South Shore Rossignol, St. Margarets Bay, North Mountain Forest Management Plan

NOVA SCOTIA

South Shore Rossignol, St. Margarets Bay, North Mountain Forest Management Plan

August 31, 2015

Document produced and maintained by:
NS DNR Forest Certification Steering Committee

For more information please contact:
jillian.weldon-genge@novascotia.ca

NOVA SCOTIA

TABLE OF CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

LIST OF APPENDICES

1.0 Introduction

South Shore Rossignol, St. Margarets Bay, North Mountain District (SSR/SMB/NM) District is part of the former Bowater Mersey Paper Company lands, referred to as the "Mersey Woodlands", purchased by the Province of Nova Scotia from Resolute Forest Products in 2012. Sustainable Forestry Initiative (SFI) certification was in place and has been maintained by the Nova Scotia Department of Natural Resources (NSDNR). The SFI certificate (certificate no. CERT.0065792) was transferred to DNR by SAI Global following a successful audit in 2013.

NSDNR is committed to sustainable forest management through the implementation of the Nova Scotia Forestry Code of Practice and through the endorsement of the preexisting certification programs for the Mersey Woodlands. The SSR/SMB/NM is managed to meet the requirements of the SFIS 2015:2020 Principles for Sustainable Forestry.

This SSR/SMB/NM Management Plan is based on a 100-year projection of forest development given the current forest condition (2000-2005 aerial photograph interpreted forest inventory updated to account for harvest and silviculture activity to 2012) anticipated forest growth, and management interventions planned over that period.

The sustainable harvest level has been calculated for the full 100-year time horizon; however, details on harvest and silviculture levels and prescription listed in the Plan cover the first 25 years beginning in 2013. The Plan will be updated every five years.

The Province of Nova Scotia is committed to establishing a Mi'kmaw Forestry Initiative on a portion of St. Margaret's Bay area of the Mersey Woodlands (Figure 2). The Mi'kmaw Forestry Initiative, to be established through consultation with Assembly of Nova Scotia Mi'kmaw Chiefs, will give the Mi'kmaq responsibility for management of specified lands and the opportunity to create their own forest management plan. Forest Management Activities on lands to be included in the Mi'kmaw Forestry Initiative will meet the requirements of the SSR/ SMB/NM District Management Plan until a separate plan, meeting the requirements of the agreement, has been created.

Land leased to cabin owners is excluded from the scope of SFI forest management certification. A map showing the location of cabin leases on SSR/SMB/NM lands is included in Appendix I.

1.1 Vision

This SSR/SMB/NM District Management Plan has been developed to reflect the new approach to managing natural resources described in The Path We Share, A Natural Resources Strategy for Nova Scotia" which includes:

- Nova Scotia is rich in natural resources including biodiversity, forests, geological resources, cultural values and provincial parks.
- Individuals and groups interested in our natural resources work together with government to manage these resources wisely.
- All Nova Scotians benefit from the natural health and wealth of the province.

SSRS/SMB/NM lands support a healthy, productive forest rich in timber, ecological and social including cultural values. Our objective in developing this forest management plan is to take full advantage of these attributes for the benefit of present and future generations through a management process that achieves sustainability, transparency, diversity, collaboration and informed decision making.

1.2 Mersey Woodlands Forestry Policy

The Mersey Woodlands Forestry Policy (Appendix II) documents the commitments being made by NSDNR regarding forest management activities on the Mersey Woodlands. These commitments will guide the development of the Forest Management Plan and will be communicated to all staff, license/agreement holders and contractors working on these lands.

1.3 Ownership and Management

South Shore Rossignol, St. Margaret's Bay, and North Mountain operating areas, shown on maps in Figure 1, Figure 2 and Figure 3 respectively, consist of approximately 132,513 hectares of forest land owned by the Province of Nova Scotia in Shelburne, Queens, Lunenburg, Annapolis, Kings, Hants, and Halifax Counties of western Nova Scotia. They are part of the Acadian Forest Region described as a transitional forest between the Boreal and Great Lakes–St. Lawrence Forest Regions, characterized by shade-tolerant softwood forests of red spruce, eastern hemlock, and white pine and shade-tolerant hardwood forests of sugar maple, beech, and yellow birch.

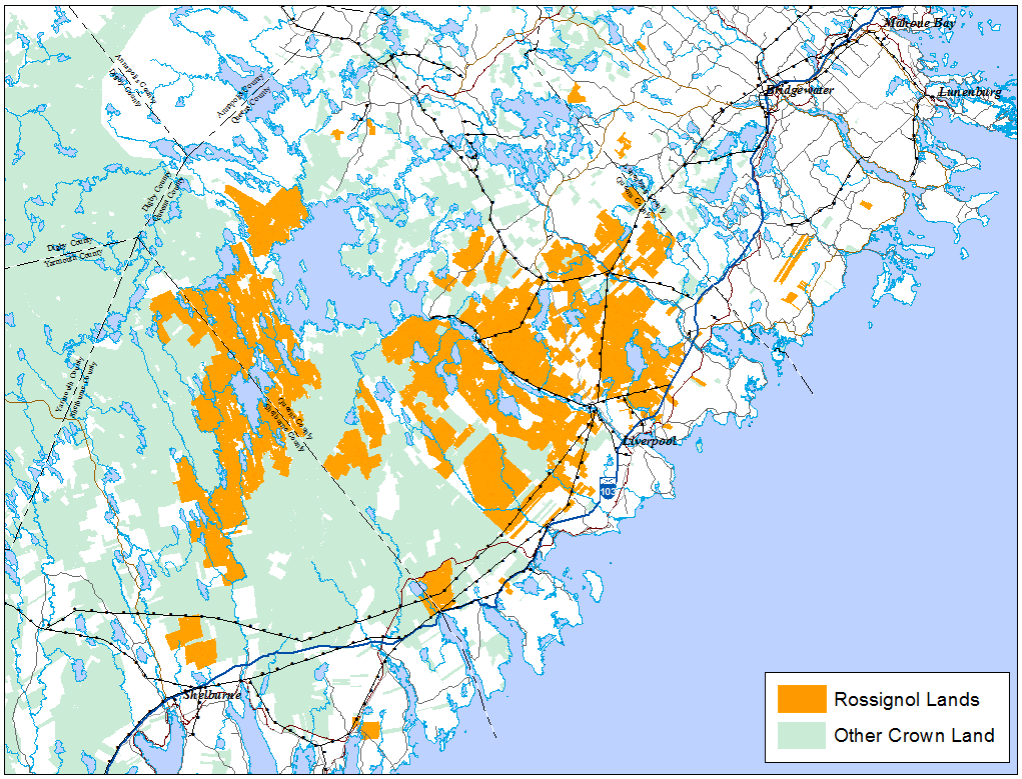


Figure 1. South Shore Rossignol District.

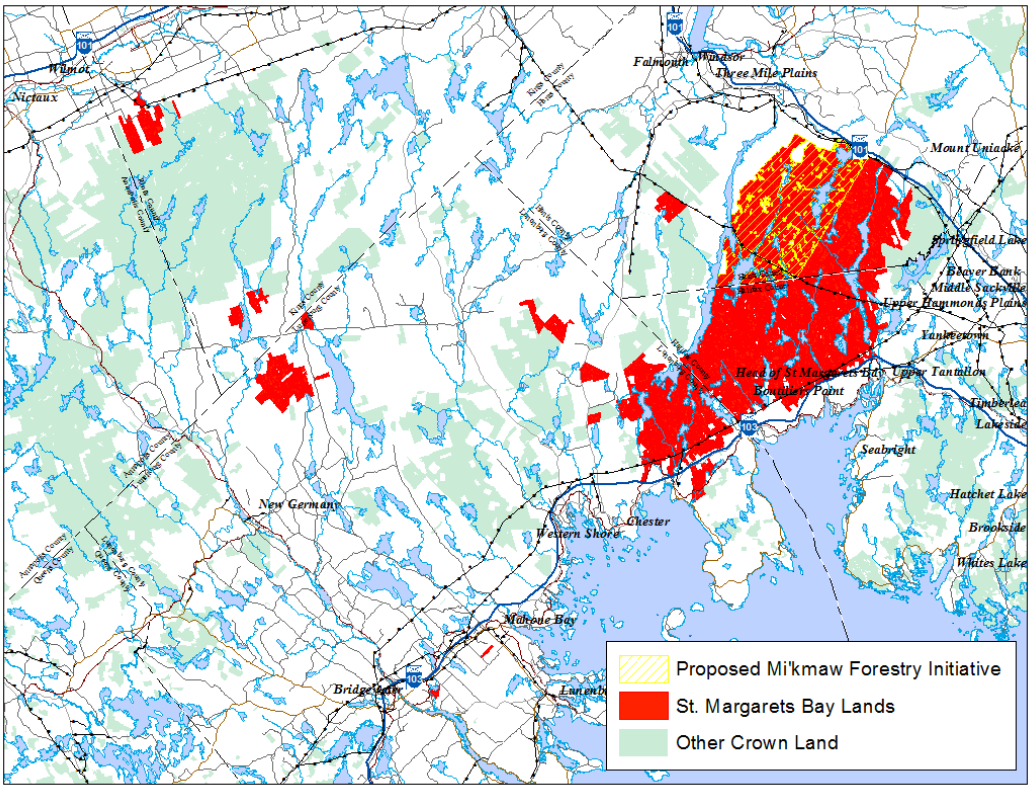


Figure 2. St. Margarets Bay District.

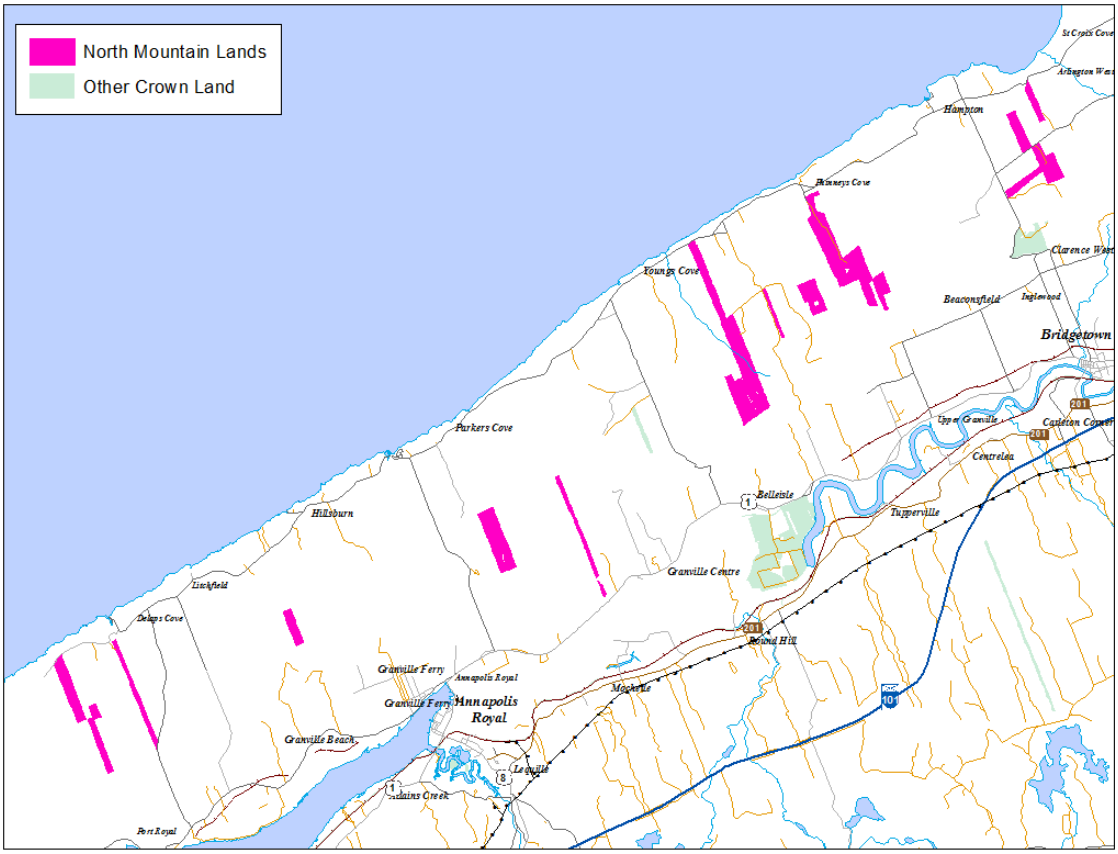
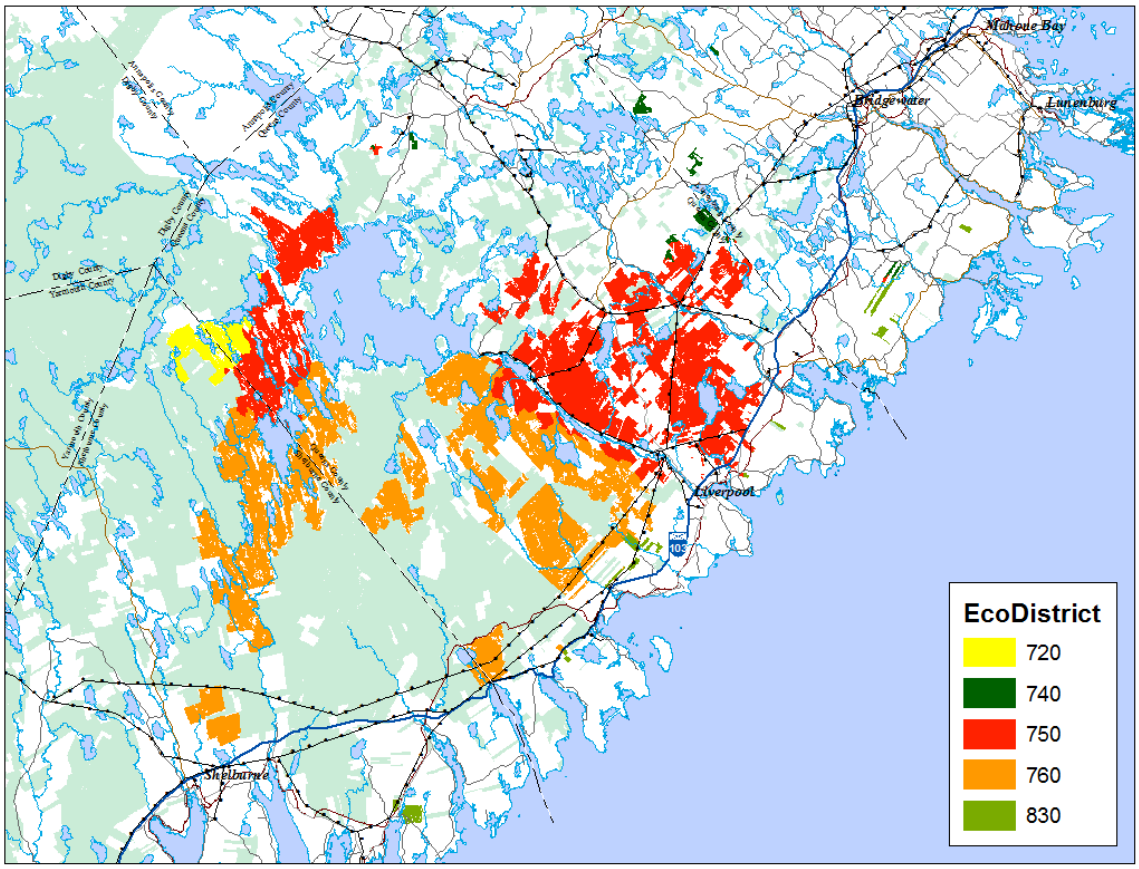


Figure 3. North Mountain District.

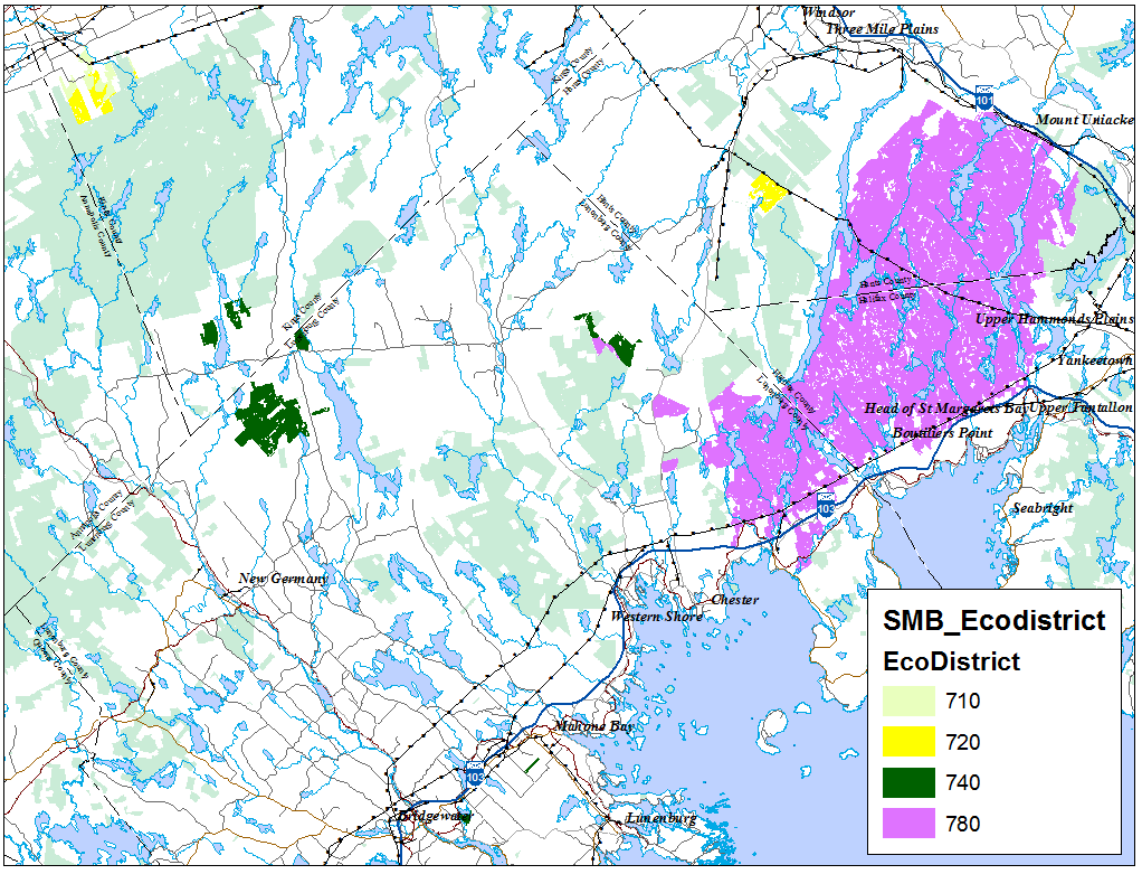
1.4 Ecological Land Classification

South Shore Rossignol, St. Margarets Bay and North Mountain lands fall within the Western, Fundy Shore and Atlantic Coastal Ecoregions. Maps showing ecodistricts within these operating areas are included as Figures 4, 5 and 6. Descriptions of soils, climate and forests characteristic of the ecodistricts where these lands are located, taken from the Department of Natural Resources Report 2003-2 "Ecological Land Classification for Nova Scotia", are summarized in Table 1.



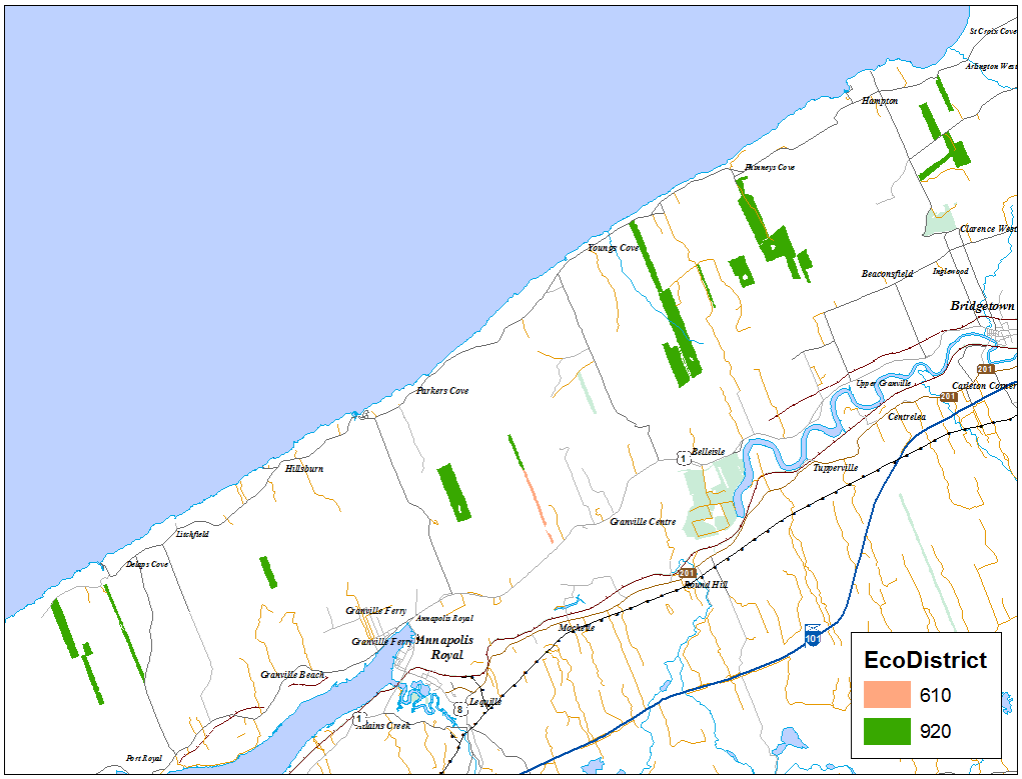
720: South Mountain, 740: Lahave Drumlins, 750: Rossignol, 760: Sable, 830: South Shore

Figure 4. South Shore Rossignol District by ecodistrict.



710: Valley Slope, 720: South Mountain, 740: Lahave Drumlins, 780: St. Margarets Bay

Figure 5. St. Margarets Bay District by ecodistrict.



610: Annapolis Valley, 920: North Mountain

Figure 6. North Mountain District by ecodistrict.

Table 1. Summary of soils, climate and forests by ecodistrict.

Ecological Land Classification	Soils	Climate	Forests
Valley and Central Lowlands Ecoregion: Annapolis Valley Ecodistrict (610)	Underlain by Triassic sedimentary deposits which have provided the parent material for the sandy soils found in the ecodistrict	The shelter provided by the North and South Mountains allows the Annapolis Valley to have early springs and hot summers	• Well-drained sandy soils supports pure stands of white pine, red pine and red oak or mixtures of all three of these fire species. • Areas near the rivers, where there is more silt in the soil, once supported a riparian hardwood forest with elm, black cherry, and black ash. • Few locations where cedar is found and it was probably more common at one time. • Red spruce and hemlock grow on the north facing valley slope, and extend into the valley on the moist sites. • Small hills and hummocks on valley floor where the soil is not excessively sandy support tolerant hardwoods on the upper slopes and red spruce, hemlock and pine on the lower or shaded slopes. • Black spruce and larch grow on the wetter sites. Scattered red pine will also be found on these imperfectly to poorly drained • On the better drained soils sugar maple, yellow birch, beech and ironwood will be found but rarely ever form pure hardwood associations occurring instead with white pine, hemlock and red spruce.
Western Ecoregion: Valley Slope Ecodistrict (710)	Soils tend to be coarse to moderately coarse, well drained and	Climate warmed by the westerly exposure and far enough inland	• On the upper slopes of the well-drained ecosections, tolerant hardwoods are the climax forests. Sugar

	commonly gravelly with surface stones limiting both machine operability and tree stocking levels. Slates, schists and quartzites of the Meguma Group underlie the slopes in Kings County, providing well drained, moderately coarse to medium textured soils.	that the cold waters of the Bay of Fundy do not impact local climate	maple,beech and yellow birch with scattered white pine dominate these sites. • Further down the slope and in the shaded dissections (ravines), hemlock and red spruce are found. • On moist soils, the climax forest is comprised of tolerant softwoods, including red spruce, hemlock, white pine and balsam fir.
Western Ecoregion: South Mountain Ecodistrict (720)	Well drained, coarse sandy loam on glacial till. Shallow, stony and dry with large granite boulders restricting operability on some sites	Warm early springs, warm dry summers and moderately mild winters	• Fire has played a dominant role in shaping forest. • White pine, red pine and red oak occur on well drained sites. • Red Spruce and hemlock occur where soils are moist. • Tolerant hardwood (sugar maple, beech, yellow birch, red oak) occurs on upper slopes.
Western Ecoregion: Lahave Drumlins (740)	Shallow, stony till derived from the underlying slates dominates the ecodistrict. Most of the soils can be characterized as well-drained, shallow, sandy loams except those developed on drumlins, which tend to be deeper and less stony	Early, warm springs and a long growing season, followed by a relatively mild winter. The area receives approximately 1400 to1500mm of precipitation annually	• Dominated by coniferous forests, but tolerant hardwoods will be found on the tops of drumlins and on the upper slopes of well-drained hills. • Sugar maple, red oak and beech are also found on the valley floors of major waterways. • Hemlock, red spruce and white pine will be found on the side slopes of the drumlins and on the moist soils of lower slopes. • Large areas of imperfectly drained soils occupy the areas between drumlins and,

			in most cases, forests of black spruce with white pine are dominant. • After disturbance, balsam fir is an early component of the coniferous forest
Western Ecoregion: Rossignol Ecodistrict (750)	Moderately coarse, stony and shallow	Early springs, warm summers and mild winters	• Forest vulnerable to fire and wind damage. • Upper slopes on well drained sites occupied by hardwood. Yellow birch is most abundant but sugar maple and red oak also present. Red spruce and white pine found mixed with hardwood. • Red spruce, hemlock and white pine form climax forest on lower slopes and better drained sites between hills. • Black spruce dominant on imperfectly drained sites
Western Ecoregion: Sable Ecodistrict (760)	Similar to Rossignol Ecodistrict, mostly moderately coarse, shallow and rocky	Hot summers and mild winters	• An abundance of poorly drained sites and extensive areas of bogs and wetlands. • Climax forest of red oak, white pine and red pine occur on well drained hummocks. • Where soils are less coarse, red spruce , hemlock and white pine will occur • Poorly drained sites support forest of stunted black spruce
Western Ecoregion: St. Margarets Bay Ecodistrict (780)	soils are shallow and stony and the landscape is dotted with large granite boulders	The effects of lower elevations adjacent to the coastal waters of St. Margarets Bay and Mahone Bay, create conditions of more rain and fog and higher moisture levels. Hurricanes have played a significant role in shaping the	• The main vegetation feature of this ecodistrict is the red spruce forest that is generally found on the slopes of hills and hummocks. • Hemlock is usually found on the lower parts of slopes near watercourses. • White pine and black spruce, over-topping a heavy cover of heath-like shrubs, are found on the shallow, coarse textured and drier soils. Black spruce will occupy the poorly

		forests of this ecodistrict	drained soils. •
Fundy Shore Ecoregion: North Mountain Ecodistrict (920)	North Mountain is a ridge of basalt with moderately coarse well drained soils		• A mixture of intolerant hardwood, white spruce, and balsam fir with scattered occurrences of red spruce and white pine occur on the south facing slope • Along the Fundy shore, white spruce is dominant on well drained sites with black spruce occupying wetter sites. • Inland, red spruce occurs on low and middle slope with sugar maple and yellow birch found on upper slope and crests • Eastern white cedar grows in a few locations on the southwestern end of the North Mountain.
Atlantic Coastal Ecoregion: South Shore Ecodistrict	Thin and moderately coarse textured	Cool summers and mild winters with fog common along the coast	• Black and white spruce predominate with scattered occurrences of balsam fir.

1.5 Natural Disturbance Regimes

Forests are dynamic and understanding the landscapes natural disturbance patterns guide management of the forest to reflect natural conditions. Natural disturbance regimes have been predicted for the forest areas of the Province by DNR. Climax forest types for various areas are known using permanent sample plot (PSP) data, old forest research data, historical accounts of forest conditions and recorded natural disturbance across the Province. These climax forest types contribute to the understanding of the natural disturbance regimes which are categorized as either frequent stand initiating, infrequent stand initiating, or Gap dynamic replacement.

Frequent stand initiating is defined a disturbance when the intensity results in the rapid mortality of all or most of the existing forest stand to the extent that a new forest of relatively even-age is able to become established and dominate the site.

Infrequent stand initiating disturbance regime describes a forest disturbance events when the time interval between stand initiating events is typically less frequent than the longevity

of the climax species that would occupy the site. This creates an uneven-aged or multi-cohort forest stand condition.

Gap dynamic disturbance regime describe a forest disturbance event that are at a small scale which could include mortality of individual trees. This creates gaps or openings in the canopy that provides opportunity for shade tolerant species to regenerate.

A complete description of the methodology used in determining natural disturbance regimes can be found in the DNR report *Mapping Nova Scotia's Natural Disturbance Regimes* (2008).

Natural disturbance regimes associated with Medway District lands are shown in Figure 7, 8, and 9.

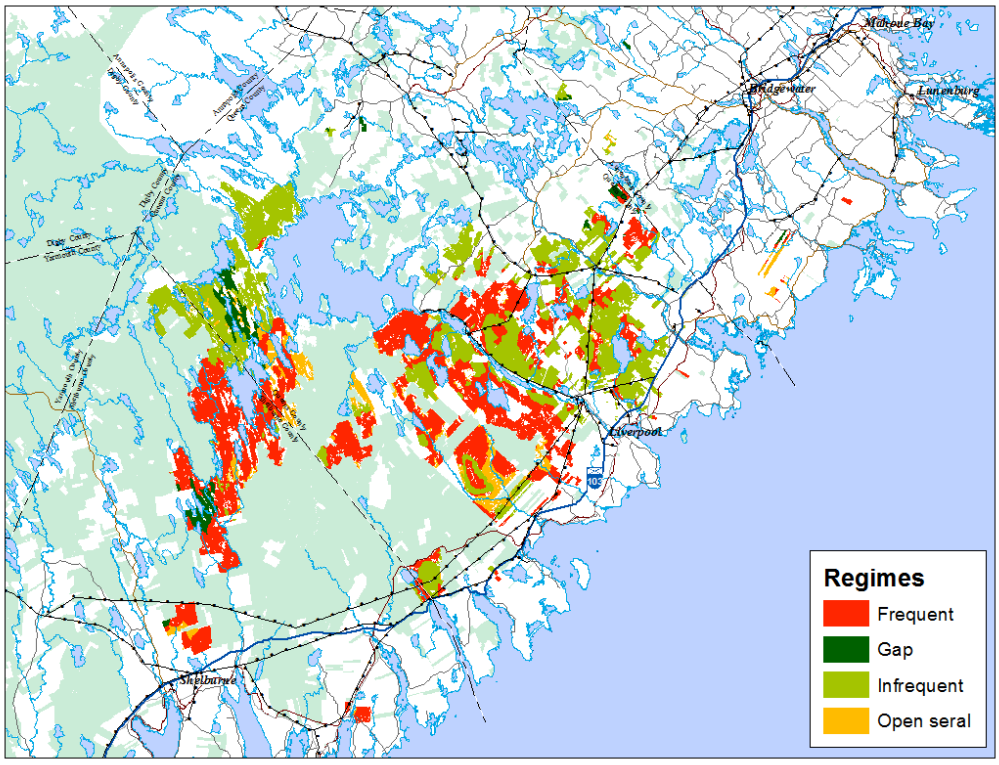


Figure 7. South Shore Rossignol District by natural disturbance regime.

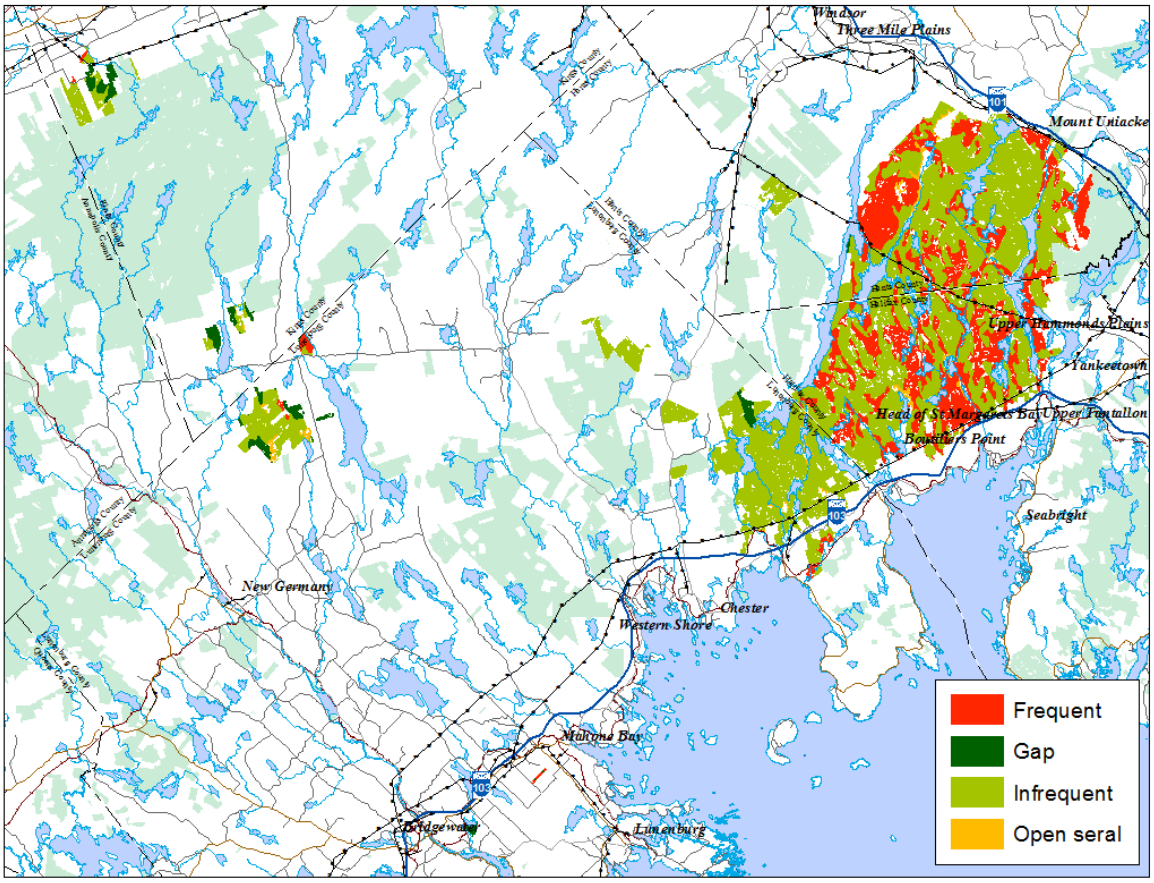


Figure 8. St. Margarets Bay District by natural disturbance regime.

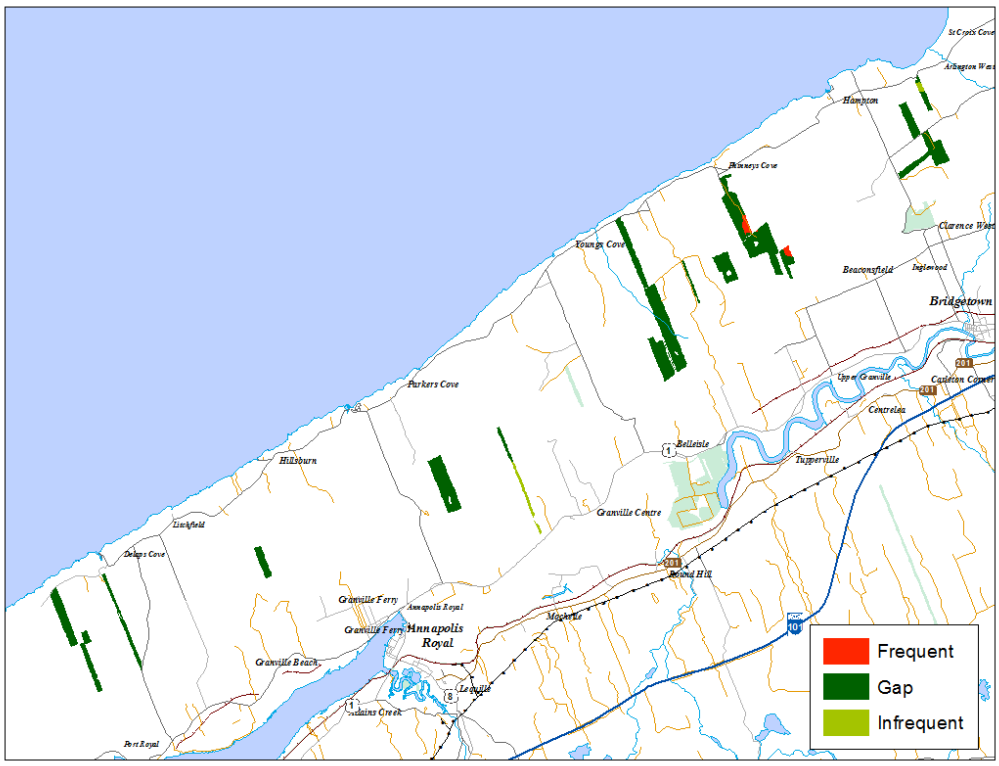
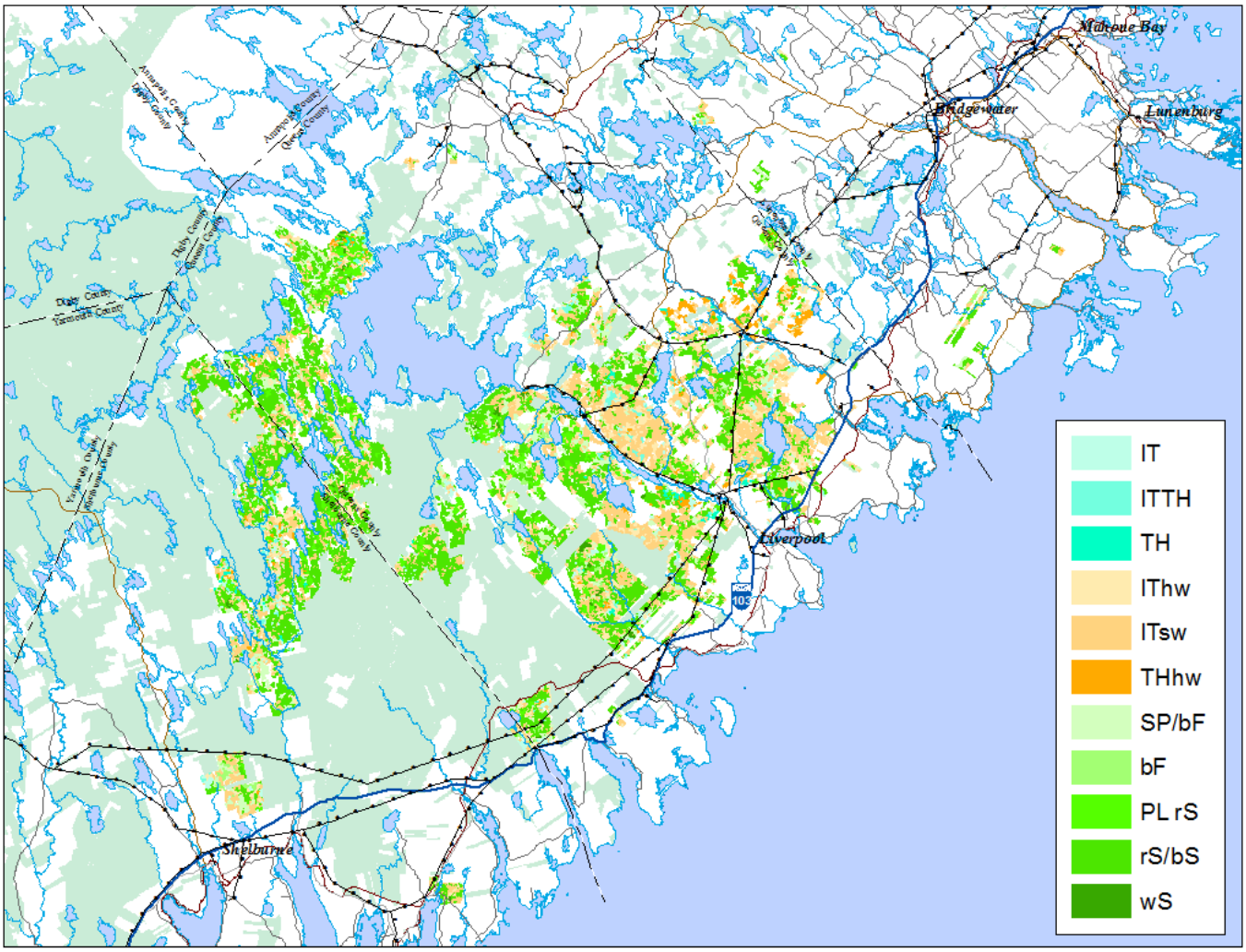


Figure 9. North Mountain District by natural disturbance regime.

1.6 Forest Inventory

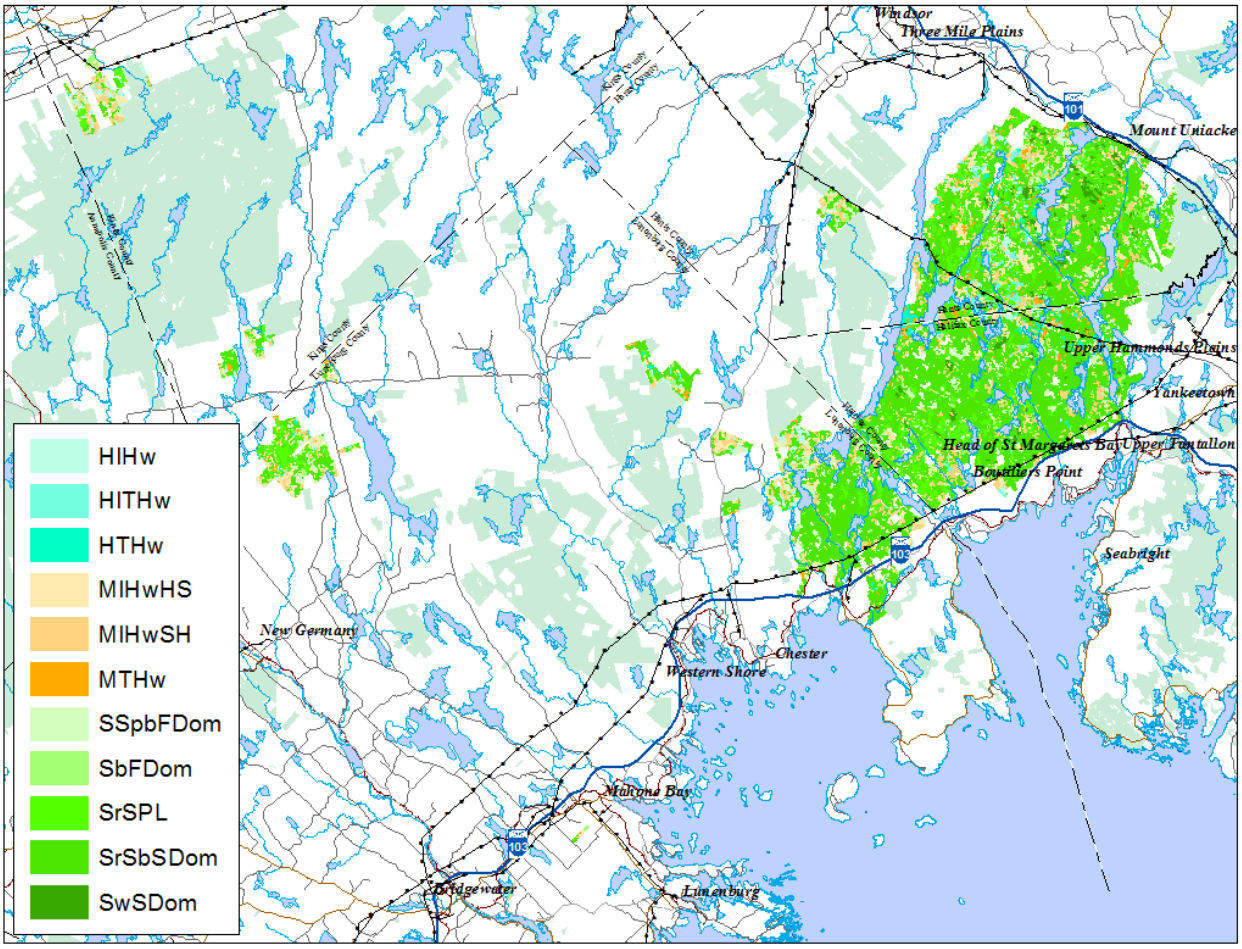
Detailed forest inventory information based on 2000-2005 aerial photograph interpretation is contained within a geographic information system (GIS). Forest stand attributes in inventory data include species composition, height, age, crown closure, site index, and past silviculture and harvest treatments. Forest inventory data has been updated to include forest harvesting and silvicutlure activities up to 2012.

The dominant forest cover in SSR/SMB/NM is softwood and spruce/fir-dominated softwood in particular. Softwood stands are generally comprised of varying proportions of spruce, fir, pine, and hemlock with intolerant hardwood being less common. Past silviculture treatments have favoured spruce, pine, and hemlock; however, a range of species is typically found in managed stands. Maps showing forest community types in South Shore Rossignol, St. Margarets Bay and North Mountain operating areas can be seen in Figures 10, 11 and 12 respectively. The relative proportion of these operating areas in in various forest community types is illustrated in Figure 13.



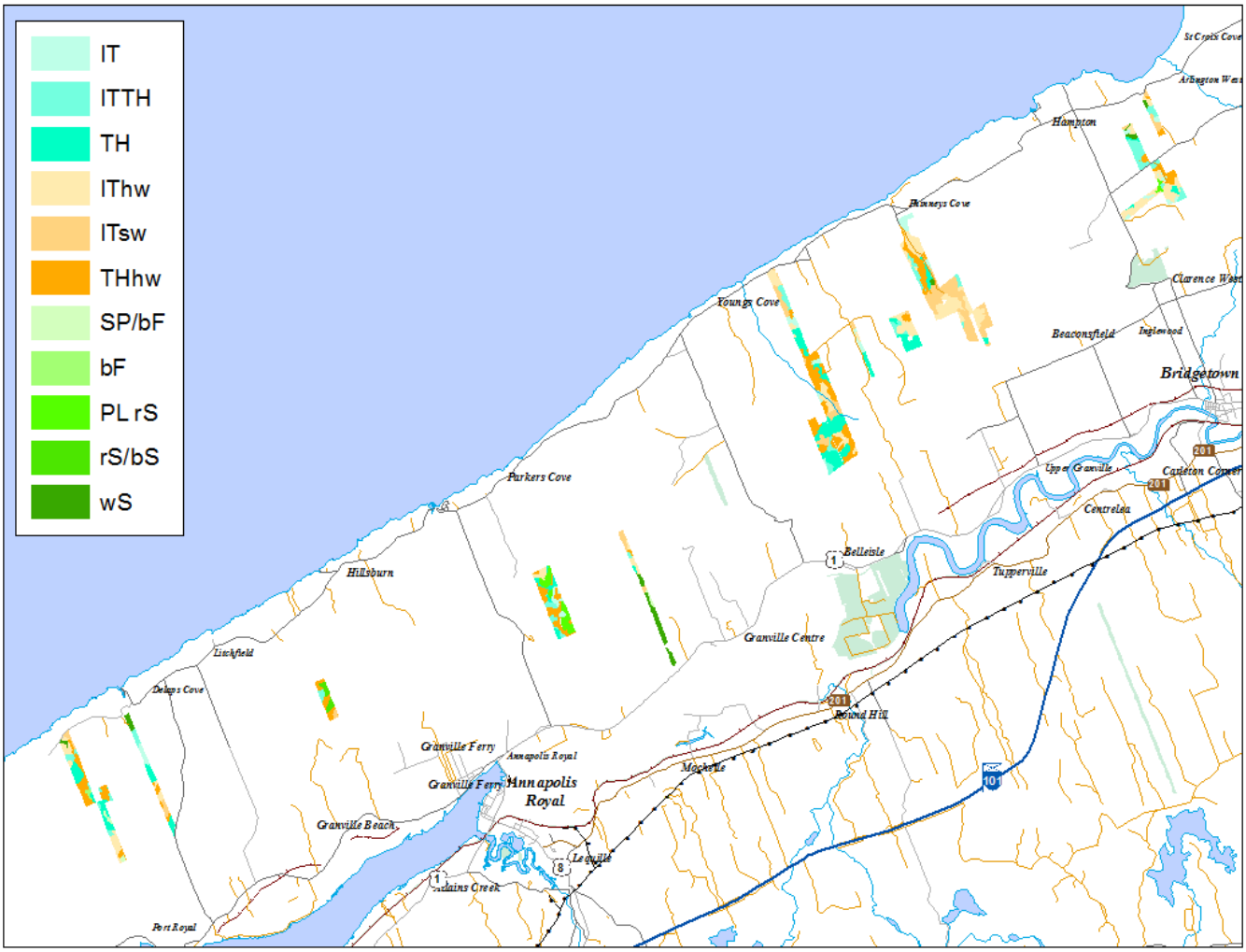
IT: Intolerant Hardwood, ITTH: Intolerant and Tolerant Hardwood, IThw: Intolerant Hardwood/ Hardwood Leading, ITsw: Intolerant Hardwood/ Softwood Leading, TH: Tolerant Hardwood, Rs/Bs: Red/ Black Spruce Dominant, WS: White Spruce Dominant, Bf: Balsam Fire Dominant, PLrs: Planted red spruce, Sp/Bf: Spruce/Fir Dominant, Pi: Pine Dominant, He/Pi/Sp: Mixed Hemlock/ Pine / Spruce

Figure 10. South Shore Rossignol District by forest community type.



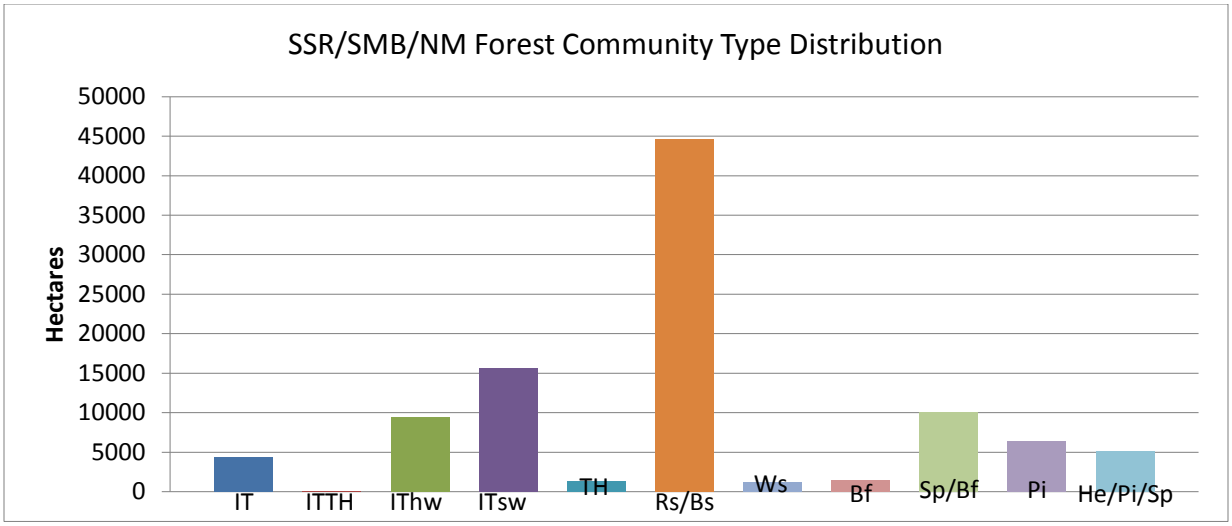
IT: Intolerant Hardwood, ITTH: Intolerant and Tolerant Hardwood, IThw: Intolerant Hardwood/ Hardwood Leading, ITsw: Intolerant Hardwood/ Softwood Leading, TH: Tolerant Hardwood, Rs/Bs: Red/ Black Spruce Dominant, WS: White Spruce Dominant, Bf: Balsam Fire Dominant, PLrs: Planted red spruce, Sp/Bf: Spruce/Fir Dominant, Pi: Pine Dominant, He/Pi/Sp: Mixed Hemlock/ Pine / Spruce

Figure 11. St. Margarets Bay District by forest community type.



IT: Intolerant Hardwood, ITTH: Intolerant and Tolerant Hardwood, IThw: Intolerant Hardwood/ Hardwood Leading, ITsw: Intolerant Hardwood/ Softwood Leading, TH: Tolerant Hardwood, Rs/Bs: Red/ Black Spruce Dominant, WS: White Spruce Dominant, Bf: Balsam Fire Dominant, PLrs: Planted red spruce, Sp/Bf: Spruce/Fir Dominant, Pi: Pine Dominant, He/Pi/Sp: Mixed Hemlock/ Pine / Spruce

Figure 12. North Mountain District by forest community type.



IT: Intolerant Hardwood, ITTH: Intolerant and Tolerant Hardwood, IThw: Intolerant Hardwood/ Hardwood Leading, ITsw: Intolerant Hardwood/ Softwood Leading, TH: Tolerant Hardwood, Rs/Bs: Red/ Black Spruce Dominant, WS: White Spruce Dominant, Bf: Balsam Fire Dominant, Sp/Bf: Spruce/Fir Dominant, Pi: Pine Dominant, He/Pi/Sp: Mixed Hemlock/ Pine / Spruce

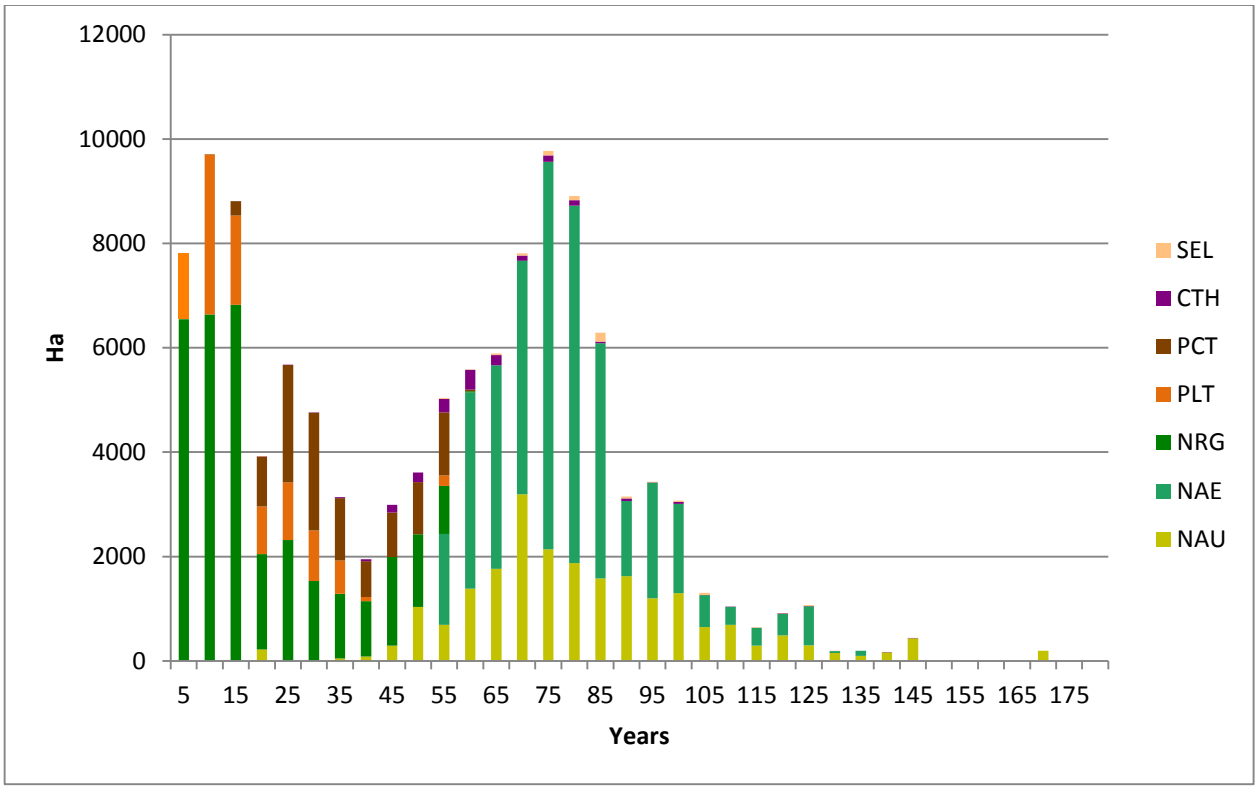
Figure 13. Current forest community type distribution on SSR/SMB/NM District.

The age class distribution of the forests in SSR/SMB/NM, illustrated in Figure 14, indicates there are relatively few stands older than 100 years, a high proportion of stands between 60 and 85 years old, and a more even distribution of stands in age classes less than 65 years old. Although every stand is assigned a specific age for inventory and wood supply forecasting purposes, a portion of the stands have trees of several age classes and are considered uneven aged.

The current age class structure of the forest of SSR/SMB/NM is illustrated in Figure 14. Although every stand is assigned a specific age for inventory and wood supply forecasting purposes, a portion of the stands have trees of several age classes and are considered uneven aged.

Past silviculture treatments have focused on regenerating harvested sites and density control in naturally regenerated stands. Approximately 9,900 ha's have been planted and 10,700 ha's pre-commercially thinned on SSR/SMB/NM lands since the early 1980's. Partial harvest methods became more common in the past 15 years with approximately 1,700 ha of commercial thinning and 600 ha selection harvesting having been completed over that period.

The age structure reflects the increase in harvest activity over the past 45 years with the peak harvest occurring during a period 10 to 15 years ago. Harvesting has been concentrated in stands of older age classes resulting in relatively little of the SSR/SMB/NM forest older than 100 years. A significant portion of the forest SSR/SMB/NM lands are 50 to 100 years old and will be the source of most of the harvest over the next 25 years.



SEL: Selection Harvest, CTH: Commercial Thinning, PCT: Precommercial Thinning, PLT: Planted, NRG: Natural Regeneration, NAE: Natural Unmanaged Even-age, NAU: Natural Unmanaged All-age

Figure 14. Age class distribution on SSR/SMB/NM.

Land Capability (LC) represents site productivity, and is an indication of the volume of wood produced on a site per year. It is expressed in m3/ha/year and will vary depending on tree species. LC is influenced by site conditions such as soil type, water drainage, geology, slope position, and climate. The higher the LC value the more productive or capable the site is to grow wood. The LC of a site is defined and used to model forest change overtime and contributes to estimating the sustainable harvest levels.

Another indicator used to determine sustainable harvest levels is mean annual increment (MAI), which is average growth per year of a tree or group of trees of a specific age. It is also expressed as m3/ha/year. The MAI of a stand is influenced by silviculture treatments such as pre-commercial thinning and weeding.

LC class is to be applied to fully stocked, even-aged forest stands that have had no management intervention. Stands that are density controlled, by either pre-commercial thinning or planting treatments for example, would expect to yield a higher MAI than the LC would indicate. Stands that encounter early suppression or lower than full stocking would result in lower MAI's than predicted. Together the LC value and MAI value of a stand contributes to determining sustainable harvest levels.

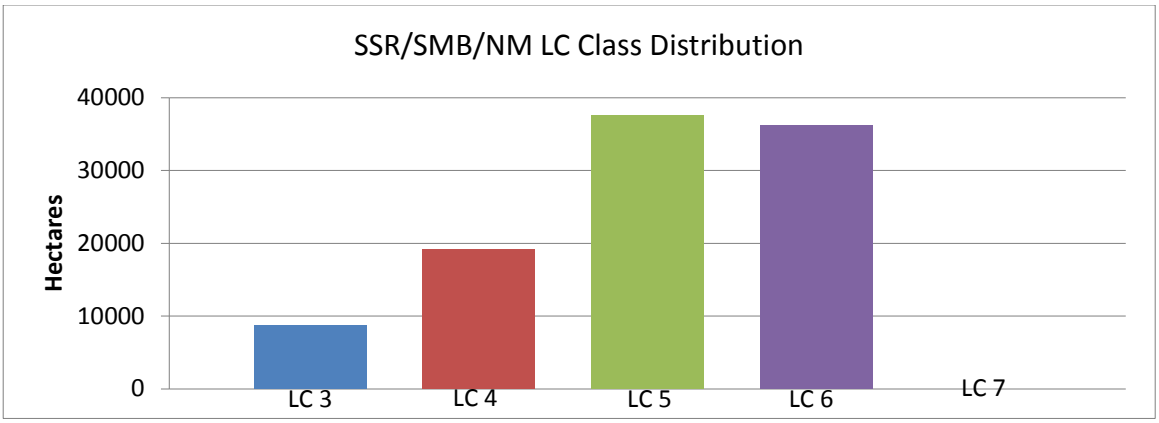


Figure 15. SSR/SMB/NM land capability class distribution.

1.7 History of Ownership and Management

The Mi'kmaq of Nova Scotia advise that they have sustainably used these lands in accordance to the philosophy of Netukulimk to support their people for centuries. In most recent history, the South Shore Rossignol, St. Margarets Bay and North Mountain lands were previously owned by Bowater Mersey Paper Company Ltd. (BMPC) and were purchased by the Province of Nova Scotia in December 2012. BMPC managed forest lands in western Nova Scotia since the mid-1920s. The lands were purchased over a long period of time and from a number of sources. The most active era for land purchases came between 1929 and 1941 with acquisitions of over 158,000 hectares from J.L. Miller, A.A. Miller, Lewis Miller and Company Limited, Macleod Pulp and Paper Company, Barnjum Forest Foundation, and Annapolis Lumber. Harvesting operations began on the Mersey Woodlands in the Rossignol District in 1928. Operations began in St. Margarets Bay in 1942.

Current forest conditions indicate that a combination of clearcutting and selective harvesting was used in the early days of logging within these lands.

Through the 1960s and 1970s as skidders replaced horses, manual felling, delimbing, and skidder operations were the normal means of harvest. This evolved into manual felling, skidding, and mechanical delimbing at roadside through the late 1970s until the mid-1990s when our current mechanized shortwood harvest systems were introduced.

2.0 Management Objectives, Strategies, and Indicators

The Nova Scotia Code of Forest Practice establishes principles for conducting forest management activities that are mandatory on all Provincial Crown land and provide the framework for objectives and strategies in this Forest Management Plan.

Western Crown Land Planning Units

Following the purchase of the Bowater Mersey Woodlands by the Province of Nova Scotia in 2012, NSDNR engaged the public to help develop a plan for the newly acquired public land. The process was known as the Western Crown Land Planning process and it included various public open houses and on-line submission process.

In March 2014, DNR released the conceptual plan for the Western Nova Scotia Crown land. The conceptual plan took into consideration the input and comments received during the consultation process held throughout 2013. The updated Western Crown Land Plan is based on input from hundreds of Nova Scotians.

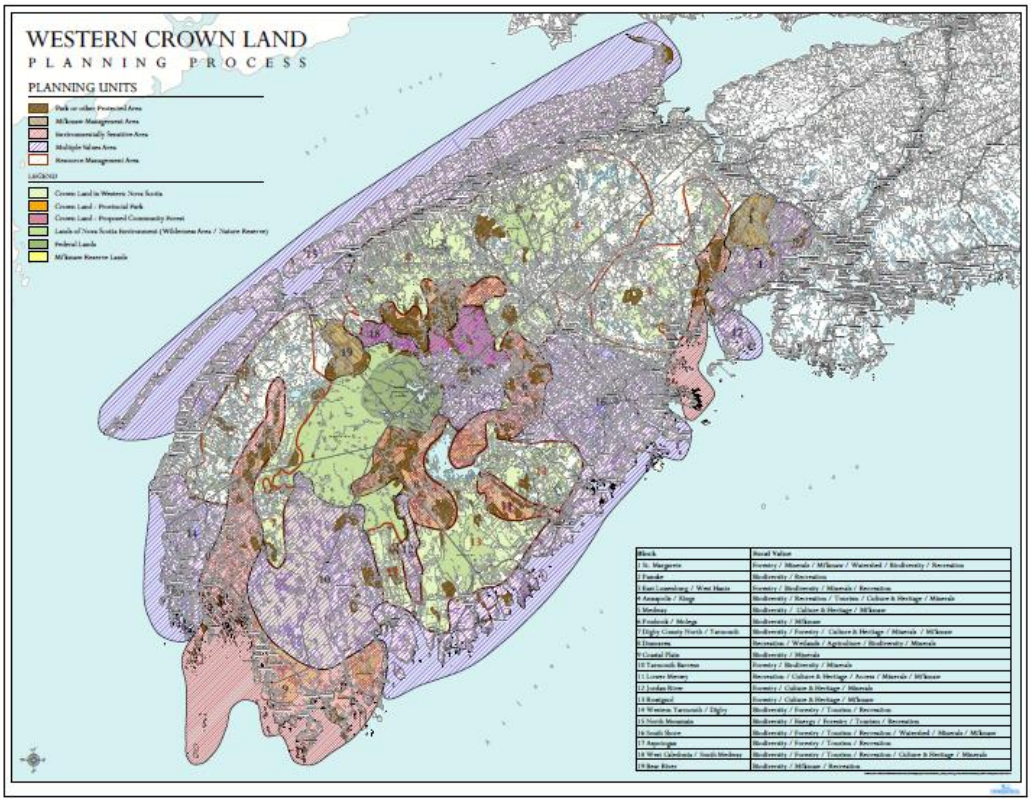


Figure 16. Conceptual plan for the Western Crown land.

A result of the Western Crown Land planning process was a map identifying various planning units. These planning units include Parks and other Protected Areas, Mi'kmaw Management areas, Environmentally Sensitive Areas (ESA), Multiple Value Areas and Resource Management Areas (Figure 16).

The South Shore Rossignol/St.Margarets Bay/North Mountain District includes Parks and Protected Areas planning units, ESA and Resource Management Areas. Detailed management strategies for all the planning units have not been completed at this time. However, there are Interim management strategies for the ESA areas, which will become final management strategies by August 2015.

The plan also calls for the province to explore opportunities for a Mi'kmaq forestry initiative with the Assembly of Nova Scotia Mi'kmaq Chiefs.

Stakeowner Engagement

The SSR/SMB/NM District forest management plan has been provided to the Mi'kmaq for their review. Feedback was received and various suggestions have been included in this document while others will need further discussions between DNR and the Assembly.

Stakeholder Engagement

The SSR/SMB/NM District forest management plan has been provided to the members of the Nova Scotia Native Council, Mersey Woodlands Advisory Committee, Mersey Tobeatic Research Institute, and Ecology Action Centre for their review. Various comments were received and considered in the development of this management plan. This document will be available on-line for further public review.

Management Objectives and Strategies

Objective 1. Forest management practices will be designed and conducted to conserve and enhance the health and natural diversity of Nova Scotia's forest ecosystems.

Landscape Level Strategy:

- Current condition of forest community groups in SSR/SMB/NM lands has been determined from the Ecological Landscape Analysis (ELA) of ecodistricts they intersect. A comparison of current versus natural condition of these community groups will be the basis of the landscape level strategy for restoring the range of local natural variability.

- Levels of management intensity for the SSR/SMB/NM lands have been identified. These zones include:
    - Forest conservation reserves: designated, and proposed, protected areas where no forest management activity will occur (existing and proposed parks and protected areas).
    - Extensively managed forest: lands managed for multiple values using ecosystem based techniques that conserve biodiversity and natural ecosystem condition and processes (remaining area that are not existing and proposed parks and protected areas).
    - Intensively managed forest: lands managed to optimize resource production from sites but maintained in a forest state (intensive management areas have not been determined at this time).

Maps showing the location of landscape management zones for South Shore Rossignol and St. Margarets Bay lands are included in Appendix III.

Where extensively and intensively forest intersect conservation planning units, identified in "A Conceptual Plan for Western Nova Scotia", resource management activities will align with conservation requirement such as specific project locations, level of activity and seasonal restrictions.

- The DNR Old Forest Policy to identify old growth and the best old forest restoration opportunities on at least eight percent of publicly owned forest land in each of the province's 38 forested ecodistricts will be considered in identifying old forest reserves on SSR/SMB/NM Lands.

- Harvest and silviculture prescriptions in the extensive management zone will be guided by the objective to sustain ecological functions in various ecodistricts and ecosections they intersect.

- Offsite and exotic tree species will not be used for reforestation and stand conversion in the extensive and conservation zones. Future management interventions will be designed to eliminate offsite and exotic tree species where they currently exist in these zones.

- Harvest techniques and silviculture prescriptions will promote vegetation types characteristic of the Acadian Forest Region in western Nova Scotia.

Stand Level Strategy:

- Standard Operating Procedures (SOPs) for harvest and silviculture planning require prescriptions that:
  a) Consider landscape level objectives to restore natural variability of community groups.
  b) Consider values associated with planning units defined "A Conceptual Plan for Western Nova Scotia" developed through the Western Crown Land Planning Process.
  c) Mimic natural disturbance and sustain natural ecosystems structure and function.
  d) Promote regeneration of native species typical of the ecosystem.
  e) Maintain or restore species diversity by using Forest Ecosystem Classification (FEC) to guide forest management prescriptions to reach appropriate species composition in extensively managed forests with consideration of DNR's objective to reduce clearcutting.

- While natural disturbance regimes and vegetation types are the basis of harvest and silviculture prescriptions, the risk of blow-down and potential for species in the current stand to develop into the natural vegetation type through selection harvesting are also considered.

- On sites where the natural vegetation type has been significantly altered as a result of past forest management, measures will be taken during the next scheduled intervention to facilitate the restoration of the site to an appropriate vegetation type.

Indicators

- Percent of total area designated in each of three landscape ecological management zones: forest conservation reserve, extensively managed forest, and intensively managed forests.

- Percent of harvest and silviculture operations in compliance with specifications for prescription.

Monitoring and Reporting:

- Percent of areas in each zone will be reviewed every five years in conjunction with the update of the SSR/SMB/NM District 25 Year Forest Management Plan.

- Compliance with SOPs and treatment prescriptions is verified through compliance checks on all operations and an internal audit of Forest Management Plan requirements. Results of compliance checks are reported monthly, results of internal audit and summary of compliance checks is reported annually at Management Review.

- Regeneration surveys are completed on all harvest areas within three years of the harvest. Results of regeneration surveys are compiled and reported annually at Management Review.

Objective 2: Forest management practices will be conducted according to the Ecological Land Classification system for Nova Scotia.

Landscape Level Strategy

- SSR/SMB/NM lands lie within the South Mountain, St. Margarets Bay, Rossignol and Sable Ecodistricts of the Western Ecoregion, the North Mountain Ecodistrict of the Fundy Shore Ecoregion and the South Shore Ecodistrict of the Atlantic Coast Ecoregion. The landscape spatial structure, natural disturbances processes and forest composition inherent to these ecological planning units will be used to guide forest management activities.

Stand Level Strategy

- Areas planned for harvest, will have a pretreatment assessment (PTA) prepared that describes site and forest condition.

- SOPs developed for planning harvest and silviculture operations require the use of the Forest Ecosystem Classification for Nova Scotia (FEC) in determining appropriate prescriptions.

Indicator

- The percent of harvest and silviculture operations that have had a PTA and treatment prescription developed based on FEC.

Monitoring and Reporting

- Compliance verified through the Integrated Resource Management approval process.

Objective 3: Forest management practices will recognize the contribution of protected and wilderness areas in preserving the natural forest heritage within Nova Scotia.

Stand Level Strategy

- SOPs for planning road location require consideration for minimizing conservation impacts in areas adjacent to boundaries of Provincial Wilderness Areas and parks.

- Legally designated protected areas will be classified as forest conservation zones.

Indicator

- Percent of roads, in areas adjacent to boundaries of Provincial Wilderness Areas and parks, in locations that minimize conservation impacts.

- Percent of legally designated protected areas classified as forest conservation zones.

Monitoring and Reporting

- Compliance with requirements of SOPs for planning road location will be verified through compliance checks on road construction operations. Results of the internal audit and a summary of compliance checks will reported annually at Management Review.

- List of legally designated protected areas.

Objective 4: Forest management practice will be designed and conducted in a manner that maintains and enhances the quality of air, soil and water.

Landscape Level Strategy

- SOPs for planning roads require measures be taken to avoid wetlands, watercourses and areas where depth to water table and soil type create increased risk of soil damage.

- No more than 25% of a designated water supply area to be in a state of recent (5 years or less) forest timber harvest except under circumstances where harvesting is prescribed to salvage wood from areas damaged by natural disturbance

- Forest Management in designated municipal water supplies will comply with Source Water Protection Plans designed to protect water supplies as developed by the water authority.

- Road densities will be minimized through strategic planning of new and temporary access,, road decommissioning, and timber harvest scheduling.

Stand Level Strategy:

- Specifications for biomass harvest, included in SOP for harvest operations, require minimum retention levels depending on site productivity.

- Measures to be taken to minimize soil disturbance on all harvest operations involving off - road equipment including the requirement to comply with guidelines established for the FEC are documented in SOPs for operation of off-road equipment.

- SOPs for location and development of roads, landings and borrow pits include measures to be taken to minimize the area taken out of forest production.

Indicators

- Percent of roads and trails established that meet the requirement of the SOPs for planning road location.

- Percent of harvest and silviculture operations in compliance with measures to minimize soil disturbance.

- Percent of roads, landings and borrow pits that meet the requirements of relevant SOPs.

Monitoring and Reporting

- Compliance with requirements of SOPs for planning road and trail layout will be verified and reported through an annual internal audit of management plan requirements and reported annually at Management Review.

- Results of compliance checks on road building are reported regularly, results of the internal audit and a summary of compliance checks will be reported annually at Management Review.

Objective 5: Forest management will be designed and conducted with consideration of potential effects of climate change and opportunities to maintain and enhance carbon sinks

Landscape Level Strategy

- Forest management activities will increase carbon sequestration through:
  a) Measures taken to ensure all harvested areas meet minimum standards for stocking of acceptable species.
  b) The use of genetically improved, faster growing seedlings on all planting operations.
  c) Minimum retention requirements on all harvest operations
  d) Designation of management zones where harvesting will be restricted or prohibited.
  e) Conservation of wetlands

- Species listed as acceptable growing stock will include natural species diversity.

- Road construction and bridge and culvert installation and partial harvest specifications will account for the predicted increase in extreme weather events.

- Forest monitoring programs have been implemented to detect outbreaks of pests and pathogens.

- Harvest and silviculture prescriptions based on FEC will promote the establishment a natural range of species resulting in forests that are more adaptable to changing climate.

Indicators

- Percent of harvested areas adequately stocked with acceptable species through natural regeneration.

- Percent of roads, bridges, culverts and partial harvest operations that meet specifications defined in SOPs.

- Number of instances of pest or pathogen infestation identified.

Monitoring and Reporting

- Results of regeneration surveys to be reported annually at Management Review

- Compliance with specifications for road construction, bridge and culvert installation and harvest prescriptions will be verified with compliance checks and an annual internal audit of management plan requirements. Results of compliance checks will be reported quarterly, annual through the internal audit and summary of compliance checks will be reported annually at Management Review.

Objective 6: Forest management practices will be designed and conducted to secure a long-term sustainable harvest of forest products.

Strategy: Timber Harvest

- Sustainable harvest levels are determined using a Woodstock Forest Development Model based on current forest conditions, expected response to silviculture treatments and restrictions in place to ensure non-timber objectives are met. The average annual harvest for each five year peiord is included in Table 2. The area proposed as the Mi'kmaw Forestry Initiative is not included in the wood supply analysis. Method of harvest and area of silviculture treatment is shown in Table 3.

Table 2

AVERAGE ANNUAL HARVEST FROM SSR/SMB/NM LANDS 2013-2037

Period	Average Annual Softwood Harvest (tonnes)	Average Annual Hardwood Harvest (tonnes)	Average Annual Total Harvest (tonnes)
2013-2017	97,719	20,157	117,876
2018-2022	97,719	20,157	117,876
2023-2027	97,719	20,157	117,876
2027-2032	97,719	20,157	117,876
2033-2037	97,719	20,157	117,876

Table 3

AREA HARVESTED BY HARVEST METHOD AND AREA OF SILVICULTURE TREATMENT

Period	Mosaic Harvest (hectares)	Variable Retention (hectares)	Shelterwood (hectares)	Selection (hectares)	Pine Seed Tree (ha)	Commercial Thinning (ha)	Plant (ha)	PCT (ha)
2013-2017	6,790	188	2,577	370	172	379	524	1,621
2018-2022	7,765	19	3,098	482	0	92	629	1,945
2023-2027	6,091	3	3,315	66	172	0	688	2,334
2028-2032	5,633	0	3,413	43	0	83	550	2,800
2033-2037	6,244	234	1,180	255	51	329	440	3,080

- Operational plans are developed that reflect the sustainable harvest levels by harvest method and silviculture treatments required to support the sustainable harvest.

- SOP for harvest operations require optimum utilization of merchantable wood from all harvest operations

- All harvest areas will be assessed for natural regeneration within three years of harvest. Areas that do not meet minimum standard for stocking with acceptable species will be planted as required in SOPs for silviculture.

- In the event of a large scale disturbance on SSR/SMB/NM lands, harvest plans will be altered to direct efforts toward salvaging merchantable timber.

Indicators

- Volume of timber products harvested by harvest method compared to levels determined to be sustainable.

- Silviculture program implemented compared to levels required to support sustainable harvest.

- Percent of harvest areas regenerated to acceptable species through natural regeneration or planting.

Monitoring and Reporting

- Harvest volume by species and product will be reported annually and reported at the Management Review.

- Silviculture programs will be reported annually at Management Review.

- Results of regeneration surveys will be reported annually at Management Review

- Growth and condition of areas planted are assessed the year the plantation is established and three years following to determine survival of planted trees and silviculture prescriptions required to control competition.

Objective 7: Forest management practices will be designed and conducted to improve productivity, quality and value of forests and forest products.

Strategy:

Productivity:

- The levels of various silviculture treatments used in the calculation of annual allowable cut (AAC) will be the minimum silviculture program implemented on SSR/SMB/NM lands. Specifications for silviculture treatments are documented in SOPs for silviculture.

Harvest and Regeneration:

- A sustainable harvest level will be calculated using the Woodstock forest development model with the objective to maximize the economic return through the harvest of forest products from the extensive and intensive management zones over a period of 100 years.

- Operating plans for timber harvesting will be developed based on results from the PTA to reflect stand conditions (age, site, cover type) identified for harvest by the wood supply model for the current 5 year period.

- Specifications for harvest methods are defined in SOPs for harvest planning and operations.

- The potential for natural regeneration will be assessed for all mosaic and variable retention harvest operation. Those areas with low potential for regeneration, verified through field inspection, will be planted within three years of harvesting.

- SOPs for silviculture requires regeneration surveys to be completed on all mosaic, variable retention and seed tree harvest openings within three years of harvest. Any site that does not meet minimum stocking of preferred crop trees will be planted or seeded.

Vegetation Management (Stand release)

- Areas planted will be assessed one year and three years following planting to determine survival rate of planted trees and assess competing vegetation. Stand release treatment will be prescribed where survival and growth of crop trees is significantly hindered by competing vegetation as required by SOPs for silviculture.

Density Management

- All harvested areas, including those planted, will be assessed 10 to 15 years following harvest to determine density and stocking by species.

- Areas will be prioritized for pre-commercial thinning based on total density, stocking of preferred crop trees and site capability as required by SOPs for silviculture planning and operations.

- Areas chosen for pre-commercial thinning will have a silviculture operating plan prepared which includes species priorities based on FEC as required by SOP's for silviculture planning and operations

Commercial Thinning

- Specifications for commercial thinning including stand conditions where commercial thinning is appropriate and measures to be taken to ensure stability and long term value, are included in SOPs for harvest planning and operations based on stand conditions determined through PTA.

- Contractors and their staff, involved in commercial thinning receive training on treatment specifications

Improve Timber Quality

- SOPs for silviculture and harvesting include specifications for crop tree selection and measures to be taken improve timber quality attributes.

- Harvest systems, specifically designed to promote natural regeneration, include specifications for species and quality of trees to be left as a seed source.

- Silviculture and partial harvest prescriptions include specifications for crop tree selection and density to favour growth of high quality trees suitable for a wide range of potential uses.

- All contractors and their staff received training in SOPs relevant to their work.

Maximize Value

- Sustainable harvest levels are calculated using the Woodstock forest development model with the objective of maximizing production of forest products within restrictions required to protect non-timber values. The model looks at all possible combinations of defined harvest methods and silviculture treatments to determine the maximum sustainable harvest over a 100-year time horizon.

- Operating plans are developed that reflect the level of harvest by harvest method, silviculture treatments and forest types where they are applied as defined by the wood supply model to ensure forecasted maximum harvest levels are achieved.

- SOPs for harvest operation include specifications for utilization of forest products to ensure that no merchantable wood is left on the harvested area beyond what is required to meet requirements of Wildlife Habitat and Watercourse Protection Regulations.

Indicators

- Area treated with various silviculture prescriptions compared to what is required to support AAC.

- Actual harvest compared to AAC (Averaged over 5 year period)

- Percent of area identified as having inadequate natural regeneration of preferred crop trees that has been planted.

- Percent of seedlings planted that are from tree improvement programs appropriate for Nova Scotia.

- Percent of planted area that has been assessed one and three years following planting.

- Percent of harvested areas that have received a 10-15 year stand assessment.

- Total area receiving pre-commercial thinning compared to area required to maintain AAC as defined by wood supply model.

- Percent of area receiving pre-commercial thinning that meets the specification for crop tree selection.

- Area and volume harvested by method, during current five year period, compared to what is required to ensure sustainable harvest as defined by the wood supply model.

- Actual silviculture treatment by area, during current five year period compared to what is required to ensure sustainable harvest as defined by the wood supply model.

Monitoring

- Area by silviculture treatment will be tracked and reported quarterly, annually at Management Review and included in the Annual Report for SSR/SMB/NM Districts.

- Compliance with requirement of SOPs to be verified through compliance checks of harvest and silviculture operations. Results of compliance checks are reported monthly, results of internal audit and summary of compliance checks reported annually at Management Review.

- Area of various stand types in operating plans to be updated in conjunction with the update of the Operating Plan.

- Average cost of silviculture treatments, harvesting and road construction and maintenance to be reported annually at Management Review.

- Regeneration surveys will be completed on all harvest openings within three years of harvest and reported annually at Management Review.

- Volume harvested by species and product is reported quarterly and annually at Management Review. Area harvested by method is tracked and reported annually at Management Review. Volume harvested by species and product is included in the Annual Report for SSR/SMB/NM Districts.

Objective 8: Forest management practices will incorporate the best available knowledge of local ecological conditions, including soil, climate, water, terrain, vegetation and wildlife habitat, in the planning process for roads, harvesting systems and silviculture activities.

Strategy:

Operations

- SOPs for harvesting, silviculture and road construction' designed to protect of soil, water and wildlife habitat will be implemented on all operations.

- Forest harvesting prescriptions are determined using the pre-treatment assessment process.

- SOPs for fuel, oil, and chemical handling designed to ensure proper storage, handling and disposal of fuels, oils, lubricants and other hazardous material will be implemented on all forest operations.

- All contractors and their staff will receive training on SOPs related to their work including fuel and oil handling and emergency response procedures.

- License / Agreement holders are required to remove all garbage from operating areas.

Roads

- SOPs for road construction will include the requirement that:
  a) Roads are placed in locations that provide efficient access while minimizing road density and negative impacts on water quality, fragmentation of wildlife habitat, and other values
  b) Roads and water crossings be planned, built, maintained and decommissioned to meet appropriate SOPs and all legislative requirements.
  c) The amount of forest converted to roads, landings, loading areas and other non-forest conditions will be minimized.

- A road closure strategy shall be adopted to reflect local soil and weather conditions.

Timber Harvest

- SOPs for harvesting include the requirement to assess the risk of rutting and schedule harvesting during period so as to minimize environmental damage and site degradation.

- Minimum retention levels for biomass harvest are included in SOP for harvesting.

- Harvest prescriptions will prohibit the removal of whole trees from a forest site in order to maintain woody debris at these sites.

Silviculture

- SOPs for harvesting and silviculture operations include the requirement leave all non-crop vegetation that does not interfere with crop tree growth.

- Herbicide will only be used when deemed necessary to prevent crop tree mortality or growth loss.

- Public funds will not be directed to herbicide spraying for forestry. No Herbicide applications are planned for SSR/SMB/NM lands.

Indicators

- Percent of harvest, silviculture and road construction operations in compliance with requirement of SOPs.

- Percent of harvest operations where excessive rutting occurred.

Monitoring and Reporting

- Compliance with SOPs is verified through a compliance checks on all operations and an annual internal audit. Results of compliance checks will be reported quarterly, results of internal audit will be reported annually.

- Volume of herbicide used will be reported annually at Management Review

Objective 9: Forest management practices will be designed and conducted to maintain or restore the natural range and structure of forest communities to benefit the wildlife species in Nova Scotia.

Landscape Level Strategy

- Large forest patches have been created in SSR/SMB/NM District through forest conservation reserves designated through the Western Crown Land planning process to create connectivity.

Stand Level Strategy

- Harvest prescriptions based on FEC will create canopy openings, legacy trees, dead trees, and cavity trees that are consistent with landscape management objectives.

- SOPs for harvest and silviculture operations include Wildlife Habitat Conservation Features to be maintained on harvest and silviculture operations including retention of coarse woody debris, wildlife clumps and snags. Wildlife Habitat Conservation Features meet or exceed requirements Wildlife Habitat and Watercourse Protection Regulations.

- No harvest operation will create an opening (clearcut) larger than 50 ha.

Indicators

- Number and area of "large forest patches" identified

- Levels of medium and high habitat suitability for indicator species over a 100 year planning horizon

- Percent of harvest operations in compliance with requirements of treatment prescriptions.

- Number of openings larger than 50 ha and average size of openings.

Monitoring and Reporting

- Compliance with treatment prescriptions and Special Management Practices is verified through compliance checks and internal audit. Results of compliance checks reported monthly. Results of internal audit and summary of compliance checks reported at annual Management Review.

- The average clearcut size will be reported annually at Management Review.

Objective 10: Forest management practices will be planned and conducted to protect significant wildlife habitats in Nova Scotia Forests including habitat for species at risk.

Stand Level Strategy

- Standard Operating Procedures for planning harvest, silviculture and road construction operations require an assessment of risk to rare species and habitats including referral to DNR's Significant Species and Habitats Database and the ACCDC database on species locations.

- The Bowater Mersey Unique Areas Program (furthermore referred to as the Unique Areas Program) identifies natural areas and features of significant value to wildlife and provides guidelines for their conservation. Several categories of Unique Areas have been identified including special management areas, conservation areas and conservation features. Areas on Mersey Woodlands meeting the requirements of the Sustainable Forestry Initiative (SFI) Forests of Exceptional Conservation Value and areas of Medway District identified as FSC High Conservation Value Forests are included in the Unique Areas Program. Measures established to protect the values associated with Unique Areas will continue to be requirement of SOPs for all forest management activities.

- The requirements of "DNR Special Management Practices for Species at Risk" will be implemented in areas where habitat for these species has been identified.

Indicators

- Percent of forestry operation in compliance with requirements of IRM approval.

Monitoring and Reporting

- Percent of forestry operation in compliance with requirements of IRM approval.

Objective 11: Forest management practices will be designed and conducted to balance the economic, cultural, social and environmental interests and values of all Nova Scotians.

Strategy

- Operating plans for harvest, silviculture and road construction will be guided by Integrated Resource Management (IRM) plans at the ecodistrict level and will incorporate forest practices for multiple use.

Indicators

- Percent of operating plans implemented that have had an IRM review.

Monitoring and Reporting

- Percent of operating plans having IRM review.

Objective 12: Forest management practices will be designed and conducted to consider structure and diversity elements required for the integration of public interests.

Tourism and Viewscape

- Operating plans for harvest silviculture and road construction will be guided by Integrated Resource Management (IRM) plans at the ecodistrict level and will incorporate forest practices for multiple use.

- Forest operations in the vicinity of 10 and 100 series highways, scenic tourist routes and along canoe routes will be designed to reduce visual impact of those operations. Portages, where they are known to exist, will be kept free of brush following forest operations.

- Standard Operating Procedures for Harvest Planning limit the maximum clearcut size to 50 ha

Protected Areas

- Forest operations adjacent to the boundary of the protected area will be considered on a case-by-case basis with protected areas managers.

Recreation and Leisure

- Snowmobile and ATV user groups have been identified as stakeholders in the Western Crown Land Planning Process and will be consulted in development operating plans for Mersey Woodlands.

- Public use of roads will be permitted, subject to a road closure policy to be designed to provide for public safety and to prevent damage to roadways or road structures.

Education

- SSR/SMB/NM District will be made available to education and extension institutions to provide learning opportunities associated with forest ecosystems and forest practices.

- The Mi'kmaq of Nova Scotia will be invited to share traditional ecological knowledge in forest management plan development and develop educational programs.

- Local naturalists and environmental groups have been identified as stakeholders in the Western Crown Land Planning Process. They have been invited share ecological knowledge in the development of West Crown Land Management Plan and will continue to be consulted through the development of the Management Plan for SSR/SMB/NM Districts.

Biochemical

- Standard Operating Procedures, designed to enhance forest ecosystem condition required for the production of significant biochemical products, will be developed in consultation with groups and individuals with an interest in biochemical production.

Food and Forage

- Local groups, the Mi'kmaq of Nova Scotia and individuals, with interest in harvesting wild foods, will be invited to participate in the development of Standard Operating Procedures for forest operations designed to maintain specific forest sites used for harvesting wild foods.

Crafting

- Crafts people, the Mi'kmaq of Nova Scotia and businesses that use, or have an interest in using, timber or non-timber forest products will be invited to participate in development Standard Operating Procedures for forest operations to ensure sustainability of those products.

Hunting/Fishing/Trapping

- Fish and Game and Trapping Organizations have been identified as stakeholders through the Western Crown Land Planning Process. These organizations, the Mi'kmaq of Nova Scotia and individuals with an interest in hunting, fishing or trapping will be provided with opportunities to participate in the development of the Management Plan for SSR/SMB/NM lands.

Aesthetic and Spiritual Experience/ Culture and Heritage

- Areas on SSR/SMB/NM, identified as having significant cultural value, have been included in the former Bowater Mersey Unique Areas Program. These areas, and measures developed to ensure the unique values are not affected by forest operations, will be maintained.

- The Western Crown Land Planning Process has identified areas of aesthetic, spiritual or cultural value to local communities through open house and stakeholder meetings held across western Nova Scotia. These areas, where they exist on the SSR/SMB/NM Districs, will be considered for addition to areas of significant cultural value identified through the Unique Areas Program.

Mi'kmaw Forestry Initiative

- NSDNR will consult with the Mi'kmaw community, through the Assembly of Nova Scotia Mi'kmaq Chiefs, to identify a portion of the St. Margarets Bay lands to be managed by the Mi'kmaq.

- Forest management planning and operations will align with the SSR/SMB/NM District Management Plan until a separate plan for lands being managed through the Mi'kmaw Forestry Initiative has been developed.

Indicators

- Percent of operating plans implemented that have had an IRM review

- Percent of forest operations in the vicinity of 10 and 100 series highways, designated tourist routes and along canoe routes that have taken into account visual impact in operating plan development.

- Percent of forest operations in locations where portages are known to exist where the portage was identified on the operating plan map and measures taken to ensure it was kept free of brush

- Percent of operations within adjacent protected area that were planned in consultation with protected area managers.

- Modifications made to operating plans to ensure minimum impact on conservation value of protected areas.

- Percent of forest operations that have been planned in consultation with stakeholders.

- The number of educational and extension institutions that have made use of Mersey Woodlands to provide learning opportunities associated with forest ecosystems and forest practices.

- Opportunities provided for the Mi'kmaq of Nova Scotia to share traditional ecological knowledge.

- Documented Standard Operating Procedures designed for ecosystem maintenance or enhancements required for biochemical production.

- Opportunities for local groups, the Mi'kmaq of Nova Scotia and individuals with interest in harvesting wild foods to identify areas of importance and have input on SOPs

- Opportunities provided for crafts people the Mi'kmaq of Nova Scotia and businesses that use forest products to participate in development of SOPs

- List of areas of areas of significant cultural value included in Unique Areas Program.

- Percent of forest operations, in the vicinity of areas of significant cultural value, in compliance with measures developed to protect their unique features.

- Identification of lands to be managed as a Mi'kmaq Forestry Initiative

Monitoring and Reporting

- Compliance with requirements for modification of operations to reduce visual impact, consultation with protected area managers and notifications of adjacent landowners will be verified through compliance checklists for harvesting.

- Opportunities provided to stakeholders, the Mi'kmaq of Nova Scotia and members of the public to share ecological knowledge and participate will be recorded.

- List of areas of cultural significance and percent of operation in compliance with requirements to protect their unique value will be monitored.

Objective 13: Forest management plans will respect Aboriginal and Treaty Rights and ensure that the Mi'kmaq of Nova Scotia are provided with continued access for traditional activities (fishing, hunting, harvesting of wood for domestic purposes);

Strategy

- The Government of Nova Scotia, as represented by the Department of Natural Resources, will consult with the Mi'kmaq under the 2010 Consultation Terms of Reference for the development of the Forest Management Plans for the SSR/SMB/NM Districts.

- Mi'kmaq culturally important sites within the designated lands will be respected and the Mi'kmaq will be provided with continued access to those sites.

Indicators

- Number of culturally important site identified within the SSR/SMB/NM Districts.

- Number of culturally important site to which Mi'kmaq have continued access to practice their rights

- Opportunities provided for Mi'kmaq to participate in the development of management plans for the Mersey Woodlands.

Monitoring and Reporting

- Opportunities to participate in management plan development and benefits provided will be recorded.

Objective 14: Forest management plans will respect Mi'kmaq culturally important sites within the designated lands and provide the Mi'kmaq with continued access to those sites.

Strategy

- Sites of cultural significance will be identified in consultation with the Mi'kmaw community and the Department of Community and Heritage.

- Sites in SSR/SMB/NM, known to be of cultural significance to the Mi'kmaq will be added to areas of significant cultural value identified through the former Bowater Mersey Unique Areas Program. They will be mapped and measures, developed in consultation with Mik'maq, will be implemented to ensure they are not disturbed by forest operations.

- The Mi'kmaq of Nova Scotia will have access to the designated lands for traditional activities (fishing, hunting, harvesting of wood for domestic purposes)

Indicators:

- Number of sites of cultural significance to the Mi'kmaq identified on SSR/SMB/NM lands.

- Percent of operation in the vicinity of site sites of cultural significance in compliance with measures designed to protect cultural value.

Monitoring and Reporting

- The number of sites of cultural significance identified on Mersey Woodlands will be recorded in the IRM approval documents.

- Compliance with SOPs designed to protect cultural value will be monitored through compliance checks on forest operations regularly.

Objective 15: Forestry operations will be designed and conducted to be in compliance with environmental legislation, policies, requirements of SFI and FSC certification standards and other commitments made by DNR relating to forestry activities.

Strategy

- All contractors and their staff will receive training on environmental awareness and Standard Operating Procedures associated with their work.

- DNR staff will verify compliance with Standard Operating Procedures and other requirements of the timber license/ agreement through field inspections and completion of Compliance Checklists for all forest operations. Non-conformances will be tracked and followed up with corrective action.

- DNR will verify compliance with the requirements the SFI Standard for Sustainable Forest Management on all Mersey Woodlands. Non-conformances will be tracked and followed up with corrective action.

Indicators

- # of licensees, contractors and their staff who have received environmental awareness and BMP training.

- Percent of operations in compliance with requirements of timber license/ agreement and Standard Operating Procedures.

- Number of non-conformances found during internal and third party audits of FSC and SFI certification standards and Management Plan requirements.

- Compliance with SFI 2015:2020 Standard

Monitoring and Reporting

- Compliance will be monitored through compliance checks and internal audit. Results of compliance checks reported at monthly. Results of internal audit and summary of compliance checks reported at Management Review.

- Third party audit of SFI Requirements will be conducted annually with results reported upon completion and included in Management review.

3.0 Predictable Influence of Pests, Pathogens, and Non-commercial Species

Future forest development using the "Woodstock" model is based on forest growth data measured from permanent sample plots (PSP's). PSP's have been re-measured at regular intervals since the early 1960s to determine growth and mortality of trees within the plot. Natural levels of pests, pathogens, and non-commercial species will influence the data collected from PSPs and therefore are incorporated in yield curves derived from this data.

In the event that pests, pathogens, and other disturbance agents increase beyond normal levels and abnormal losses occur, the wood supply forecast will be adjusted based on the extent of the disturbance.

4.0 Access and Harvest Schedules

There are varying degrees of access to the SSR/SMB/NM Districts. More information see **http://novascotia.ca/natr/land/western-land/access.asp**

The four-year operating plans for the SSR/SMB/NM Districts are taken from the Bowater Mersey Woodlands four-year operating plans that were developed under a previous Management Plan. Amendments to the original Bowater Mersey operating plan were made to reflect the new policies associated with the transition to Public land. The most significant changes include:

1. All areas proposed to be harvested in the Parks and Protected Areas were removed from the plan,
2. Harvest areas were reviewed by the Mi'kmaq of Nova Scotia,
3. PTA are completed on all harvest areas prior to harvest, and an Integrated Resource Management approval is completed on each harvest area.

Together all of these changes contributed to the amendments of the pre-existing operating plan.

5.0 Monitoring Forest Changes and Assessing Environmental and Social Impact

5.1 Monitoring Forest Changes

Changes to the forest as a result of road construction, harvesting, and silviculture are recorded through regular updates of GIS data based on information from satellite imagery and annual updates.

Changes to forests as a result of stand succession, normal levels of insects, diseases, and wind are monitored by updating forest inventory data through aerial photograph interpretation every ten years. Detailed information on stand development including growth, mortality, ground vegetation, and coarse woody debris is monitored through establishment and re-measurement of PSPs.

GIS and forest inventory data are updated by DNR's Renewable Resources Branch, Forestry Division.

The impact of above-normal levels of insect and disease and effects of fire and abnormal weather events are monitored by DNR's Renewable Resources Branch, Forest Protection Division.

5.2 Assessing Environmental Impact

SOPs for developing Operational Plans for harvesting, silviculture and road construction require consideration of the potential impact on environmentally and culturally sensitive sites and measure prescribed to ensure sensitive features are protected. These plans are then subject to an Integrated Resource Management (IRM) review, a decision-making process whereby all resources are identified, assessed and compared before land use or resource management decisions are made.

To ensure that Operational Plans are implemented as prescribed, internal and external audits are conducted to monitor both employee and contractor performance. Audits involve employee interviews, field checks, and assessment of required documentation.

5.3 Assessing Social Impact

DNR will assess the social impact of forest management activities by providing opportunities for employees, stakeholders and members of the public to participate in the forest management planning process through open house meetings and the Mersey Woodlands Forest Advisory Committee. Mi'kmaw communities, through the Assembly of Nova Scotia Mi'kmaq Chiefs, will be provided with opportunities to participate under the 2012 Consultation Terms of Reference.

Maps of harvest areas are being posted on the DNR website. The website also includes an email address for the public to provide feedback.

NSDNR is a member of the Nova Scotia SFI Implementation Committee which has a toll free number through which the public can call with a complaint or inquiry about forest operations in anywhere in Nova Scotia. DNR will be forwarded complaints and inquiries related to operations on Crown Lands and will follow up on all correspondence received.

6.0 Management Plan Revision

NSDNR staff responsible for forest management on SSR/SMB/NM Districts will review progress toward management plan objectives annually in light of results of monitoring, research and other factors affecting forest operations. Changes to the plan will be recorded as amendments annually.

A complete revision of the SSR/SMB/NM District Forest Management Plan will be completed every five years.

7.0 Forest Worker Training

All NSDNR staff, License/ Agreement holders, contractors and their staff involved with forest operations on Medway District require to attend an annual information session to ensure they are knowledgeable on NSDNR policies and SOPs related to protecting the environment, preventing injuries and responding to emergencies.

Annual information sessions are offered to maintain awareness of requirements of operations in Medway District and review changes to policies and SOPs.

GLOSSARY OF TERMS AND ABBREVIATIONS

Age Class: An age interval into which the range of trees, forests, stands, or forest types is divided for classification (NS DNR).

AAC: Annual allowable cut. Harvest level determined to be sustainable over at least 100 years.

ACCDC: Atlantic Canada Conservation Data Centre. An organization with a mission to provide objective data and expertise about species and ecological communities of conservation concern, including species at risk, and undertakes field biological inventories to support conservation related to decision-making, research, and education in Atlantic Canada.

The Assembly of Nova Scotia Mi'kmaq Chiefs: The Assembly consists of the 13 elected Mi'kmaw chiefs and 2 ex officio members, supported by staff and advisors. Two chiefs serve as co-chairs of the Assembly, and most chiefs have responsibilities for specific portfolios (e.g., Fisheries, Mining, Lands, Wildlife, Forestry, etc.). The Assembly plays a significant role in collective decision making for the Mi'kmaq of Nova Scotia, particularly on issues pertaining to Mi'kmaw rights and governance. On behalf of 12 Mi'kmaw communities under the Consultation Terms of Reference (TOR), the Assembly leads negotiations with the provincial and federal governments, and oversees the consultation process. The Assembly meets regularly to deliberate on issues related to consultation with the federal and provincial governments. Sipeknetik First Nation is a member of the Assembly but has chosen to conduct its own consultation process on all matters affecting aboriginal and treaty rights.

Biodiversity: The diversity of plants, animals, and other living organisms, in all their forms and level of organization, including genes, species, eco-systems, and the evolutionary and functional process that links them (NS DNR).

Biomass Harvest: Removal of all material from a forested site including stems, tops, limbs and otherwise non-merchantable trees.

BMPC: Bowater Mersey Paper Company Ltd.

NSDNR: Nova Scotia Department of Natural Resources

Ecoregion: Representation of broad provincial climatic patterns as expressed by the macro-features of vegetation. The second of five levels in the DNR Ecological Land Classification System (NS DNR).

Ecosection: An ecological land unit with a repeating pattern of landform/topography, soils, and vegetation through an eco-district. The fourth of five levels in the DNR Ecological Land Classification System (NS DNR).

Ecosystem: A functional unit consisting of all living organisms (plant, animals, and microbes) in a given area and all the non-living physical and chemical factors of their environment, linked together through nutrient cycling and energy flow (NS DNR).

ELA: Ecological Landscape Analysis: The process of developing a comprehensive description and mapping of ecosystem conditions and functions across the full ecological landscape, including ownership

Even Aged: Stand(s) of trees consisting of one or two age classes. Even-aged stands are often the result of stand initiating disturbance such as fire or a harvest method such as clearcutting or shelterwood.

External Audit: Verification of compliance with the requirements of DNR policies, best management practices, certification standards, and regulations conducted by an accredited registrar.

FEC: Forest Ecosystem Classification

Forest Cover Type: A descriptive term used to group stands of similar characteristics and species composition (due to ecological factors) by which they may be differentiated from other groups of stands (NS DNR).

Forests with Exceptional Conservation Value: sites associated with viable occurrences of critically imperiled and imperiled species and communities

FSC: Forest Stewardship Council

GIS: Geographic Information System

HCVF (High Conservation Value Forest): Forests that possess one or more of the following attributes:

i. Forest areas containing globally, regionally, or nationally significant:
    a. Concentrations of biodiversity values (e.g., endemism, endangered species, refugia; and/or
    b. Large landscape level forests, contained within or containing the management unit, where populations of most (if not all) naturally occurring species exist in the natural patterns of distribution and abundance.
ii. Forest areas that are in or contain rare, threatened, or endangered eco-systems.
iii. Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).
iv. Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic, or religious significance identified in cooperation with such local communities (FSC Maritime Standard).

Internal Audit: Verification of compliance with the requirements of DNR policies, best management practices, certification standards, and regulations conducted under supervision of DNR staff.

IRM (Integrated Resource Management): a decision-making process whereby all resources are identified, assessed and compared before land use or resource management decisions are made.

LEMZ: Landscape Ecological Management Zoning. A landscape design intended to provide for landscape connectivity through establishment of forest conservation reserves, extensively managed forest, intensively managed forest and forest conversion

Management Review: Annual review of progress toward Management Plan objectives.

Mersey Woodlands: Forest lands purchased by the Province of Nova Scotia from Bowater Mersey Paper Company Ltd. in 2011 and 2012.

Mi'kmaq of Nova Scotia: The Indigenous rights-bearing population of Nova Scotia is a single collective, Mi'kmaq Nation of Nova Scotia. The Mi'kmaq of Nova Scotia and their organizations are represented by the Assembly of Nova Scotia Mi'kmaq Chiefs (Assembly).

Plantation: Forest areas lacking most of the principal characteristics and key elements of native ecosystems, as defined by FSC approved national and regional standards of forest stewardship, which result from the human activities of planting, sowing or intensive silvicultural treatments. As the term is used in this standard in the Maritimes, plantations exist when some or all of the following stand characteristics are maintained in a highly altered state or even eliminated:

a) tree species diversity (especially deciduous species and/or other noncommercial species);

b) stand diversity (e.g., patchiness, presence of small openings, variability in tree species diversity, density and/or canopy layers);

c) stand structures and associated habitats resulting from pathogens or physical damage (e.g., forked stems, hollow boles, dead tops);

d) early successional habitats (e.g., berry patches, areas dominated by brush and herbaceous species);

e) presence of mature and old trees; and

f) coarse woody debris.

PSP: Permanent Sample Plot

PTA: Pretreatment Assessment

Seral: Stage of stand succession

SFI: Sustainable Forestry Initiative

Shade-tolerant Species: Plant species that have evolved to grow well in shade. Typically these species grow in the understory, thus shade-tolerant species often dominate a climax forest type (e.g., hemlock, beech, sugar maple) (FSC Maritime Standard).

SOPs (Standard Operating Procedures): Method to be used in performing a specific task

Species at Risk: Legally recognized designation for species at federal and/or provincial levels that reflect varying levels of threats to wildlife populations. The four categories of risk are extirpated, endangered, threatened, and species of concern (NS DNR).

Third Party Audit: Verification of compliance with a forest certification standard conducted by an accredited registrar.

Uneven Aged: A stand(s) of trees consisting of more than two age classes. Uneven-aged stands are often the result of gap disturbance created by wind or selection harvesting.

Watercourse: the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year**.**

Woodstock Forest Development Model: Computer software developed by Remsoft used to calculate and compare the result of forest management alternatives.

REFERENCES

Bowater Mersey paper Company Ltd., 2010. *High Conservation Value Forest Assessment Report for the Medway District*

Bowater Mersey Paper Company Ltd., 2010. *Management Strategies for the Medway District to Restore Features of the Acadian Forest Based on Natural Disturbance Regimes.*

D'Eon, R.G., Watt, W.R., 1994. *A Forest Habitat Suitability Matrix for North Eastern Ontario Technical Manual TM004*

DNR Special Management Practices for Species at Risk

Forest Stewardship Council Canada, 2008. *Certification Standards for Best Forestry Practices in the Maritimes Region FSC-STD-CAN-Maritimes-2008*

Mersey Tobeatic Research Institute (MTRI), 2008. *Species at Risk in Nova Scotia: Identification & Information Guide.*

The Sustainable Forestry Initiative Inc. 2010, *Requirements for the SFI 2010-2014 Program*

Nova Scotia Department of Natural Resources, 2013. *Crown Land Management: A Conceptual Plan for Western Nova Scotia*

Nova Scotia Department of Natural Resources, 2008. *Nova Scotia's Code of Forest Practice: A Framework for the implementation of Sustainable Forest Management. Working Paper FOR 2008-1*

Nova Scotia Department of Natural Resources, 2006. *Ecological Land Classification for Nova Scotia*

Nova Scotia Department of Natural Resources, 2007. *Forest Disturbance Ecology in Nova Scotia*.

Nova Scotia Department of Natural Resources, 2008. *Mapping Nova Scotia's Natural Disturbance Regimes.*

Nova Scotia Department of Natural Resources, 2012. *Nova Scotia's Old Forest Policy Report FOR 2012-4*

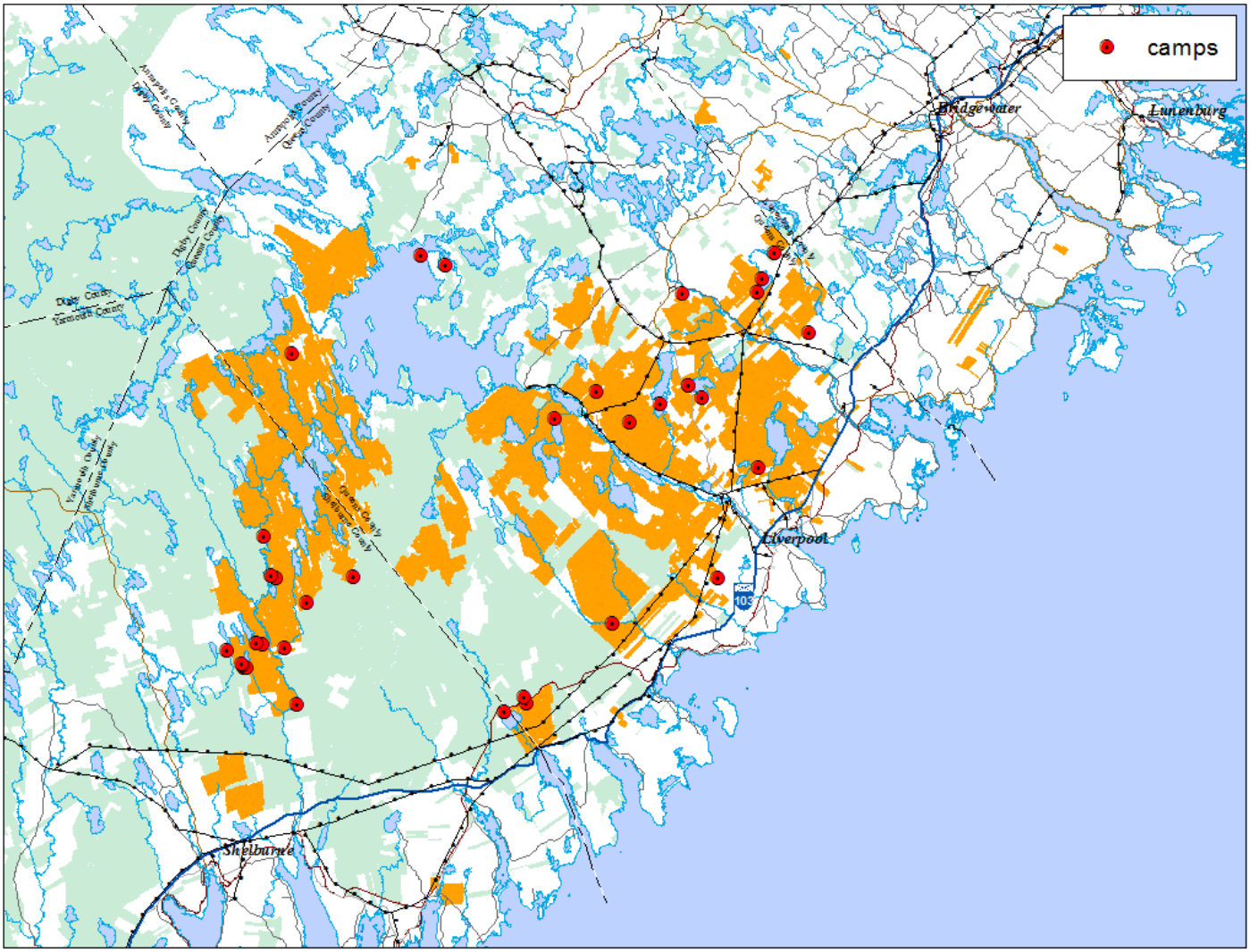
Nova Scotia Department of Natural Resources, 2011. *The Path We Share, A Natural Resources Strategy for Nova Scotia 2011-2020*

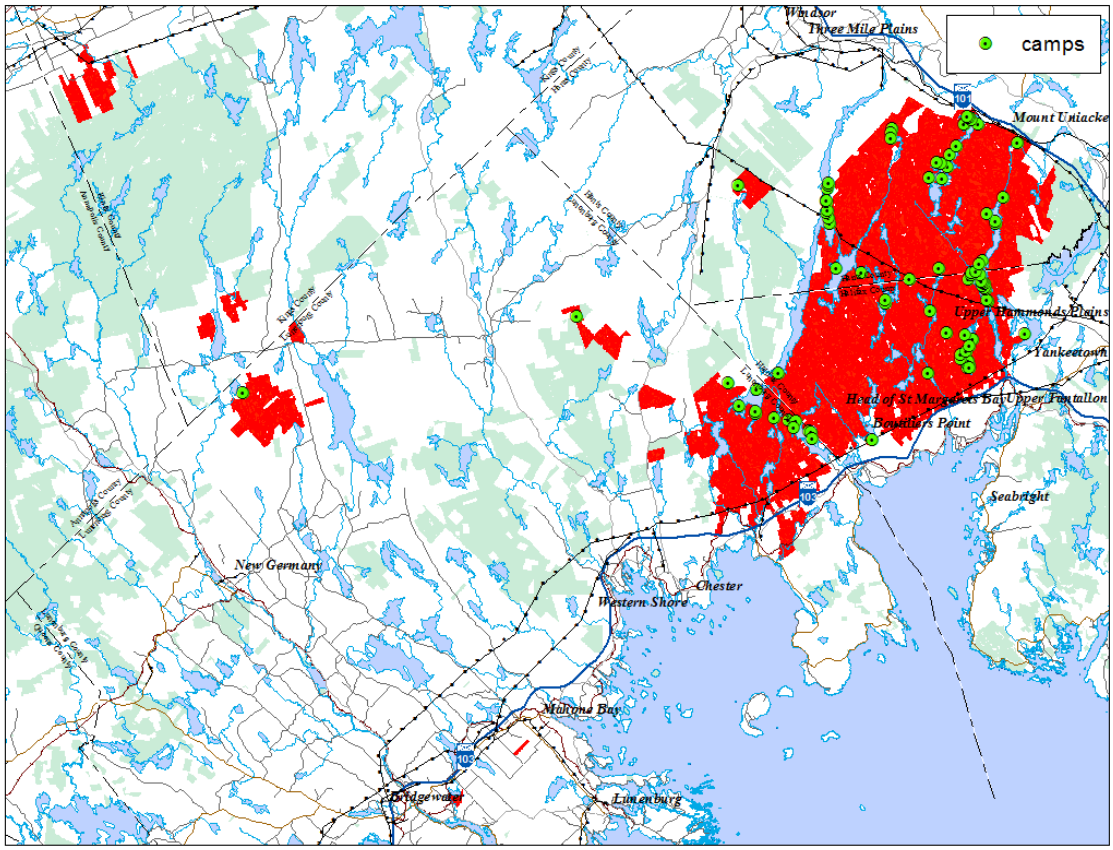
Nova Scotia Department of Natural Resources, 2002. *Wildlife Habitat and Watercourse Protection Regulations*

Nova Scotia Office of Aboriginal Affairs, 2012. *Proponents Guide: The Role of Proponents in Crown Consultation with Mi'kmaq of Nova Scotia*

Terms of Reference for a Mi'kmaq Nova Scotia- Canada Consultation Process

APPENDIX I
Location of Camp Leases in South Shore Rossignol and St. Margaret's Bay Districts




camps
Windsor
Three Mile Plains
Mount Uniacke
Upper Hammonds Plains
Yankeetown
Head of St Margarets Bay
Upper Tantallon
Boutilliers Point
Seabright
New Germany
Chester
Western Shore
Mahone Bay
Bridgewater
Lunenburg

NOVA SCOTIA

MERSEY WOODLANDS FORESTRY POLICY

December 7, 2000, Last Revision: May 13, 2015

The Province of Nova Scotia conducts sustainable forest management on Crown land, including the Mersey Woodlands, under required acts, regulations and policies.

We will:

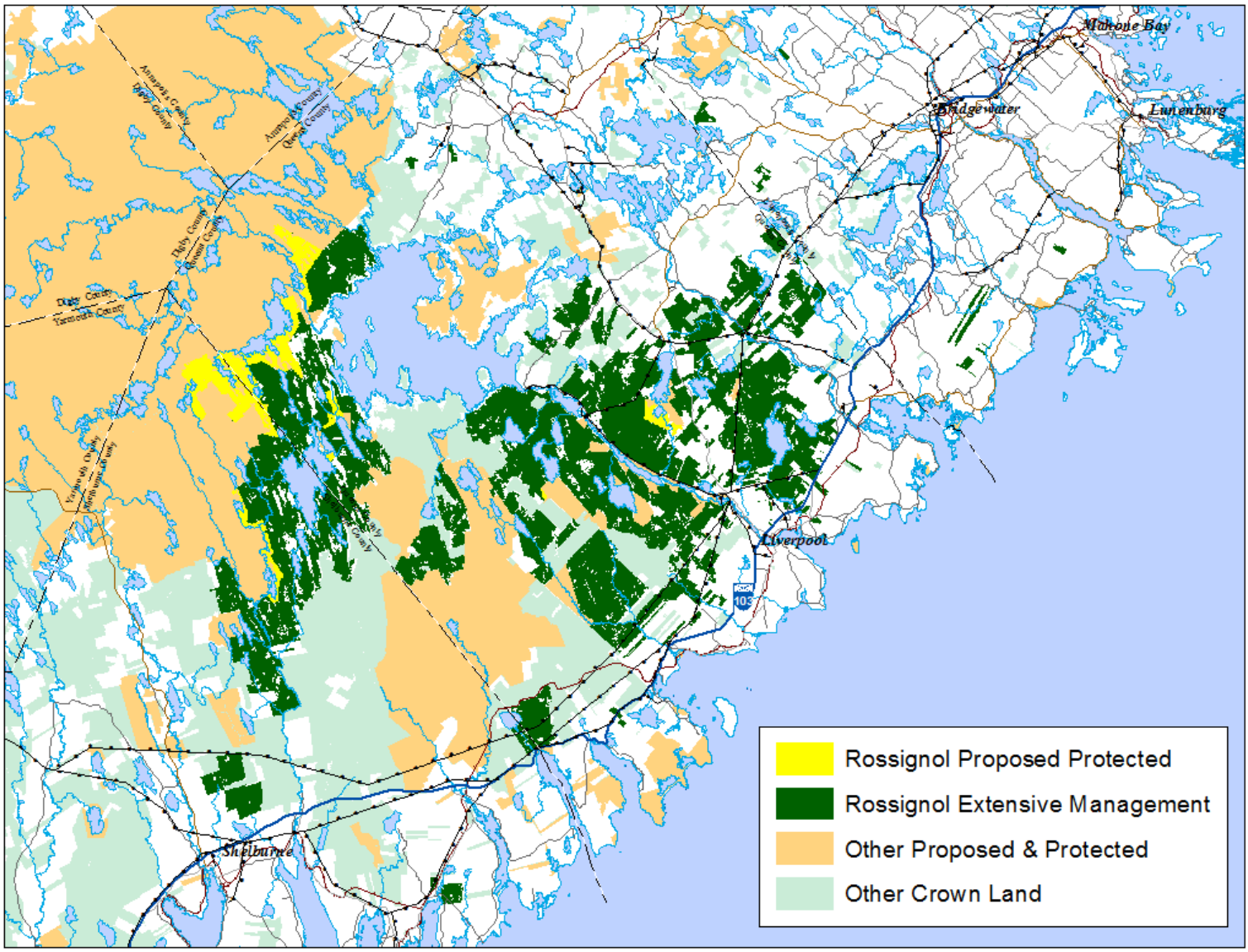
- Comply with environmental legislation, regulations, and associated policies including:
  - Forests Act
  - Crown Lands Act
  - Wildlife Act
  - Endangered Species Act
  - Environment Act
  - **Special Places Protection Act**
  - Natural Resources Strategy 2011-2020
  - Code of Forest Practice and ecosystem based management
  - and other relevant Federal legislation.
- Develop, or have developed by Crown land licensees under provincial approval requirements, forest-management plans that recognize timber and non-timber values, including the conservation of biodiversity, and ecological services.
- Forest management will seek a balance that recognizes and supports public access for recreational purposes such as fishing, hunting, hiking, and off-highway vehicle use
- Seek input and provide feedback for forest-management planning processes from employees, stakeholders and members of the local public.
- Consult and collaborate with Mi'kmaq of Nova Scotia.
- Commit to continuous improvement by directing and supporting research and by using key performance indicators to measure our progress.
- Develop and implement Special Management Practices and Recovery Plans to protect and maintain forest and soil productivity, water bodies and riparian zones, and species of conservation concern.
- Ensure appropriate training of employees and contractors to promote understanding of environmental impacts of their jobs, and to prevent and to respond to environmental emergencies.
- Promote appropriate training of private wood suppliers and encourage the use of qualified consultants and contractors.

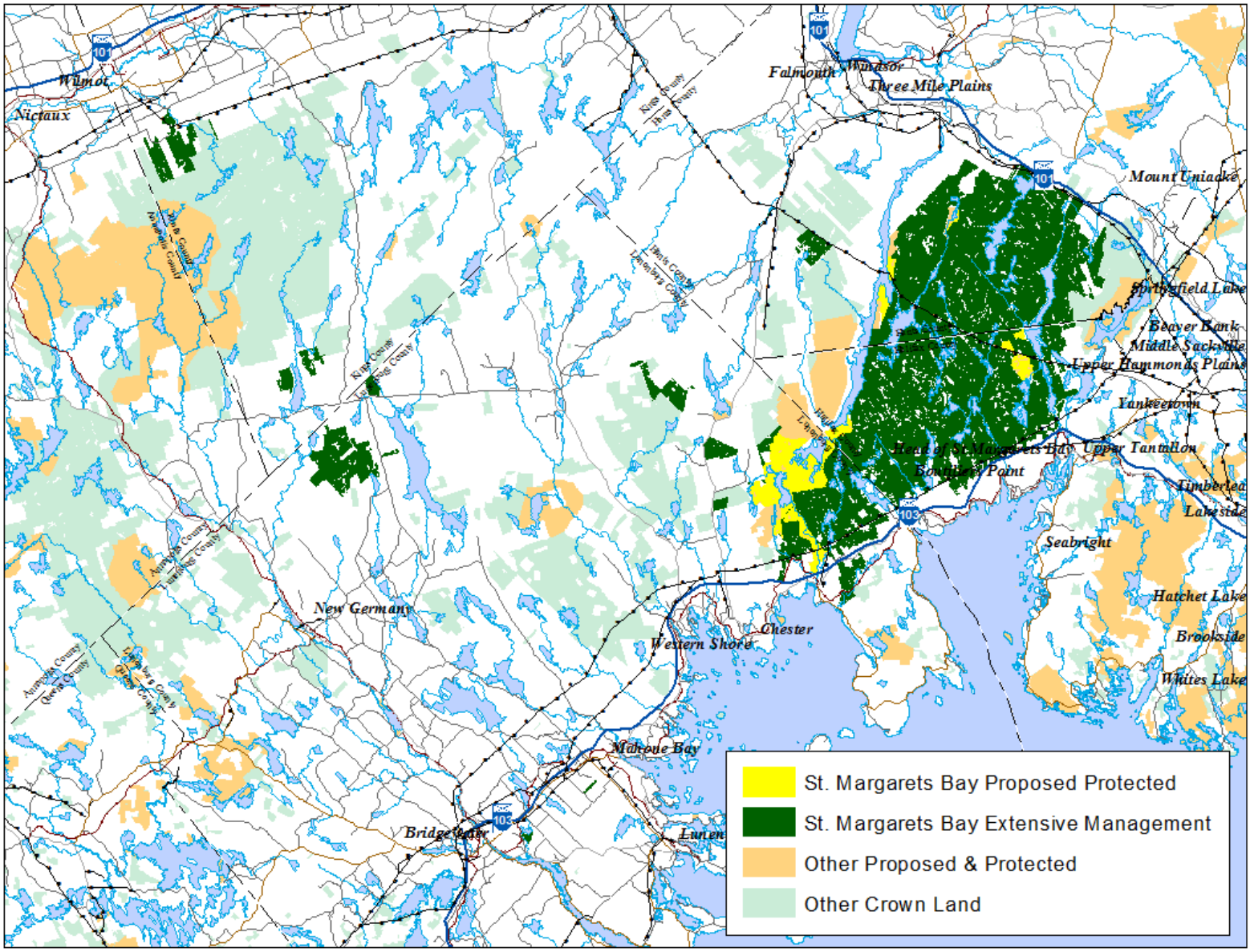
Jonathan Porter

Jon Porter
Executive Director
Renewable Resources Branch
NS Dpt. of Natural Resources

Walter Fanning
Executive Director
Regional Services Branch
NS Dpt. of Natural Resources

Appendix III
Landscape Management Zones




Wilmot
Nictaux
Falmouth
Windsor
Three Mile Plains
Mount Uniacke
Springfield Lake
Beaver Bank
Middle Sackville
Upper Hammonds Plains
Yankeetown
Head of St. Margarets Bay
Upper Tantallon
Boutilier Point
Timberlea
Lakeside
Seabright
Hatchet Lake
Brookside
Whites Lake
New Germany
Chester
Western Shore
Mahone Bay
Bridgewater
Lunenburg
St. Margarets Bay Proposed Protected
St. Margarets Bay Extensive Management
Other Proposed & Protected
Other Crown Land

APPENDIX IV

UNIQUE AREAS PROGRAM

The Unique Areas Program provides guidelines for the conservation of natural areas with unique botanical, zoological, geological, hydrological, cultural, or scenic characteristics.

Mersey Woodlands are managed for a range of timber and non-timber values including the conservation of biodiversity. In order to achieve our non-timber objectives we have identified specific areas and features that warrant special management consideration. The objective of the Unique Areas Program is to ensure the values associated with these areas and features are maintained.

The Unique Areas Program includes four classifications. Depending on the characteristics of an area and measures required to maintain its unique value it can be designated as a Special Management Area or Feature, Protection Area, Conservation Area, or Forest Recreation Area.
Areas on Mersey Woodlands meeting the requirements of the Sustainable Forestry Initiative (SFI) Forests of Exceptional Conservation Value are included in the Unique Areas Program. Areas of Medway District meeting the requirements of the Forest Stewardship Council's (FSC) High Conservation Value Forests are also included.

Special Management Areas

Special Management Areas are associated with attributes or locations that, because of their ecological, social, cultural or geological significance are sensitive to forestry operations and require measures be taken to ensure they are maintained. Examples of special management areas include:

- 1) Old growth forest: **A forest stand where 30% or more of the basal area is in trees 125 years or older, at least half of the basal area is composed of climax species, and total crown closure is a minimum of 30%** (**DNR Old Forest Policy 2012**). Old growth stands that score 80 or higher on the Nova Scotia Department of Natural Resources Old Growth Assessment will be considered for designation as primordial forest. All primordial forest will be managed as Conservation Areas under the Unique Areas Program.
- 3) Known locations of species at risk

Special Management areas are listed in Table 1.

Areas of Mersey Woodlands considered to be Forests of Exceptional Conservation Value as defined by the Requirements of the SFI 2015-2019 Program are considered Special Management Areas and included in Table 2.

Areas within Medway District identified as High Conservation Value Forests (HCVF) as defined by the Forest Stewardship Council's Certification Standards for Best Forestry Practices in the Maritimes Region are considered Special Management Areas.

Special Management Features

Special Management Features are forest attributes or structures that contribute to non-timber objectives. They are not area specific and include snag trees, wildlife clumps and coarse woody debris.

Special Management Areas and Features are part of the forest managed for timber values and have Best Management Practices developed to ensure they are maintained**.**

Conservation, Protection and Recreation Areas are found in Table 3.

Protection Areas

Special Management Areas of such exceptional geological or cultural significance that any forest management activity could jeopardize their unique characteristics may be designated as Protection Areas under Bowater Mersey's Unique Areas Program. They could include areas such as historical sites, archaeological finds, fossil sites, and caves. No forest management activities will be carried out in Protection Areas; however, efforts may be made to protect sites from insect infestation or forest fires.

Conservation Areas

Special management areas of such exceptional ecological value that any forest management activity could jeopardize their unique characteristics may be designated as Conservation Areas. Conservation Areas could include unusual forest types, special wildlife habitat and areas containing rare plants or plant communities. They are dynamic eco-systems that will change over time and will be assessed periodically to ensure that the features that made the areas unique still exist. They may change such that special status is no longer warranted. For example, if a Conservation Area was created to protect a certain species of plant that later becomes extinct on the site, then the status of the area will be reviewed to determine whether the Conservation Area status should be removed or maintained.
As with Protection Areas, no forest management activities, other than those to protect the forest, will be performed on a Conservation Area as long as the Conservation Area designation exists.

Forest Recreation Areas

Areas developed for the purpose of public access and recreation are designated as Forest Recreation Areas.

Identification, Investigation and Designation of Unique Areas

Information on the location of sites on Mersey Woodlands with attributes that may warrant special management consideration may be obtained from the general public, the Mersey Woodlands Forest Advisory Committee, research organizations, government agencies, DNR employees or contractors.

DNR staff and contractors receive training in identification of sites they could encounter that should be considered special management areas or features and the Best Management Practice to be followed to ensure they are maintained.

Table 1. Special Management Areas and Features

Special Management Area	Management Considerations
Riparian Zones	<u>For commercial harvesting:</u> Watercourse >50 cm average width Special management zone: • 20 m special management zone • No vehicles within 7 m unless on an approved crossing • To comply with the buffer zone extension required on slopes along watercourses (provincial regulation) a 1 m addition will be made for every 2 percent increase above 40 percent slope up to a maximum of 60 m Watercourse < 50 cm average width • Leave high stumps • No vehicles within 5 m unless on approved crossing • Do not conduct any activities within 20 m of the edge of a watercourse that would result in sediment being deposited in the watercourse
Land adjacent 100 series highways or designated tourist routes Lands adjacent canoe routes portages and campsites	• Leave variable width special management (no harvest) zones adjacent Highways 1,3, 8, 10, 12, 14 and 101 103 and certain canoe routes • Leave canoe portages and boat entry points brush free after forest operations • A minimum of 30 m buffer will be left along the highway to minimize the visual impact of the harvesting and road construction. • Viewscape will be considered when planning harvest and road construction activity to minimize the visual impact of harvest and road construction from canoe routes.
Old Growth Forests	• Stand with an age <u>≥</u>125 years (<u>≥</u> 100 years in BRLs) will be scheduled for an old forest assessment. Results of the assessment will determine the management considerations
Nesting Sites	• The following buffers will be left in the area surrounding nesting sites:

	• Herons – 200 m • Osprey and Hawks – 100 m • Activities may be limited depending on the time of the year, consult DNR reference material for details • Bald Eagle : Follow DNR Special Management Practices
Wildlife Clumps	In harvest openings greater than 3 ha. • Leave 22 trees per hectare standing and clumped together at no less than 66 trees per clump and no more than 176 trees per clump • These trees need to be of merchantable size and represent the range of height and diameter of trees being cut • One clump – must be between 20-200 m from the edge of the opening • > One clump – cannot be more than 200 m apart and between 20 and 200 m from the edge of the opening • Trees left as a result of harvesting operations will not be disturbed by subsequent silviculture treatments • Clump trees shall not be removed before the next harvest
Snag Trees and Course Woody Debris	In harvest openings greater than 3 ha: • Snags and coarse woody debris must be left on all harvested sites in a manner similar to natural patterns to the fullest extent possible wherever it is safe to do so

Table 2. Special Management Areas "Forests of Exceptional Conservation Value"

G1 and G2 Ranked Species	Location
Long's Bull Rush	Upper Great Brook Ten Mile Lake (2 locations)
Boreal Felt Lichen	Whistler Lake, Wilkins Lake
Ghost Antler	Little Bon Mature Lake

Table 3. Conservation, Protection and Recreation Areas

Designation	Area Type	Unique Area	Year Established	Location	Area	Partnership Protection Agency/Program	Description of Special Features
Conservation Area	Wetland Habitat Enhancement	Armstrong Meadows	1982	Kings County	36 ha	Eastern Habitat Joint Venture Ducks Unlimited	A waterfowl habitat development project on a previously flooded meadow. A weir and fishway were installed to increase wildlife and waterfowl use.
Conservation Area		Walls Brook	1986	Shelburne County	42 ha	Eastern Habitat Joint Venture Ducks Unlimited	Development of a wetland with construction of a dam and fishway.
Conservation Area		Tidney River	2003	Shelburne County	948 ha	Nature Conservancy of Canada Province of Nova Scotia	Contained within the Tidney River Wilderness Area; it contains mixed woodlands and wetlands, which are home to a wide variety of waterfowl and rare Atlantic Coastal Plains Flora.
Conservation Area	Special Site	Head of St. Margaret's Bay	1997	Halifax County	1 ha	Nova Scotia Bird Society	A bank swallow nesting site in a discontinued sawdust pile.
Protection Area	Historical Site	Lohnes Lake	1997	Annapolis County	3 ha	Royal Canadian Legion	The location of a fatal crash site of a WWII mosquito fighter plane.
Forest Recreation	Hiking Trail	Old Annapolis Road Hiking Trail	1975	Halifax County	28 ha	NA	Two trails (2.1 and 2.7 kilometres) following Island Lake and passing through old spruce stands and regenerating forests.