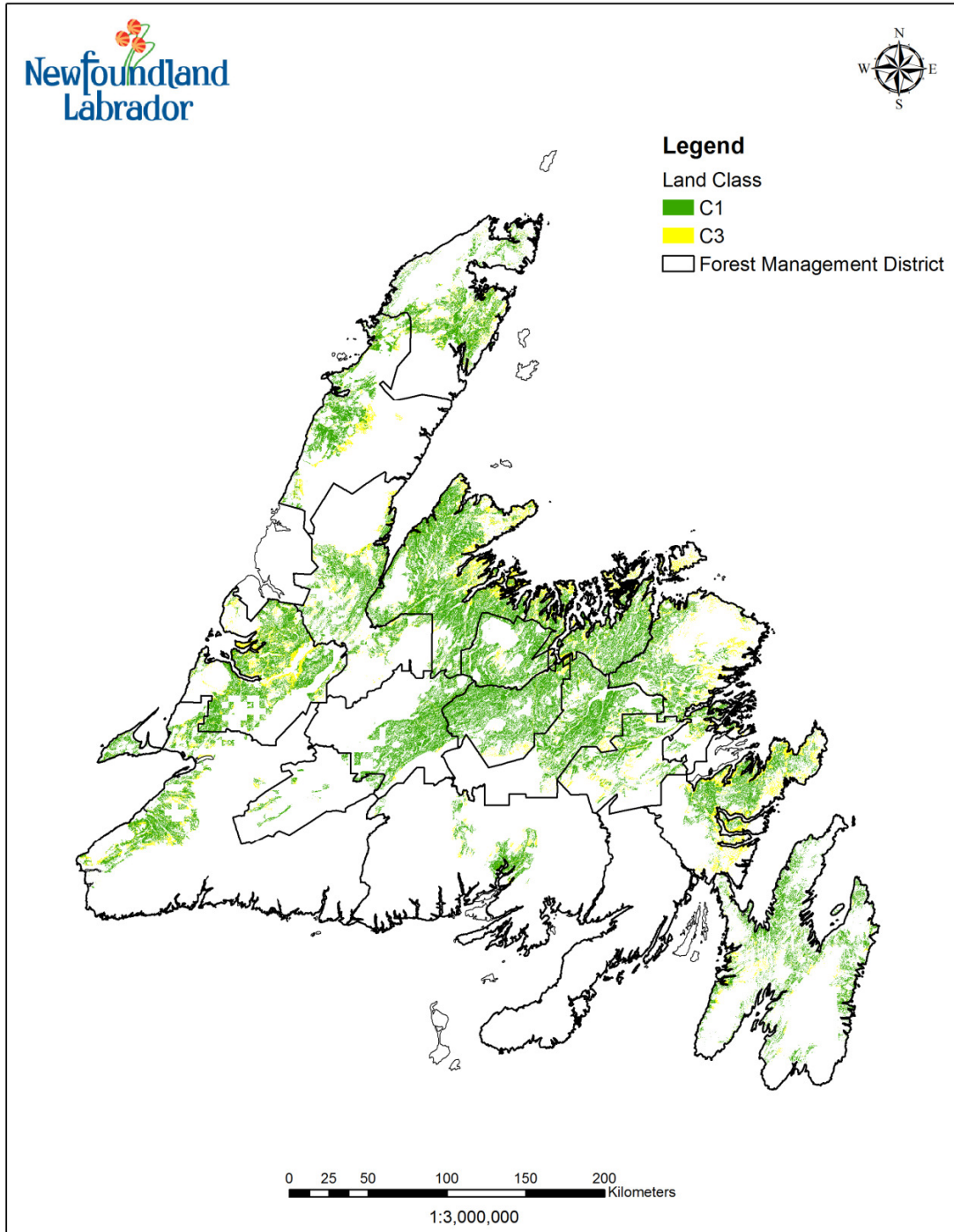


FIGURE 9. COMMERCIAL FOREST MANAGEMENT AREA. C1 IS THE CLASS ONE LAND BASE. THESE AREAS REPRESENT THE FOREST THAT MATCHES OPERABILITY LIMITS ESTABLISHED BY FSB. C3 IS THE CLASS 3 LAND BASE WHICH IS OUTSIDE STANDARD OPERABILITY LIMITS BUT MAY IN SOME CASES BE ACCESSIBLE FOR HARVEST WHEN CONDITIONS PERMIT

- **Commercial Forest Management Area**
 - **Activity:** FSB has identified a Commercial Forest Management Area where planning for commercial forest harvest activities will be a priority for the Branch.
 - **Goal:** To provide stability around planning and industry development while reducing land use conflicts.
 - **Indicator:** A reduction in land use conflicts and a reduction in planning and operating costs for the forest sector
- **Special Forest Management Areas**
 - **Activity:** FSB will use Special Forest Management Areas in conjunction with recommendations from ENVC to protect ecological values such as sensitive wildlife areas, stewardship management areas and zones, protected parks, wilderness reserves, ecological reserves, and wildlife reserves.
 - **Goal:** To provide effective management of ecological values at the landscape scale.
 - **Indicator:** Incorporation of ecological values into Five-year Forest Management Plans.

Connectivity of Forest Habitat

All plants and animals are at increased risk of decline or even extinction when they are isolated. The ability to migrate between habitats, or disperse to an entirely new one, allows animals to optimize resource use (for example, salmon moving to the ocean to feed), or to reduce risk (for example, caribou migrating to calving grounds to avoid predators). When connections between habitats are disrupted, the effect on the population can be dramatic. Maintaining connections between large intact landscapes and smaller habitat patches within active forest harvest areas will be a key goal of forest management policy.

The forest management areas presented above capture a large portion of the provincial landscape; however within the areas managed for commercial forestry and among SFFA, FSB will seek to maintain natural levels of connectivity. To this end, FSB is working with the Newfoundland and Labrador Connectivity Working Group (a research group including representatives of Department of Natural Resources and Department of Environment and Conservation, and academia) to evaluate tools and methods suitable to estimate connectivity in the Newfoundland boreal forest. The Connectivity Working Group has already developed a set of principles to guide forest managers (Appendix B).

- **Activity:** Forest management planning will explicitly incorporate spatial and temporal connectivity.
- **Goal:** To maintain structural connectivity levels near natural levels at the landscape scale.
- **Indicator:** Structural connectivity explicitly modeled in 5-year Forest Management Plans and no loss of structural connectivity at the landscape spatial and forest rotation temporal scales.

Aquatic Ecosystems

Aquatic Ecosystems encompass a significant portion of this province's biodiversity. Unlike terrestrial ecosystems, they may not be directly impacted by forest management, the removal and transportation of trees from the landscape can affect the flow, quality, and temperature of water. These variables can alter the aquatic habitat significantly. Fortunately most of the potential impacts can be mitigated by good operational practices. FSB follows aquatic protection guidelines developed by the Department of Fisheries and Oceans and the Water Resources Division of ENVC included in the renewed Environmental Protection Guidelines. Additionally FSB has developed a set of road and water crossing practices that go well beyond many of the requirements set out by the Department of Fisheries and Oceans. Intact stream beds, minimal

siltation, and healthy watercourses are the result. FSB will also work with the Office of Climate Change and Energy Efficiency (OCCEE) and ENVC to monitor the increased risk to aquatic habitat and forest access infrastructure by climate change. This will ensure that road and water crossing designs are sufficient to protect the environment and our resource-access infrastructure.

- **Activity:** Monitor the evolving science on climate change impacts and assess the risks to forest management infrastructure.
- **Goal:** No damage to aquatic ecosystems from forest management infrastructure.
- **Indicator:** No substantial increase in damage to forest infrastructure due to extreme weather events.



FIGURE 10. SMOKEY FALLS ON THE BAY DU NORD RIVER

Late-Succession Forests

Old-growth forest is a term that often creates confusion in the public discourse on forestry. Most people understand it in the context of the old-growth forests of the Pacific Northwest, where trees may live for centuries, and forest canopies open only in small gaps when individual trees die. This is not what old growth means in the boreal forest. Old growth in the boreal forest is defined more by the structure of a forest in the late stages of succession. None of the trees on an old-growth site may be particularly long lived, but through a succession of partial disturbances an uneven age structure has developed over time. Most old-growth sites in the boreal forest would not be recognized as such by the uninitiated. Thus this ecological niche is referred to as *late-succession forest* in this strategy and refers generally to forested portions of the landscape that have not been disturbed naturally or by humans for unusually long periods.

There are two distinct types of late-succession forests in Newfoundland and Labrador. The most common type by far comprises late-seral stands. Such stands are common in the boreal forest. Disturbance typically occurs through fire, insect or wind events that have a relatively long return interval – generally greater than the mean lifespan (60-100 years) of black spruce and balsam fir characteristic of Newfoundland and Labrador forests. Disturbance patch size may vary (tending to be large with fires and smaller with wind or insect events), and after the first generation of trees succumb to senescence the stand or area may tend toward smaller scale gap-replacement dynamics and an uneven age structure. The disturbance return interval however, is generally short enough to bring the stand back to even-age dynamics within several generations. Estimates in the literature suggest that typically 30-60 percent the boreal forest in northern Canada is likely to be in this late-seral stage at any given time. The flora and fauna typical of this type of late-succession forest are adapted to this dynamic system and appear to be able to cope with anthropogenic disturbance when it occurs in a sustainable fashion and mirrors natural disturbance in magnitude and frequency.



There is another type of late-succession forest that can develop within the Canadian boreal forest but is much rarer. When microclimate, geology, and circumstance create a region that has a low probability of natural disturbance, the eastern boreal forest can develop long-term gap dynamics. The only known region of the province that appears to have this type of forest is the Main River Valley on the eastern side of the Great Northern Peninsula. Areas such as the Main River Valley may be home to species that are not well adapted to natural or anthropogenic disturbance.

These two types of late-succession forests require two distinct management approaches. The late-seral stage forest types can safely sustain forest harvest activities, but forest managers must ensure that a substantial proportion of diverse forest ecotypes remain in the late-seral stage. FSB has committed to maintaining at least 15 percent of the forest within the CFMA (Figure 8) in the 81+ age class (the best approximation of late-seral forest available from the Forest Resource Inventory), including non-harvestable areas. This commitment, combined with large areas of late-seral forest captured in the Special Forest Management Areas (Figures 6,

7 and 8), will ensure there is sufficient habitat available for species that require this ecological niche (approximately 48 percent of the island of Newfoundland forests are 81+ years in age).

The gap-dynamic forest found in the Main River Valley will not be targeted for forest management activities. FSB will also examine other areas of the province with the potential to host this forest type.

- **Activity:** Intact and late seral forests will be protected with a combination of Special Forest Management Areas and a minimum of 15 percent of the 81+ year old productive forest in each Forest Management District.
- **Goal:** To maintain or increase the current level of intact and late seral forests at the landscape scale
- **Indicator:** The amount of intact or late seral forest on the landscape.

Rare Species and Species at Risk

Rare and endangered species constitute a critical value in our forested ecosystem that must be carefully considered in forest management. Some species are rare by their very nature – they may be highly specialized, occupying habitats that are uncommon in the boreal forest. These species may never develop high populations, and low abundance and occurrence are the norm. Nor is it the case that rare species are necessarily at a higher risk of extirpation from forest management practices than more common species. Nevertheless, their inherently low abundance requires special consideration. *Species at Risk* is a legal and technical term for any type of species that has declined rapidly in both abundance and/or distribution through natural or anthropogenic changes in the environment. When a species receives legal protection, either through the federal *Species at Risk Act* or the provincial *Endangered Species Act*, prescriptive actions must occur. This may include status assessments, critical habitat protection, management plans, and recovery plans. These actions can have a major impact on forest management and planning.



The management of rare and endangered species is administered by the provincial Department of Environment and Conservation, and Environment Canada. FSB takes direction from both of these agencies on how best to mitigate any potential interactions between forest management and species at risk. Unfortunately, there is a deficiency of data on many of the legally listed species at risk, as well as many of the rare species that may receive legal protection in the future. To mitigate risk, FSB will endeavor to maintain all potential forest-habitat types in the landscape with sufficient abundance, distribution, and connectivity to ensure that habitat loss through forest management does not represent a major threat. The Intact and Special Forest Management Areas and the Environmental Protection Guidelines are a major component of this endeavor.

Currently, the total number of species, subspecies and populations listed under the province's *Endangered Species Act* is 44 including 21 endangered, 10 threatened and 13 vulnerable species. Fifteen of these species occupy habitat that may include commercially harvested forests (Graceful Felt Lichen/ Vole Ears, Alaska Rein Orchid, Feathery False Solomon's Seal, Lindley's Aster, Vreeland's Striped Coralroot, Newfoundland marten, woodland caribou (Labrador), gray-cheeked thrush, olive-sided fly catcher, red crossbill, rusty blackbird, short-eared owl, boreal-felt lichen, American eel, and banded killifish). Working with the relevant agencies, FSB will continue to participate in the development of management and recovery plans for these species. Forest managers will continue to implement recommendations from these plans. For complete information on these species, visit the Department of Environment and Conservation website:

(<http://www.env.gov.nl.ca/env/wildlife/endangeredspecies/index.html>).

A number of tree species in the province are rare, and in some cases apparently on the decline. These include species such as white pine, red pine, black ash. FSB currently prohibits harvesting of these species and will continue to explore silvicultural tools to protect them. FSB will also continue to assess through research the ecological viability of these species.

- **Activity:** FSB will work with ENVC to manage habitat for species at risk, rare species, and other species of wildlife or plants.

- **Goal:** To ensure that forest management considers wildlife and plant populations in all planning exercises.
- **Indicator:** Five-year Forest Management Plans utilize ENVC recommendations for habitat management of wildlife and plant populations.

There are many species of plants and wildlife throughout Newfoundland and Labrador that are not rare or endangered, but none the less have important social or economic value. Many of these species also play important roles in the functioning of the province's ecosystems. The strategies presented in this document to address issues such as species at risk, late seral forests, and intact landscapes will also contribute directly to the management and protection of all plant and wildlife species throughout Newfoundland and Labrador. These strategies incorporate ecological values into forest management planning. Furthermore, FAA will continue to work with ENVC to ensure that when forest management activities do occur, the disturbance and regeneration of forest habitat is sustainable and not a risk to wildlife and plant populations.

Climate Change

Climate change is a long-term change in the statistical distribution of weather patterns over periods of time that range from decades to millions of years. It may be a change in the average weather conditions or a change in the distribution of weather events with respect to an average, for example, greater or fewer extreme weather events. Climate change may be limited to a specific region, or may occur across the whole Earth. Currently there is a great deal of concern because of the change in global climate patterns apparent from the mid to late 20th century onwards, attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

Acting as either carbon sources or sinks, forests play a vital role in the global carbon balance. As such, forests are an important element in the management of climate change. At the same time, climate change represents a significant risk to all the forests of the world. Climate change is expected to occur at a rate that will exceed tree species natural migration rate. Increases in natural disturbances, such as fire, insect outbreaks, and extreme weather events, are likely. Current climate change projections for Newfoundland and Labrador for the period of 2038-2070 predict continued warming and more numerous extreme precipitation events. The effects of climate change will not be uniform across the province. Warming, for example, will be the greatest in northern Labrador. Forest management policies will consequently need to take into account the different effects of climate change across the landscape on the basis of unique projections for various regions. There are potential positive effects. Increases in temperature, for example, can result in a longer growing season, leading to faster growth rates. On the other hand, ecosystems are complex and benefits may be outweighed by negative effects. Higher temperatures can also raise the productive activity of pest species and increase the risk of disease. To maintain the health of our forests in the future, forest policy and forest management practices should capitalize on any positive outcomes while minimizing the adverse effects.

The most likely risks to our forests are changes in water availability, disturbance regimes, and invasive species. The best protections against these risks are resilient and healthy forest ecosystems. The policy direction laid out in this strategy will ensure that our forests have the best chance of remaining healthy well into the future. To further assess climate change risk and any potential contribution of forest management, FSB will use the CBM-CFS3 carbon models developed by the Canadian Forest Service to assess the status of carbon flow in Newfoundland and Labrador forests. FSB will continue to engage in national level forestry climate change initiatives such as the Canadian Council of Forest Ministers Climate Change Task Force. The Centre for Forest Science and Innovation will continue to invest in research on climate change adaptation, predictive modeling of ecosystem response, and the carbon cycle in the boreal forest ecosystem. Monitoring

for the presence of potential invasive pest species will continue and appropriate control and quarantine procedures will be developed for invasive species candidates.

FSB will use the outcomes of carbon flow modeling and climate change research to inform forest management planning and to update Environmental Protection Guidelines. FSB will manage the forests of the province to maximize the storage and sequestration of carbon where possible. Five-year forest management plans will include explicit reference to how forest management will take into account climate change adaptation and mitigation. FSB will inform the OCCEE of forest management practices and policies around climate change to ensure they are consistent with government wide initiatives.

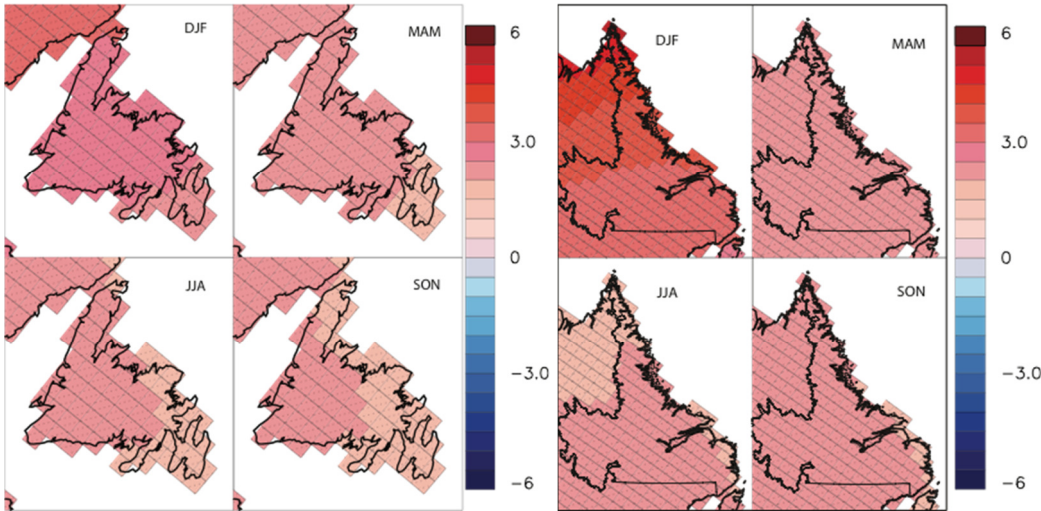


FIGURE 11. PROJECTED CHANGES IN MEAN TEMPERATURE FOR NEWFOUNDLAND AND LABRADOR BY 2070. THE SCALE IS IN DEGREES CELCIUS. DJF – DECEMBER JANUARY FEBRUARY, MAM – MARCH APRIL MAY, JJA – JUNE JULY AUGUST, AND SON – SEPTEMBER OCTOBER NOVEMBER.

▪ **Carbon Accounting**

- **Activity:** Canadian carbon accounting/budgeting models will be used to report on the interaction between forest management and carbon forest dynamics.
- **Goal:** To determine the relationship between Newfoundland and Labrador forests and global carbon cycles.
- **Indicator:** Estimates of carbon storage and flow reported for Newfoundland and Labrador Forests.

▪ **Climate Change Research**

- **Activity:** Invest in climate change research.
- **Goal:** Improve our understanding of climate change risks for Newfoundland and Labrador.
- **Indicator:** Publication of research reports on climate change.

Forest Protection

Frontline forest protection services such as integrated pest management and fire management represent the most promising operational responses to climate change by FSB. In the past, these services have been very effective in protecting our forest resources, as well as public property and safety. Anticipating potential increases in fire activity and pest outbreaks caused by climate change, FSB will review and evaluate these services to ensure there are sufficient resources and structures in place to face future challenges.

FSB has recently reviewed and renewed the structure and protocols of the pest management section of the Branch. These changes will significantly improve the ability to detect outbreaks of known pests and the arrival of new pest species to the island and northern Labrador. FSB is using new data to enhance the effectiveness of monitoring and outbreak response plans.

The suppression of forest fires is critical not only for forest management but also for the protection of public and private property, and ultimately the lives of our citizens. The fire protection program has served the province well for many decades. Nevertheless, advances in technology (such as modern CL 415 water bombers), new tactics (such as allowing fires to burn in remote areas to realize ecological and economic benefits), and workforce demographics all suggest that significant gains in efficiency and effectiveness can be attained by restructuring the fire management program.

- **Activity:** Review and evaluate forest protection services.
- **Goal:** To increase the efficiency and efficacy of forest protection services.
- **Indicator:** Area of forest damaged and costs of forest protection.



FIGURE 12. A BURNED AREA OF BOREAL FOREST IN CENTRAL LABRADOR

Silviculture

Silviculture continues to be a key forest management activity within FSB, where the main goal of the silviculture program is ensure forest ecosystem sustainability through the reforestation of disturbed forest sites that have failed to regenerate naturally. A secondary, but very important objective is the establishment and growth of thrifty and fast-growing forests, primarily of native black and white spruce, that will support and enhance forest industry development in the future.



For the past several decades, one of the primary focuses of the provincial silviculture program was the pre-commercial thinning (PCT) of overly dense, young, naturally regenerated balsam fir forests. The intent of the treatment was to bring these forests to merchantability at an earlier age to help alleviate a projected shortfall in provincial wood supply in the early decades of this century. Due to the recent downturn in the local forest industry and a weaker demand for timber, this wood supply shortage has not materialized. Consequently, FSB has made a strategic decision to reduce its investment in pre-commercial thinning and focus instead on more aggressive reforestation.

This has meant a greater focus on tree planting, not only on non-regenerating harvest blocks, but also on regenerating balsam fir sites where moose browsing and insect damage pose a serious threat to regeneration success and future forest health.

The figure below shows the trends in tree planting versus pre-commercial thinning over the 20-year period between 1994 and 2013. The area figures shown include both FSB treatment levels and those of the industrial tenure holders.

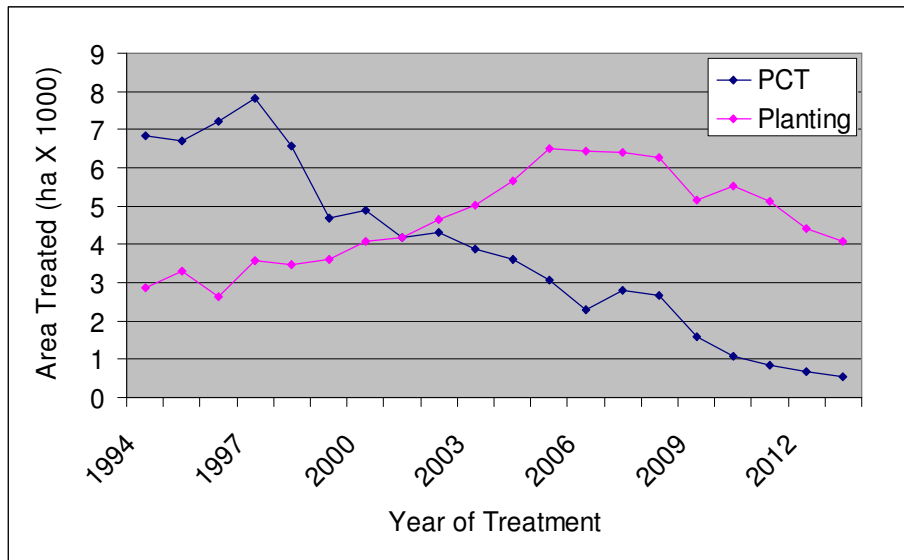


FIGURE 13. TRENDS IN PCT AND TREE PLANTING FOR NEWFOUNDLAND AND LABRADOR 1994-2013

All trees planted, both by FSB and forest industry, are produced by FSB at its Provincial Tree Nursery at Wooddale. A satellite nursery at Happy Valley-Goose Bay has been idled due to lack of local demand for tree seedlings. Provincially, planting levels are slowly declining, reflecting reduced harvest levels.

The Wooddale Nursery is currently producing approximately 9 million seedlings per year but has the capacity to produce 15 million per year should demand increase. Wooddale is also the focal point for the Provincial Tree Improvement Program which has as its goal the genetic enhancement of planted trees so that they grow faster and produce more wood volume.

Going forward, the silviculture program will continue to be one of the FSB's green programs that will address its main goals of ecosystem sustainability and the growing of timber for future economic development. In addition, the direction of the program will be adjusted, as needed, to respond to climate change, forest certification and other emerging issues. Appendix B shows the area planted and pre-commercially thinned in Newfoundland and Labrador over the past ten years, as well as projected program levels for the next five years.

- **Activity:** Continue with the delivery of an innovative silviculture program.
- **Goal:** Ensure successful forest regeneration.
- **Indicator:** Hectares of forest successfully treated annually.

Forest Health

Compared to much of North America, the forests of Newfoundland and Labrador are in good condition in that they are mostly intact with relatively low levels of deforestation. Unfortunately, this is not the whole story. There have been dramatic changes to the forest ecosystems of the province over the last several centuries. These changes have been heavily introduced animals such as moose (*Alces americanus*), red squirrel (*hudsonicus*), snowshoe hare (*Lepus americanus*), and shrew (*Sorex cinereus*), and invasive plant diseases such as white pine blister rust (*Cronartium ribicola*) and scleroderris canker (*Gremmeniella abietina*). These new species, combined with significant fire management and forest harvest activities, have led to significant changes in the succession patterns of the boreal forest for the island part of the province. FSB has worked diligently to mitigate the impacts of these environmental changes, but introduced and invasive species represent a significant risk to forest regeneration and long-term forest health in the province.

Maintaining the health of the province's forest ecosystems means more than protecting forest species from the impacts of forest management. It requires ensuring that our forested ecosystems are productive, resilient, and persistent. While there is a perception that simply minimizing human activity in an area will ensure a healthy forest ecosystem, the recent experience in the Gros Morne National Park has shown otherwise. The introduction of a number of non-native herbivores such as moose, snowshoe hare, and squirrels to improve subsistence and recreational hunting has led to forest regeneration challenges in several regions of the province. Many understory plant species have also been impacted by this herbivory. This problem is particularly prevalent in remote areas with small-scale natural disturbance. Large harvested areas appear to overwhelm the ability of herbivores to suppress regeneration, and forest resource roads provide access for hunters who may depress herbivore density.

Nevertheless, forest harvesting activities if not conducted properly can degrade forest health. To minimize this risk FSB has developed a number of best practices to ensure that the biophysical, geological and ecological features of harvested sites are maintained. Practices that minimize ground disturbance and protect existing early regeneration are key components of these best practices. FSB will also develop a biomass harvest practices policy.

- **Introduced Species**
 - **Activity:** FSB will work with the ENVC to mitigate the impacts of invasive wildlife on forest health.
 - **Goal:** To reduce the impact of invasive species on forest ecosystems.
 - **Indicator:** A reduction in the distribution and abundance of invasive species and no introductions of new invasive species.

- **Biomass Harvesting**
 - **Activity:** FSB will develop a biomass harvesting policy.
 - **Goal:** To provide clear direction to the forest sector around biomass harvesting and to ensure that ecological values are protected.
 - **Indicator:** Publication of a biomass harvesting policy.

Social and Non-timber Economic Values

Cultural values pertaining to the forest can be broadly divided into three categories, Aboriginal traditional knowledge, historic use and connections to the landscape by European settlers, and archaeological resources. These cultural values are diverse, ranging from traditional community forest commons (for example, an area that may have provided boat-building materials throughout a community's history), to locations that have a deep spiritual meaning for Aboriginal people (for example, pipe stone or burial locations). There are also archaeological sites that may not have a connection with current Aboriginal peoples, but are thousands of years old and are of unique historical value. Once sensitive sites are identified, localized cultural values can be incorporated into planning. Forest managers can plan to avoid the sites and surround them with appropriate buffers. The primary source of knowledge on local cultural sites in the past has been the planning team process. Although this process has no doubt helped to reduce the risk to cultural sites, FSB will improve the practice by proactively engaging with Aboriginal groups to ensure that the protection of Aboriginal cultural sites is properly incorporated into planning.

There are also broad cultural and societal values that must be considered in forest management. Ultimately the forests of the province are a public resource. The harvesting of our forests for economic benefits is done with the consent of the citizens of Newfoundland and Labrador. It is critical that forest management continue in a responsible and sustainable fashion. Citizens of the province participate in national and international trends of increasing environmental, cultural, and ecological awareness. The general public has a good understanding of the inherent trade-off between economic development and environmental risk. Maintaining the social license that affords forest harvesters the right to derive economic benefits from this resource will require not only that FSB employ practices that are in accordance with international forest management standards, but also that it demonstrate to the people of the province that our forest managers are meeting these standards. The FSB will develop an information and education campaign to keep the public informed about the state of forest management in this province, including the social, ecological, and economic benefits accrued.

In order to assess the effectiveness of education campaigns and track the expectations of citizens, FSB will implement a biannual survey of public knowledge and attitudes concerning forest management.

- **Aboriginal Peoples**
 - **Activity:** NunatuKavut Community Council, Inc., the Nunatsiavut Government and the Innu Nation will be invited to continue participating in the forest management planning process.
 - **Goal:** To ensure Aboriginal values are considered during forest management planning.

- **Indicator:** Continued participation by NunatuKavut Community Council, Inc., the Nunatsiavut Government and the Innu Nation, in forest management planning.
- **Public Education**
 - **Activity:** FSB will develop a public education and information campaign.
 - **Goal:** To ensure that the citizens of the province understand the importance of effective forest management in maintaining our forest ecosystems.
 - **Indicator:** Completion of a communication plan for public education around forest management.

Tourism and Outdoor Recreation

The forests of Newfoundland and Labrador have long been described as a sportsman’s paradise. This image has expanded in recent years to include not only fishing and hunting, but eco-tourism and cultural tourism. These industries are significant contributors to the provincial economy, particularly in rural areas of the province. Newfoundlanders and Labradorians are themselves avid users of our outdoor recreation areas, with tens of thousands of big-game, small-game, and fishing licenses sold annually. Cottage and cabin development is also a significant activity across the province.

Tourism and outdoor recreational activities contribute substantially to the provincial economy. To some extent, this economic benefit is built on the perception of Newfoundland and Labrador as a pristine wilderness area. Sustainable forest management has the potential to interact with this perception, for example through impacts on viewscape or changes in abundance of game species. Assigning values to tourism and outdoor recreation is not always easy. Landscape aesthetics, for example, is particularly difficult to quantify. Nevertheless, FSB will seek to define areas of aesthetic value and high tourism traffic so these areas can be quantitatively incorporated into forest management planning.

- **Activity:** High-value tourism and recreational areas will be mapped spatially in conjunction with the Department of Business, Tourism, Culture, and Rural Development.
- **Goal:** To reduce land use conflicts and maintain social and ecological values in high-value areas.
- **Indicator:** Reduction in Environmental Assessment submissions relating to tourism and recreation.

Public Engagement

Planning and Consultation

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

Local operational conflicts are usually resolved at the planning team level. Broader, provincial-level issues, however, or issues that lie outside the mandate of FSB are difficult to address within the context of the current planning process. To ameliorate this problem, FSB will (1) review the public planning process, and (2) develop a provincial values document to identify provincial values spatially, and document acceptable forest management best practices permitted to occur inside specified values zones. This renewal will be guided by the following initiatives: 1) A provincial planning and policy advisory group will be established to advise FSB. This group will draw its members from government, industry, academia, and other stakeholder groups. 2) The timeframe and schedule of the planning process will be evaluated. 3) FSB will maintain and create strategic partnerships to address the challenges of managing a landscape with many overlapping resource values. One example might be the intra-governmental Values Working Group, which comprises government agencies, and was established by FSB to create a provincial values guide and develop forest management best practices.

- **Activity:** The public planning team process will be reviewed.
- **Goal:** To reduce land use conflicts and provide a forum for meaningful input by stakeholders.
- **Indicator:** Increased participation rates in the public planning team process, and a reduction in submissions to the Environmental Assessment process.

Accountability and Transparency

There are many structures and policies within government that provide accountability and transparency to the citizens of the province. The trend both nationally and internationally, however, is toward third-party certification systems. These certification systems have become important for maintaining market access in an increasingly environmentally conscious society. To this end, the province will implement the ISO 14001 Environmental Monitoring System and explore the feasibility of forest certification. These initiatives not only promise to bring an unprecedented level of accountability and transparency to the forest management process in the province; they also have the potential to improve significantly the efficiency of management processes within FSB. Together, these two policy objectives are intended to ensure increased confidence by all stakeholders in the sustainable forest management process.

The Environmental Protection Guidelines will be updated periodically to reflect science-based improvements in environmental management protocols. FSB will include a brief update on the delivery of this strategy annually as a component of the Department of Natural Resources report to the House of Assembly on the Departmental Strategic Plan. Halfway through the life of the Strategy (2019), FSB will publish a full review, updating the citizens of the province on progress in meeting the policy objectives – a State of the Forest Report. FSB will publish a full review of the strategy at completion in 2024.

- **Environmental Management System**
 - **Activity:** FSB will implement ISO 14001 Environmental Management System.
 - **Goal:** To improve the efficacy and efficiency of forest management and gain accreditation for these improvements from an internationally recognized third party.
 - **Indicator:** Successful certification to the ISO 14001 Environmental Management System.
- **Forest Certification**
 - **Activity:** Explore the feasibility and options for forest certification in Newfoundland and Labrador.
 - **Goal:** To determine if the province should pursue forest certification on Crown lands.

- **Indicator:** A completed assessment report on the feasibility and options for forest certification.

- **Environmental Protection Guidelines**
 - **Activity:** The Environmental Protection Guidelines will be updated periodically as adaptive management cycles are completed.
 - **Goal:** To ensure that forest managers have guidance on the best available forest management practices.
 - **Indicator:** Periodic updates of the Environmental Protection Guidelines are published.

- **PSFMS Updates**
 - **Activity:** FSB will update annually the progress of the PSFMS, and will publish two reviews of the PSFMS, one midway, in 2019 and one at completion in 2024.
 - **Goal:** To keep the citizens of the province updated on the progress of implementation of the 2014-2024 PSFMS.
 - **Indicator:** Publication of the updates and reviews.

3. SUSTAINABLE HARVEST LEVELS AND THE FOREST INDUSTRY

Forest Sector Status

The forest industry of Newfoundland and Labrador is a significant contributor to the local economy, particularly in rural regions of the province. The year of 2012 showed many positive economic signs as the industry as a whole fared relatively well. The industry as a whole generated approximately 5500 direct and indirect jobs, located in all regions of the province. In 2012 the forest industry consumed approximately 1.3 million m³ of local timber to produce wood products valued at \$259 million. The forest products industry is comprised of four main sectors; pulp and paper, sawmilling, value added manufacturing, and wood energy. Each of these sectors has unique values but also face unique challenges in order to remain competitive in the marketplace and maintain an economically viable operation.

Pulp and Paper

CBPPL owned by Kruger Inc. is the only newsprint producer in the province. Located on the west coast of the island, CBPPL has sustained operations despite tough market conditions. High production costs, strong competition, a strong Canadian dollar, and a decreasing global demand for newsprint all combine to make the business environment challenging, but CBPPL remains a significant competitor in the global newsprint industry and is a significant contributor to the provincial economy. In 2012, CBPPL shipped 246,500 metric tonnes of newsprint to various markets, a slight increase from 236,000 metric tonnes shipped in 2011.

In recent years, CBPPL have been using biomass to fuel their boilers as an alternative to oil. The biomass consists of wood waste, fuel wood, and sludge from the effluent treatment plant. The usage of biomass by CBPPL reduces cost and promotes a healthier environment. In 2012, CBPPL utilized more than 220,000 green metric tonnes of biomass replacing more than 36 million liters of bunker C oil. The majority of this biomass was produced internally, while the remainder was purchased from local sawmills.

Sawmilling

In 2012, the province's sawmill industry was comprised of 581 commercially licensed sawmills as well as 994 domestic sawmills, ranging in output of a few thousand board feet to millions of board feet. Despite the large number of sawmills, more than 90 percent of the province's total lumber production came from 4 large commercial integrated sawmills.

Total lumber production in Newfoundland and Labrador was just over 75 million board feet in 2012 with approximately 70 million board feet produced collectively from the 4 larger sawmills. The total value of the lumber production in 2012, not including byproducts, was approximately \$33 million. Approximately 130,000 m³ of wood chips were produced from local sawmills in 2012. When the value of by-products (wood chips, sawdust, slabs) are included, the overall value of the sawmilling sector in 2012 was upwards of \$40 million.

Value Added Manufacturing

The value-added wood products sector in Newfoundland and Labrador consists of more than 100 companies from all regions of the province. These companies produce many products including kitchen cabinets, log siding, stair treads, roof truss, paneling, mouldings, shipping pallets, and hardwood flooring. Depending on what product is being manufactured, the majority of these companies will either utilize local species such as white and yellow birch, black spruce, eastern larch, or a variety of imported species. Despite some exporting, the majority of value added wood products are sold into the local market. A study completed in 2012 values this industry at more than \$85 million. The continuous growth in home construction in the province in recent years has created a high demand for a variety of value-added wood products such as kitchen cabinets,

flooring, mouldings, and other building products, making for a successful and important sector of our local forest industry. These markets are showing no signs of slowing down, leading us to believe this sector will continue to thrive in the short and long-term.

Wood Energy

Wood energy is becoming increasingly popular in this province as people are continuing to see an opportunity for a more economical and environmentally friendly source of heat in the form of traditional firewood, wood pellets, and briquettes.

The cutting and burning of firewood as a main source of home heating is a tradition for many Newfoundland and Labrador residents, especially in rural areas. Many residents harvest their own firewood, while many residents buy their firewood from commercial harvesters. Upwards of 400,000 m³ of firewood was harvested in 2012, with revenues from firewood sales believed to be over \$100 million (*includes domestic firewood cutting and its displacement of other heat forms*).

Wood pellets are a natural and renewable form of energy made from compressed wood fiber. They are burned in specialized wood pellet appliances as a heat source for homes or industrial buildings. They are an economical and environmentally-friendly heat source that produces minimal air pollution. In 2012, more than 3000 metric tonnes of wood pellets were produced here in the province collectively by three producers. The value of the Newfoundland and Labrador wood pellet sector in 2012 was more than \$675,000.

Another form of wood energy is briquettes. They are also made of compressed wood fiber, and are similar to pellets, with the main difference being that they are larger. A key difference from wood pellets is that briquettes can be burned in traditional wood stoves. They are known to provide a cleaner and more convenient alternative to traditional firewood. Briquettes are available to buy directly from the two local producers.

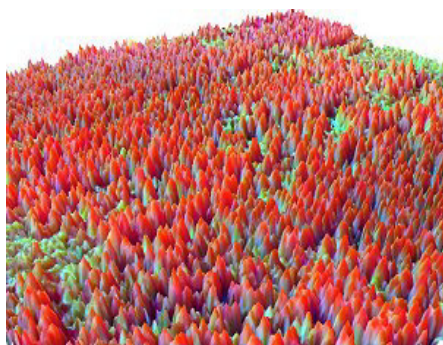
Investing in Forest Sector Diversification

Over the past several years the Government of Newfoundland and Labrador has made significant investments in diversifying the forest sector. These investments include, but are not limited to, the Forest Industry Diversification Fund, investments by the Department of Innovation, Department of Business, Tourism, Culture, and Rural Development, the construction of new laboratory research facilities at Grenfell campus of Memorial University, and the establishment of the Centre for Forest Science and Innovation. These investments are catalysts for change in the forest sector of this province and have laid the groundwork for many of the diversification opportunities presented in the 2014-2024 PSFMS.

Forest Resource Status (Wood Supply)

Forest Resource Inventory

The Forest Resource Inventory is one of the largest resource databases in the province. This database holds an estimate of the total volume of fibre available for the inventoried portion of the island and Labrador. This data is collected primarily in the form of aerial photography converted to a digital spatial map of the forest landscape. The inventory includes information such as species composition, forest age, site quality and stand density. These data are then combined with growth data from field surveys, feeding resource supply models used to estimate the volume of fibre added to the province's forest each year. A variety of ecological data is also collected as part of the Forest Resource Inventory (for example, surveys of birds and plant understory).



The methods currently used to maintain the Forest Resource Inventory have been continuously evolving over the last several decades, and there have been many innovations in methods of data collection and analysis.

FSB will continue this development of the Forest Resource Inventory by:

- 1) checking the scope and nature of all data collected to ensure alignment with FSB forest management objectives – refocusing, if necessary, data collection on our management objectives;
- 2) evaluating new and emerging technologies for gains in efficiency of data collection or quality of the data captured. Technologies such as aerial digital imagery, softcopy software, airborne lidar, terrestrial lidar, and satellite imagery will be explored and evaluated; and
- 3) exploring new ways to increase the utilization and analysis of existing inventory data.
 - **Activity:** Continue development of the Enhanced Forest Resource Inventory.
 - **Goal:** To continuously improve the quality of data available on the forest resources of the province.
 - **Indicator:** Improvements in the quality and quantity of data available to forest managers.

The Provincial Annual Allowable Cut

There are four core components to the Annual Allowable Cut (AAC) calculations: (1) land base (that is, how much forested land is available to harvest sustainably), (2) the volume of wood on the land base, (3) its growth/yield rate and spatial distribution, and (4) sustainability parameters managed for throughout time. This information, when combined with past harvest levels in an elaborate science-based process, yields an estimate of the amount of fibre available for harvest. Assumptions concerning insect damage, wind throw, fire disturbance, changes in wildlife management policies, and terrain-based operational constraints play a role in these estimates. All of these factors introduce operational reality into the wood-supply analysis and improve estimates of AAC. As field data is collected during spatial planning and harvest monitoring initiatives, the estimates are improved in an iterative fashion.

FSB formally recalculates the provincial timber supply every five years to account for changes in the forest land base, new management strategies, and updated growth and yield information. The timber supply analysis sets the sustainable AAC for each forest management district and tenure throughout the province. AACs for both softwoods and hardwoods define the annual rate at which timber can be harvested at a sustainable level indefinitely into the future. Of course the AACs are valid only insofar as model assumptions and parameters hold true, which is why they are calculated on a 5-year rotational basis. AACs must be calculated separately for each district and tenure, resulting in 30 AAC figures for the province.

It is important to note the *Forestry Act* requires that harvesting not exceed the established AACs for any given 5-year period. In order to ensure that harvest levels fall within AAC allowances, FSB monitors the provincial harvest levels on an annual basis. The current AAC for Newfoundland and Labrador is 2,611,685 cubic metres of softwood and 53,900 cubic metres of hardwood. The detailed district level sustainable harvest levels for the period 2011-2016 are presented in Appendix B.

- **Activity:** Integrate products and species into the provincial wood supply analyses.
- **Goal:** To provide forest managers with estimates of AAC by species and potential end use.
- **Indicator:** Estimates of AAC by species and potential end use.

Sustainable Industry Development

The forest industry has been an important component of the Newfoundland and Labrador economy for generations. Properly managed, this renewable resource industry will continue to provide benefits to the citizens of the province well into the future. The traditional wood product and paper industries have been experiencing cyclical and structural downturns respectively. While these traditional sectors are critical components of the future of the forest industry, the development of new sectors such as bio-energy and value-added manufacturing are important for continued growth.

Currently we are experiencing strong improvements in the solid wood sectors and new investments and initiatives in the forest industry are expected to lead to significantly improved cost structures and competitiveness. There are encouraging signs that the local industry is poised to rebound over the next few years. FSB is committed to ensuring that its policies and programs are designed to enhance this renewable and sustainable industry.

FSB has established the following key initiatives in policy and program development to sustain and grow the forest industry:

- **Permitting and Licensing**
 - **Activity:** Investigate alternatives to the Annual Cutting Permit system for harvesters without a land tenure agreement.
 - **Goal:** To determine the most appropriate fibre licensing/access model for the broad size range of forest sector businesses in the province.
 - **Indicator:** A completed report evaluating resource licensing options under the *Forestry Act* relative to current and likely future business models.
- **Fibre Allocation**
 - **Activity:** Review fibre allocation policies.
 - **Goal:** To ensure fibre is allocated in a fair, optimized, and sustainable model. Providing the best possible benefits to the citizens of the province.
 - **Indicator:** Increased utilization of allocated fibre.
- **Forest Resource Transportation**
 - **Activity:** Review the forest access and transportation network.
 - **Goal:** To improve the efficiency of resource access infrastructure and reduce operational costs.
 - **Indicator:** A reduction of transportation costs per volume of fibre processed.
- **Community Forests**
 - **Activity:** Investigate community forest options for areas where local communities may be positioned to derive added value from nearby forests.
 - **Goal:** Determine the viability of forest resource development by rural communities.
 - **Indicator:** A report evaluating the feasibility and options for community forest management.
- **Promoting Wood Products**
 - **Activity:** Promote wood in construction and energy sectors.

- **Goal:** To increase the market share of wood products in the construction and energy sectors.
- **Indicator:** Increased sales of wood products to the domestic construction and energy sectors.
- **Forest Industry Development Strategy**
 - **Activity:** Prepare a Provincial Forest Industry Development Strategy by 2015.
 - **Goal:** To provide strategic direction for the diversification and development of the provincial forest industry.
 - **Indicator:** Completion of the Provincial Forest Industry Development Strategy.

The development of a Provincial Forest Industry Development Strategy will be a key objective of FSB. This strategy will be the third pillar of strategic policy for FSB, complementing the 2014-2024 Provincial Sustainable Forest Management Strategy and the Provincial Forest Research Strategy. When completed, this comprehensive and integrated strategic plan will guide the growth of the forest industry and the sustainable management of the province's forest. The Provincial Forest Industry Development Strategy will explore marketing options, current and imminent technological advancements, product innovation, value-chain optimization, industry cohesiveness, transportation innovations, and fibre.

FSB will endeavor to optimize economic outputs derived from our forest resource, emphasizing solutions that match the character of the resource and our citizens' values.

Industry Innovation

The forest industry, along with the fishery, is one of the major renewable resource industries in the province. As such, the forest sector has the potential to provide for our people far into the future. One of the ways to do this is to support not only viable components of the existing industry but also new technology as it evolves. The primary areas that FSB is currently investing in are bioenergy, biorefining, and value-added solid wood products.

Bioenergy

FSB has adopted a flexible policy on bioenergy as the technology around it is rapidly evolving. Several directions have been identified, however, to guide the future of bioenergy in the province: 1) FSB will promote the use of wood fibre for commercial and residential heating. Modern wood heating systems can provide heat and energy to large commercial sites in a more cost-effective fashion than many traditional fossil fuel systems. These systems are also significantly better for the environment. 2) To maximize the value provided by harvested trees, all residues from processing should be fully utilized. Sawmill residues are one example. Bioenergy products represent one of the most efficient ways to achieve this maximization. 3) Bioenergy should be promoted as a viable alternative energy source for remote or isolated sites.

- **Activity:** Promote bioenergy as a viable replacement for fossil fuels.
- **Goal:** To replace fossil fuels as an energy source where the economics make sense.
- **Indicator:** Increased utilization of bioenergy products.

Biorefining

Biorefining is another emerging market for forest-based products. As with bioenergy, the current technology and market environment around biorefining is changing quickly as large forest-product corporations and national governments make major investments in this area of growth. FSB will work with industry to identify

biorefining products and processes that are viable in Newfoundland and Labrador given the nature of our resource, current industry, and market access.

- **Activity:** Identify biorefining opportunities for Newfoundland and Labrador.
- **Goal:** To establish a value added biorefining sector in the province.
- **Indicator:** Completion of a comprehensive review of biorefining opportunities for the province.



FIGURE 14. BIOREFINING OUTPUT PRODUCED FROM WOOD BY A MOBILE FAST PYROLYSIS UNIT.

Solid Wood Products

Solid wood products have the potential to be one of the highest-value products produced from our forests. Currently the sawmilling sector produces several of these products, such as 2 x 6 lumber and log siding, but unfortunately most of the forests on the island of Newfoundland do not produce trees of sufficient size to manufacture these large-dimension lumber products. Thus FSB will support the development of value-added products that utilize the primary characteristics of our available resource, small-dimension timber with high-fibre density, or strength (a result of our slow growth rates). Products such as cross-laminated timbers (CLT) and laminated wood panels represent potential growth markets suitable for development in Newfoundland and Labrador. FSB will promote the use of wood products in residential and commercial construction. The availability of engineered wood products within the province would be a major boost to this initiative.



While the forest industry stakeholders, by necessity, must be the drivers of the development of these products and markets, FSB will support the industry through targeted research and development. Forest managers will also work to ensure that appropriate fibre sources are available for these value-added products.

- **Activity:** Support the development of innovative solid wood products.
- **Goal:** Diversification of the forest sector.
- **Indicator:** Production of new solid wood products by forest sector businesses.

Domestic Forest Activities

The domestic forest sector in Newfoundland and Labrador is unique within Canada. Nowhere else in the country do citizens have access to vast tracts of crown forest almost anywhere in their province. This public resource supports the survival of a traditional lifestyle throughout rural Newfoundland and Labrador. The estimated domestic harvest based on issued permits for the island and Labrador respectively is 254,926 m³ softwood, and 49,626 m³ hardwood, and 19,379 m³ softwood, and 310 m³ hardwood. This does not include domestic harvest from CBPPL tenure. This tradition is part of the cultural fabric of this province.

FSB will begin to quantify the economic value of the domestic forest industry. This activity contributes millions annually to the provincial economy. The harvested wood has a variety of uses, including firewood, construction, and craft materials.

- **Activity:** Quantify the economic value of domestic forest use.
- **Goal:** To understand the economic value of domestic forest use so that it can be clearly accounted for in forest management analyses.
- **Indicator:** A report completed with an economic evaluation of this economic activity.

Non-timber Forest Products

The forests of Newfoundland and Labrador have the potential to produce a number of non-traditional forest products. These may range from mushrooms for food and medicine, to materials for Christmas wreaths, to birch sap products used as a nutritional supplement. In other jurisdictions these “cottage” industries make significant contributions to rural economies. FSB will encourage sustainable non-traditional product development, and where possible support these activities as part of the forest management planning process.

- **Activity:** Work with non-timber forest product producers to incorporate those industries into forest management planning.
- **Goal:** To increase the economic value of non-timber forest products produced in the province.
- **Indicator:** Growth in the non-timber forest product sector.

Research and Development

The forest industry in Newfoundland and Labrador is experiencing a period of transformation. It is critical that this transformation results in a forest industry that continues to provide sustainable benefits to the citizens of the province. A strong research and development program is an essential component of a successful reinvigoration and transformation of the forest industry. In 2010 the Centre for Forest Science and Innovation released the Provincial Forest Research Strategy (http://www.nr.gov.nl.ca/nr/department/branches/forestry/forest_science_innovation.html). The primary objectives of this research strategy are threefold: (1) to provide the decision-tools and knowledge-base required to manage forests in an ecologically sustainable manner; (2) to support the development of the innovative new technologies and products that may become core components of the future forest industry; (3) to integrate relevant societal values surrounding forest ecosystems, other forest-based industries, and forest management into a comprehensive analysis that maximizes the cultural, ecological, and economic benefits forest ecosystems provide to citizens.

The forest industry is currently undergoing transformation. This strategy provides an opportunity to guide that evolution. Decisions made now may shape the industry and forest management for generations. This research

strategy will provide policy makers with the knowledge and tools required to ensure that citizens of Newfoundland and Labrador continue to benefit from this vast renewable natural resource.

- **Activity:** Continue to deliver on the Provincial Forest Research Strategy.
- **Goal:** To support the implementation of the PSFMS, the diversification of the forest industry, and the efficacy of forest management.
- **Indicator:** Production of publication and reports supporting the economic, social, and ecological goals of the FSB.

4. CONCLUSION

The forest sector in Newfoundland and Labrador has struggled through difficult times over the past decade. It is a credit to the tenacity of our industry and the long-term vision of the citizens of this province that this renewable resource industry still provides so many benefits to our people. FSB will rely on the 2014-2024 PSFMS to provide the vision and the guidance to protect the natural heritage of this province while growing the economic value of the forest sector. The ISO 14001 Environmental Monitoring System, advances in forest inventory, progressive forest management policies, and research and development of a diversified product portfolio will ensure that FSB is able to achieve the objectives set out in this strategy. The future of the forest sector is full of opportunities. By working together, forest stakeholders, government, and the forest industry will be well positioned for success.

5. Appendices

Appendix A: Activities, Goals and Indicators

Strategic Criteria 1 (see Introduction)

Strategic Criteria 1	Activity	Goals	Indicators
<p>A measurable improvement in the extent and quality of our forest resources. This includes ecological services as well as available fibre for consumptive economic use.</p>	Develop a research support plan as a component of the overall strategy implementation plan.	Ensure the delivery of the PSFMS is science based.	A clear scientific basis for policies that flow from the PSFMS.
	Monitor the evolving science on climate change impacts and assess the risks to forest management infrastructure.	No damage to aquatic ecosystems from forest management infrastructure.	No substantial increase in damage to forest infrastructure due to extreme weather events
	Intact and late seral forests will be protected with a combination of Special Forest Management Areas and a minimum of 15% of the 81+ year old productive forest in each Forest Management District.	To maintain or increase the current level of intact and late seral forests at the landscape scale.	The amount of intact or late seral forest on the landscape
	Canadian carbon accounting/budgeting models will be used to report on the interaction between forest management and carbon forest dynamics.	To determine the relationship between Newfoundland and Labrador forests and global carbon cycles.	Estimates of carbon storage and flow reported for Newfoundland and Labrador forests
	Invest in climate change research.	Improve our understanding of climate change risks for Newfoundland and Labrador.	Publication of research reports on climate change.
	Review and evaluate forest protection services.	To increase the efficiency and efficacy of forest protection services.	Area of forest damaged and costs of forest protection.

Strategic Criteria 1 Cont'd	Activity	Goals	Indicators
<p>A measurable improvement in the extent and quality of our forest resources. This includes ecological services as well as available fibre for consumptive economic use.</p>	Continue with the delivery of an innovative silviculture program.	Ensure successful forest regeneration.	Hectares of forest successfully treated annually.
	FSB will work with the Department of Environment and Conservation to mitigate the impacts of invasive wildlife on forest health.	To reduce the impact of invasive species on forest ecosystems.	A reduction in the distribution and abundance of invasive species and no introductions of new invasive species.
	FSB will develop a biomass harvesting policy.	To provide clear direction to the forest sector around biomass harvesting and to ensure that ecological values are protected.	Publication of a biomass harvesting policy.
	Continue development of the Enhanced Forest Resource Inventory.	To continuously improve the quality of data available on the forest resources of the province.	Improvements in the quality and quantity of data available to forest managers.
	Continue to deliver on the Provincial Forest Research Strategy	To support the implementation of the PSFMS, the diversification of the forest industry, and the efficacy of forest management.	Production of publication and reports supporting the economic, social, and ecological goals of the FSB.

Strategic Criteria 2 (see Introduction)

Strategic Criteria 2	Activity	Goals	Indicators
<p>A significant reduction in land use and values conflicts around forest management.</p>	<p>FSB will use adaptive management and applied research to refine its forest management policies.</p>	<p>Improve the efficiency and efficacy of sustainable forest management practices.</p>	<p>A reduction in land use conflicts and a reduction in cost per ha for forest management.</p>
	<p>FSB will improve informatics systems to support our staff in the delivery of these complex and technical services.</p>	<p>To improve the efficiency and efficacy of forest management and the delivery of public services.</p>	<p>Reduced response times on requests for information by frontline forest managers.</p>
	<p>FSB has identified a Commercial Forest Management Area where planning for commercial forest harvest activities will be a priority for the Branch.</p>	<p>To provide stability around planning and industry development while reducing land use conflicts.</p>	<p>A reduction in land use conflicts and a reduction in planning and operating costs for the forest sector.</p>
	<p>FSB will use SFMAs in conjunction with recommendations from ENVC to protect ecological values such as, sensitive wildlife areas, stewardship areas, protected parks, wilderness reserves, ecological reserves, and wildlife reserves.</p>	<p>To provide effective management of ecological values at the landscape scale.</p>	<p>Incorporation of ecological values into Five-Year Forest Management Plans.</p>
	<p>Forest management planning will explicitly incorporate spatial and temporal connectivity.</p>	<p>To maintain structural connectivity levels near natural levels at the landscape scale.</p>	<p>Structural connectivity explicitly modeled in 5-year Forest Management Plans and no loss of structural connectivity at the landscape spatial and forest rotation temporal scales.</p>
	<p>FSB will update annually the progress of the PSFMS, and will publish two reviews of the PSFMS, one midway, in 2019 and one at completion in 2024.</p>	<p>To keep the citizens of the province updated on the progress of implementation of the 2014-2024 PSFMS.</p>	<p>Publication of the updates and reviews.</p>

Strategic Criteria 2 Cont'd	Activity	Goals	Indicators
<p>A significant reduction in land use and values conflicts around forest management.</p>	<p>FSB will work with ENVC to manage habitat for species at risk, rare species, and other species of wildlife or plants that are of concern.</p>	<p>To ensure that forest management considers wildlife and plant populations in all planning exercises.</p>	<p>Five-year Forest Management Plans utilize ENVC recommendations for habitat management of wildlife and plant populations.</p>
	<p>NunatuKavut Community Council, Inc., the Nunatsiavut Government and the Innu Nation will be invited to continue participating in the forest management planning process.</p>	<p>To ensure Aboriginal values are considered during forest management planning.</p>	<p>Continued participation by NunatuKavut Community Council, Inc., the Nunatsiavut Government and the Innu Nation, in forest management planning.</p>
	<p>FSB will develop a public education and information campaign.</p>	<p>To ensure that the citizens of the province understand the importance of effective forest management in maintaining our forest ecosystems.</p>	<p>Completion of a communication plan for public education around forest management.</p>
	<p>High-value tourism and recreational areas will be mapped spatially in conjunction with the Department of Business, Tourism, Culture, and Rural Development.</p>	<p>To reduce land use conflicts and maintain social and ecological values in high-value areas.</p>	<p>Reduction in Environmental Assessment submissions relating to tourism and recreation.</p>
	<p>The public planning team process will be reviewed.</p>	<p>To reduce land use conflicts and provide a forum for meaningful input by stakeholders.</p>	<p>Increased participation rates in the public planning team process, and a reduction in submissions to the Environmental Assessment process</p>

Strategic Criteria 3 (see Introduction)

Strategic Criteria 3	Activity	Goals	Indicators
A significant increase in the diversity of forest value chains in the province and an increase in the total value of forest products produced.	FSB will implement ISO 14001 Environmental Management System.	To improve the efficacy and efficiency of forest management and gain accreditation for these improvements from an internationally recognized third party.	Successful certification to the ISO 14001 Environmental Management System.
	Explore the feasibility and options for forest certification in Newfoundland and Labrador.	To determine if the province should pursue forest certification on Crown lands.	A completed assessment report on the feasibility and options for forest certification.
	The Environmental Protection Guidelines will be updated periodically as adaptive management cycles are completed.	To ensure that forest managers have guidance on the best available forest management practices.	Periodic updates of the Environmental Protection Guidelines are published
	Integrate products and species into the provincial wood supply analyses.	To provide forest managers with estimates of AAC by species and potential end use.	Estimates of AAC by species and potential end use.
	Investigate alternatives to the Annual Cutting Permit system for harvesters without a land tenure agreement.	To determine the most appropriate fibre licensing/access model for the broad size range of forest sector businesses in the province.	A completed report evaluating resource licensing options under the Forestry Act relative to current and likely future business models.
	Review fibre allocation policies.	To ensure fibre is allocated in a fair, optimized, and sustainable model. Providing the best possible benefits to the citizens of the province.	Increased utilization of allocated fibre.
	Review the forest access and transportation network.	To improve the efficiency of resource access infrastructure and reduce operational costs.	A reduction of transportation costs per volume of fibre.

Strategic Criteria 3 Cont'd	Activity	Goals	Indicators
A significant increase in the diversity of forest value chains in the province and an increase in the total value of forest products produced.	Investigate community forest options for areas where local communities may be positioned to derive added value from nearby forests.	Determine the viability of forest resource development by rural communities.	A report evaluating the feasibility and options for community forest management.
	Promote wood in construction and energy sectors.	To increase the market share of wood products in the construction and energy sectors.	Increased sales of wood products to the domestic construction and energy sectors.
	Prepare a Provincial Forest Industry Development Strategy by 2015.	To provide strategic direction for the diversification and development of the provincial forest industry.	Completion of the Provincial Forest Industry Development Strategy.
	Promote bioenergy as a viable replacement for fossil fuels.	To replace fossil fuels as an energy source where the economics make sense.	Increased utilization of bioenergy products.
	Identify biorefining opportunities for Newfoundland and Labrador.	To establish a value added biorefining sector in the province.	Completion of a comprehensive review of biorefining opportunities for the province.
	Support the development of innovative solid wood products.	Diversification of the forest sector.	Production of new solid wood products by forest sector businesses.
	Quantify the economic value of domestic forest use.	To understand the economic value of domestic forest use so that it can be clearly accounted for in forest management analyses.	A report completed with an economic evaluation of this economic activity.
	Work with non-timber forest product producers to incorporate those industries into forest management.	To increase the economic value of non-timber forest products produced in the province.	Growth in the non-timber forest product sector.

Appendix B: Tables, Data, and Glossary of Acronyms

GLOSSARY OF ACRONYMS

AAC – Annual Allowable Cut

CBPPL – Corner Brook Pulp and Paper Limited

CFMA – Commercial Forest Management Area

DNR – Department of Natural Resources

DSSA – Dynamic Species Specific Area

ENVC – Department of Environment and Conservation

FSB – Forest Services Branch

ILFMA – Intact Landscape Forest Management Area

ISO – International Standards Organization

OCCEE – Office of Climate Change and Energy Efficiency

PSFMS – Provincial Sustainable Forest Management Strategy

SFM – Sustainable Forest Management

SFMA – Special Forest Management Area

Principles of Connectivity

- 1) In setting objectives for maintaining or restoring connectivity, forest managers will consider the range of natural levels of connectivity due to natural disturbance regimes. The goal is not necessarily to increase connectivity, but to maintain or restore natural levels of connectivity.
- 2) Landscape connectivity – forest rotation, for example – must be considered at multiple spatial and temporal scales. Management of forest landscapes must focus at least in part on geographically extensive areas such as the island-wide, Labrador-wide, and continental scales for migrating birds and insects, Braya pathogens, etc. However, connectivity may also be considered in areas as small as the stand level.
- 3) Since forested landscapes include both forested and non-forested areas, the whole of the forested landscape will be managed for connectivity. This reflects the need to manage habitat patches and the intervening matrix.
- 4) Connectivity planning will include both terrestrial and aquatic connectivity.

- 5) Since landscape connectivity is species-specific, connectivity should be managed for a diverse variety of taxa. Different organisms will respond differently to a given land-management regime.

Silviculture Activities During the Past Ten years

Year	Area Silviculturally Enhanced (ha)		Trees Planted
	PCT	Planting	
2004	3,608	5,650	10,594,985
2005	3,081	6,516	12,492,255
2006	2,278	6,435	13,310,888
2007	2,793	6,415	14,113,726
2008	2,653	6,284	13,930,794
2009	1,600	5,159	10,793,084
2010	1,070	5,524	12,756,758
2011	837	5,124	10,736,452
2012	660	4,414	8,959,130
2013	526	4,068	8,300,000
2014*	500	4,100	8,400,000
2015*	475	4,100	8,400,000
2016*	450	4,100	8,400,000
2017*	425	4,100	8,400,000
2018*	400	4,100	8,400,000

* Projected treatment levels.

THE 2011 ANNUAL ALLOWABLE CUT FOR NEWFOUNDLAND AND LABRADOR IN CUBIC METRES

Land Tenure	Zone	District #	Provincial Annual Allowable Cut (AAC) 2011-2015		
			Softwood Volume (m ³ /yr)	Hardwood Volume (m ³ /yr)	
Crown	Island	1	1	86,500	100
		<i>Sub-total</i>		86,500	100
		2	2	87,400	2,900
			3	0	0
		<i>Sub-total</i>		87,400	2,900
		3	4	56,700	1,000
			5	79,800	4,500
			6	60,200	1,500
			8	98,200	4,800
		<i>Sub-total</i>		294,900	11,800
	4	7	32,300	1,100	
	<i>Sub-total</i>		32,300	1,100	
	5	10	79,800	3,900	
		11	160,500	3,600	
		12	191,600	3,900	
		13	29,400	900	
	<i>Sub-total</i>		461,300	12,300	
	6	14	76,800	1,800	
		15	29,400	1,100	
	<i>Sub-total</i>		106,200	2,900	
7	9	80,700	4,900		
	16	65,100	200		
<i>Sub-total</i>		145,800	5,100		
8	17	139,200	600		
	18	111,200	0		
<i>Sub-total</i>		250,400	600		
Crown Island Sub-Total			1,464,800	36,800	
Labrador		19a	200,000	-	
		19b	0	-	
		19c	0	-	
		<i>Sub-total</i>		200,000	-
		20	30,285	-	
		21	56,400	-	
		22	15,700	-	
		24	0	-	
	Crown Labrador Sub- Total		302,385	-	
	Crown Total			1,767,185	36,800
Kruger	Island	3	5	51,300	2,100
			6	76,600	2,100
		<i>Sub-total</i>		127,900	4,200
	6	14	115,000	2,200	
		15	296,400	4,500	
	<i>Sub-total</i>		411,400	6,700	
	7	9	173,100	4,700	
		16	132,100	1,500	
<i>Sub-total</i>		305,200	6,200		
Kruger Total			844,500	17,100	
Newfoundland(Island) Total			2,309,300	53,900	
Newfoundland & Labrador Grand Total			2,611,685	53,900	

Appendix C: Consultation Record - Provincial Sustainable Forest Management Strategy for Newfoundland and Labrador

Consultation sessions were held in several communities to give industry, interested groups and organizations, and the public the opportunity to discuss the sustainable management of Newfoundland and Labrador’s forest resource. Separate meetings were held with ENGO’s and Aboriginal groups as well as industry representatives and Forestry Service Branch managers.

Community Consultation sessions were scheduled in 2012 as follows:

<u>Date</u>	<u>Location</u>	<u>Venue</u>	<u>Time</u>
Tuesday, Feb 28	Grand Falls-Windsor	Mount Peyton Hotel	7:00 p.m. – 9:00 p.m.
Thursday, March 1	Gander	Albatross Hotel	7:00 p.m. – 9:00 p.m.
Wednesday, March 7	Plum Point	Plum Point Motel	7:00 p.m. – 9:00 p.m.
Tuesday, March 13	St. John’s	Holiday Inn	7:00 p.m. – 9:00 p.m.
Tuesday, March 20	Corner Brook	Glynmill Inn	7:00 p.m. – 9:00 p.m.
Thursday, March 22	HV-Goose Bay	Hotel North 2	7:00 p.m. – 9:00 p.m.

Community Consultation Record: Provincial Sustainable Forest Management Strategy for Newfoundland and Labrador

Government Representatives for all Public Consultation Sessions:

Wayne Kelly, Director - Center for Forest Science and Innovation - DNR
 David Cheeks, Director of Special Projects - DNR
 Blair Adams, Research Ecologist - DNR
 Melanie Murphy, Public Relations Specialist - DNR

Community: Grand Falls-Windsor

Pre-Registered Presenters:

Al Hawkins, Mayor - Town of Grand Falls-Windsor
 John Baird, Newfoundland & Labrador Lumber Producers Association
 Paul Wood, Notre Dame Rod & Gun Club

Unregistered Presenters:

Steve Rideout, Cottles Island Lumber Company Ltd.
 Ron Hicks, Newfoundland and Labrador Outfitters Association

List of Attendees – Grand Falls-Windsor (February 28, 2012)

NAME	ORGANIZATION/AFFILIATION	ADDRESS
Edward Card	Forestry Contractor	Badger
William Stuckless	Valley Forest Products	Badger
Neville Robinson	Emerald Zone /REDB	Middle Arm
Neh Pinsent	Citizen	Grand Falls-Windsor
John Baird	Newfoundland & Labrador Lumber Producers Association (NLLPA)	Glovertown
Gloria Saunders	Newfoundland & Labrador Lumber Producers Association (NLLPA)	Glovertown
Roger Mercer	Citizen	Grand Falls-Windsor
Alvin Stuckless	Stuckless & Stuckless Forestry Contractors	Glenwood
Gonzo Gillingham	Citizen	Bishop's Falls
Godfrey Oake	Citizen	N/A
Chad Wilson	Wilson Contracting Ltd.	Grand Falls-Windsor
Francis Wilson	Wilson Contracting Ltd.	Grand Falls-Windsor
Jim Elliott	Elliott Bros Ltd.	Grand Falls-Windsor
Al Hawkins	Mayor – Grand Falls-Windsor	Grand Falls-Windsor
Rick Yu	Businessman	St. John's
Stephen Rideout	Cottles Island Lumber	Cottlesville
Lorie Philpott	Cottles Island Lumber	Cottlesville
Paul Wood	Notre Dame Rod & Gun Club Inc.	Lewisporte
Dale Rideout	Cabin Owner	Grand Falls-Windsor
Dave Sampson	Cabin Owner	Grand Falls-Windsor
Dennis Young	Contractor	Springdale
Harvey Rice	Springdale Forest	Springdale
Don Brain	D.L. Brain Consulting Inc.	Grand Falls-Windsor
Si Thompson	Environmental Resource Management Association & Exploits Rod & Gun Club Inc.	Grand Falls-Windsor
Roger Pike	Citizen	Grand Falls-Windsor
Craig Parsons	General Public	Grand Falls-Windsor
Ron Hicks	NL Outfitters Association & Snowshoe Lake Hunting & Fishing	Grand Falls-Windsor

Community: Gander

Pre-Registered Presenters:

Craig Lewis - SAP World

David Bradbury - Self-professed naturalist

John Baird- Newfoundland & Labrador Lumber Producers Association (NLLPA)

Ian Goudie – Canadian Parks and Wilderness Society NL (CPAWS)

List of Attendees – Gander (March 1, 2012)

NAME	ORGANIZATION/AFFILIATION	ADDRESS
Dave Mercer	Crown Lands Division	Gander
Colin Pope	N. Pope & Sons Ltd.	Lewisporte
Julie Whiteway	Dept of Fisheries & Oceans	Grand Falls-Windsor
Dave Miles	Citizen	Gander
Edward Blackmore	Retired Forestry Director	Gander
Craig Lewis	SAP World	St. John's
John Baird	Newfoundland & Labrador Lumber Producers Association (NLLPA)	Glovertown
David Bradbury	Citizen	Gander
Ian Goudie	CPAWS –NL	St. John's
James Blackwood	Town of Gander	Gander
Gloria Saunders	Newfoundland & Labrador Lumber Producers Association	Glovertown
Mary Baird	Citizen	Glovertown
Greg Hancock	Citizen	Gander
Brian Earle	Citizen	Gander
Terri Saunders	The Beacon	Gander

Community: Plum Point

Pre-Registered Presenters:

Ted Lewis - Holson Forest Products

Ward Samson - Newfoundland and Labrador Wildlife Federation (Past president)

List of Attendees – Plum Point (March 7, 2012)

NAME	ORGANIZATION/AFFILIATION	ADDRESS
Ted Lewis	Holson Forest Products	Roddickton
Linda Lewis	Holson Forest Products	Roddickton
George Gibbons	DNR	Roddickton
Ward Samson	NL Wildlife Federation	St. Anthony
Kevin Sutton	DNR	Corner Brook

Community: Happy Valley-Goose Bay

Pre-Registered Presenters:

Jon Feldgajer - Canadian Boreal Initiative

Robin Good Fellow-Baikie - Third Signatory

List of Attendees - Happy Valley-Goose Bay (March 22, 2012)

NAME	ORGANIZATION/AFFILIATION	ADDRESS
Don Ivany	ASF	Happy Valley-Goose Bay
Craig Coady	DNR	Happy Valley-Goose Bay
Jon Feldgajer	Canadian Boreal Initiative	Happy Valley-Goose Bay

Darren Jennings	DNR	Happy Valley-Goose Bay
Chris Griffin	DNR	Happy Valley-Goose Bay
Paul Whalen	DNR	Happy Valley-Goose Bay
Blair Reardon	DNR	Happy Valley-Goose Bay
Shawn Melindy	Labrador Affairs Office	Happy Valley Goose Bay
Robin Good Fellow-Baikie	Third Signatory	North West River
Colin Carroll	DNR	Happy Valley-Goose Bay
Eli Sheppard	DNR	Cartwright

Community: St. John's
Pre-Registered Presenters:

John Jacobs - Nature NL
 Douglas Ballam - Nature Conservancy of Canada
 Ian Goudie - Canadian Parks and Wilderness Society NL (CPAWS)
 John Baird- Newfoundland & Labrador Lumber Producers Association (NLLPA)
 Craig Lewis- SAP World

Unregistered Presenters:

Wayne Holloway - Pine Ridge Lodge Outfitters

List of Attendees – St. John's (March 13, 2012)

NAME	ORGANIZATION/ AFFILIATION	ADDRESS
Craig Lewis	SAP World	Fleur de Lys
Kirby Tulk	Terra Nova National Park	Glovertown
Bill Clarke	Center for Forest Science and Innovation	St. John's
John Kennedy	Dept Environment & Conservation	St. John's
Andrew Robinson	The Telegram	St. John's
Emilie Kissler	Environment & Conservation / MUN	Corner Brook
Mark Lawlor	Dept. of Natural Resources	Springdale
Glen N Peyton	G.T Peyton Ltd	Botwood
Wayne Holloway	Pine Ridge Lodge Outfitters	Mount Pearl
Alvin Stuckless	Stuckless & Stuckless	Glenwood
Allan Stein	Nature NL	St. John's
John Jacobs	Nature NL	St. John's
Jonathan Grandy	Dept. of Environment & Conservation	St. John's
Gary Forward	Dept. of Natural Resources	Corner Brook
Bennett Warren	Citizen - General Public	St. John's
Gloria Saunders	NLLPA	Glovertown
Fred Osmond	Burton's Cove Logging	Hampton

John Baird	NLLPA	Glovertown
Eric Young	Dept. of Natural Resources	Corner Brook
Ian Goudie	CPAWS NL	N/A
Bill Dawson	Center for Forest Science and Innovation	Corner Brook
Darlene Porter	Foxtrap Forest Products Ltd.	Foxtrap, CBS
Clarence Porter	Foxtrap Forest Products Ltd.	Foxtrap, CBS
Dr. D. Bajzak	Forest Engineer Ecology Centre	St. John's
Douglas Ballam	Nature Conservancy of Canada	St. John's
Jody Roach	Dept. of Fisheries & Oceans	St. John's

Community: Corner Brook
Pre-Registered Presenters:

Erin Kelly – Environmental Policy Institute, Grenfell Campus, MUN

Unregistered Presenters:

Leo Quilty
 Don Ivany - Atlantic Salmon Federation
 Andre Arsenault - NRCAN – CFS

List of Attendees – Corner Brook (March 20, 2012)

NAME	ORGANIZATION/ AFFILIATION	ADDRESS
Stewart Read	Dept. of Innovation Business & Rural Development	Corner Brook
Tammy Higgins	Model Forest of NL	Corner Brook
Doreen Churchill	Center for Forest Science and Innovation	Corner Brook
Gabriela Sabau	MUN - Grenfell campus	Corner Brook
Kate Edwards	Natural Resources Canada (NRCAN - Can. Forest Service)	Corner Brook
Jonathan Pynn	Citizen	Corner Brook
Brian Hearn	NRCAN - CFS	Corner Brook
Mark Lamswood	Nordic Economic Development Corp.	Corner Brook
Peter Bull	DTCR	Corner Brook
Debbie Hearn	Hearn Consulting	Corner Brook
Carl Noseworthy	Center for Forest Science and Innovation	Corner Brook
April Muirhead	MUN – Grenfell campus	Corner Brook
Laura Simms	Western Environment Centre	Corner Brook
Danielle Fequet	Ducks Unlimited	Corner Brook
Andre Arsenault	NRCAN – CFS	Corner Brook
Gregory Jeddore	Miawpukek First Nation	Bay d'Espoir
Ross Hink	Miawpukek First Nation	Bay d'Espoir
Leo Quilty	Citizen	Mt. Moriah
Erin Kelly	MUN – Grenfell campus	Corner Brook
Don Ivany	Atlantic Salmon Federation	Corner Brook

Environmental Groups Consultation

Representatives from government met with a group of environmental organizations and academics for a two-day workshop in St. John's, NL. The purpose of the meeting was to gain input into the 2014 Sustainable Forest Management Strategy.

List of Attendees – St. John's (March 26-27, 2012)

NAME	ORGANIZATION/ AFFILIATION
Sean Dolter (Facilitator)	Model Forest NL
Erin Kelly (Facilitator)	Memorial University
David Cheeks	DNR Forestry
Basil Cleary	Department of Environment and Conservation
Bill Clarke	DNR - Center for Forest Science and Innovation
Blair Adams	DNR - Center for Forest Science and Innovation
Wayne Kelly	DNR - Center for Forest Science and Innovation
Douglas Ballam	Nature Conservancy Canada
Jon Feldgajer	Canadian Boreal Initiative
Danielle Fequet	Ducks Unlimited
Ian Goudie	Canadian Parks and Wilderness Society NL
Randal Greene	Nature Conservancy Canada
Luise Hermanutz	Memorial University
Ron Hicks	NL Outfitters Association
Chris Hogan	NL Environmental Network
Wayne Holloway	NL Outfitters Association
Don Ivany	Atlantic Salmon Federation
John Jacobs	Nature NL
Yolanda Wiersma	Memorial University

Industry Consultation Record

Industry Consultations were held with representatives of the Newfoundland and Labrador Lumber Producers Association (December 12, 2012) and the pulp and paper industry Corner Brook Pulp and Paper Limited (January 25, 2013).

List of Attendees – NLLPA and Integrated Sawmillers Gander (December 12, 2012)

NAME	ORGANIZATION/AFFILIATION	ADDRESS
Ted Lewis	Holson Forest Products	Roddickton
Norman Smart	Cashin's Pond Chipping	Glovertown
Dennis Young	Springdale Forest Products	Springdale
Alvin Stuckless	Stuckless & Stuckless	Glenwood
Kevin Sexton	Sexton Lumber	Bloomfield
Susan Sexton	Sexton Lumber	Bloomfield
Gloria Saunders	NLLPA	Glovertown
Roland Winters	NLLPA	Glovertown
Kent Roberts	NLLPA	Grand Falls-Windsor

Natalie Roberts

NLLPA

**Grand Falls-
Windsor**

Aboriginal Consultation Record

Representatives from DNR met with the NunatuKavut Community Council, Inc., the Nunatsiavut Government and the Innu Nation separately during consultations held in Happy Valley-Goose Bay. Sessions were held on October 30, 2012 at the Hotel North2. Representing DNR-forestry were Wayne Kelly, Director - Center for Forest Science and Innovation, David Cheeks, Director of Special Projects, Blair Adams, Research Ecologist and Colin Carroll, Regional Ecosystem Director- Labrador.

Government of Newfoundland and Labrador
Department of Natural Resources
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